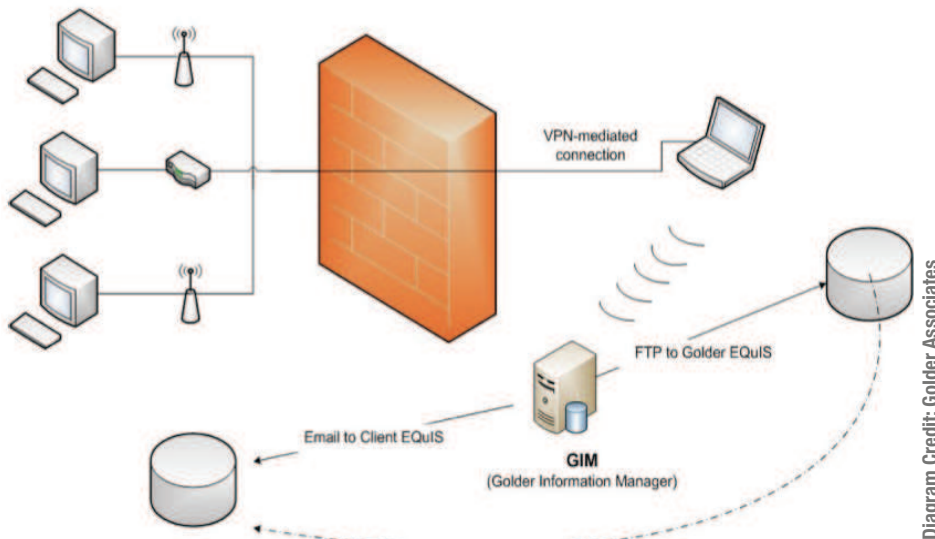


Meteorology and Air Quality Data: Basic Workflow



BENEFITS

Golder Solutions' automated air monitoring workflow allows for:

- Near real-time access to air quality data;
- Automated process for upload mediated through Enterprise EDP and GIM;
- Minimized time handling data;
- Maximized time air quality experts can spend on data validation and analysis.

Air Quality and Meteorology Network in the Dominican Republic

As part of a new Air Quality and Meteorology Network in the Dominican Republic, Pueblo Viejo Dominicana Corporation (PVDC) have committed to implementing four automated air quality data monitoring systems. Three stations are already in place, with a fourth to be added pending site location approval. The stations are installed and maintained by Golder Solutions, the successful vendor following a recent RFP process.

Twenty (20) primary parameters are being measured by the monitoring stations, and include:

- Air Quality:
 - NO/NOx/NO₂
 - SO₂
 - PM₁₀/PM_{2.5}
- Meteorology:
 - Precipitation
 - Relative Humidity (RH)
 - Barometric Pressure (BP)
 - Temperature
 - Wind Speed and Direction

Each air quality monitoring station uses a Campbell Scientific CR3000 datalogger, and parameters are collected as averaged hourly data. Using Campbell Scientific's LoggerNet software, a polling computer in Golder's Fort Collins office connects to the Barrick network via VPN. If the VPN is disconnected, or the station's internet connection goes down, any data which has not yet been downloaded will be appended to the data file the next time a successful connection is established.

Golder's software parses the newly collected data into a format that is sent directly to the PVDC's environmental data monitoring system: Earthsoft's EQUS system. The system is hosted in the Salt Lake Data Centre.

The EQUS system includes software that automatically loads the air monitoring data into its database while also applying Air Quality QA/QC checks: a process which validates and corrects data, based on daily calibration spans and zeros. Data which passes these checks is marked as validated, and is uploaded to the EQUS system. However, if, for any reason, the

data fails these QA/QC checks, the data is not appended to the log file, and an email is generated highlighting the errors found.

On a daily basis, Golder checks the system data for anomalies which might suggest issues with the analytical equipment. On a monthly basis, Golder conducts a full validation process. This validation may, for instance, include invalidating or correcting air quality data based on the measurements of the daily and weekly calibration gases, or invalidating data that may be the result of on-site activities. For the first year of data collection, Golder will also deliver a monthly data report.

The responsibilities of this monitoring workflow will, over the course of the year, be transferred to PVDC staff. Golder will be facilitating this knowledge and technology transfer, to ensure on-site technicians are fully trained to keep these systems running smoothly. •

Article contributed by John Digweed.

"The future of PV will one day be a fully integrated data collection system of about a dozen weirs, 30+ monitoring wells, half a dozen ponds and multiple meteorological and air monitoring sites all following the same reporting protocols using the EQUS EDP process."

Holton Burns,
Environmental Construction Manager for PVDC