

# Drill-hole and Sample Management for Exploration and Mining

GeoSequel<sup>®</sup> was developed by RESPEC<sup>®</sup> for managing drill holes, drill hole samples, channel samples, geochemical samples, blast holes, and monitor wells; all the data you generate in exploration and mining. It protects your investment in the exploration and development of resources and reserves. It moves you away from easily corrupted spreadsheets and single user databases so that you can quit wasting time searching for the latest version of data. There will be one, accurate, non-corrupted version of the truth: the one stored securely in GeoSequel<sup>®</sup>.

In addition, we have also added GeoSequel<sup>®</sup> LabTools for on-site laboratories. The laboratory at the mine site no longer requires a separate and expensive laboratory information management system (LIMS) application. LabTools was designed from the perspective of laboratory supervisors and technicians. It can accommodate any sample or analysis type, features full transmittal functionality and the built-in capability to buffer between finalized laboratory results and operations personnel, including environmental managers.



#### SAMPLES ARE THE FOUNDATION OF YOUR MINE.

#### Protect the investment and protect your time.

GeoSequel<sup>®</sup> allows you to be confident that you are using the one, true version of your data.

		Managing data	in easily corrupted	d spreadsheets
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- » Managing data in single-user databases
- » Wasting time chasing data
- » Being uncertain if you are using the correct data
- » Being completely dependent on one person for all database administration
- » Spending more than you need to for sample data management applications.

# CONTINUE

- » Being confident that you are using the one, true version of the data
- » Extracting data for modeling or reporting from the original certified analyses
- » Quickly validating data through dashboards
- » Using reports where flagged samples are hyper-linked and quickly checked
- » Facilitating grade control
- » Facilitating reconciliation



#### SAMPLE OBJECTS

Consistency in sample objects makes learning easy.

There is consistency for adding, generating, copying, cloning, and exporting any of these sample types. There is consistency for handling sample numbers and generating transmittals. After you learn how to handle one sample object, you can easily learn the other sample objects.

The Collar object type has extensive functionality for logging core and cuttings, including lithology, alteration, structure, and other geotechnical data. Logging can be completed through the web browser interface or the standalone application called GeoSequel® Logger.

## **6 MAJOR SAMPLING OBJECTS**



Collar for core holes, RC holes, etc.

**SAMPLE GROUP** 

Sample Group covers any type of point samples (i.e., rock chip, soil, and stream sediment samples)



#### **BLAST HOLE**

Blast Hole for any type of sample collected related to blast preparation

#### MONITOR

Monitor for water, air quality, sound samples in addition to ground movement monitor data

#### **CHANNEL**

Channel (including panel sampling) for underground grade control sampling

TRACK

Track for samples collected any where in the process stream



#### THE DESIGN OF GEOSEQUEL®

#### Exceptionally disciplined and relentlessly logical.

The design of GeoSequel<sup>®</sup> is exceptionally disciplined and relentlessly logical. It follows real-world work flows—work flows that are used by experienced geologists, mine engineers, and environmental compliance professionals; work flows used in exploration, open-pit mining, and underground mining; and work flows used in resource estimation, grade control and reconciliation.

This type of design allowed us to set up a series of work-flow buttons. Even experienced users refer to these steps to complete frequent tasks.





### GREATER FLEXIBILITY **WITH TABLET APPS**



**GeoSequel® LabTools** is a Windows application that replaces the need for a full LIMS system at an on-site laboratory. It can accommodate any sample or analysis type and any work-flow, including full transmittal functionality. It has a unique buffer between the laboratory and operations.



**GeoSequel® Logger** is a stand-alone Windows application for logging core, RC holes, and channel samples when you are not connected to main SQL Server database. Transmittals can also be created while in the field to submit with samples. You can synchronize with the main database once connected or log directly into the main database.



**GeoSequel® Tools** is another Windows app that is separate from the main, web-based GeoSequel® interface. It can parse certificates and create the entries in GeoSequel® necessary to accept the certified analyses. You can achieve a greater than 80% reduction in time to load historical data. In addition, each analysis can be flagged and reviewed prior to import.



**GeoSequel® Link** is also separate from the main, web-based GeoSequel® interface. It provides functions to export data into formats that can be used by Surpac, Vulcan, MineSight, Leapfrog, Datamine, ArcGIS, MapInfo, and AutoCAD. The views selected in GeoSequel® Link are exceptionally powerful and versatile. You can setup priorities dependent on analytical techniques and setup customized calculated fields.



**GeoSequel® Stor** facilitates core box, chip tray, sample splits, and sample pulp storage. It has full barcode capabilities and can work in detached mode when you are working in a storage warehouse.

# GeoSeque Respec Product

## TESTIMONIALS

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"GeoSequel® has been a reliable data management system for our exploration and blast hole data since our mine went into production. It is a fast and responsive interface between our lab and ore control departments—GeoSequel® Tools can immediately show which samples were picked up and entered into the system and which samples the lab has finished assaying. It has a large number of useful QA/QC and informational reports that we use daily. The support on this product has been great—we talk to Don whenever we have a question or an issue and he can usually write a script for a fix or arrange a screen share within the same day. Our mine depends on GeoSequel® to consistently provide the data we need to make our daily production decisions."

Sara Holden – Ore Control Geologist Pete Herrera – Chief Geologist Golden Queen Mining Company

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"Cordex has been using the Geosequel® tools for drill hole logging and data base management for two years. We have found Geosequel® quite easy to use and are very pleased. We have had multiple Cordex users, with a wide variation in their skill sets, and all have been able to use the system successfully."

Mr. Andy Wallace - Cordex Partner

"I found the GeoSequel<sup>®</sup> software package to be a great tool to manage drilling and geochem data for a drilling project as it was advanced from an early-stage to an intermediatestage exploration project. GeoSequel<sup>®</sup> is a multi-faceted package.

Using the "Logger", multiple "rig geologists" may enter details of lithology and alteration in a "disconnected" (tailgate of pickup) environment. Multiple loggers may customize drop-downs and maintain consistency in the lithologic logs.

The "Tools" included with GeoSequel® are simple to use. The import tool allows for direct import of electronically transmitted assay data which I found important to avoid corruption of data that may occur by manual manipulation of spreadsheets. Standards, duplicates and blanks in the assay stream are easily dealt with.

Tools for QA/QC are built-in to examine the integrity of logging, assay, down-hole and collar data. While the software requires only general computer literacy, "power users" will appreciate the robust customization available to produce up-to-date reports with a consistent structure.

I found that GeoSequel® keeps all the data together for use in modeling programs. I used Target for ArcGIS as the modeling package and for maps and cross-sections. The drill-hole data represented is the most current which is important to geologists that use the "on-the-fly" drill planning method.

Tech support is great. Questions and issues were always addressed in a very timely manner.

I recommend the GeoSequel® package. It will save time and money when begin to model your resources."

Jim Greybeck- Cordex Geologist

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# **ABOUT RESPEC**



Founded in 1969, with corporate headquarters in Rapid City, South Dakota, RESPEC has grown into over 20 offices in North America and strategic alliances worldwide. A multidisciplinary force in geoscience, engineering, water management, and integrated technology solutions, RESPEC serves major industry sectors in mining, energy, water, natural resources, environmental, and infrastructure.

Our technical staff serving the mining industry comprises geologists, engineers, and scientists with focused expertise in rock mechanics, mechanical engineering, mining engineering, civil engineering, computer science, resource geology, hydrogeology, and geological engineering. The primary service areas include:

- » Geologic feasibility studies provide detailed geologic data acquisition and modeling to provide competent person reports plus economic evaluations and reserve estimation.
- » Geological field services of field instrumentation, data integration and analyses, core logging, geological mapping, and drilling management.
- » Materials testing services at our state-of-the-art laboratory specializing in rock-strength and other capabilities.
- Rock mechanics expertise that integrates field observations and **》** instrumentation, advanced rock-mechanics modeling using both in-house and commercially available software packages and laboratory testing.
- >> Hydrogeology and mine-inflow expertise for diverse mine projects.
- **》** Mining engineering solutions for mine planning and design, explosives engineering, and permitting support.

Currently, these services are offered by RESPEC's Mining & Energy business unit to clients in the mining and energy storage industries throughout the world each year. Our innovative staff continually develops and supports a variety of hardware and software products that provide solutions requested by our clients.

#### **BY THE NUMBERS:**

300 employees throughout the US and Canada

20+ offices in 13 states with an international location in Saskatoon, Saskatchewan

\$55M in annua revenue

#### Founded in 1969 in Rapid City, SD.

#### **INDUSTRIES SERVED:**









WATER

FNFRGY

**INFRASTRUCTURF** 

#### **WORKING IN 26 COUNTRIES AROUND THE WORLD**





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