Risk Based Inspection 2019

22nd – 23rd October, 2019
Amsterdam, Netherlands

New Standards, New Tools,
New Application Areas
Dr. Aleksandar Jovanović is expert in Risk Based Inspection (Most experienced European RBI Trainer) and has overall 35+ years Experience.

Aleksandar Jovanović, (1953): Worked in industry (energy), for the European Community (Belgium, Italy), in research (Argonne Ntl. Lab, Steinbeis, EU-VRi) and at universities (Germany, Japan, Serbia, France, China).

Since 2001, he is the director of the Steinbeis Advanced Risk Technologies Group in Stuttgart, Germany providing consultancy in the areas of risk assessment and risk management for industry and public sector. As from 2006, he is also the CEO of the European Virtual Institute for Integrated Risk Management (EU-VRi) and the EU Project Director and lecturer at ZIRIUS (Research Center for Interdisciplinary Risk and Innovation Studies, University of Stuttgart). He is a full professor at Steinbeis University Berlin and University of Novi Sad. His other current and previous assignments include Italy (Politecnico di Milano), France (Ecole Polytechnique), Japan (University of Tokyo), USA (La Jolla), China (Beijing Capital and North China University) and other countries.

A. Jovanović has a long-year professional experience as project manager of many large international/multinational projects in the area innovation management, new technologies, advanced data analysis and data mining, and related areas. Main clients in the projects have been from the EU, national governments (Norway, Belgium, Japan…), industry, utilities, insurances companies, R&D and academia. Main topics covered by the current projects deal with risk management in industry (e.g. for insurance, power, pro- cess) and include HSSE (Health, Safety, Security, Environment), RCM (Reliability Centered Maintenance), RBI (Risk-Based Inspection), KPIs (Key Performance Indicators) and RCFA (Root Cause Failure analysis) and Resilience. Sample projects managed by him include iNTeg-Risk (www.integrisk.eu-vri.eu, 19.3 million €, 80+ partners), EskomRBI (RBI for power plants in South Africa, 50,000 MWe) or SmartResilience (Resilience Indicators for critical infrastructures in Europe, www.smartresilience.eu-vri.eu).

As a “risk practitioner” A. Jovanović has contributed to the global risk community by a number of actions, such as the convener and the main author of the European standards CEN-CWA 15740 (“RBI”), EN16991:2018 (“RBIF – Risk-Based Inspection Framework”) and CEN-CWA 16449:2013 (“Management on New Technologies-Related Risks”). Currently he is the convener of the group developing ISO 31050 (“Guidance for managing
emerging risks for enhanced resilience”, 2018-2021). He is the convener of the RBI DIN Mirror Committee for RBI of the CEN TC319 for the European RBI standard EN 16991. Apart from the teaching academic courses at universities internationally (Germany, USA, Japan, Italy, South Africa for companies such as NIS-Gazprom, MOL, Slovnaft, Eskom, Shell, Bayer, EDF, EnBW), he has been regularly teaching the courses in and for industry. These course were regularly closely related to modern RBI and asset management standards such as API580, API581, ASME or EN, involving application cases relevant for the given audience and using tools applied in the particular industrial cases and shown during the courses. They were also regularly looking at the newest trends in the area, such as financial viability or digitalization.

He is a co-author of the direction-setting studies/books like the “Future Global Shocks” (OECD, 2013) or “Expert Systems in Structural Safety Assessment” (Springer), as well other 7 Books and over 200 Publications. He speaks fluently French, Italian, English, German and Serbian, and reads Spanish and Russian.

**Introduction**

Risk Based Inspection (RBI) and is an approach initially developed in and for Oil and Gas Industry has changed a lot in the year 2019. New industrial and international/European standards (such as EN 16991:2018 or new ISO standards, or the less recent API and ASME standards have been brought into the modern practice. New tools corresponding to these documents and the overall Industry 4.0 trends have been developed, and, last but least; the application area has been broadened to areas such as power and paper industry. In addition the integration of RBI with Maintenance, Process Safety Management overall Asset Management. This course will help its participants to keep abreast with these developments: both the experienced RBI practitioners and those only recently involved will find an “orientation baseline” in this course showing first-hand how these 2019-trends have been and are applied in refineries, power plants and other industry.

**Key Benefits**

- **LEARN BOTH** about the basics of RBI and about the newest developments in the area.
- **OBTAIN** highly practical approaches to a strategy that will help to improve and optimize inspection activities and effort whilst maintaining or even improving safety.
- **IMPLEMENT** new systems for your own organization that will assist in developing inspection excellence.
- GAIN new techniques and discover new tools that will improve your inspection and asset integrity performance.
- IMPROVE your own way of dealing with inspection issues by self-assessment and worked examples.
- LEARN the value of generic and individual knowledge and specific data.
- LEVERAGE the value of information to develop effective decision making strategies.
- FOCUS your time, skills and capabilities on critical areas that will make a significant difference to your asset performance.
- BENCHMARK against best practices.

Why you shouldn’t miss it? -

- To keep abreast with the newest developments in the area of RBI.
- To understand/rehearse basic principles improve risk management results.
- To understand how you can include RBI in the overall process of the company risk and asset management.
- To improve your current strategies of improving reliability and availability of the asset by planning and executing those inspections that are needed.
- To optimize scope of inspections plans by increasing safety and reducing costs.
- To improve mitigation risk of failures and their financial and operational consequences.
- To increase plant availability and reduce unplanned shutdown.
- To provide a more cost-effective alternative to traditional inspections by means of non-destructive testing.
- To improve adherence to current standards and codes of compliance resulting for increased.
- To interact with the leaders and peers in the RBI in industry and share best practices with them.
- To profit from the practical application cases presented.
- To discuss the alternatives when coping with the challenges such as increasing lack of time, increasing pressure for cost control and lack of adequate resources.
Who should attend?

- Plant managers, in particular asset managers
- Inspection & Maintenance personnel
- Plant Reliability engineers
- Materials and corrosion engineers.
- Plant inspectors responsible for managing the integrity of ageing process equipment, pipelines, boilers and storage tanks.
- Technicians responsible for the safe on-going operation of pressure containing equipment in oil and gas facilities and HSE personnel.
- Production and other plant engineers

Partial list of companies that have benefitted from Prof. Jovanović’s expertise:

- NIS- Gazporm
- MOL
- Slovanft
- Eskom
- Shell
- GKM
- EDF
- EnBW
- Rompetrol
- Sinopec
- Dolphine Ebergy
- AkzoNobel
- Exxon
- Tamoil
- Petronas
- Maersk
- Petrochina
- OMV
- Sabic

Training daily schedule:

The daily schedule will follow the pattern expressed below:

08:30 - Morning coffee & registration, Course Begins at 09:00
10:30 - Morning refreshments and networking break
11:00 - Course re-commences
12:45 - Networking luncheon
14:00 - Course re-commences
15:30 - Afternoon refreshments and networking break
16:00 - Course re-commences, Course concludes at 17:30
Amsterdam is located in the Western Netherlands, in the province of North Holland, although it is not its capital which is Haarlem. Amsterdam is connected to the North Sea through the long North Sea Canal. Amsterdam is intensely urbanised, as is the Amsterdam metropolitan area surrounding the city.

Certification & feedback:
Certification of achievement and attendance will be issued on the successful attendance, completion and passing the end of course assessment.
The feedback will collected by the lecturer using web-based interactive tools (Slido).

KeyTopics
- Data Collection for RBI
- Risk Analysis
- Consequence of Failure
- Likelihood of Failure
- How Inspection Affects Risk
- Assessing Inspection Effectiveness
- RBI Inspection Planning
- RBI Inspection and Task Management
- Benefit & Limitations of RBI
- Case Studies
- Example of major chemical accidents/incidents with inspection or materials & corrosion
- Short comings as cause of the incidents
Day 1

ASSET INTEGRITY MANAGEMENT (AIM) IN THE PROCESS INDUSTRY

- Discussion: Audience perception of AIM
- Process Safety and Asset Integrity Management (AIM) – A holistic approach and its basic elements (RBI + RCM + SIS)
- RBI as a part of AIM
- Relationship between RBI and RCM (reliability Centered Mainance) and SIS (Safety Instrumented Systems)
- Role of Risk Based Inspection within AIM and Continuous Improvement
- RBI: typical benefits & limitations

RISK ASSESSMENT CONCEPTS

- Discussion: Audience perception of risk assessments
- What is risk?
- Risk management & risk reduction
- Case Study: Case histories of AIM in a refinery and in a power plant
- New standards
  -EN
  -API
  -ASME

INTRODUCTION TO RISK-BASED INSPECTION

- Key elements of an RBI Program – The major steps
- Consequence of Failure
- Probability/ Likelihood of Failure
- Types of RBI assessments
- Understanding how RBI can help to manage operating risks
- Relationship between RBI and other (risk-based) initiatives
- Jurisdictional requirements

DAMAGE MECHANISMS AND FAILURE MODES

- Identification of degradation mechanisms
- Preparation of corrosion loops
- Establishment of Integrity Operating Window

APPLYING RBI PRACTICALLY

- Establishing objectives & goals of a RBI assessment
- Data quality required versus data available
- Resources and budget issues
- Scope of the RBI analysis
- Legal requirements
- RBI software versus other IT based solutions like Asset
- Integrity Software with RBI tool

Case Study: Case Histories of major industrial incidents
Group Discussion: Cases of damage
Day 2

APPLYING RBI PRACTICALLY: ASSESSING PROBABILITY/ LIKELIHOOD OFF FAILURES (POF/ LOF)

- Introduction to probability/ likelihood analysis
- Types of probability/ likelihood analysis
- Accumulated damage

APPLYING RBI PRACTICALLY: ASSESSING CONSEQUENCE OF FAILURE (COF)

- Intro to consequence analysis
- Consequence Categories to be included or not
- Types of probability/ likelihood analysis

APPLYING RBI PRACTICALLY: RISK MANAGEMENT AND RISK-BASED INSPECTION PLANNING

- The Risk Matrix and Risk Management
- Risk target
- Inspection effectiveness
- Intrusive versus non-intrusive strategies
- Classic and advanced NDE technology
- Inspection strategies based and RBI results
- Inspection measures to address specific failure modes and degradation mechanisms

CLOSING SESSION

- Examples of RBI Pitfalls
- Q&A session

There will be examples throughout the course to demonstrate how to deal with individual steps when performing an RBI analysis. Question and Answer: Open session to discuss any aspects of the training and cover off items identified at the start of the session which have not been covered.

POST-TRAINING COURSE ASSESSMENT (END OF DAY TWO & END OF COURSE)
Registration Form
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Payment Method
☐ BANK/TELEGRAPHIC TRANSFER (Overseas delegates may pay by Telegraphic Transfer)  ☐ CREDIT CARD PAYMENT (3% Transaction Fee)
☐ Visa ☐ Eurocard/Mastercard ☐ AmEx ☐ Diners Club
Card Billing Address: 
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City: 
Post/Zip Code: 
Card Holder’s Name: 
Card Holder’s Signature: 
Card Number: 
Visa CVV Number or Eurocard/Mastercard CVV
(last 3 digits on the back of the card)
Valid from / / 
Expiry Date / /
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I hereby declare I am authorised to sign this contract and terms & conditions in the name of the company/organisation:

NAME: 
DATE: 
Signature: 
Booking is invalid without a signature

Agreed Price of the service
Delegate Fee Per Participants

Normal Registration

18 € administration charge
If you wish to pay in USD ($) or GBP (£) please contact us for more details.

Sumit Peer, Founder / CEO
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Venue: You can be assured of a comfortable, convenient learning environment throughout the duration of the course. We will send out the venue confirmation 2 weeks before the course commences.

Accommodation: Accommodation is not included in the registration fee. To reserve hotel accommodation kindly contact: masterclass.registration@aurelius.in

Cancellation Terms & Conditions: CANCELLATION must be received in writing at least 30 days before the event. All bookings carry a 50% cancellation fee immediately after a signed contract has been received by Aurelius CS.

Cancellations within 7 days notice from the event date will not be able to obtain a full refund for any future events. NO Refund will be made available. Upon the completion and receipt of the registration form, payment is required within 5 working days of the invoice date.

Indemnity: Should for any reason outside the control of Aurelius CS Training & Consultancy, the venue or trainer’s change, or the event being cancelled due to an act of terrorism, extreme weather conditions or industrial actions, Aurelius CS shall be under no obligation to refund or reschedule such event and client hereby indemnifies and holds Aurelius CS harmless from and against any and all costs, damages and expenses, including attorney fees which are incurred by the client. The construction, validity and performance of this contract shall be governed in all respects by the laws of India to the exclusive jurisdiction of whose courts the Parties hereby submit.

FEES are inclusive of refreshments & course materials. Meals (in delegate with payment) will only be admitted on the basis of spaces availability at the event and with immediate full payment. Full payment prior to the event is mandatory for attendance. In the event that AURELIUS CS permanently cancels the event for any reason whatsoever, (including, but not limited to any force majeure occasion) and provided that the event is not postponed to a later date nor is rescheduled with another event, the Client shall receive a credit voucher for the amount that the Client has paid to such permanently cancelled event, valid for up to one year from the event.

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CLIENT hereby agrees that this contract is valid, binding & enforceable and client has no basis to claim any payment under this contract at anytime, improper, disputed or unauthorized in any way.
In-House Trainings

- Specific industries face specific problems. They require niche information and solutions. In-House Training is precisely engineered to your needs.

- Taking place in the privacy of your company, including real-life case studies and best practices, the course is led by an independent industry expert.

- We have the best subject matter experts (empanelled with us) globally which further help us to draft agenda in line of needs & which is delivered at the convenient time & venue to you.

- Provide your employees a unique learning experience without having to leave the office, interruption of work and duties & incurring travel costs.

Do you need a different topic, venue or date?
 ABOUT AURELIUS

Aurelius Corporate Solutions is a first of its kind on demand Insourcing Multiplier. We are a one stop shop for all technical and functional Insourcing Needs. Being an Insourcing Multiplier, with almost a decade of experience we facilitate in-sourcing fission across organization (technical and functional), by enabling your people to do your business better. We are a one of its kind Insourcing Multiplier – we help solve business problems, this is done through our clan of empanelled SMEs real time on anytime any where basis. Aurelius gets its farsighted and guiding path light from its Founding Leaders, who bring with them several decades of technology sales and marketing experience, coming from an IVY League University, the Management has travelled more than 60 countries for business before starting this Venture.

WE ENABLE YOUR PEOPLE TO DELIVER YOUR BUSINESS BETTER

So far we have successfully delivered more than 1000 plus unique techno-functional in-sourcing projects, in and around 30 countries. We today boost of 700 plus corporate customers most of which are Fortune 500 companies. We have enabled more than 70 K plus professionals worldwide in over 30 plus countries. Aurelius has a clan of 100,000 plus clan of global SME empanneled worldwide and there are about 100 plus media houses and publications nationally and internationally which have written about Aurelius and spoken for the work and contributions done so far.

Masterclasses is yet another feather in our hat. Through these advanced Masterclasses we are able to provide solutions to some of the most complex and advanced subjects within the industry. We believe we can source and channel the most complex and updated knowledge in various industrial sectors and provide them to the organizations who need it to reach their true potential.