



AECS

ATOMIC ENERGY COMMISSION OF SYRIA

**Naturally Occurring Radioactive Materials
(NORM)
in the oil and gas industry**



AECS

RADIATION PROTECTION CONSULTANCY AND ADVICE

AECS teams of experienced radiation protection in the oil and gas industry are available to assist oil companies to ensure that staff working safely with radiation.

AECS offers on-site practical help on personal radiation protection regimes and interpretation of radiological data.

AECS can help oil companies to set up their NORM Management Systems and radiation protection programs for radioactive sources used in NDT, well logging and tracer techniques according to international and national standards.

AECS can help oil companies to set up action plans for remediation of contaminated sites with NORM and supervise and carry out the civil work to reach the acceptable contamination level.



RADIOLOGICAL MONITORING AND SURVEYING SERVICES



AECS can provide oil companies with accurate, reliable and cost effective on-site monitoring and surveying.



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RADIATION PROTECTION SUPERVISORS

AECS team of radiation protection supervisors has over 20 years experience in the oil and gas fields. These supervisors offer on-site practical training of the responsible staff in the oil companies to take their tasks in the radiation protection. Some of their tasks are as follows:

1. Inspection and supervision of NORM related activities.
2. Monitoring and sampling of NORM materials and equipment.
3. Insuring that radioactive wastes is stored, packaged and sent for storage area in compliance with regulations and procedures.
4. The control of NORM contamination removed from contaminated equipment and implementing the protection of workers.



SEGREGATION OF NORM CONTAMINATED EQUIPMENT



AECS team has the expertise to perform segregation of NORM contaminated equipment and tubulars to facilitate future surveys and decontamination processes.



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NORM DECONTAMINATION FACILITIES

AECS has operated NORM decontamination facility, based in Omar field, Syria, which is the first decontamination facility in the region, since 2000. New and more compact decontamination facility was designed and constructed by a joint venture agreement between AECS and Arabian Industries LLC, Sultanate of Oman in Bahja field, Petroleum Development Oman (PDO). Both facilities adopt the International Regulations and the local Regulations for the Control and Management of Radioactive Materials.



NORM DECONTAMINATION



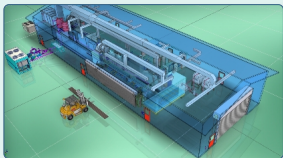
AECS staff of experienced decontamination techniques, are available to assist oil companies and to supervise and decontaminate oilfield equipment (tubulars, X-mass, valves, ESP's...) using high pressure water jetting.



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DESIGN OF NORM DECONTAMINATION FACILITIES

AECS team has the knowledge and ability to design and implement NORM decontamination facilities according to the highest technical specifications and international standards for safety and radiation protection. Mobile facilities are more efficient and cost effective.



NORM WASTE MANAGEMENT



AECS team of available experience are ready to help oil and gas companies in evaluation, proposing and executing proper and international and national approved treatment and disposal for NORM waste.



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REMEDIATION PROGRAMS FOR NORM CONTAMINATED AREAS IN THE OILFIELDS

AECS team of available experience are ready to help oil and gas companies in Remediation Program, which has the following objectives:

- 1.Minimize risks to environment; particularly those related to ground water.
- 2.Minimize risks to oil companies workers and local inhabitants.
- 3.Minimize or eliminate existing and potential future environmental liabilities.
- 4.Comply with the local regulations and international standards.



PERSONAL RADIATION DOSIMETRY SERVICES



AECS provides oil companies with an easy to use and cost effective dosimetry service. **AECS** provides film and thermoluminescence (TLD) dosimeter services.



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RADIOANALYTICAL ANALYSIS OF SCALE, SLUDGE AND CONTAMINATED SOIL

A full range of analytical services can be provided to oil companies. These includes, but not limited, the followings:

1. Analysis of produced water, sludge, scale and other materials for radioactivity.
2. Analysis of radioactive tracers used in the oil industry such as C-14, H-3 labeled compounds.
3. Physical and chemical analysis of produced water, sludge and scales
4. All analytical services are regulated by quality assurance systems according to ISO17025.



RADIATION INSTRUMENT SERVICES



AECS supplies oil companies with a comprehensive radiation instrument calibration services.

AECS SSDL laboratories efficiently calibrate, repair and test oil companies instrumentation's.



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TRAINING SERVICES

AECS is recognized by IAEA as regional training center. AECS provides several courses in the field of radiation protection in oil and gas industry.

NORM Courses are as follow:

1. NORM Awareness Course for worker (Level A).
2. NORM Awareness Course for Supervisor (Level B).
3. Radiation Protection Supervisor Course (Level C).





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SOME OF AECS CLIENTS

Shell Syria (Al-Furat Petroleum Company): radiation surveys and decontamination services.

Syrian Petroleum Company: radiation surveys, training and remediation of contaminated sites.

Der Ezzor Petroleum Company (DEZPC, Syria): radiation surveys, training, remediation of contaminated sites and decontamination services.

Arfada Petroleum Company (Syria): surveying, and training.

Petroleum Development Oman (PDO): segregation, surveying, training, and decontamination.

Arabian Industries, Oman: segregation, surveying, training, and decontamination.

OXY, Oman: training and surveys.

Petrogas, Oman: training and surveys.

Daleel Petroleum, Oman: training, radiation survey and assessment.

Tatweer Petroleum – Bahrain: sample analyses, radiation surveys, and training.

International Atomic Energy Agency: training center and consultancy house.



الشركة السورية للنفط
Syrian Petroleum Company





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