Determining stratigraphic unit



On 26 January 2020, updated regulations came into effect for the Victorian quarrying (extractive) industry. The *Mineral Resources* (*Sustainable Development*) (*Extractive Industries*) *Regulations 2019* introduced changes to annual reporting requirements for all Victorian extractive industry work authorities.

The new requirements apply to all annual reports submitted by work authorities from the 2020–21 financial year onward. For more information on the new regulations, visit **earthresources.vic.gov.au/extractivesregs**.

Guidance materials have been developed to explain the new reporting requirements and to assist the extractive industry in adjusting to the changes.

This fact sheet provides a brief outline of how to determine the stratigraphic unit for a quarry.

What is a stratigraphic unit?

A stratigraphic (or geological) unit is a discrete, large-scale body of rock (or sand), defined by its origin, age, physical characteristics, or any combination of these. They are one of the fundamental designations that geologists use when classifying and studying the Earth, particularly at scales larger than a single outcrop. Stratigraphic units must be geologically mapped and formally recognised. They are not just a general rock or stone type, such as 'granite' or 'sand' or 'basalt', but a specific, named and mapped rock occurrence, such as the 'Tynong Granite', 'Loxton Sand' or 'Newer Volcanic Group Basalt'.

Knowing the stratigraphic unit that is being extracted provides benefits to work authorities and the Victorian Government. For example, this information might:

- provide evidence that other occurrences of the same rock are also viable for extraction
- emphasise the value of the rock where no alternative occurrence exists nearby
- help to identify potential for additional quarry product types.

How to determine the stratigraphic unit

It is recommended that all work authorities start by checking their work plan for any information relating to their stratigraphic unit (this has been a required component of work plans for some time). Work plan variations or any other core documents (reports, appraisals, feasibility studies) are also good starting points.

Another helpful resource is the list of suggested stratigraphic units prepared by the Geological Survey of Victoria. This matches Victorian Local Government Areas (LGAs) and the stratigraphic units deemed likely to be sources of quarry production within each LGA. This can be used as a crosschecking tool, in combination with the GeoVic method described below.



Work authorities are also encouraged to determine the mapped stratigraphic units at their site using GeoVic, the Geological Survey of Victoria's free online geological mapping tool. Click on GeoVic under 'Useful Tools' on the Victorian Government's Earth Resources page (or use the link earthresources.vic.gov. au/geology-exploration/ mapsreports-data/geovic).

You will be prompted to launch the GeoVic tool anonymously or as a registered user. You don't have to register, as both versions are free and provide the mapped stratigraphic units.

Using the GeoVic tool

GeoVic provides a map of Victoria with several options at the top and to the left of the map. At the top of the screen is a toolbar that enables you to zoom in and out (magnifying glass icons), move the map (hand icon), identify objects (blue 'i' icon), and obtain other details (hovering over each icon will identify its function).

On the left is a panel where you can add layers to view work authorities and stratigraphic units. To add a layer, click on the green plus (+) icon, then click on the plus next to 'Tenements' to expand the folder, then click on the plus next to 'Extractives' to expand that folder, and finally click on the box to tick 'Current Extractive Industry Work Authorities'. Then click 'Apply' at the bottom of the window. This will display all current work authorities in Victoria.

Next, again on the panel to the left, click on the green plus icon. Click on the plus next to 'Geology' to expand the folder, then click on the plus next to 'Interpretations' to expand that folder, then click on the plus next to 'Surface Geology (Seamless Geology 2007-2014)' to expand that folder, then click on the plus next to 'Geology 250K Seamless' to expand that folder, and finally click on the box to tick 'Geological Unit 250K'. Then click 'Apply' at the bottom of the window. This will display a colourful map of stratigraphic (or geological) units.

To find the name of the mapped geological unit for a specific work authority, pan around and zoom in to the relevant work authority. Next, click on the drop-down menu of the blue 'i' icon in the toolbar at the top of the screen and select 'Visible Layers'. This sets the blue 'i' icon to identify any visible layers on the screen.

Click the blue 'i' button (it should appear selected once you have clicked on it) and then click anywhere within the work authority you would like to investigate. This will open a window titled 'Drill Identify'. Click on 'Geological Unit 250K' at the left side of the 'Drill Identify' window to see the name of the mapped stratigraphic unit for this location, which will confirm the stratigraphic unit of stone the work authority is producing from and needs to report (see Figure 1).

The stratigraphic unit, once established, will likely remain the same for all future annual report submissions by a work authority.



Figure 1: Identification of a work authority's stratigraphic unit using the GeoVic tool.

Further information

For more information on the new reporting requirements, contact Earth Resources Regulation: Email: **errfeedback@ecodev.vic.gov.au** Phone: 1300 366 356 Web: **earthresources.vic.gov.au/extractivesreporting**



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