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COLLECTING A WATER SAMPLE

AIM OF PROCEDURE

To Collect a water sample from a bore, windmill, solar (mono) and diesel motor.

EQUIPMENT REQUIRED

- 20 Litre Bucket
- Reel and Bails (2 sized – Larger & Small)
- Beaker
- Funnel
- Cotton Wool
- 2 Bottles & Caps per sample
- Paint Marker

COLLECTING FROM A BORE

Discovering If The Bore Has Water To Collect



1. Drop a marble down the bore. Ensure you LISTEN for a “hitting the water” thud sound.
2. If the bore has water proceed to collect a sample

Collecting a Water Sample Via A Reel and Bail

1. Select the appropriate size bail for the bore hole size.
2. Clip the bail onto the end of the reel cord



3. Lower the bail and LISTEN for when the bail takes water.



4. Note the distance on the cord (there are distance markers every half a metre).
5. Lower the bail for an extra 5 metres.
6. Raise the bail. (Handy Hint, Best to pull up the cord, not roll it up on the reel) as you may need to collect more than one bail).
7. If the bail is not holding the water collection when you pull it up, it is suggested you clean the ball at the end of the bail with distilled water to remove any particles that maybe blocking the seal.

8. If the water is extremely dirty and the bail will not hold water, you may need to tape some cotton wool to the outside of the bail and have patience to let the bail take water as it will be filtering the water as it enters the bail.



9. Refer to step 5 Filtering (Optional), 6 Rinsing, 7 Sampling, and 8 Labelling

COLLECTING FROM A WINDMILL, SOLAR, DIESEL MOTOR



A closed bore will be connected to a windmill, solar system and/or diesel motor. Depending on the system, the diesel motor or solar system may have to be started or you may be lucky that the windmill is turning. Therefore a water sample will have to be collected via one of the options – the pipes leading to a tank, or disconnect the pipes at a junction.

Ensure The Sample Is “FRESH”

1. Flowing water is essential.
2. NOT from a tank.
3. If a system was started, please let water flow for a period of time to ensure the sample is “FRESH” – to ensure the water has not been sitting in the pipes.

COLLECTING A WATER SAMPLE INTO A BUCKET



1. Rinse the bucket with the collection water and dispose of water.
2. Collect a sample of approximately 5-8 litres.

Filtering (Option)

1. If the collection water is dirty, the water sample will require filtering.
2. Place a section of cotton wool in the funnel and pour the water into a bottle/beaker via the funnel.



Rinsing

1. All beakers, bottles and funnels need to be rinsed with the sample water.
2. Pour the sample water from the bucket into the beaker.
3. Rotate the beaker on an angle and swirl the sample to rinse the sides of the beaker.



4. Pour the rinse from the beaker into a bottle via the funnel. Get the water to rinse all areas of the funnel.



5. Remove the funnel from the bottle, place the cap on the bottle and shake the bottle.
6. Place the funnel in the second bottle, pour the rinse water into the bottle and repeat.
7. Dispose of the rinse water.

Sample

1. Fill up the rinsed beaker; this will be used for testing the sample.
2. Fill up the rinsed bottles; two bottles are required per sample.

Labelling

1. Each sample has an individual number.
2. Write this number on the bottles using a paint maker – approximately 4 times on the outside, on the base, on the cap and an area on top of the bottle.



Control Samples

1. Every ten (10) samples collected, collect a duplicate sample in separate bottles and label as another individual number.

PACKING AND SENDING WATER SAMPLES

AIM OF PROCEDURE

To pack and send water samples collected to the appropriate laboratories via Australia Post.

EQUIPMENT REQUIRED

- Labelled Water Sample Bottles.
- Laboratory Sheets.
- Bubble Wrap.
- Sticky Tape
- Scissors
- Cotton Wool
- Shredded Paper
- Australia Post Order Book
- Post Pak Mailing/Storage Box – BW (ideal for approximately 20-23 bottles per box)

Packing

2. Sort the labelled water sample bottles. As there were 2 bottles collected per sample – sort the bottles so that 1 sample is sent to each laboratory.

Handy Hint: Generally if there are smaller bottles, sort these bottles together.

3. Wrap each individual bottle with bubble wrap

- Roll out the bubble wrap, cut the appropriate length.



- Wrap the bubble wrap around the bottle and tape around the top and bottom of the bottle.



4. Line the bottom of the Post Pak Box with cotton wool
5. Place the wrapped bottles in the box.



6. Once all the bottles are placed in the box – fill the remaining space with extra cotton wool and shredded paper.
7. Fill the top of the box with more shredded paper



8. Place the Laboratory Sheets in the box.

Handy Hint: As mentioned earlier, if small bottled were used please send these to Angela Giblin.

Seek the assistance of Australia Post to send the boxes. Express Post is preferable.

RECORDING A WATER SAMPLE

AIM OF PROCEDURE

To record the appropriate information of a water sample collected from a bore or drill hole.

EQUIPMENT REQUIRED

- Notebook & pen
- GPS

Recording

- I. The require information to record may be from Standard Operating Procedures “Collecting a Water Sample” and “Testing a Water Sample”.

Information You Will Require

Date:

Location (Bore Name):

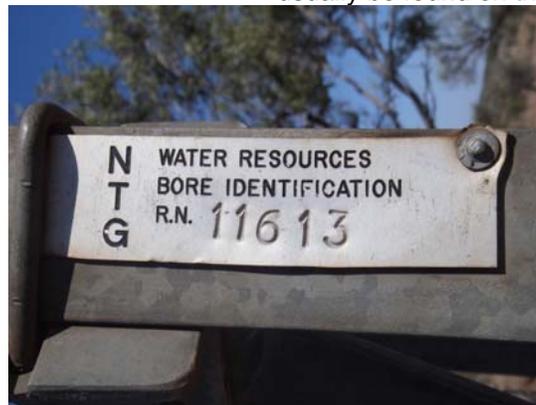
Depth of Water Table:

Depth of Sample:

Bore ID:

From procedure “Collecting a Water Sample”
Please note if from a Windmill or Motor – you will not be able to record the depth.

Each bore has a registered unique ID – this can usually be found on the bore or windmill.



Sample Number:
each sample.

GPS Coordinates:

Elevation:

pH:

mV:

Temp:

Cond:

Iron:

eH:

The individual sample number you assign to

Refer to the GPS for coordinates.

Refer to the GPS for elevation.

Refer to procedure “Testing a Water Sample”

Calculated

Other Comments:

Other appropriate comments should be recorded such as odour, colour of water sample, whether it required filtering etc.

TESTING A WATER SAMPLE

AIM OF PROCEDURE

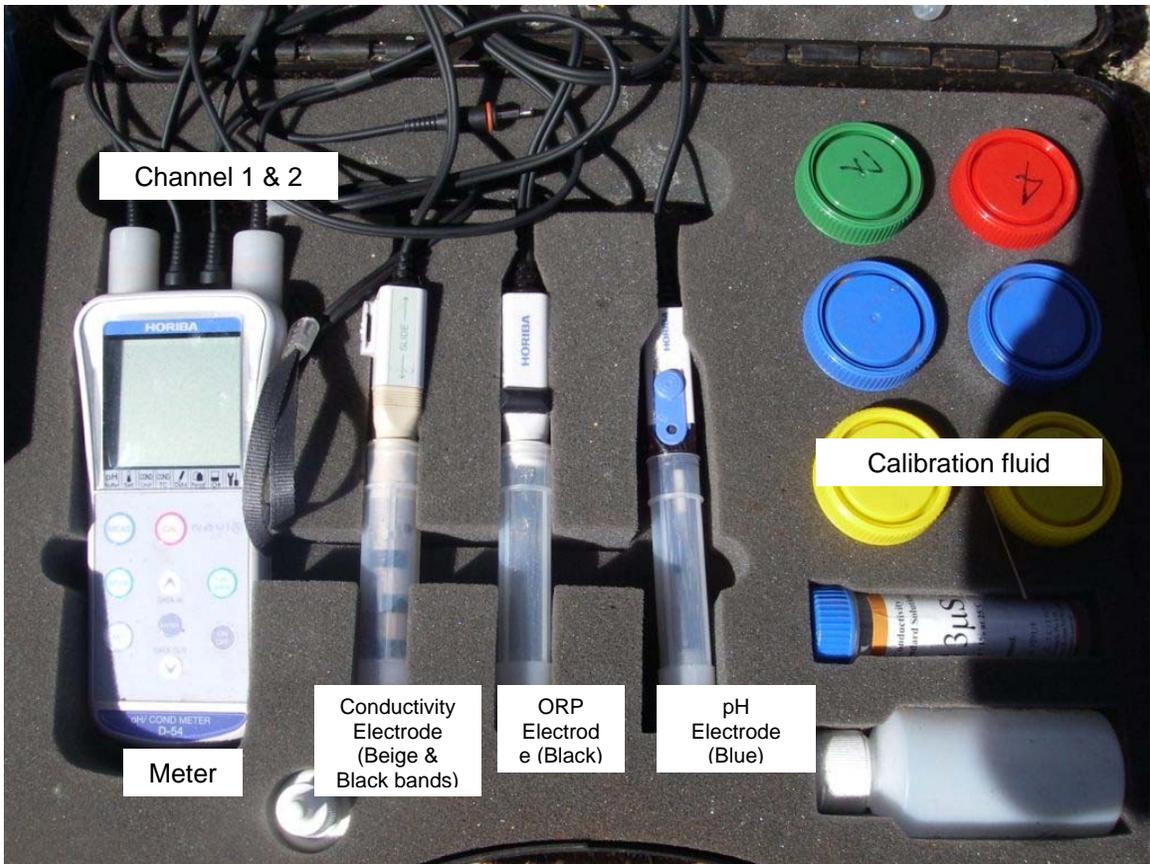
To test a water sample collected from a bore or drill hole for pH, eH, conductivity and iron.

EQUIPMENT REQUIRED

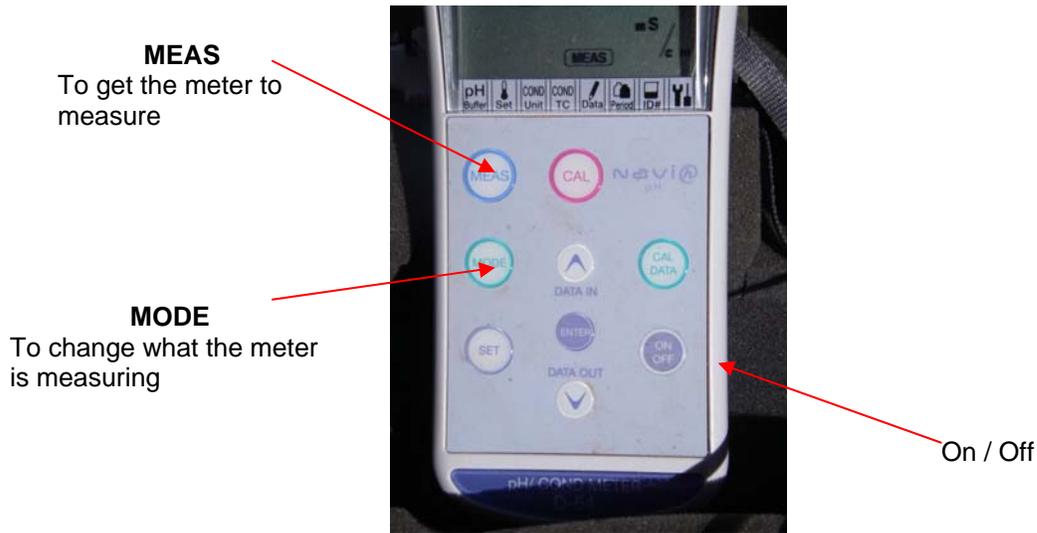
- Horiba Water Testing Kit
- Bottle of Distilled Water
- Beaker filled with water sample
- Tissues
- Iron testing kit
- Notebook & pen
- Rubbish bag

HORIBA WATER TESTING KIT

To become familiar with the Horiba Water Testing Kit term that will be used in this procedure and what is being referred to, please take some time to refer to the following picture and references.

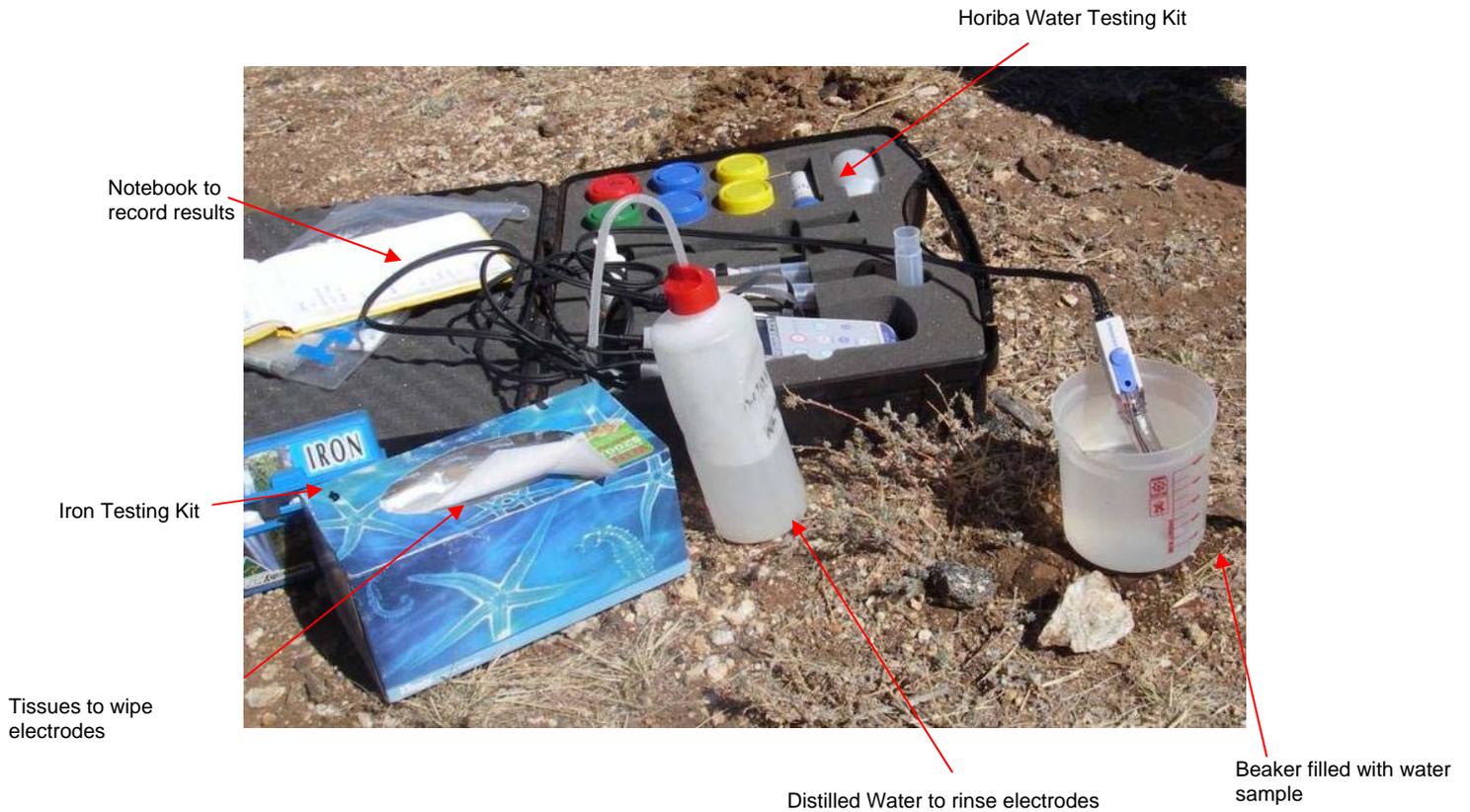


More detailed view of the Horiba Meter.



Note: Calibrate the Horiba Water Testing Kit daily – refer to the manual for the calibration procedure.

2. After rinsing the beaker, collect a full beaker as a sample for the testing procedure.
3. Set up the required equipment, so everything is at hands reach while completing the testing procedure.



4. Turn the Horiba Meter On, by pushing the On/Off button on the meter.

TESTING THE SAMPLES

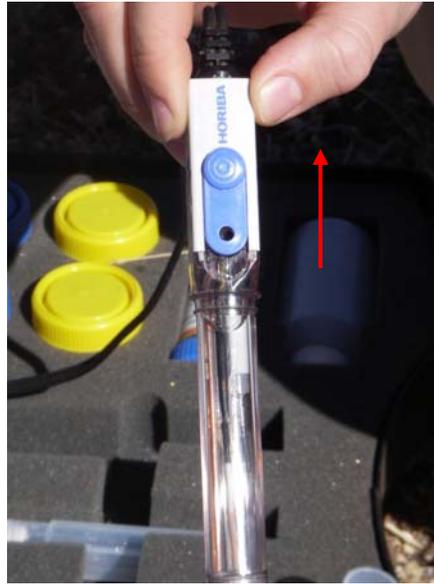
Testing pH (First Test)

5. Plug in the pH electrode, both plugs, into Channel I on the meter.



6. Ensure the Mode is on pH – this will be displayed on the screen of the meter.
7. Remove the electrode out of the cap.

- Slide the blue cap upwards – this is the ON position



Slide the Blue Cap Upwards to turn the pH electrode ON

- Rinse the electrode with distilled water



10. Pat the electrode dry with a tissue.



11. Place the electrode in the beaker of water sample.

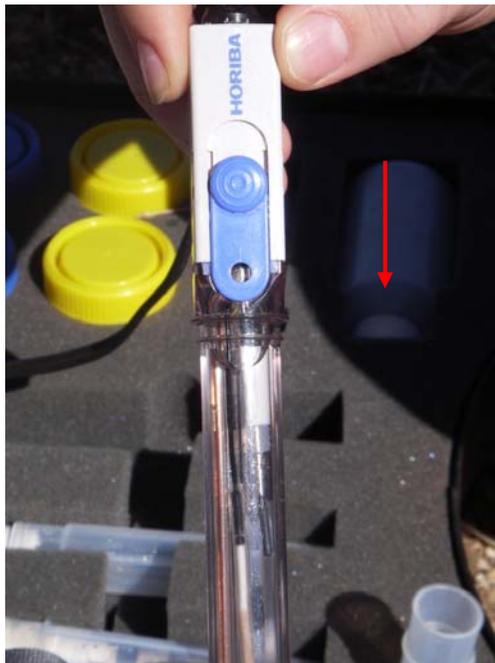
12. Push the MEAS button on the meter

- A “HOLD” icon will flash on the meter – while the meter is measuring the sample.
- The “HOLD” icon will stop flashing and stay on when the meter has measured the sample.

13. Record the pH result and the temperature in the notebook.

14. Remove the electrode from the beaker.

15. Slide the blue cap downwards – this is the OFF position



Slide the Blue Cap Downwards to turn the pH electrode OFF

16. Rinse the electrode with distilled water.

17. Pat the electrode dry with a tissue.

18. Replace the cap on the electrode.

19. Replace the electrode back into the kit.
20. Remove the plugs from Channel I in the meter.

Testing ORP (Second Test)

21. Plug in the ORP electrode, both plugs, into Channel I on the meter.



22. Press MODE on the meter and ensure mV is displayed on the screen of the meter..

23. Remove the electrode out of the cap.

24. Open the black cap.



25. Rinse the electrode with distilled water.



26. Pat the electrode dry with a tissue.



27. Place the electrode in the beaker of water sample.

28. Push MEAS button on the meter.

- A “HOLD” icon will flash on the meter – while the meter is measuring the sample.
- The “HOLD” icon will stop flashing and stay on when meter has measured the sample.

29. Record the mV result in the notebook.

30. Remove the electrode from the beaker.

31. Push the black cap closed.

32. Rinse the electrode with distilled water.

33. Pat the electrode dry with a tissue.

34. Replace the cap on the electrode.

35. Replace the electrode back into the kit.

36. Remove the plugs from Channel I on the meter.

Testing Conductivity (Third Test)

Note: The Conductivity Electrode should ALWAYS be stored in distilled water. SO ensure there is a small amount of distilled water in the cap

37. Plug in the Conductivity electrode, both plugs, into Channel 2 on the meter.



38. Press MODE on the meter and ensure COND is displayed on the screen of the meter.

39. Remove the electrode out of the cap.

40. Rinse the electrode with distilled water.



41. Place the electrode in the beaker of water sample.

42. Pus MEAS button on the meter.

- A “HOLD” icon will flash on the meter – while the meter is measuring the sample.
- The “HOLD” icon will stop flashing and stay on when the meter has measured the sample.

43. Record the COD result in the notebook.

44. Remove the electrode from the beaker.

45. Rinse the electrode with distilled water.

46. Replace the electrode back into the kit.
47. Remove the plugs from Channel 2 in the meter.

Testing Iron (Fourth Test)

Note: The kit contains reagent A & B, a sample bottle and an iron estimate chart.

48. Rinse the sample bottle with the sample water.
49. Dispose of the rinse.
50. Fill the sample bottle with sample water to the 5ml mark.
51. Add 3 drops of Reagent A.
52. Add 3 drips of Reagent B.



53. Shake the sample bottle, to ensure both reagents can react with the sample water.
54. Leave the sample for approximately 3-5 minutes.
55. Assess the sample using the "Iron Estimate Chart".



56. Estimate the amount of iron in the sample water and record in the notebook.