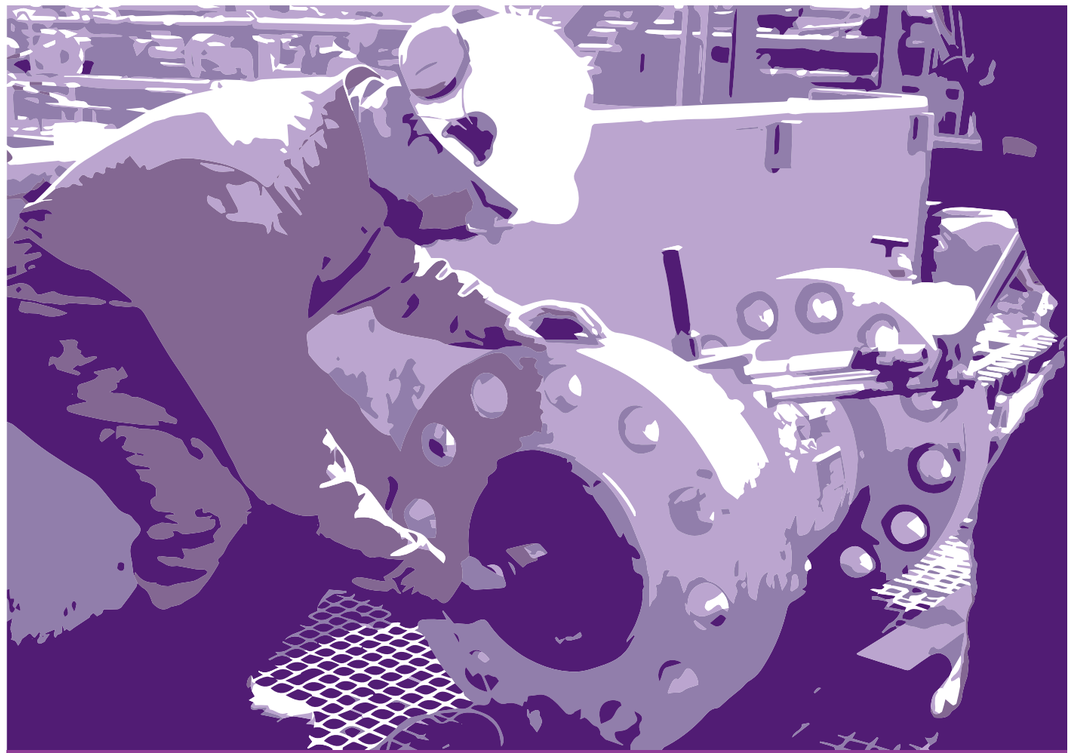

SAFETY

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# NORM/LSA

## NATURALLY OCCURRING RADIOACTIVE MATERIAL / LOW SPECIFIC ACTIVITY

June 2021

**HSEQ Direct** is a digital communication, registration and training platform with a focus on Health, Safety, the Environment and Quality.
**Designed specifically for the workplace!**

Associated IOGP Life-Saving Rules

HSEQ DIRECT safer healthier workplace

# WHAT IS IT? (1/2)

**Naturally Occurring Radioactive Material or NORM and LSA (Low Specific Activity) are the collective terms for natural radioactive substances that may be released during the production of oil and natural gas, during digging and/or other underground activities.**

# WHAT IS IT? (2/2)

During these activities, radioactive substances can rise to the surface, sometimes in a gaseous state, sometimes as salt compounds dissolved in water or in a solid form.

**In gas form:** Radon

**In liquid form:** (watery) sludges

**In solid form:** scales

# HAZARDS

- **invisible and odourless**
- **potentially harmful to health**
- **potentially harmful to the environment**

# PREVENTION (1/3)

A **Radiation Protection Supervisor** will discuss the risks associated with the work beforehand. They will be present at the workplace and will be responsible for conducting contamination measurements.

- ensure you know and understand all associated risks of NORM
- take all necessary precautionary measures
- when in doubt, consult your HSE Manager or the Radiation Protection Supervisor
- if desired or necessary, cordon off the work area

# PREVENTION (2/3)

- avoid spillage
- avoid the dispersion of radioactive particles; do not grind or brush
- keep surfaces awaiting processing wet, wherever possible
- secure components that are contaminated by NORM/ LSA and remove them in accordance with the prevailing regulations; ask your company for more specific details about this

# PREVENTION (3/3)

## PERSONAL HYGIENE

- do not eat, drink or smoke at the workplace
- wash your hands thoroughly before eating, drinking, smoking and before and after using the toilet
- beware of Personal Protection Equipment (PPE) contamination; take off and dispose of PPE only in designated areas; avoid spreading NORM/ LSA materials when taking off or disposing of PPE

# PROTECTION

- use the correct standard PPE and, if necessary, PPE instructed by the Radiation Protection Supervisor
- ensure your PPE is in good condition
- the Radiation Protection Supervisor will inspect used PPE for NORM/LSA contamination

# IN CASE OF...

**External contact**

- thoroughly wash the contaminated body parts; in most cases this will remove any contamination

**Internal contact**

- some substances will be discharged by the body, others will not
- act in accordance with the relevant work instruction; ask your company for more specific information in relation to this

**In all cases: always inform the Radiation Protection Supervisor.**

# IMPORTANT INFORMATION (1/2)

**The Radiation Protection Supervisor will discuss the risks involved before you start work.**

**Make sure you know the hazards and understand them!**

**If anything is not clear, ask!**

# IMPORTANT INFORMATION (2/2)

1 **Cordon off the area** if necessary or desirable.

2 **Avoid sludge spillage** – use leak trays.

3 Avoid dispersing radioactive dust particles – **do not grind or brush** surfaces likely to be contaminated.

4 Where possible, **keep surfaces you are not working on wet** to prevent dust gathering.

5 Secure **NORM/LSA-contaminated items** and dispose of them in accordance with the regulations of your company.

# QUESTIONS? MORE INFORMATION? UNSAFE WORKING CONDITIONS?

Your HSE Manager is there to help answer any questions and ensure a safe working environment for all.

# QUESTION 1

## What is NORM/LSA?

A. NORM and LSA are the general terms for natural radioactive materials that occur during the production of natural gas. During the production process they rise to the surface as gas.

B. NORM and LSA are the general terms for natural radioactive materials that can occur during the production of petroleum and natural gas. During the production process they can rise to the surface, sometimes as gas, sometimes as salt compounds dissolved in water or in a solid form.

C. NORM and LSA are the general terms for natural radioactive materials that occur during the production of petroleum. During the production process they rise to the surface as gas and in a  solid form.

# ANSWER 1

## What is NORM/LSA?

A. NORM and LSA are the general terms for natural radioactive materials that occur during the production of natural gas. During the production process they rise to the surface as gas.

**B. NORM and LSA are the general terms for natural radioactive materials that can occur during the production of petroleum and natural gas. During the production process they can rise to the surface, sometimes as gas, sometimes as salt compounds dissolved in water or in a solid form.**

C. NORM and LSA are the general terms for natural radioactive materials that occur during the production of petroleum. During the production process they rise to the surface as gas and in a  solid form.

# QUESTION 2

## What are the properties of radioactivity in NORM/LSA?

A. It is invisible, odorless and therefore not perceptible. It is potentially harmful to your health and the environment. You measure radioactivity levels using special measuring equipment.

B. It is invisible, odorless and therefore not perceptible. The damage to health and the environment is minimal because these materials are found naturally in small quantities. You measure radioactivity levels using special measuring equipment.

C. It is invisible, odorless and therefore not perceptible. The damage to health is minimal because these materials are found naturally in small quantities. NORM/LSA is not harmful to the environment because these materials are only found in solid form and therefore spills cannot occur. You measure radioactivity levels using special measuring equipment.

# ANSWER 2

## What are the properties of radioactivity in NORM/LSA?

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B. It is invisible, odorless and therefore not perceptible. The damage to health and the environment is minimal because these materials are found naturally in small quantities. You measure radioactivity levels using special measuring equipment.

C. It is invisible, odorless and therefore not perceptible. The damage to health is minimal because these materials are found naturally in small quantities. NORM/LSA is not harmful to the environment because these materials are only found in solid form and therefore spills cannot occur. You measure radioactivity levels using special measuring equipment.

# QUESTION 3

## What is the role of a radiation expert?

A. They advise on how to avoid release, spillage, contamination and actively cordon off the work area. In addition they secure components that are contaminated by NORM/LSA and remove them in accordance with the prevailing regulations.

B. They discuss the risks associated with the work beforehand. At the location itself they will conduct measurements of contamination levels whilst the work is being carried out.
In addition they provide extra Personal Protection Equipment.

C. They measure and register contamination levels. In addition they control the work and change procedures if necessary.

# ANSWER 3

## What is the role of a radiation expert?

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In addition they provide extra Personal Protection Equipment.

**C. They measure and register contamination levels. In addition they control the work and change procedures if necessary.**

# QUESTION 4

## Which basic Personal Protection Equipment must you use?

A. Washable overall/coverall, viton gloves (none-porous), rubber safety boots (PU) and eye protector.

B. Full-face masks with respirator, washable overall/coverall, viton gloves (none-porous), rubber safety boots (PU).

C. Washable overall/coverall, viton gloves (none-porous), plastic spray suit or paper overall/coverall in combination with rubber safety boots (PU) and eye protector.

# ANSWER 4

## Which basic Personal Protection Equipment must you use?

**A. Washable overall/coverall, viton gloves (none-porous), rubber safety boots (PU) and eye protector.**

B. Full-face masks with respirator, washable overall/coverall, viton gloves (none-porous), rubber safety boots (PU).

C. Washable overall/coverall, viton gloves (none-porous), plastic spray suit or paper overall/coverall in combination with rubber safety boots (PU) and eye protector.

# QUESTION 5

## What should you do if you are, or suspect, contamination by NORM/LSA?

A. Immediately and always inform the supervising radiation expert, if not present at the workplace. Thoroughly wash the parts of your body that may have been contaminated and act in accordance with the relevant work instruction.

B. Immediately and always inform your HSE Manager. Thoroughly wash the parts of your body that may have been contaminated and act in accordance with the relevant work instruction.

C. Immediately and always inform the supervising radiation expert, if not present at the workplace. Thoroughly wash the parts of your body that may have been contaminated and carry out a Last Minute Risk Analysis.

# ANSWER 5

## What should you do if you are, or suspect, contamination by NORM/LSA?

**A. Immediately and always inform the supervising radiation expert, if not present at the workplace. Thoroughly wash the parts of your body that may have been contaminated and act in accordance with the relevant work instruction.**

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C. Immediately and always inform the supervising radiation expert, if not present at the workplace. Thoroughly wash the parts of your body that may have been contaminated and carry out a Last Minute Risk Analysis.