

ORGANIZATION

Registration

Please return the **registration form** (located in the middle of this booklet) by August 20th, 2002 at the latest, to Deutsche Gesellschaft für Zerstörungsfreie Prüfung Max-Planck-Straße 6 • 12489 Berlin • Germany
Tel. / Fax +49(0)30 678 07-120 / -129
e-mail: tagungen@dgzfp.de

Registration fee*

Non-Members	€ 400,-
Member of organizing Inst.	€ 350,-
Invited Authors	€ 150,-
Students	€ 60,-
Tutorials	€ 90,-
Additional CD (proceedings)	€ 25,-

* including access to lectures, poster show and poster evening, breakout sessions, refreshments/lunch during the conference, conference evening, proceedings (CD)

On receipt of the conference fee the **confirmation** will be sent to you.

For **cancellations** before August 20th the registration fee (less 10 % for administrative charges) will be refunded. No refund will be given for cancellations after August 20th but a substitute delegate may be nominated

Conference proceedings

The participants will receive a CD containing all of the technical articles after the conference.

Conference venue

Bundesanstalt für Materialforschung und -prüfung (BAM)
Unter den Eichen 87 • 12205 Berlin • Germany
Ludwig-Erhard-Saal, Haus 5
Conference desk: Tel. +49(0)30 8104 2170
Fax +49(0)30 8104 2157

Lunch will be organised at the conference venue - admission (free) will only be permitted to persons wearing a Workshop name badge.

For the **map of the area** see
<http://www.bam.de> [How to find BAM]

For **accommodation** see
<http://www.bam.de/hotels.htm>
<http://www.hrs.de> (Hotel reservation service)



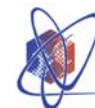
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ZERSTÖRUNGSFREIE
PRÜFUNG E.V.



PROGRAMME & CALL FOR POSTERS

3rd European-American Workshop on Reliability of NDE and Demining

co-sponsored by



September 10-13, 2002
Berlin, Germany

CALL FOR POSTERS

In addition to the oral presentations there will be a poster show. The posters are aimed to provide a broad scale of examples for the determination of traditional NDE reliability and validation, and a special emphasis on investigations into the topic of demining. Interested authors are invited to submit their poster abstracts before August 31, 2002. The complete poster content for the conference volume is needed before September 11th.

The poster show will be open during the entire conference. A special poster session – with refreshments – will be held on the evening of the first conference day.

For more information concerning the technical content of the workshop please contact

Christina Mueller at BAM
Unter den Eichen 87
12205 Berlin Germany
telephone (+49 30) 8104-1833
e-mail: Christina.Mueller@bam.de

or Lloyd Schaefer at Honeywell, tel. (+1 480) 231 7834
e-mail: Lloyd.Schaefer@honeywell.com.

For further information – concerning organizational questions – please contact

Ute Salac at DGZfP
e-mail: tagungen@dgzfp.de

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ORGANIZATION

The 3rd European-American Workshop was organized and co-sponsored by

DGZfP	Deutsche Gesellschaft für Zerstörungsfreie Prüfung
BAM	Bundesanstalt für Materialforschung und -prüfung
ASNT	The American Society for Nondestructive Testing
BINDT	The British Institute of Non-Destructive Testing
COFREND	Confédération Française pour les Essais Non Destructifs
EPERC	European Pressure Equipment Research Council
AIPnD	Associazione Italiana delle Prove non Distruttive
ITEP	International Test and Evaluation, Program for Humanitarian Demining
JRC	Joint Research Center Ispra, Humanitarian Security Unit
SRI	Southwest Research Institute
EPRI	Electric Power Research Institute

Scientific Advisory Committee

for NDE:

Canada	Daimler Chrysler	Roman Gr. Maev
Germany	Siemens PG BAM	Jorg Volker Christina Müller Anton Erhard Uwe Ewert Heinrich Heidt Burkhard Neundorf Gustav Tober
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for Demining:

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EU	JRC Ispra	Alois Sieber
USA	IDA	Harold E. Bertrand



ITEP



Would you like to support
“Search for Truth – Creation of Trust”

Join us in the formation of an
“International Committee on Inspection and Detection Reliability”
at
“3rd European-American Workshop on Reliability of NDE and Demining”,
September 9, 2002, Berlin, Germany.

Vision and Mission

Prevent danger and minimize risk for human beings
International platform for information exchange on
Procedures for reliability and capability assessment of
Non-destructive and non-intrusive inspection and detection methods

Scope

NDE, Mine detection, Hostile artifacts and Weapons detection

Contact:

Ripi Singh (RSingh@Karta.com) Lloyd Schaefer (Lloyd.Schaefer@Honeywell.com) Christina Müller (Christina.Mueller@bam.de)

AIM OF THE WORKSHOP

The continuing twin demands to improve safety and the economic life of infrastructure requires development of appropriate risk management and life prediction and protection tools. Non-Destructive Evaluation as well as mine searching processes applied to materials, components and systems or mine-polluted ground, provides information essential to achieving these goals. This information serves the risk management and life prediction functions best when the NDE or mine searching process reliability is established through validation procedures. We have observed since the last meeting, and especially from the events of September 11th and beyond, that the examination of process reliability and the resulting estimates of safety and security are germane not only to methods and applications traditionally considered in European and American professional NDE societies. New applications and issues are emerging for diverse applications of NDE technology in humanitarian demining, transportation and access/identity security.

Different approaches to reliability and process value analysis, for example the 6 Sigma initiative, within various industrial branches have created a situation where a consensus of understanding of reliability related issues is needed. The requirement for safe, transparent and reliable demining techniques is a direct consequence of the Ottawa convention demanding ban and removal of any anti-personnel landmines until 2010.

Ongoing work with colleagues in America and Europe has made it clear that the challenges are common to the international NDE and demining profession and that consequently an international approach continues to offer a productive pathway to future solutions. This has led us to call for a continuation to build on the framework of definitions and on the structure of the reliability formula and productive exchange in the first two workshops and a proposal for the 3rd European-American Workshop on Reliability of NDE and Demining. Topics will include:

1. Understanding reliability, validation and capability in NDE structuring the Reliability Formula
2. Special considerations for Demining reliability and validation
3. Essential quality characteristics for NDE
4. NDE reliability in risk and life cycle management
5. Modelling of NDE processes
6. Approaches for modular validation and inclusion of modelling results for NDE and demining
7. Statistical test design and analysis
8. Human factors

AIM OF THE WORKSHOP

The program includes 43 invited oral papers by international experts from Europe and North America addressing the different approaches for reliability and validation in non-destructive testing, and presenting points of view from various industrial sectors including power generation, transportation, demining and service companies. They shall describe the work that has been thus far, and identify their views on the needs for the present and future.

Breakout sessions are planned around each session topic to facilitate critique and consensus building discussion to further a common understanding of NDE reliability and the different possible ways of its determination. The different industrial sectors represented may join their experiences for a maximum of mutual learning.

Pre-Conference tutorials are offered in response to requests for practical information and instruction in the conduct of reliability investigations. These tutorials will address experimental design, calibration, data collection and analysis, repeatability and reproducibility of results. The tutorials will also provide a special focus on understanding and integrating the results of reliability assessment to meet the needs of the risk management or life prediction customer.

The workshop is organized by DGZfP. The scientific part of the workshop is arranged by BAM in Germany with assistance from Southwest Research and Lloyd Schaefer, Honeywell in the US. The international aspect of the conference is underlined by the diverse array of co-sponsors and the international scientific advisory committee.

The language of lectures as well as for the proceedings shall be English.

On behalf of the organizing institutes and the co-sponsors we cordially invite all NDE and Demining experts concerned with reliability and validation to this workshop in Berlin. We wish to all participants successful discussions and useful results of this common work.



Dipl.-Ing. Jorg Volker
President of DGZfP

Pre-Conference Tutorials-Teaching of „Hands-on-Reliability“

9:00 - 13:00 **Tutorial No 1**

*Tutors: Lloyd Schaefer, Honeywell, Phoenix, Arizona, USA
Ripi Singh, KARTA, St. Antonio, Texas, USA
Dragos D. Cioclov, Fraunhofer IZFP, Saarbrücken,
Germany*

The tutorial „How to Create & Apply POD Practically“, will focus on fundamentals and mechanics of creating several types of Probability of Detection and Confidence estimates and ROC statistics using several types of software tools. The tutorial throughout will have a strong focus on collecting, organizing, and performing the analysis on the NDE information with the risk/safety/life-prediction function as the customer. This important linkage will be emphasized by providing the attendee with practical information and theory and software-tools from a fracture mechanics and probabilistic lifetime management specialist's perspective.

14:00 - 18:00 **Tutorial No 2**

Tutor: Damir Markucic, University of Zagreb, Croatia

The tutorial introduces basics and practical aspects of repeatability and reproducibility (R&R) analysis and its relevance to NDT methods. Appropriate design of R&R experiment reveals significance and extent of effect of a particular element of the NDT system.

The tutorial will deal with the determination of precision, as estimation of measurement uncertainty, which presents also the capability of NDT systems. Estimated R&R variability of NDT results ensures certain confidence in results which are input data for further evaluations, material characterisation or numerical analysis like integrity assessment, FEM etc.

GUIDE TO BREAKOUT SESSIONS 1-5

Session 1 Wednesday, Sept. 11 16:15

Actual problems in creating and applying POD, ROC to risk and life management needs

- a. Test sample design
- b. Finding the right POD/CL for the application
- c. Optimizing assessment design

Session 2 Thursday, Sept. 12 12:20

The specifics of mine searching and the possibility to adopt NDE and NDE reliability methods

Session 3 Thursday, Sept. 12 16:50
Friday, Sept. 13 9:50

The Modular Model and Reliability Formula for NDE and Demining

- a. Evaluation of practical applications
- b. Review of the general formula
- c. Proposal to separate the deterministically describable part of the reliability from the factors with variability and scatter to be described statistically

Session 4 Friday, Sept. 13 15:50

How to combine calibration/reproducibility-repeatability to POD/ROC investigations and the Modular Model

Session 5 Friday, Sept. 13 16:50

Summary and Consensus

The chairpersons of the breakout sessions give the summary of discussion results; the whole assembly will discuss on consensus of the current status and future needs for topics no 1-4

Please indicate at the registration form which are the sessions you want to participate in.

9:00 Welcome and Opening remarks

President of DGZfP, Jorg Volker

BAM President

ASNT, Reliability Committee

ITEP Secretary, Kaj Hörberg

PLENARY SESSION

1 Trends of Industrial Development and Public

9:30 Safety

NN; FEDERAL MINISTRY OF ECONOMICS AND TECHNOLOGY
(GERMANY)

**2 Technology a threat or means of support for the
10:00 Security of the Citizen at the beginning of this
new century**

A.J. SIEBER, JRC-INSTITUTE FOR THE PROTECTION AND
SECURITY OF THE CITIZEN, EC (ITALY)

10:30 Coffee break

**3 German Activities on the Field
10:45 of Humanitarian Mine Action**

W. HIRSCH, MINISTRY OF FOREIGN AFFAIRS, ADVISOR
HUMANITARIAN DEMINING (GERMANY)

**4 European Strategies for Test and Evaluation of
11:15 Demining Systems for Providing Reliable Mine
Clearence**

J.-O. ROBERTZ, SWEDEC (SWEDEN)

5 Concepts in reliability measurement

11:45 C. MÜLLER, U. EWERT, BAM, BERLIN (GERMANY);
L. SCHAEFER, HONEYWELL, PHOENIX, AR (USA)

12:15 Lunch

RISK BASED INSPECTION AND LIFE MANAGEMENT SESSION

- 6 Keynote:**
13:30 **Safe Plant Operation in the 21th Century - Risk based Lifetime Management and its Demands on Quantitative NDE Reliability**
A. JOVANOVIC, MPA UNIVERSITÄT STUTT GART (GERMANY)
- 7 Simulation of Failure Risk by Combined Probabilistic Fracture Mechanics and Quantitative NDE Analysis**
14:00 **Simulation of Failure Risk by Combined Probabilistic Fracture Mechanics and Quantitative NDE Analysis**
D.D. CIOCLOV, FRAUNHOFER IZFP, SAARBRÜCKEN (GERMANY)
- 8 Application of Inspection Reliability Data for Service Life Management**
14:20 **Application of Inspection Reliability Data for Service Life Management**
R. SINGH, KARTA, SAN ANTONIO (USA)
- 9 Use of POD in Inspection Planning and Prediction of Residual Flaw Distributions in the Offshore Industry – Do I need 90% POD?**
14:40 **Use of POD in Inspection Planning and Prediction of Residual Flaw Distributions in the Offshore Industry – Do I need 90% POD?**
M. WALL, J. LILLEY, NATIONAL NDT CENTRE, CULHAM (UK)
- 10 Inspection Qualification as a Tool to Risk Based ET ISI of VVER type SG Tubes**
15:00 **Inspection Qualification as a Tool to Risk Based ET ISI of VVER type SG Tubes**
L. HORACEK, NUCLEAR RESEARCH INSTITUTE, REZ (CZECHOSLOVAKIA)
- 11 Reliable NDT data for risk based inspection for offshore structures**
15:20 **Reliable NDT data for risk based inspection for offshore structures**
A. ROUHAN, LABORATORIE DE GENIE CIVIL, NANTES (FRANCE)
- 15:40 Coffee break
- 12 Optimization of risk/cost ratio for the maintenance of in service components through the assessment of NDT reliability**
15:55 **Optimization of risk/cost ratio for the maintenance of in service components through the assessment of NDT reliability**
C. OZZANO, C. CAPPABIANCA, ANSALDO RICERCH E SRL, GENOVA (ITALY)
- 16:15 **Breakout session No 1 (page 4)**
-17:30
- 17:30 **Poster session (with refreshments)**
-19:00

METHODS AND RELIABILITY FOR DEMINING SESSION

- 13 Keynote:**
8:30 **NDT – strategy for enhancing Mine Detection Reliability**
V. KRSTELJ, UNIVERSITY OF ZAGREB, DEP. FOR QUALITY, ZAGREB (CROATIA)
- 14 Accidents and incidents in Humanitarian demining - the need to keep accurate records for meaningful analysis**
9:00 A.V. SMITH, AVS, MONMOUTH, WALES (UK)
- 15 The International Pilot Project for Technology Co-operation evaluation of the performance of metal detectors for humanitarian demining**
9:20 J. DEAN, INSTITUTE FOR THE PROTECTION AND SECURITY OF THE CITIZEN, ISPRA (ITALY); Y. DAS, (CANADA); D. LEWIS, (UK); J.H.J. ROOSENBOOM, (NETHERLANDS), G. ZAHACZEWSKY, (USA)
- 16 Experiences in applying POD and ROC evaluation schemes to the demining process**
9:40 D.M. REIDY, U.S. ARMY CECOM NVESD DEMING, FORT BELVOIR, VA (USA)
- 17 Creating ROC by altering classification rule**
10:00 D. ANTONIC, CTT, ZAGREB (CROATIA)
- 10:20 Coffee break
- 18 The mine situation in Croatia and the strategy of CROMAC for reliable mine clearance until 2010**
10:40 D. GORSETA, N. PAVKOVIC, D. ANTONIC, CROATIAN MINE ACTION CENTER, ZAGREB (CROATIA)
- 19 The Use of ROC Curves for Evaluating Mine Detection Systems Performance**
11:00 E.M. ROSEN, INSTITUTE FOR DEFENSE ANALYSES, ALEXANDRIA, VA (USA)

- 20** **Creating meaningful pre-condition for highly reliable Mine-Clearing - the „GICHD Mechanical Demining Equipment Catalogue“**
11:20 D. SCHROEDER, GICHD, GENEVA (SWITZERLAND)
- 21** **Lessons Learned from the IPPTC Hand Held Metal Detector Project**
11:40 H.E. BERTRAND, INSTITUTE FOR DEFENSE ANALYSES, ALEXANDRIA, VA (USA)
- 22** **HOPE – Raising the reliability of mine detection through an innovative hand held multi-sensor (MD, GPR, MWR) mine detector prototype with imaging capabilities**
12:00 P. DRUYTS, ROYAL MILITARY ACADEMY, BRUSSELS (BELGIUM); B.A. MERTZ, (DENMARK), G. TRILTZSCH, (DENMARK), M. PEICHL, (DENMARK)
- 12:20 Lunch and **Breakout session No 2** (page 4)

POD ESTIMATION METHODS AND MODELLING SESSION

- 23 Keynote:**
14:00 **Raising the standard on NDE Applications**
W.D. RUMMEL, D & W ENTERPRISES, LTD., DENVER, CO (USA)
- 24 Computer Modelling and Simulation for**
14:30 **Prediction of POD and Inspection Reliability**
M. WALL, NATIONAL NDT CENTRE, CULHAM (UK)
- 25 The Application of POD Data in Inspection**
14:50 **Planning using the Inspection Value Method (IVM)**
M. WALL, J. LILLEY, NATIONAL NDT CENTRE, CULHAM (UK)
- 26 Issues in the Determination of Probability of**
15:10 **detection Using Field Inspection Data**
D.S. FORSYTH, S. SAFISADEH, A. FAHR, INSTITUTE FOR
AEROSPACE RESEARCH, OTTAWA (CANADA)
- 15:30 Coffee break
- 27 Simulation of NDT technique, qualification and**
15:50 **POD**
P. BENOIST, CEA, PARIS (FRANCE)
- 28 Essentials in managing NDE reliability within the**
16:10 **life time conception of the US AirForce**
S. VUKELICH, US AIRFORCE, DAYTON (USA)
- 29 Influence of Application Parameters on the**
16:30 **Reliability of POD-Curves**
G. TOBER, T. MEIER, AIRBUS BREMEN (GERMANY)
- 16:50 **Breakout session No 3 (page 4)**
-18:00
- 20:00 CONFERENCE EVENING
Reception in a traditional Berlin restaurant
This conference evening is enclosed in the conference fee. Additional tickets for accompanying persons may be purchased at € 30,-.

POD ESTIMATION METHODS AND MODELLING (CONT.)

- 30 ENIQ technical Justification to demonstrate procedure capability**
8:30
A. ERIKSSON, T. SELDIS, M. MELBI, EC-JOINT RESEARCH CENTRE, PETTEN (NETHERLANDS)
- 31 Experiences with Evaluation of Performance Demonstration Data – POD Experimental Design and Analysis**
8:50
F.W. SPENCER, SANDIA NATIONAL LABORATORIES, ALBUQUERQUE, NM (USA)
- 32 Probability of Detection Methods for Corrosion Inspection**
9:10
J.R. RUDLIN, B.W. KENZIE, TWI (UK)
- 33 Providing reliable NDE procedures practically: The implementation of the ENIQ methodology in Germany**
9:30
B. NEUNDORF, HAMBURGISCHE ELECTRICITÄTS-WERKE, HAMBURG (GERMANY)
- 9:50 **Breakout session No 3** follow up and coffee break

POD ASSESSMENT CASE STUDIES AND VARIATION FACTORS ANALYSIS

- 34 Keynote:**
10:30 **Process transparency in 6 Sigma programs and its relation to quantitative NDE reliability**
L. SCHAEFER, HONEYWELL (USA)
- 35 On the Relation between Inspection Quantity and Quality**
11:00
D. STRAUB, SWISS FEDERAL INSTITUTE OF TECHNOLOGY, ZÜRICH (SWITZERLAND); M. FABER, HAVBRO
- 36 How to organise and evaluate an international round-robin test?**
11:20
F. FÜCSÖK, BUDAPEST (HUNGARY)

- 37 A study of operator performance and reliability
11:40 in camera aided visual inspection**
J. ENKVIST, STOCKHOLM UNIVERSITY, STOCKHOLM (SWEDEN)
- 38 Eddy Current Inspection Simulator
12:00 J.L. FISHER, G.L. BURKHARDT, SOUTHWEST RESEARCH
INSTITUTE, SAN ANTONIO (USA)**
- 39 Repeatability and Reproducibility concept in NDT
12:20 practice**
D. MARKUCIC, J. STEPANIC, UNIVERSITY OF ZAGREB,
DEP. FOR QUALITY, ZAGREB (CROATIA)
- 12:40 Lunch
- 40 Long term experience with evaluation and
14:00 improvement of the human factor in the reliability
of NDE**
H. STEPHEN, EPRI NDE CENTER, CHARLOTTE, NC (USA)
- 41 Transferring Manual Ultrasonic Inspection
14:20 Procedures - Results of a Pilot Study**
T. TAYLOR, M. ANDERSON, I. KADENKO, PNNL RICHLAND
(USA)
- 42 Providing reliable UT inspection technique proce-
14:40 dures within a state of the art quality assurance
system - Learning and experiences**
B. PELKA, H. RAUSCHENBACH, M. SIEGEL, J. VOLKER,
SIEMENS POWER GENERATION, BERLIN (GERMANY)
- 43 Qualification of AUT for offshore pipelaying and
15:10 the role of NDE reliability**
O. FORLI, DET NORSKE VIRITAS, HOVIK (NORWAY)
- 15:30 Coffee break
- 15:50 **Breakout session No 4** (page 4)
- 16:30 Coffee break
- 16:50 **Breakout session No 5** (page 4)
- 17:40 **Summary and Consensus**

AUTHORS

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3rd European-American Workshop on Reliability of NDE and Demining

Berlin, Germany • September 10-13, 2002

Registration

I register for the Workshop

(Please use one form for each person)

Name

First name

Title

Company

.....

Division

Street

City

Postal/ZIP Code

Country

Phone

Fax

E-mail

I want to participate in the Breakout session(s) No

1 2 3 4 5

Date

Signature

Invoice

DGZfP tax no 640/50535

Registration fee

Non-Members	€ 400,-	<input type="checkbox"/>
Member of organizing Institutes	€ 350,-	<input type="checkbox"/>
Invited Authors	€ 150,-	<input type="checkbox"/>
Students	€ 60,-	<input type="checkbox"/>
Tutorials	€ 90,-	<input type="checkbox"/>
Additional CD (proceedings)	€ 25,-	<input type="checkbox"/>

TOTAL €

Credit card / only Visa or Master

Credit card #

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Please quote **name** of participant and code »workshop«

Mail form and/or payment to:

DGZfP

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12489 Berlin, Germany

fax: +49(0)30 678 07-129

phone: +49(0)30 678 07-120

e-mail: tagungen@dgzfp.de

3rd European-American Workshop on Reliability of NDE and Demining

September 11-13, Berlin, Germany

- 43 invited papers on concepts of reliability measurement and example cases in NDE and mine searching from Europe and America
- 4 “Breakout-Sessions” for discussions of actual problems of reliability determination (Experiments for creating POD, ROC and their application in Risk Based Lifetime Management, transfer of methods to mine searching and demining, Reliability Formula and Modular Model, Calibration and Repeatability and Reproducibility. Bring your problems with you!
- 2 Pre-Conference Tutorials teaching “Hands-on-Reliability”:
 - How to create and apply POD, ROC practically and use for Lifetime analysis
 - How to create R&R (repeatability & reproducibility) analysis for NDE data
- Applications of posters still possible: tagungen@dgzfp.de, Christina.Mueller@bam.de

Details see www.nde-reliability2002.de

