

Groundwater Resource Report Tool Update

The Groundwater Resource Report tool is a customised mapping tool that enables land owners and other groundwater users to locate aquifer informaiton for any acquifer in Victoria.



Department of Environment, Land, Water and Planning Groundwater Reporting Tool

Your groundwater report is ready Groundwater Report Download <u>PDF</u>

This tool is public facing and supports land owners in identifying suitable bore locations to access groundwater from aquifers legally, approving permits and licensing, and controlling water use with a groundwater resource report output designed in line with Departmental standards.

Spatial Vision designed and developed the original version of this tool some years ago. This time, the Water and Catchments division of DELWP engaged Spatial Vision to redevelop the report and supporting aquifer dataset. A key objective of the project was move the quifer data and report to the department's enterprise MapShare environment to improve the ease of support and maintenance.

Using ArcGIS Enterprise and advanced Geocortex Essentials capabilities, Spatial Vision redeveloped the report which displays key data for the aquifers underlying a selected location in an easily accessible, detailed document. Advanced Geocortex scripting was used create a dynamic and high quality report, wihle ArcGIS Python geo-processing was used to transform the source aquifer data into a highly efficient reporting structure, enabling sub-second report generation.

Customer Profile

www.water.vic.gov.au/groundwater/ groundwater-resource-reports

Company

VIC DELWP - Water and Catchments

Location Victoria

Industry Water Resources/Policy

Product Groundwater Resource Reporting Tool

Solution

The previous custom developed report was redeveloped using the Department's enterprise MapShare environment.

An automated geo-process was developed to process large volumes of aquifer data into a highly efficient GIS dataset that enabled reports to be generated in less than a second rather than minutes.

Benefits

- Provides fast access to aquifer location, depth and water quality information, presented clearly and simply
- Implemented in DELWP's enterprise environment ensuring ongoing ease of maintenance and support

Groundwater Resource Report Tool Update - Spatial Vision



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Groundwater plays an important role in crop irrigation and natural ecosystems. It also helps sustain communities where surface water is unavailable or supply is insecure. However, if groundwater is drawn too swiftly, the aquifers won't recharge. For this reason, monitoring of groundwater levels is crucial, and a thorough legal process including licensing is undertaken to ensure sustainable extraction.

To further protect this finite resource, DELWP required the redevelopment of their groundwater resource reports to assist land owners in identifying suitable legal bore locations. Spatial Vision had to restructure a complex aquifer dataset to support a high quality, fast to access report that would provide potential groundwater users with detailed information about groundwater beneath their property.

The Solution

The project required Spatial Vision to redevelop an existing tool, re-writing the back-end from custom developed code to instead use DELWP's enterprise MapShare environment, based on ArcGIS Enterprise and Geocortex essentials.

The first challenge was to develop a data model for the aquifer data which would allow it to be queried very quickly – the source aquifer data comprises many statewide grid datasets. A "publication" spatial data model was designed and a geo-processing task developed to transform the source data into the publication data model. The geo-processing task was packaged and documented and a handover to DELWP staff done so that they could execute and manage the process in the future as the source aquifer data changed.

The groundwater resource report itself was redeveloped using the Geocortex Essentials reporting capability. A simple Geocortex site was created which integrated with the publication aquifer data via an ArcGIS map service. The Geocortex site was for development purposes only - the groundwater resource report is accessed via a simple Vicmap API map on the DELWP web site and this user interface was not changed in this upgrade.

Our advanced scripting and data processing helps land owners and government engage in best practice for groundwater use. To learn more, <u>get</u> in touch. The groundwater resource report is highly dynamic in nature, due to the variable number of aquifers and aquitards that exist at any given location. In order to deliver the required format and design, the Geocortex report was customised using a Geocortex workflow and report scripting.

Spatial Vision then worked with DELWP technical staff to deploy the new report service into the enterprise MapShare environment and the report was integrated with the existing Vicmap API interface via the Geocortex REST interface.

The Benefits

- Promotes sustainable groundwater management with controlled water use
- Provides accurate location, depth and water quality information to ensure land owners can access and use water efficiently, safely and cost-effectively
- Fast, high performance tool for improved user experience
- Advanced scripting to produce dynamic tool beyond typical limits of Geocortex
- Informs users of permissible consumptive volumes (PCVs) for specific catchment units
- Promotes legal access to water with permit and licensing information

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