



NUTEC
LIVING ENGINEERING



CSI: Radioactive

**Case 313: Radiation Protection -
Staying Safely Non-Radioactive**

Chemist

vs.

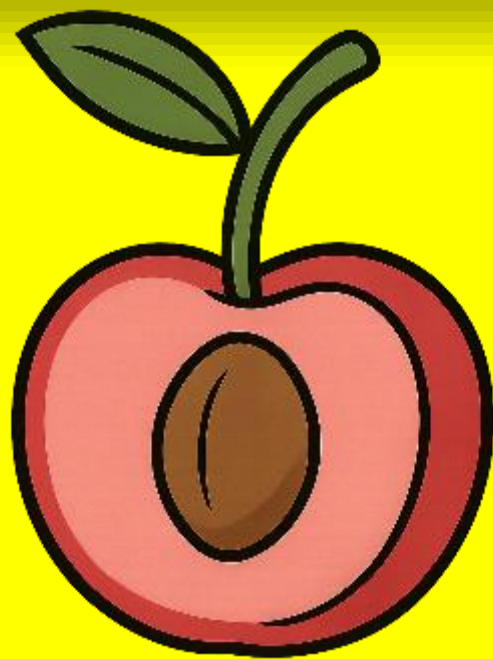
Radiochemist





Trace 1:

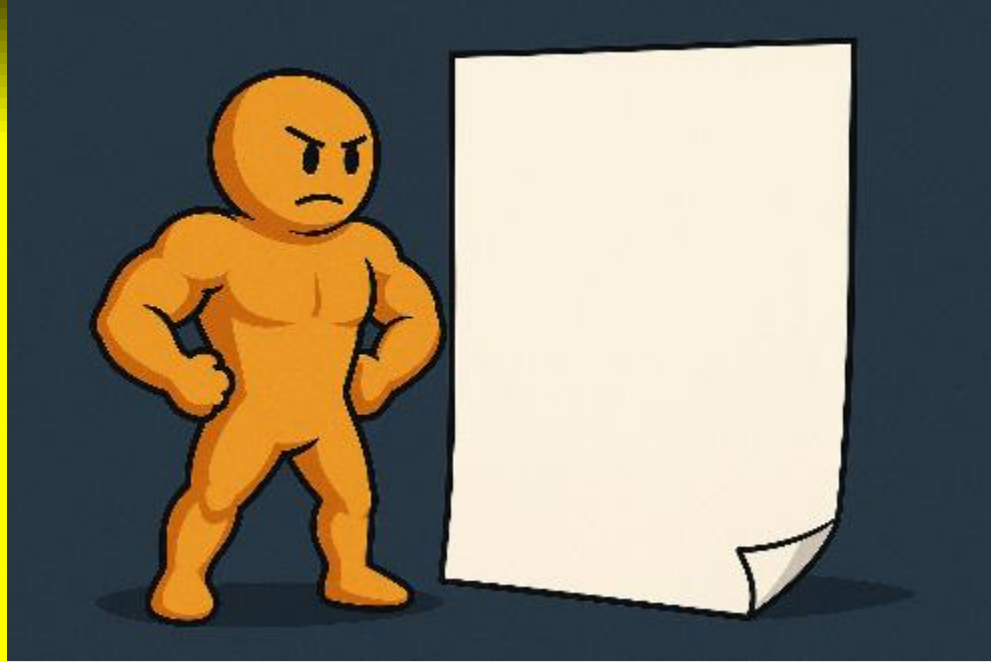
What is radioactivity?



Trace 2:

The different types of
radiation

Alpharadiation – „The musclemen“



Betaradiation – „The runner“

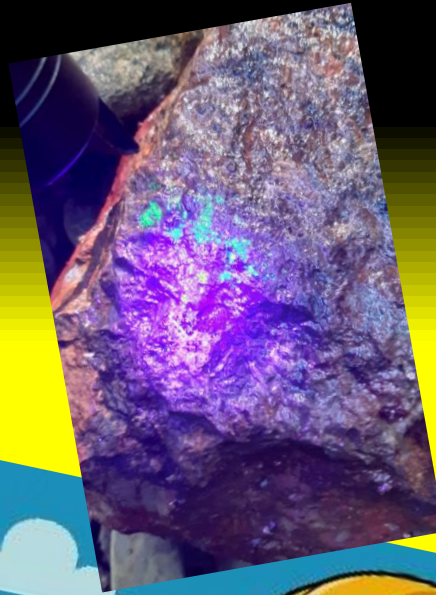


Gamma radiation – „The Diva“



Trace 3

Natural radiation



The solution:
Radiation protection



Justification

Dose Limitation

Optimization

ALARA = As Low As Reasonably Achievable

The solution:
The radiation protection
detective's Toolkit



Geiger-Müller-counter

ionization chambers

scintillation detector

contamination monitors



The solution:
The policy tape of radiation
protection



The solution:
The radiation protection
agents outfit

Protective gear – The agent's outfit

Safety helmet

Protective clothing

Safety goggles

Respiratory
protection

Safety gloves

Safety shoes



Closing the case



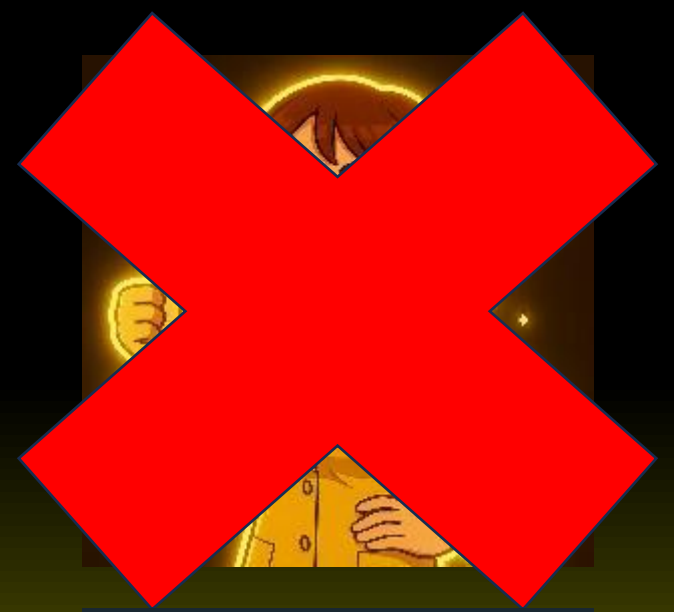
Working with radioactivity **doesn't** automatically make you radioactive



Yes, radiation carries risks, but **we know exactly** what we're doing



Radioactivity isn't a villain, just a **natural phenomenon** with clear rules





Working with radioactive materials doesn't automatically make you radioactive



Yes, radiation can cause exactly what we're talking about



Radioactivity isn't a supernatural phenomenon with magic powers



CSI:

Next Episode

Case 313:
Radiation Protection:
Staying Safely Non-Radioactive



LinkedIn



Dr. Aline Thumm

NUTEC
LIVING ENGINEERING

NUTEC GmbH

Caution:
Mystery isotope
Handle with care
...and lead.

RADIATION FACT:
You can't see it,
smell it, or taste it.
But it still needs
proper protection!



Shielding
is my
superpower

Today's plan:
☒ Wear PPE
☒ Check twice
☒ Don't be
the statistic
😊

LAB NOTES:
☒ Observe
☒ Measure
☒ Analyse
☒ Don't panic
SCIENCE WINS! ❤️



SUSPECTS:

Alpha? ☐
Beta? ☐
Gamma? ☐

Please
Follow! 😊

GEIGER COUNTER
0.13 $\mu\text{Sv/h}$
STAY CALM
AND
SMILE ON

CAUTION
COFFEE LEVEL
CRITICALLY
LOW

313

CRIME SCENE - RADIOACTIVE MATERIAL - HANDLE WITH CARE