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SOCON certified in accordance with SCC

Besides offering high quality services in the cavern surveillance sector



one of our primary company goals is to prevent any type of accident as well as to observe the legal regulations regarding safety at work, protection of health and environmental protection. In the oil industry the "SCC" is becoming an increasingly used tool for bringing about a structured introduction of a permanent company-based management system needed for achieving the above goals. SCC stands for **Safety Certificate for Contractors** (*Sicherheits-Certifikat-Contractoren*) and was set up based on a Dutch model on the initiative of the oil industry through the association responsible for accreditation (*Trägergemeinschaft Akkreditierung GmbH – TGA*). It makes well defined and directly measurable demands on the management of a company, and these demands refer primarily to safety, health and environmental protection (SGU) in the performance of technical services.

We decided on applying the SCC setup because SCC certification with regard to activities and results of the SGU management system provides a quantitative statement of quality. The DIN ISO 9000 ff. standards on the other hand solely define minimum standards and describe control processes, and these do not provide any means of quantifying the actual quality standards of a company. Since 1 August 2000 our company has been working on the basis of an SGU management manual, which lays down guidelines for observing all the authoritative SGU regulations. Up to now

DEKRA-ITS GmbH, Stuttgart, has had the responsibility of checking whether the guidelines are being properly observed. Following the initial certification in December 2000, the first control audit was carried out at the beginning of 2002, and here too we were successfully audited.

For more information about SCC visit the Internet site at www.scc-sekretariat.de

10 years of SOCON

On 6 September 2001 the time had arrived: SOCON celebrated its 10th anniversary.

"Je ne regrette rien ..." (I have no regrets) was the motto of the anniversary lecture.

The singer *Iris Marlin* fired the audience with enthusiasm by her singing.



Iris Marlin



In the evening the **ROMAN STREET PARADERS** created the right atmosphere and a great mood.

(Look at the picture gallery on page 7)



Client seminars in 2002

Seminar I: *Tour of Merkers mine*

Seminar II: *Echometric cavern surveying*

Seminar III: *CavBase Gas Storage*

(Read more on pages 4 and 5)



New and newer at SOCON

BCS — Blanket Control Systems

The third generation in operation, the fourth generation being tested

Since the beginning of 1994 SOCON has been producing stationary measuring systems for continuously recording the depth of the interface between the brine and the blanket medium (e.g. nitrogen, air or oil).

The **first generation** of this setup (BCS-W), which had a robust design, was manufactured for a measuring range extending from 1.60 m to 3.20 m. There are currently 47 of these systems in use throughout the world.

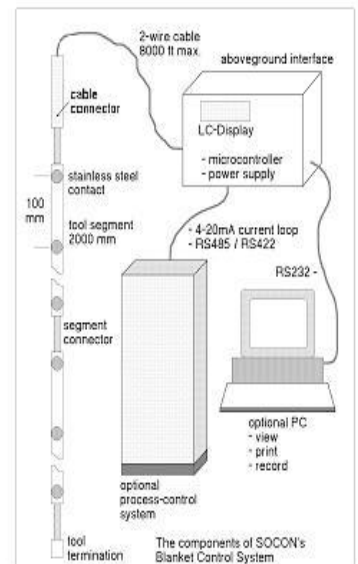
The **second generation** (BCS-CW) had the advantage of a greater measuring range of up to 15 m, however, it was not accepted on the market as well as expected owing to the fact that it could be more easily damaged when installing it on the casing and the greater risk of damage to it during installation in the cavern.

After having gained so much experience, however, and also to satisfy the requests of clients, SOCON decided to develop a new BCS tool. The goal was on the one hand to offer a tool that represented good value for money and on the other hand to create a robust tool which had fewer parts and could function accurately over a large measuring range of up to one casing length.

The third generation



This tool (BCS-Value) is made up of a number of similar segments, typically 2 meters long, which the customer can join together and install on the casing to make up the required total length. The tool diameter, and consequently the annulus space needed for installing it on the casing, is approximately 20 mm. The measuring principle is based on the fact that brine has a high conductivity, whereas the blanket medium (oil) has an insulating effect. When in operation the brine creates a short-circuit between the tool contacts and the potential of the casing string. The tool contacts are placed at 100 mm intervals so that a resolution and accuracy of 100 mm can be achieved regardless of the length of the tool. A simple steel-reinforced cable connects the tool with the interpretation and control unit at the surface. The control unit at the top of the cavern can transmit via a serial interface the measured value to a PC for display purposes or, at the request of the customer, the equipment can be expanded to a complete system with display, interfaces for data transfer (4..20 mA, field bus system) and even wireless data transfer. There are currently 25 systems of this type in operation.



The fourth generation

The prototype of the fourth generation is to be tested in operation for the first time in May 2002. As was previously the case, this tool is based on the blanket BCS-Value system, but contains an additional sonar measuring device. By means of this device the tool is able to continuously indicate at the surface, besides the position of the blanket interface, the extension of the cavern in a direction below the interface. At the surface a sonar unit is installed between the connection to the blanket system and the surface interface.

BSG — echo tool with 42 mm diameter



Newly developed tilt head of the 42 mm BSG tool

The development of the new BSG echo tool for surveying and monitoring the cavern floor in oil storage caverns is almost completed. This tool, which has an external diameter of just 42 mm, can be used to monitor the cavern floor of oil storage caverns without having to remove the injection string. By not having to remove and reinstall the injection tubing the cavern operator will be able to save considerable costs. It will also no longer be necessary to have a pressure release for the cavern.

It is intended to start regular surveying operations with the new BSG tool in the second half of 2002 as soon as the tool has successfully passed the final tests.

New and newer at SOCON

Cavern survey truck L107

The in-house development of the L107 survey truck has provided us with another high performance vehicle for operating at great depths.

This new generation survey truck is well equipped for flexible operation. The crane included with the system is ideally suited for caverns located at shallow and medium depths as well as for surveying when small lubricators are installed. An integrated lubricator bearing facilitates interaction with the crane when setting up and operating on site.

Technical specifications:

Vehicle:
 Length: 9.5 m
 Width: 2.6 m
 Height: 3.9 m
 Weight: 18 t
 Own power supply

Cable length: 3,600 m

Crane specifications:
 11.5 m hook height
 at distance of 3 m

Construction of L107 by
 Freytag Karosseriebau



Compact survey truck L108

The L 108 is a new, compact survey truck for surveying in shallow cavern structures, primarily in salt deposits. As is the case with all the other SOCON survey trucks, the L 108 was designed in SOCON's own development department. After a planning and construction period of just six weeks the L 108 passed its first operational test in Turkey shortly after its completion in summer 2001.

Technical specifications:

Vehicle:
 Length: 5.6 m
 Width: 2.0 m
 Height: 2.8 m
 Weight: 3.5 t
 Own power supply



CavBase - a relational database system for cavern fields

CavBase is the latest product in the *CavInfo* software suite. The program is a relational database system with which the data arising from various sources during the construction and operation of cavern fields can be collated, managed, analyzed and visualized. Details about CavBase will be presented in an information brochure which is to be published shortly.

See also page 5, Seminar III / 2002

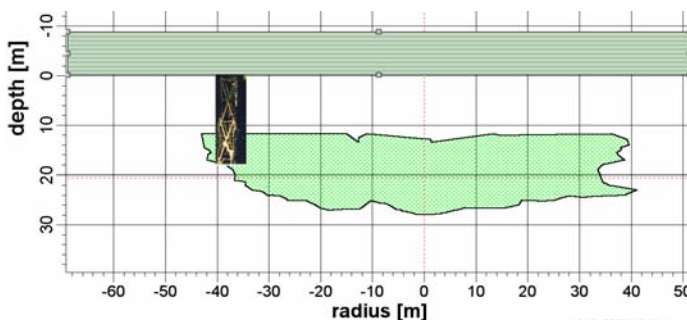
Time to go down again!

As part of this year's SMRI meeting there will be a tour of the inside of a cavern !

On a number of occasions we have been able to offer clients and friends of our company "underground" seminars. To stand for once in the middle of cavern and to see in real life what is normally described just in the survey report on a sheet of paper: "... by connecting the measured points assuming that the measuring beam travels in a straight line ...". Numerous underground seminars have proved to be highly successful in the past. And the immense positive response prompted us three years ago to raise SMRI interest in holding an event in a salt chamber. The idea was to have a specialist meeting associated with an excursion to tour the inside a leached cavern.



And in autumn 2002 the time will have come – the preparations are almost complete. As part of this year's SMRI meeting from 6 to 9 October in Bad Ischl it will be possible to visit the inside of the SCH 1 cavern of the Austrian

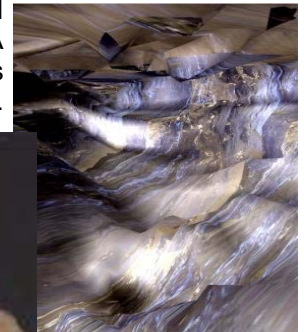


salt works in Altaussee. After a 20-minute journey with the mine train along the main adit and a ride down an internal shaft in a hoisting cage, the seminar participants will arrive at the drift above the cavern. Access to the cavern will then be made down a shaft, specially constructed at the side of the cavern, descending stages each three meters long.

To take part in the cavern visit you must wear sturdy boots or shoes and be in fairly good physical shape. A maximum of 120 people in six groups can take part in the tour on 9 October.

It is important that those interested in taking part in this year's SMRI submit their applications in good time. Besides this highlight there will be another opportunity this year to experience at first hand the underground world of salt deposits. On 6 and 7 June a SOCON seminar will again take place underground. This time it will be the particularly interesting "Merkers" mine run by K+S Salz GmbH.

See also page 5, Seminar I / 2002



View inside the SCH1 cavern with CavWalk

Client seminars in 2002



Within our range of services, SOCON has set itself up as a communication center for representatives of cavern operators and mining authorities, for engineers, technicians and anyone else interested in the diverse aspects of the cavern sector.

Events and seminars, which deal above all with "cavern and cavity" subjects, are regularly held within this communication center concept. Up to now the spectrum of lectures has ranged from geophysical survey methods to in-situ measurements, leaching simulations, convergence investigations and the monitoring of caverns, and even to the presentation of cavern-specific software. In this respect the programs of the *CavInfo* software suite and the

CavBase database system have been presented.

SOCON intends to continue offering lectures covering a broad range of subjects and therefore makes an effort to invite speakers from diverse areas of work, not only from the world of business but also from universities and mining authorities. The lectures are held within a fairly flexible framework and during the breaks there is adequate time for the participants to get together and discuss various points and issues. Of course our company staff are always available should you want to ask questions.

We would be very pleased if you could come to one or more of our seminars. We look forward to seeing you there.

Seminar program 2002

Seminar I / 2002

Topic

Tour of Merkers mine

Date:

Thursday, 6 June to
Friday, 7 June 2002

Program:

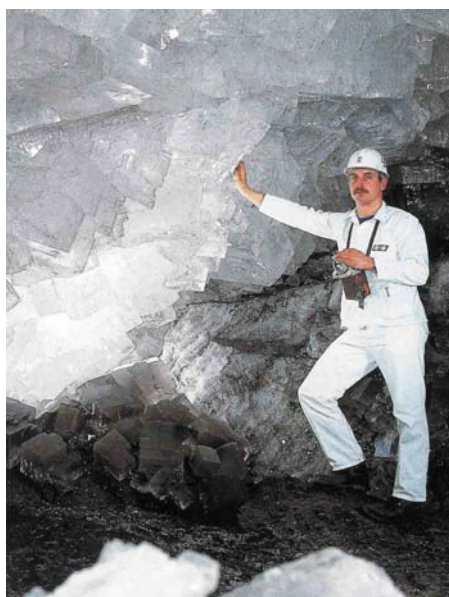
6 June:

8.30 Meet at SOCON in Giesen
9.00 Departure from Giesen
13.00 Arrival in Merkers
13.30-16.30 Mine tour

Dinner together and overnight stay in Eisenach

7 June:

9.00 Tour of the Wartburg
12.00 Departure from Eisenach
16.00 Arrival in Giesen



Seminar II / 2002

Topic

Echometric cavern surveying - Basics, tool technology and practical surveying

Date:

Thursday, 5 September 2002

Program:

10.00-10.15 Welcome and introduction (Hartmut von Tryller, SOCON GmbH)

10.15-11.00 The physical basics of sonar surveys (Hartmut von Tryller, SOCON GmbH)

11.00-11.30 Coffee break

11.30-12.30 Tool technology (Klaus Gotthardt, SOCON GmbH)

12.30-14.00 Lunch break

14.00-14.45 Technique and procedure applied in cavern surveys (Dr. Andreas Reitze, SOCON GmbH)

14.45-15.00 Coffee break

15.00-15.45 Interpretation and documentation (Frank Haßelkus, SOCON GmbH)

15.45-16.00 Final discussion

Seminar III / 2002

Topic

*CavBase Gas Storage
A database system for operating gas caverns*

Date:

Thursday, 21 November 2002

Program:

10.00-10.15 Welcome and introduction (Hartmut von Tryller, SOCON GmbH)

10.15-11.00 Presentation of the CavBase database system (Dr. Andreas Reitze, SOCON GmbH)

11.00-11.30 Coffee break

11.30-12.30 Thermodynamic calculations in CavBase Gas Storage (Dr. Michael Krieter, PLE GmbH, Essen)

12.30-14.00 Lunch break

14.00-14.45 Consideration of cavern convergence in CavBase Gas Storage (Dr. Michael Krieter, PLE GmbH, Essen)

14.45-15.00 Coffee break

15.00-15.45 Application of CavBase Gas Storage in the operation of gas storage caverns (André Stille, SOCON GmbH)

15.45-16.00 Final discussion

Where the seminars will be held

SOCON Sonar Control
Kavernenvermessung GmbH
Schachtstr. 3 b
31180 Giesen
Tel: (0 50 66) 6 08-0,
Fax: (0 50 66) 6 08-88
Visit www.socon.com for a map of how to get there.

Seminar fees

Seminar I / 2002: € 160.-
(The seminar fee includes the bus trip and all admission fees. The cost of the overnight stay, about 55 euro, is to be paid separately by each participant.)
Seminar II / 2002: € 90.-
Seminar III / 2002: € 90.-
plus VAT.

Application

Send your binding application by post or fax, indicating the reference "SOCON Seminar */2002" and the name of the person who will be taking part. We will send you confirmation of your application together with the invoice. Applications will be considered on a first-come-first-served basis.

Application deadlines

Seminar I / 2002: 24 May 2002
Seminar II / 2002: 30 August 2002
Seminar III / 2002: 15 November 2002

All lectures will be presented in German only!

Cancellation conditions

Written applications are binding and require in all cases payment of the seminar fee. If you have to cancel please find someone to take your place, or send us your written cancellation at least two weeks prior to the seminar. It is not possible to refund seminar fees if cancellations are made at shorter notice.

Special event celebrating SOCON's 10th anniversary

On Thursday, 6 September 2001, SOCON celebrated its 10th anniversary on the company premises in Giesen near Hildesheim. Some 150 guests came from all over Europe to the event. The company anniversary kicked off with a special celebration event at which lectures were presented on current topics and developments in the cavern industry and cavern surveillance sector.

After the SOCON management had greeted the guests and Prof. Franz-Josef Rölleke, President of the State Mining Inspectorate, Clausthal-Zellerfeld, had welcomed them, Hartmut von Tryller reviewed the company's ten year history. Dr. Brinker, board chairman of EWE AG, Oldenburg, then talked about the different



Following the official festivities all those present were able to find out more about the standards that SOCON offers as well as about new technologies in the cavern surveillance sector during a tour of the company premises. The day was pleasantly rounded off by a good dinner and jazz music.

types of gas storage options in his paper on *"Gas storage in the liberalized market"*, and highlighted their advantages as well as possible areas of application in the liberalized market.

Dr. Koch of the Physical-Technical Federal Institute in Braunschweig, subsequently gave a lecture entitled *"Measuring with ultrasonics means measuring ultrasonics"*.

In the lecture on *"The distributed fiber-optic temperature-survey method – new possibilities for monitoring the underground storage of natural gas"*, Dr. Großwig presented a technique developed by GESO GmbH, Jena that enables the temperature field to be measured simultaneously over the entire survey depth achieving precise temperature and location data at closely spaced time intervals over a period of hours or even days.

Finally Mr. von Tryller presented *"GUAREC – Sounds in the cavern, a project and how it was carried out"*, an experiment that at the outset didn't seem feasible. This project involved sound compositions created by Oscar Wiggli, the Swiss artist and composer, being played and recorded in Spring 1998 in a gas cavern under a pressure of 100 bar. The sounds originating from this experiment provided Oscar Wiggli with the basic material for various compositions, which have subsequently been released on CD under the title of GUAREC.



The 10th anniversary picture gallery

“ 10 years have passed ... 10 years of hard work! “



And at what face is the audience looking?



The speech is now behind us!!!



First the gifts ...



...and then sign the guest book ...



for absolutely everybody,



Lots to eat and drink,



time for information,

something nice,



business talk,



No no, these two didn't sing,



and secrets???



but ...



CAVERN

And what's become of ...

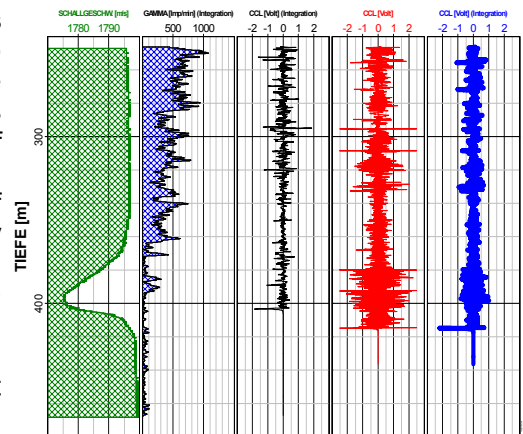


Clients can on request have a work of art created depicting their own caverns or cavern fields in the form of table or wall shapes or outdoor sculptures.

... Oscar Wiggli

Since the publication of the last issue of the *EchoNews*, which presented Oscar Wiggli with the GUAREC "Sounds in the cavern" project, a lot has happened in this musical direction. GUAREC has recently caused quite a stir at meetings and exhibitions and time and again has provoked further inspiration, so much so that Oscar Wiggli coined the phrase "GUAREC and its consequences". This phrase is at the same time the subtitle of the new artistic project by SOCON and Oscar Wiggli in which the parameters of a cavern survey, via the SOCON survey equipment, control Oscar Wiggli's sound generation instruments. Whereas in the GUAREC project, sounds developed and selected by Oscar Wiggli were emitted into the cavern, where they underwent change and were then re-recorded, in this current project it is the survey data of the cavern that determine the sounds. It is now the temperature, the CCL, the

acoustic velocity, the pressure and the echometrically determined shape of the cavern – manipulated of course by the artist – that make the music.



SOCON - LOGS as the foundation for music

For more information on "Caverns and Art" visit the following Internet sites:

Oscar Wiggli:
<http://www.iroise.ch>

Peter Schmitz:
<http://www.schmitz-peter.de>

SOCON:
<http://www.socon.com>
<http://www.vontryller.de>

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... Peter Schmitz

The sculptor Peter Schmitz, too, has not been idle. He has created a number of sculptures relating to the subject of caverns.



Irrespective of whether Peter Schmitz's work deals with the symbolic representation of individual caverns or entire cavern fields, people are enthused by his work.

His extraordinary collection of chairs introduced an excellent variety and an accomplished air to the 10th anniversary celebrations on the SOCON premises on 6 September 2001.



Many of the guests marveled at the

"sturdy seats".