Seismograph Analysis Eliminates Complaints

Project Summary

AS MINE ADVANCES TOWARDS NEIGHBORS THERE IS A NEED TO DEVELOP A VIBRATION MONITORING PROGRAM

This western surface coal mine blasts overburden and coal on a daily basis. The mine has been advancing toward some neighbors, raising concerns about blasting/ vibration complaints.

As mining encroaches on neighboring properties, the need to develop a vibration monitoring program has become paramount. Current manpower requirements meant the mine engineering staff was unable to properly maintain monitoring equipment and download data for analysis on a regular basis.

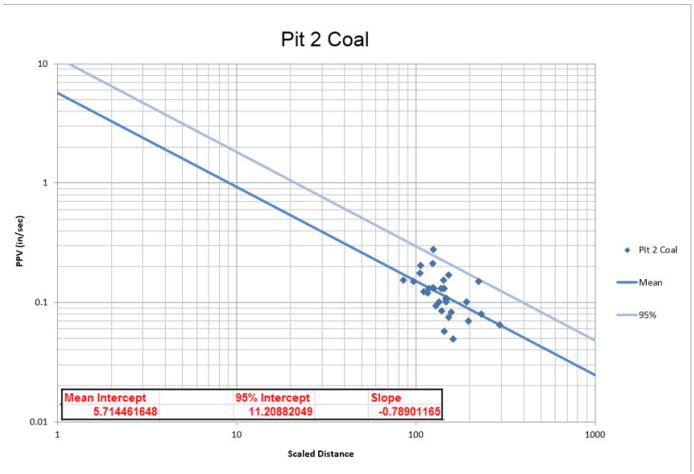
Technology Applied

DEVELOPING A SEISMIC MANAGEMENT PROGRAM RELIEVES MINE STAFF OF RESPONSIBILITIES OF MAINTAINING MONITORING EQUIPMENT

DynoConsult® was employed to provide turn-key management of recording blast vibration data at the closest property for proving compliance with state regulations, as well as providing data that will allow for the development of regression formulas that will help this mine as blasting continues to move closer to urban areas.

DynoConsult staff performed regular inspections of seismograph locations and downloaded data from recorded blasts. Data was reviewed and streamlined by removing false trigger events and calibration events to make analysis of data faster and less complex.

Irregularities in data indicating possible equipment issues were communicated directly to mine staff, minimizing the time period when data was not being collected. When this process was done internally by the mine staff it resulted in large gaps in data.



Results

NO MORE BLASTING COMPLAINTS

Comprehensive seismic data is now collected for regression analysis without gaps in data. A coherent overview of vibration effects as the mine's three pits continue to progress towards more populated areas will allow the mine staff to properly plan long range mine development and provide insight into possible changes in blasting operations that may be needed.

Concerns raised by local property owners can now be addressed from the standpoint of scientific data and proof of compliance with state regulations. It is noteworthy that there have been no additional blasting issues or complaints in the past several months.

Next Steps

SEISMOGRAPH RELOCATION, ADDITIONAL UNITS MAY BE REQUIRED

A second structure will soon be close enough to be a concern. At that point another seismograph will be located in the direction of that site. This mining operation has seen the value in having this analysis done and plans on continuing to develop a coherent monitoring program with the assistance of DynoConsult.

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