

An invitation

Have you ever wondered what lies beneath the earth's surface, what the rocks look like, and how they differ? We invite you to visit the Kentucky Geological Survey (KGS) Well Sample and Core Library and explore Kentucky's subsurface. A wealth of information awaits you! You can see what rocks look like at depths in excess of 16,000 feet, and hold in your hand core that is 1.9 billion years old.

You can examine well samples and cores from exploratory drilling for oil, natural gas, coal, lignite, tar sand, black shale, lead, zinc, fluorspar, and limestone. You can use this first-class facility in conjunction with field trips. You can participate in workshops to learn how to describe and study cuttings and cores, while gaining hands-on experience and a better understanding of the subsurface.

A library of rocks

Although many tools are available for exploration geologists and researchers, rock samples and cores provide the greatest single source of information about the nature and occurrence of rocks beneath the earth's surface. Well cores and rock samples provide essential information for understanding groundwater resources and related environmental issues.

Researchers, consultants, students, and government and industrial geologists use these materials in the study of stratigraphy, sedimentology, paleontology, geochemistry, structure, subsurface mapping, economics, and geologic reconstruction. The benefits are timeless. As new geological and engineering concepts evolve, and as new analytical techniques are developed, there is a constant need to re-examine well core and rock samples.

History

Well core and rock samples were first collected during the 1920's and stored at the Survey's offices located at the University of Kentucky campus in Lexington. A disastrous fire in 1948 destroyed many of the Survey's records. During the next 50 years, the Library was housed at five different locations in Lexington. During a flood in 1992, there was more than \$400,000 in damage to the repository of boxed core and well cuttings.

As the collection was expanded in size, the storage space increased from 1,172 square feet in the early 1950's to 48,000 square feet in 1998. The current facility was completed in January 1998.

Legislative mandate

By legislative mandate, KGS is designated as the official repository for oil and gas drilling records and well samples (Kentucky Revised Statute 353). The Oil and Gas Conservation law of 1960 required that samples of rock cuttings from selected oil and gas test wells drilled in Kentucky be archived. The Survey has also made a concerted effort to collect valuable cores and samples from other exploratory activities, including those for coal and industrial minerals.

Cores are donated by private companies or obtained from KGS and other research projects. KGS geologists, who review drilling permits, request samples from specific wells drilled for oil and gas. The ultimate goal is to obtain a representative set of well samples for each Carter Coordinate section in the State. A Carter Coordinate section equals approximately 1 square mile.



Well Sample and Core Library



Shelves of boxed core stored at the Well Sample and Core Library.



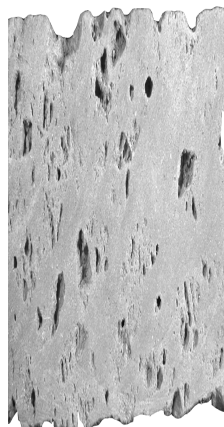
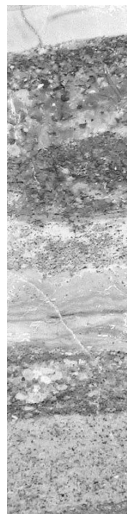
Well Sample and Core Library staff examine core samples

Preserving a treasure

A central repository provides geologists, researchers, and students ease of access to well samples and cores from across the state at a single location, and saves them time and money. Without this library, private companies would have to provide storage at their own expense, and most companies discard a great deal of core after its initial use. Obtaining well samples and cores is expensive, and drilling new holes each time additional information is needed is inefficient.

Oil and gas operators deliver well samples directly to the library or to nine collection stations across the state. The library currently houses more than 22,000 sets of well samples from 120 counties, 3,000 sets of cores from 95 counties, and 1,000 sets of auger holes from 11 counties. At today's cost, the value of these cores and well samples, which are irreplaceable, is conservatively estimated at \$585 million. New material representing hundreds of thousands of feet of drilling is added to the library annually.

The KGS Well Sample and Core Library is the fifth largest such facility in the Nation.



Left: Paleontology. Center: Stratigraphy. Right: Sedimentology.

Retrieval of samples and cores

There are several ways to retrieve samples and cores. A computerized catalog of well information by county is available. Well information is arranged for each county by farm name (alphabetically) and by Carter coordinate location. Well information is also logged in a well record book. Boxes are labeled with call number, county, location, operator, well number, farm name, permit number, footage interval, and box number. Up-to-date maps show the deepest formation for which samples are available in each section of each county. KGS Information Circular 3 (1980), "Catalog of Well Samples, Cores, and Auger Samples on File at the Kentucky Geological Survey," is available from the KGS Publication Sales office by calling 1.877.778.7827. An online searchable database of well core and sample records is currently under construction for the KGS Web

site.

All samples and cores, other than those that are confidential, are open for public inspection at the library, from 8:00 A.M. to 12:00 noon and 1:00 P.M. to 4:30 P.M., Monday through Friday, except on holidays. Samples that are confidential remain so for 1 year.

Sampling of cuttings and cores is permitted, if the sample is large enough. A copy of the thesis or report for which the samples are required must be submitted to the Well Sample and Core Library at the time the thesis is defended or the report is completed. All materials not destroyed must be returned to the library.

The photographs below and to the right illustrate different rock characteristics revealed in core.

Directions

Exit from Interstate 75 at the Kentucky Horse Park (exit 120), turn east on Iron Works Road (Ky. 1973), go 1.5 miles to Research Park Drive, turn right, and follow the KGS signs a distance of 0.4 mile to the library. Or, exit from Interstate 75/Interstate 64 at exit 115, turn north on Newtown Road (Ky. 922), go 2.2 miles to Iron Works Road (Ky. 1973), turn left at the flashing light, travel 1.2 miles to Research Park Drive, turn left, and follow the KGS signs a distance of 0.4 mile to the library.

The library has free parking, pleasant working conditions, and spacious examination rooms.



Left: Mineralogy. Right: Structure.

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Visit the KGS online catalog of publications at www.uky.edu/kgs/pubs/lop.htm

Publication Sales office: 859.257.3896 or 1.877.778.7827

For more information about the KGS Well Sample and Core Library, contact the Manager, Patrick Gooding, 859.389.8810, or by e-mail at gooding@kgs.mm.uky.edu.