

a vibration monitoring newsletter about you, for you, and by you

Helsinki Energy has commissioned designer Kalliosuunnittelu Oy Rockplan, and Hiili, comprised of Lemminkäinen Construction and YIT, to began excavation of four underground coal storage bunkers which will house 250,000 tons of coal. This facility will be located under the Salmisaari power plant.

Finland Coal underground

This project is the first of it's kind in the world and Finland's largest ever underground project, with 550,000 cubic meters of rock to be excavated, and carrying an estimated price tag of \$42.7M USD.



At Salmisaari, Tommi Salomaa, Eino Lehtola and Supervisor Esa Kuikka set up an Instantel MiniMate Plus monitor.

This is just one of Finland's largest underground excavation projects!

Photos courtesy of Kalliotekniikka Ltd.

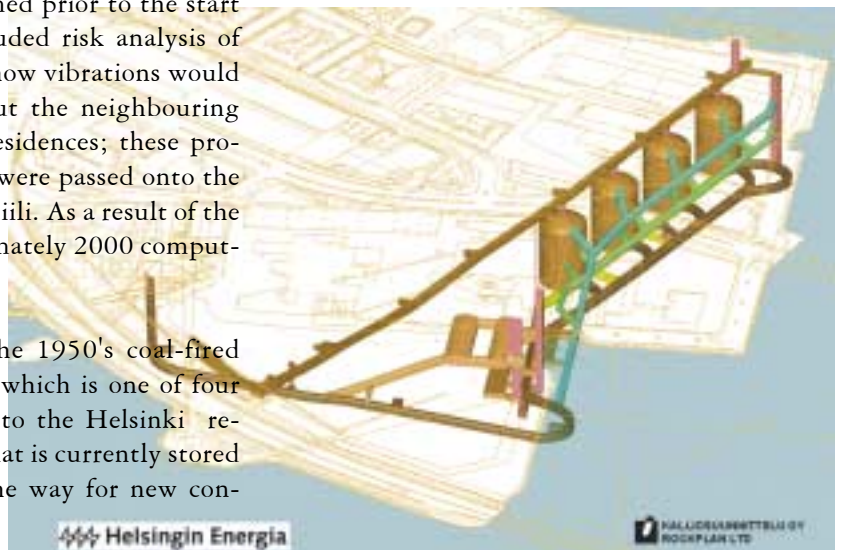
Excavation for the four underground coal storage bunkers will be occurring within 150 meters of three power plants, metro, coal transport and additional service tunnels.

To monitor vibrations from the excavation of the access tunnels, which are located a mere 150 meters away from these neighbouring buildings and tunnels, Kalliotekniikka Limited has installed five Instantel MiniMate Plus monitors. As the project proceeds, additional monitors will be installed to monitor blasting activity.

Various tests were performed prior to the start of excavation, which included risk analysis of borehole blasts to review how vibrations would be transmitted throughout the neighbouring tunnels, businesses and residences; these provided blasting limits that were passed onto the construction contractor, Hiili. As a result of the tests, damping of approximately 2000 computers was also required.

This project will allow the 1950's coal-fired Salinsaari power station, which is one of four plants that supplies heat to the Helsinki region, to remove the coal that is currently stored above ground, clearing the way for new construction of a marina, sports facility, and much needed housing.

Additionally, a cold water plant will be implemented to supply air conditioning to the city. ■



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Interesting Links...

International Society of Explosives Engineers
www.isee.org

Protec World of Explosive Demolition
www.implosionworld.com

Instantel vibration monitors represented in Greece.

Just for the Record

VODMate™

Instantel® offers state-of-the-art VOD recorders

Read the feature article on the next page for a unique VODMate application and also request our technical bulletin for cost-saving point-to-point VOD data retrieval using the Instantel VODMate.

The VODMate measures the performance of an explosive's Velocity of Detonation and helps optimize blast efficiency. Affordable, easy-to-use, and highly accurate – it is capable of recording multiple holes, and supports up to 1000 feet (300 meters) per channel of VOD measuring cable.



- Precise recording – up to 2 MHz sampling rate and 14 bit resolution
- Minimum trigger level of just 0.4% of cable length
- Automatic setup – adjusts to sensor cable length
- Easy cable connecting – with self test to ensure reliability
- Small, portable, rugged, and lightweight – 3.3 lbs. (1.5 kg)
- Timer mode – to record only when you want
- Records multiple holes – measures up to 1000 ft. (300 m) of VOD measuring cable
- Compatible with coaxial resistive VOD measuring cable from other manufacturers
- Multiple event storage – in 4 MB nonvolatile memory
- Includes Windows® based BlastWare® III Advanced Module Software ■

Fourth Hellenic Conference

Geo-Technical and Geo-Environmental Engineering

The 4th Hellenic Conference on Geo-Technical and Geo-Environmental Engineering was organized by the Technical Chamber of Greece and the Hellenic Society of Soil Mechanics and Foundation Engineering in Athens. This conference was held in Athens during June, 2001.

The Conference, with the special speakers and lecturers, presented several white papers of important scientific basis regarding the developments in geotechnical engineering in Greece. These included significant design, studies of construction, as well as research papers. The Conference was held at a time when the demands of projects in Greece have made the contribution of geotechnical engineers crucial, both to design and construction.

In support of this observation was the participation of 28 companies in the Technician Exhibition in the frame of the Conference and the thousands of visitors.

Article and photograph provided by mining engineer Elias Baliktsis, Exorixi S.A.

One of the exhibitors, the only company that presented vibration monitors, hi-tech monitoring, and surveying equipment, was Instantel's representative in Greece, Exorixi S.A.

Mining Engineer Elias Baliktsis, along with experienced managers and engineers, is the head of Exorixi S.A., which provides specialized and highly skilled services as blast consultants and engineers in construction projects, including extractive works and quarries all over Hellas. ■

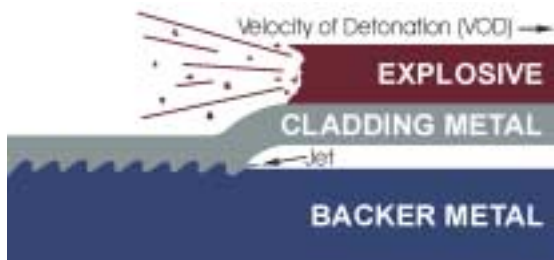


Metal Cladding Industry Leader uses VODMate™

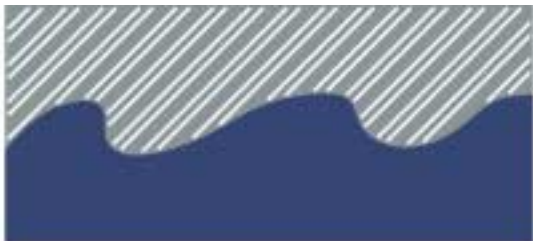
Unique applications for obtaining VOD data

Explosively bonded or welded metal parts, also known as metal cladding, is a manufacturing process used for environments where materials may be exposed to high temperatures, pressure, or corrosive chemicals. With this process, diverse metals, such as titanium and steel, are joined by a controlled explosive energy to form a metallurgical bond.

Below is a diagram showing the cladding process:



The cross section below shows the wave created when the molecular bonding of two dissimilar metals occurs as a result of the explosive welding process:



Based in Boulder, Colorado, Dynamic Materials Corporation (DMC) has provided hundreds of explosively fabricated parts for military and aerospace applications – fighter aircraft afterburners, and rocket launch vehicle components, which includes the NASA Space Shuttle. Additional metal fabrications are developed for the petroleum and chemical processing industries, such as heat exchangers and titanium clad plates for metal autoclaves within the mining industry.

DMC has standardized on VODMate™ for three applications. The primary use is the testing of explosive lots mixed at the facility, where varying amounts of per-lite, an inert silica, is combined with explosive ammonium nitrate to control the Velocity of Detonation. Using the VODMate and standard VOD coax resistance cable, DMC is able to simultaneously test a series of up to six diverse explosive lots; the data acquired facilitates the assignment of explosive lots to particular cladding materials.

Shock synthesis of synthetic diamonds is a second service provided by DMC. This synthesized powder is created by a shock compression technique which incorporates a balance of temperature, pressure, time, and a graphite formula, the source of convertible carbon.

“...diverse materials, such as titanium and steel, are joined by a controlled explosive energy...”

The powder is produced for both loose and fixed abrasive systems, and may be used for polishing gemstones, such as sapphires. For this application, the VODMate is used not only to determine that the Velocity of Detonation is equal at both ends, but also to ensure that the compaction of the synthetic diamonds is occurring in unison.

Finally, for research and development purposes, DMC also uses the VODMate to test the yield strength of various types of plates prior to metal cladding.

For more information about the interesting process of metal cladding, please refer to:

www.dynamicmaterials.com/cladexref.htm ■

Instantel's
Releases New
BlastWare®
Software
Version...

BlastWare® III, Version 4.33 is now available. Contact your Dealer for the latest copy!

Future articles in "Just for the Record" will include Strain Gauge applications, the Boston theater project, and more service tips.

**Article
Submissions
Requested**

We are always looking for unique vibration monitoring applications, articles, photos and related stories – or maybe you have an interesting photograph? Send to: newsletter@instantel.com



Instantel continues with Education Program

Putting quality monitors in the hands of students

Each year, Instantel participates in several university presentations as a guest speaker, focusing on specific blasting applications, or offering a general overview and introduction to the career of vibration monitoring.

Recently, Instantel has implemented a targeted educational program, the "University Instrumentation Loan Program," to assist instructional institutions in the education of their students. This may include new students, or people who are already in the field simply looking for required certification.

If an educational institution is interested in our program they are required to fill out the "University Instrument Loan Program Application," available from Instantel. Once this application is received, Instantel adds the school to a schedule – a minimum of one month's notice is required from schools who wish to participate in this program, prior to shipment of the equipment.

The current loan program will run from September 2001 to August 2002. We have a limited number of Blastmate III's, which include a geophone, microphone, manual and advanced software, all of which is loaned for a maximum duration of three weeks. Even if a course is not until 2002, sending in the application as early as possible will allow Instantel time to reserve the equipment.

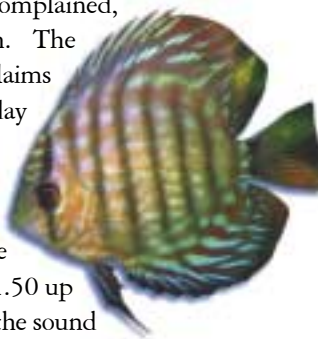
Contact Instantel for additional details and for information of a representative in your region. Equipment is limited for this program, so reserve yours now! ■

A Shocking, and Fishy Story?

Court settlement not acceptable

The results of blasting near a residential area may cause some discomforts, such as not being able to hear the television or radio, or maybe more seriously, a crack in the foundation of a house. Or maybe a few dead fish? That is exactly what happened to a company contracted to blast a trench over a duration of three weeks, with the closest activity fifty feet from a residential house, at about three blasts per day. The majority of the blasting activity occurred three hundred feet away. The contractor was in disbelief and could not bring himself to pay the out-of-court settlement of \$1200 after a resident complained, eventually suing him for the demise of his fish. The contractor opted to fight the lawsuit in small claims court, which resulted in a long, drawn out, one day trial.

These weren't typical fish though, not even close to your loveable brand of goldfish – they were tropical African Cichlids, with a price tag from \$1.50 up to \$50 each! According to the owner of the fish, the sound of blasting so close to the house was just too much for some of the little exotic fish. An aquarium expert from a local pet store, who took the stand for the prosecutor, attested that this is what did in these poor, finned fellows. Two witnesses for the contractor were called in defense of the fishy allegations. If it had not been for accurate and consistent record keeping by the contractor, he may not have won this particular case.



The contractor's costs to win this court case was approximately \$1500 plus additional money in lost man-hours. Not all court cases are this fishy, but certainly it is worth the effort, and sometimes the monetary loss, to fight these unfounded charges so that precedence is not established for the entire blasting industry. ■

Tradeshows

Deep Foundations
October 4 - 6, 2001
St. Louis, MO, US

China Coal & Mining Expo 2001 – CAMESE
October 9 - 12, 2001
Natural Exhibition Hall, Beijing, P.R. China

Marlboro Show – New England Chapter, ISEE
October 19, 2001
Marlboro, MA, US

Expo Acapulco Mexico – CAMESE
October 24 - 27, 2001
Acapulco, Mexico

Explo 2001
October 28 - 31, 2001
Hunter Valley, New South Wales, Australia

Mining 2001 Indonesia – CAMESE
November 7 - 10, 2001
Jakarta, Indonesia

PennState Blasting
November 8 - 9, 2001
Pennsylvania, US

Norway Blasting
November 22 - 23, 2001
Oslo, Norway

Kentucky Blasting Conference
November 29 - 30, 2001
Louisville, Kentucky, US

ISEE 28th Conference of Explosives Blasting
February 10 - 13, 2002
Las Vegas, Nevada, US

"...tropical African Cichlids can cost from approximately \$1.50 up to \$50 each!"



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Just for the Record

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