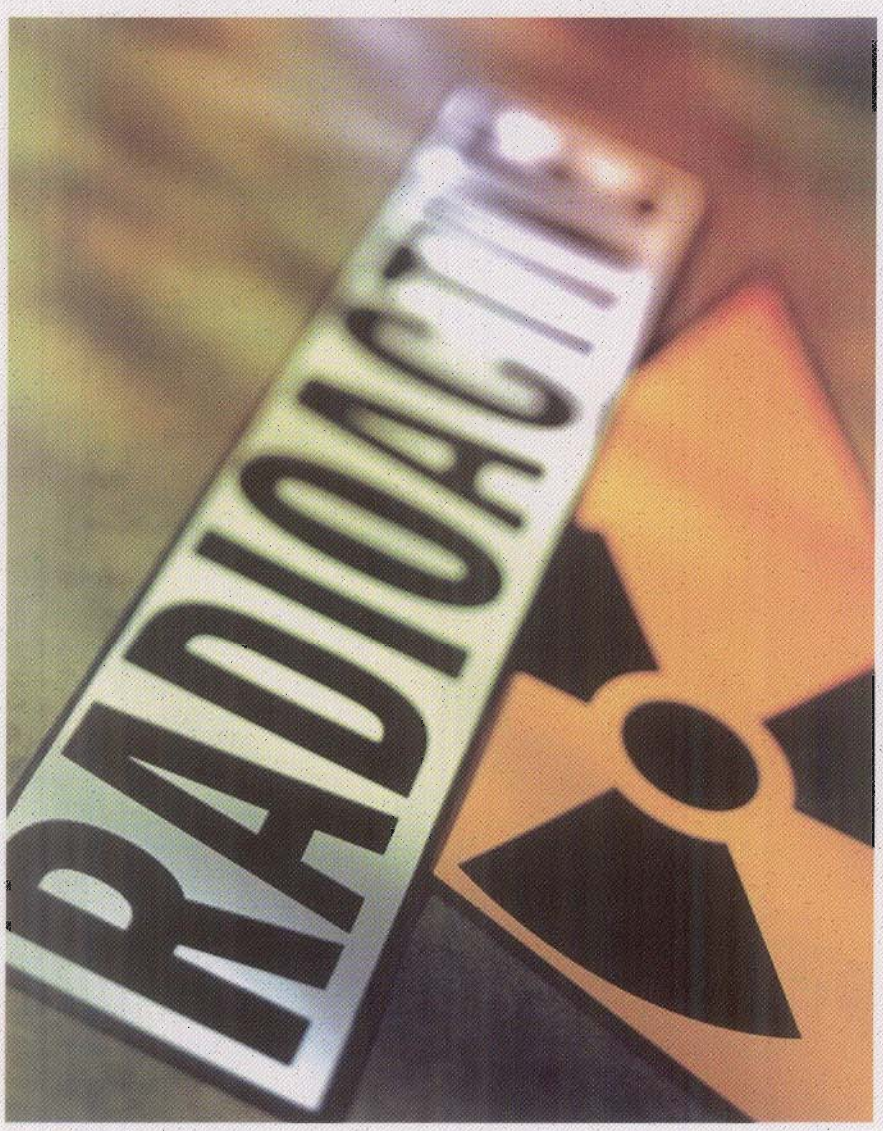
مكتب المستشار الوطني
NATIONAL CONSULTING BUREAU

Tracerco
UK

RADIATION TRAINING COURSES



- RPS/RPO for all industrial users
- RPS/RPO for users of unsealed material in Labs
- RPS/RPO Gauge Users
- RPS/RPO Radiography
- RPS/RPO Well Logging
- RPS/RPO Naturally Occurring Radioactive Material
- RPS/RPO Users of X-Rays
- Radiation Waste Management
- Radiation Awareness

Tel. : +9712-6658200 – Fax : +9712-6653303 – P.O. Box : 26356 – Abu Dhabi – U. A. E.
E-mail : natconsl@emirates.net.ae www.wahibtraining.com

Tracerco (U K)

Tracerco is a truly international business, delivering a range of process diagnostic services including Radiation monitoring & Protection services, specialist measurement solutions and sophisticated taggants, platforms to the global process industry. With more than 40 years of experience and over 100 highly trained and experienced personnel, Tracerco is focused on adding value throughout the whole hydrocarbon chain – from reservoir optimization through to fuel brand protection solutions.

- **Tracerco has over 40 years experience working in the process industry and during this period virtually all of the major international and regional oil and gas and petrochemical companies have utilized Tracerco products and services.**
- **Tracerco has been granted the much-coveted BS EN ISO 9001/2000 quality award form Lloyds Register Quality Assurance.**
- **Tracerco delivers high quality diagnostic services and specialist measurement solutions to our customers, on time, every time.**
- **Tracerco ensures all of our staff are suitably trained and carry out their responsibilities in a safe and secure manner.**

NCB مكتب المستشار الوطني NATIONAL CONSULTING BUREAU (Kuwait – Abu Dhabi – Cairo)

- **National Consulting Bureau (NCB) was established in Kuwait in 1986 to provide consultation services and training courses in technical, industrial & management areas to governmental bodies and companies in the public and private sectors, especially in the oil, gas, petrochemical and power generation industries in the Gulf countries.**
- **NCB conducts around 250 courses every year in the GCC countries, either in-house or as public open courses. In addition, NCB provides hands-on practical training either on the client's site through NCB professional instructors or at**

NCB affiliated training centers, power plants, oil fields & refineries .

- NCB is a member of the International Federation of Training & Development Organizations (IFTDO) since 1995 and has representatives and training agreements with many reputed organizations such as Rike Service Inc. USA, PETROMAINT, Petroleum Research Institute, Egypt Electricity & Power Plant Authority, Construction & Civil Engineering Institute, Telecommunication Training Center, Advanced Technology Training Center.

- NCB operates two independent offices in Cairo (1992) and in Abu Dhabi (1999) to better serve the training & development needs of human resources in the GCC countries.

Contact Nos : visit our website www. wahibtraining.com

Kuwait Office :

Tel.: +965 2464794 / +965 2416273

Fax: +965 2464796

E-mail: ncbwahib@qualitynet.net

Abu Dhabi Office:

Tel.: 971 2 6658200

Fax: 971 2 6653303

E-mail: natconsl@emirates.net.ae

Cairo Office:

Tel.: +202 4010783 / +202 4010746

Fax: +202 2629397

E-mail: wahibncb@link.net

مكتب المستشار الوطني
NATIONAL CONSULTING BUREAU

Tracerco UK

RADIATION TRAINING COURSES

* COURSE OUTLINES

LIST OF COURSES	DURATION Days
▪ RPS/RPO for all industrial users	4 day
▪ RPS/RPO for users of unsealed material in Labs	3 day
▪ RPS/RPO Gauge Users	3 day
▪ RPS/RPO Radiography	3 day
▪ RPS/RPO Well Logging	3 day
▪ RPS/RPO Naturally Occurring Radioactive Material	2 day
▪ RPS/RPO Users of X-Rays	2 day
▪ Radiation Waste Management	1 day
▪ Radiation Awareness	1 day

* OBJECTIVES FOR ALL ASSESSED COURSES

* SUBJECT MATTER FOR INDIVIDUAL TOPICS
(In line with requirements)

* INSTRUCTORS

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COURSES DESCRIPTION

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NATIONAL CONSULTING BUREAU

Tracerco UK

4-Day Intensive Course
For

Radiation Protection Officers. Industrial users, oil and gas industry

Who should Attend:-

- Persons responsible for radiation protection and associated environmental issues

Course Topics:-

- Sealed sources used in nucleonic, density gauges, level gauges, radiography, down-hole tools, smoke detectors, test sources
- Unsealed material in the form of Naturally Occurring Radioactive Materials NORM

Course Content:-

- Introduction to radiation concepts
- The Role of the RPO/RPS
- Radiation Units
- Biological Effects
- Naturally Occurring Radioactive Material
- Environmental legislation, (International and local)
- Radiation dose rate and contamination monitors
- Radiation Protection methods
- Legislation ICRP /IAEA/Local
- Transportation
- Company Radiation Procedures
- Contingency Arrangements

Syndicate Exercises:-

* Monitoring
* Time, distance and shielding
* Contingency scenario
* Radiography
* Working with NORM
* Transportation

Assessments:-

- One continual assessment over the 4 days
- One end of course assessment

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مكتب المستشار الوطني
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Tracerco UK

3-Day Intensive Course
For

Radiation Protection Officers. Users of unsealed Laboratory sources

Who should Attend:-

- Persons responsible for radiation protection, disposal and use of unsealed laboratory sources.

Course Topics:

Unsealed radioactive material used in laboratories, industries & universities.

Course content:-

- Introduction to radiation concepts
- The Role of the RPS
- Radiation Properties for Alpha, Beta, Gamma, Neutron and X-ray
- Radiation Units
- Biological Effects
- Environmental legislation, (International and local)
- Radiation Protection methods
- Legislation ICRP / IAEA / Local
- Transportation
- Company Radiation Procedures
- Contingency Arrangements

Syndicate Exercises:-

- Monitoring
- Time, distance and shielding
- Working with unsealed materials
- Contingency scenario
- Transportation

Assessments:-

- One continual assessment over the 3 days
- One end of course assessment

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مكتب المستشار الوطني
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Tracerco UK

3-Day Intensive Course
For

Radiation Protection Officers. Gauge Users

Who should Attend:-

- Persons responsible for radiation protection and associated environmental issues.

Course Topics:-

Sealed sources used in level/density measuring gauges.

Course Content:

- Introduction to radiation concepts
- The Role of the RPO/RPS
- Radiation properties for Alpha, Beta, Gamma, Neutron and X-ray
- Radiation Units
- Biological Effects
- Environmental legislation, (International and local)
- Radiation dose rate and contamination monitors
- Radiation Protection methods
- Legislation ICRP / IAEA / Local
- Transportation
- Company Radiation Procedures
- Contingency arrangements

Syndicate Exercises

- Monitoring
- Time / shielding / distance
- Contingency Scenario
- Transportation

Assessments

- One continual assessment over the 3 days
- One end of course assessment

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Tracerco
UK

3-Day Intensive Course
For

Radiation Protection Officers. Radiography

Who should Attend:-

- Persons responsible for radiation protection and those using radiography sources

Course Topics

- Sealed sources and X-rays used in compound, and site Radiography operations

Course Content:-

- Introduction to radiation concepts
- The Role of the PRO / RPS
- Radiation properties for Alpha, Beta, Gamma, Neutron and X-ray
- Radiation Units
- Biological Effects
- Environmental legislation, (International and local)
- Radiation dose rate and contamination monitors
- Radiation Protection methods
- Legislation ICRP / IAEA / Local
- Transportation
- Company Radiation Procedures
- Contingency arrangements

Syndicate Exercises:-

- Monitoring
- Radiography operations
- Time / shielding / distance
- Contingency scenario
- Transportation

Assessments

- One continual assessment over the 3 days
- One end of course assessment

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Tracerco UK

3-Day Intensive Course
For

Radiation Protection Officers. Well Logging

Who should Attend:-

- Persons responsible for radiation protection and those working with ionizing radiations used in well logging

Course Topics:-

- Sealed sources and radiation generators used in down-hole tools, test sources

Course Content:-

- Introduction to radiation concepts
- The Role of the RPO / RPS
- Radiation properties for Alpha, Beta, Gamma, Neutron
- Radiation Units
- Biological Effects
- Naturally Occurring Radioactive Material (contaminated tools)
- Environmental legislation, (International and local)
- Radiation dose rate and contamination monitors
- Radiation Protection methods
- Legislation ICRP / IAEA / Local
- Transportation
- Company Radiation Procedures
- Contingency arrangements

Syndicate Exercises:-

- Monitoring
- Time, distance and shielding
- Contingency scenario
- Transportation

Assessments:-

- One continual assessment over the 3 days
- One end of course assessment

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مكتب المستشار الوطني
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Tracerco UK

2-Day Intensive Course
For

Radiation Protection Officers. Naturally Occurring Radioactive Material NORM

Who should Attend:-

- Persons responsible for radiation protection and associated environmental issues

Course Topics:-

- Unsealed material in the form of Naturally Occurring Radioactive -Materials NORM

Course Content:-

- Introduction to radiation concepts
- The Role of the RPO / RPS
- Radiation properties for Alpha, Beta, Gamma
- Radiation Units
- Biological Effects
- Naturally Occurring Radioactive Material
- Environmental legislation, (International and local)
- Radiation dose rate and contamination monitors
- Radiation Protection methods
- Legislation ICRP / IAEA / Local
- Transportation
- Company Radiation Procedures
- Contingency Arrangements

Syndicate Exercises:-

- Monitoring
- Working with NORM
- Contingency scenario
- Transportation

Assessments:-

- One continual assessment over the 2 days

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Tracerco
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2-Day Intensive Course
For

Radiation Protection Officers. X-Rays

Who should Attend:-

- Persons responsible for radiation protection and those working with Baggage x-ray units at airports. Mail inspection units in general

Course Topics:-

- X-ray generators used in Baggage units and mail inspection cabinets

Course Content:-

- Introduction to radiation concepts
- The Role of the RPO / RPS / operator
- Radiation properties, concentration on X-rays
- Radiation Units
- Biological Effects
- Radiation dose rate monitors
- Radiation Protection methods
- Legislation ICRP / IAEA / Local
- Company Radiation Procedures
- Contingency Arrangements

Syndicate Exercises:-

- Monitoring
- Time, distance and shielding
- Contingency scenario

Assessments:-

- One continual assessment over the 2 days

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One-Day Intensive Course
For

Radiation Waste Management

Who should Attend:-

- Managers responsible for radiation waste products, sealed sources / NORM

Course Topics:-

- Sealed sources used in nucleonics, density gauges, level gauges, radiography, down-hole tools, smoke detectors, test sources
- Unsealed material used in radiotracer studies. Reservoir and topside
- Unsealed materials in the form of Naturally Occurring Radioactive Materials NORM.

Course Content:-

- Introduction to radiation concepts
- Radiation Units
- Biological Effects
- Environmental legislation, (International and local).
- Legislation ICRP / IAEA / Local
- Company Radiation Procedures
- Current and future disposal options
- NORM

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مكتب المستشار الوطني
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Tracerco
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One-Day Intensive Course
For

Radiation Awareness

Who should Attend:-

- Persons working with sealed and unsealed materials

Course Topics:-

- Sealed sources used in nucleonics, density gauges, level gauges, radiography, down-hole tools, smoke detectors, test sources
- Unsealed material used in radiotracer studies. Reservoir and topside
- Unsealed materials in the form of Naturally Occurring Radioactive Materials NORM

Course Content:-

- Introduction to radiation concepts
- Radiation properties for Alpha, Beta, Gamma, Neutron and X-ray
- Radiation Units
- Biological Effects
- Naturally occurring radioactive material
- Radiation Protection methods
- Disposal options

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مكتب المستشار الوطني
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All assessed courses

Objective for

- Ensure the delegates understand the properties of ionising radiations
- Ensure the delegates understand how ionising Radiations interacts with matter
- Ensure the delegates understand the hazards and effects of ionising Radiations
- Ensure the delegates can assess the risks and compare them with other risks in the work and home environments
- Ensure the delegates are comfortable using the units used in *radiation protection*
- Ensure the delegates are familiar with and understand the legislative framework involving ionising radiations
- Ensure that the delegates are aware of and can manage the radiation dose limits
- Ensure the delegates are aware of the different risks posed by radiation and contamination
- Ensure the delegates understand the methods of practical protection, time, distance and shielding
- Ensure the delegates are comfortable using radiation dose rate and contamination monitors
- Ensure the delegates are aware of the regulations covering transportation

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Subject Covered in Courses

Topic	Subject matter covered
Introduction	▪ Legislative guidance on training requirements ▪ Structure of the course ▪ Present and agree the objectives ▪ Ensure understanding of basic mathematics ▪ Introduce attendees and their particular use of ionising radiations
Role of the RPS/RPO	▪ Ensure the attendees are aware of the importance of the position ▪ Ensure the attendees are clear in what they will be asked to carry out ▪ Importance of continuity of record keeping
Radiation properties	▪ Radiation and Contamination ▪ Understanding of Element, Isotope, Atom Understanding of the structure of the atom ionisation ▪ Properties of Alpha, Beta, Gamma, X-ray and neutron radiations ▪ Radioactive decay and Half-life
Radiation Units	▪ Activity (Bequerel) ▪ Radiation dose (Sievert *I* Gray) ▪ Radiation dose rate ▪ Older units
Biological Effects	▪ Historical evidence ▪ Understand how radiations react with tissue ▪ Understanding of Deterministic and Stochastic effects ▪ Concepts of Somatic and Hereditary effects ▪ Awareness of background radiation levels ▪ Awareness of typical radiation doses received from flying, medical etc ▪ Comparison with other day to day risks
NORM	▪ Understanding of terminology NORM and LSA ▪ Understanding of the production of NORM ▪ Introduction to the relevant decay chains ▪ Radiation risks associated with NORM ▪ Typical radiation doses from working with NORM ▪ Industry standard protection measures used when working with NORM ▪ Awareness of the disposal options

Topic	Subject matter covered
Environmental Legislation	▪ Definition of Radioactive for specific isotopes ▪ Purpose of International legislation ▪ Purpose of Local legislation ▪ Licensing for keeping, using and disposing of radioactive materials ▪ Disposal routes available ▪ Future disposal options ▪ Records required to be maintained ▪ Responsibility of company individuals
Radiation Monitors	▪ Principals of operation GM, scintillation, Ion Chamber for both radiation dose rate and contamination monitors ▪ Know how to select the correct monitor ▪ Practical demonstration on how to use of both types of monitor ▪ Interpreting and Recording monitoring results Pre-use and function test require to be carried out Personal dosimetery
Radiation Protection methods	▪ Time, distance and shielding ▪ Concepts of internal and external hazards ▪ Use of the Inverse Square Law ▪ Awareness of legislative requirements for particular work practices ▪ Understanding of ALARA and ALARP ▪ Shielding properties Half value and Tenth values ▪ The importance of containment, hygiene and tidiness ▪ Planning and communication
Legislation ICRP / IAEA /Local	▪ Definition of Radioactive material and radiation generators ▪ Awareness of specific requirements of international legislation and how local legislation is enforced ▪ Actual - practices in place to ensure compliance ▪ Records required to be maintained ▪ Appointments of RPA / RPS *I* RPO ▪ Contingency arrangements
Transportation	▪ Definition of Radioactive Material ▪ IATA ▪ Road and Sea transport regulations ▪ Required documentation, Labeling ▪ Training requirements *I* Dangerous Goods ▪ Records to be maintained

Topic	Subject matter covered
Radiation Procedures	▪ Designation of Controlled and Supervised areas ▪ Responsibilities of appointed persons ▪ Effectiveness of procedures ▪ Auditing proving compliance with procedures ▪ Records to be retained ▪ Communication between contractors
Contingency arrangements	▪ Suitability of arrangements ▪ Fire, theft and loss of material ▪ Radiation incidents and accidents

INSTRUCTORS

1- Bill Good

Qualifications: HNC Chemistry
BA degree.
City and Guilds Further Education Teachers Training Certificate

RPA Certification: RPA 2000 from July 2003

Academic Bodies: Member of the UK Society for Radiological Protection (SRP)

Career Summary

- worked on the technical side of processing industries all my life, first in the pulp and paper industry, then in fertilisers and currently for the last 23 years in the oil and gas industry. Starting with a chemistry involvement in production and research for over 18 years in two locations in Scotland I moved to Aberdeen in the early 80's to take up a management position in the oil industry with a service company providing a range of services, which included the world's first dedicated NORM decontamination facility. It was here that I was closely involved in the regulation and management of this now internationally recognised problem for the industry.
- Joined Tracerco 13 years ago as a senior Radiation Protection Advisor with contract responsibilities for many of the major operators including BP, Chevron, Total, Conocophillips and Talisman Energy both in the UK and internationally. In this sphere I have been involved in auditing all uses of radiation within the industry and providing advice on industrial applications involving work with sealed and unsealed sources of radioactivity as well as NORM sit as an advisor on the UK Offshore Operators Association committee for radiation issues.
- Prepared and presented many forms of training courses dealing with radiation topics in the industry for a wide variety of job functions. In 1999 I presented a paper on NORM at an international symposium in London.

2- Paul Warren

Qualifications: Bsc Physics (Dunelm)
PhD Physics (Dunelm)

RPA Certification: RPA 2000 from August 2004

Academic Bodies: Member of the UK Society for Radiological Protection (SRP)

Career Summary

- Joined ICI in 1988 as a research physics before moving to Tracerco, which was at that time part of the 101 group in 1992.
- Initially a Radiation Protection Advisor before becoming the Radiation Protection manager in 2000, managing a team of 5 radiation protection advisors. In this role the team has gained ISO 9001 accreditation.
- Provided radiation protection advice to oil, gas and chemical and research companies since 1992. This work involves both formal audits and adhoc advice.
- During that period developed and provided radiation protection courses in the UK, Norway, Netherlands, UAE, Qatar and Oman. In addition a seminar on UK radiation protection practices for work in the oil and gas industries was developed and provided to Kazak officials.

- Additional work has include the design and implementation of a monitor calibration facility as well work on the development of the range of intrinsically safe radiation monitor including the first intrinsically safe contamination monitor.

3- A SMITH

Qualifications: HNC - Chemistry
ONC - Applied Physics Chemistry

Career Summary

- Tracerco Radiological Protection Services. Presentation of radiation safety training courses, calibration of radiation monitors and site audits to ensure compliance with legislative requirements. Radiation Protection Advisor to:-
- British Gas HRL, Shell (UK) Exploration & Production, BP Exploration & Production, ConocoPhillips (UK) Ltd, Perenco, Huntsman Refinery, DOW (Chemicals), ICI Uniqema.
- Undertaking radiation contaminated land surveys and advising on remedial action. Detection and advising oil and gas operators of naturally occurring radioactive material. Manager of Environmental Radiochemical Laboratory. Developing new low-level measurements for radioisotopes in the environment. Supervising and handling the logistics of a National Radiological Environmental Government contract. Undertaking radiation contaminated land surveys and advising on remedial action. Detection and advising oil and gas operators of naturally occurring radioactive material (NORM).

4- John Thomas Lambley:

Qualification:
BA Degree – Science
HNC & ONC – Applied Physics

RPA certification:
RPA 2000 Assessing Body "Certificate of Competence to be a radiation protection Advisor"

With more than 40 years of experience in the field of Radiation Protection, Mr. Lambley is a member of the Society for Radiogical Protection and is currently working as a Principal Radiation Protection Advisor (RPC) for Tracerco Business worldwide. His work experience history include working with BP Exploration, Imperical Chemical Industries, Conoco, Occidental, Unocal and British Steel. He presented several training courses in the Middle East including UAE and Egypt.

5- Graham R. Wales:

Qualification:
HNC – Applied Chemistry
ONC – Applied Physics

Mr. Graham is a Certified by RPA2000 UK Body with over 30 years of experience and working as a Senior Radiation Protection Advisor for TRACERCO providing Radiological Protection advice and training services. He presented many training courses to companies such as BP/Petrofac, Oxy Oman, QP in Qatar, ZADCO in UAE and many other companies to companies involved in the oil and gas industry.

6- Donald Urquhart:

Qualification:

MSc – Enerygy Systems & Environmental Management, Glasgow University 1993
BSc – Mathematics, Glasgow University 1988

As a Senior Radiation Protection Advisor, Mr. Donald is certified by RPA2000 UK Body. He provides Radiological Protection consultation and training services to companies in involved in the Oil & Gas Industry, such as Chevron, ConocoPhilips, Petrofac, and many other companies. He also worked as Higher Scientific Officer in the Radiation Protection Division of the Health Protection Agency (formerly Nationa Radiological Protection Board NRPB) in Glasgow – UK.

7- Nick Hutchinson

An accredited Radiation Protection Adviser (RPA) under the UK's RPA2000 Accreditation Scheme with over six years experience in the field of Radiation Protection. His main duties include the provision of RPA services to a variety of customers both within the Oil and Gas Industry (including Shell, BG Group, Bluewater, ConocoPhillips, Nexen, Aker Kvaerner, Amerada Hess, Britannia Operators Ltd). In doing so, he have dealt with a broad range of radiation applications, applying fundamental principles of radiological practice to provide customers with advice and solutions to operational, practical and management problems. As a member of the Tracerco RPA team, he is heavily involved in the design and delivery of radiation protection training courses both in-house and customised training packages that are tailored to meet the specific requirements of the client, often presented at customer sites throughout the UK and further a field. Prior to joining Tracerco he was employed by The National Radiological Protection Board, now The Health Protection Agency – Radiation Protection Division, as an RPA.