



A Case Study Of Soil Remediation From Fuel Contamination

By Aryna Kliaimenava, Weronika Zielińska
i Zofia Świeżewska

Authors



Weronika



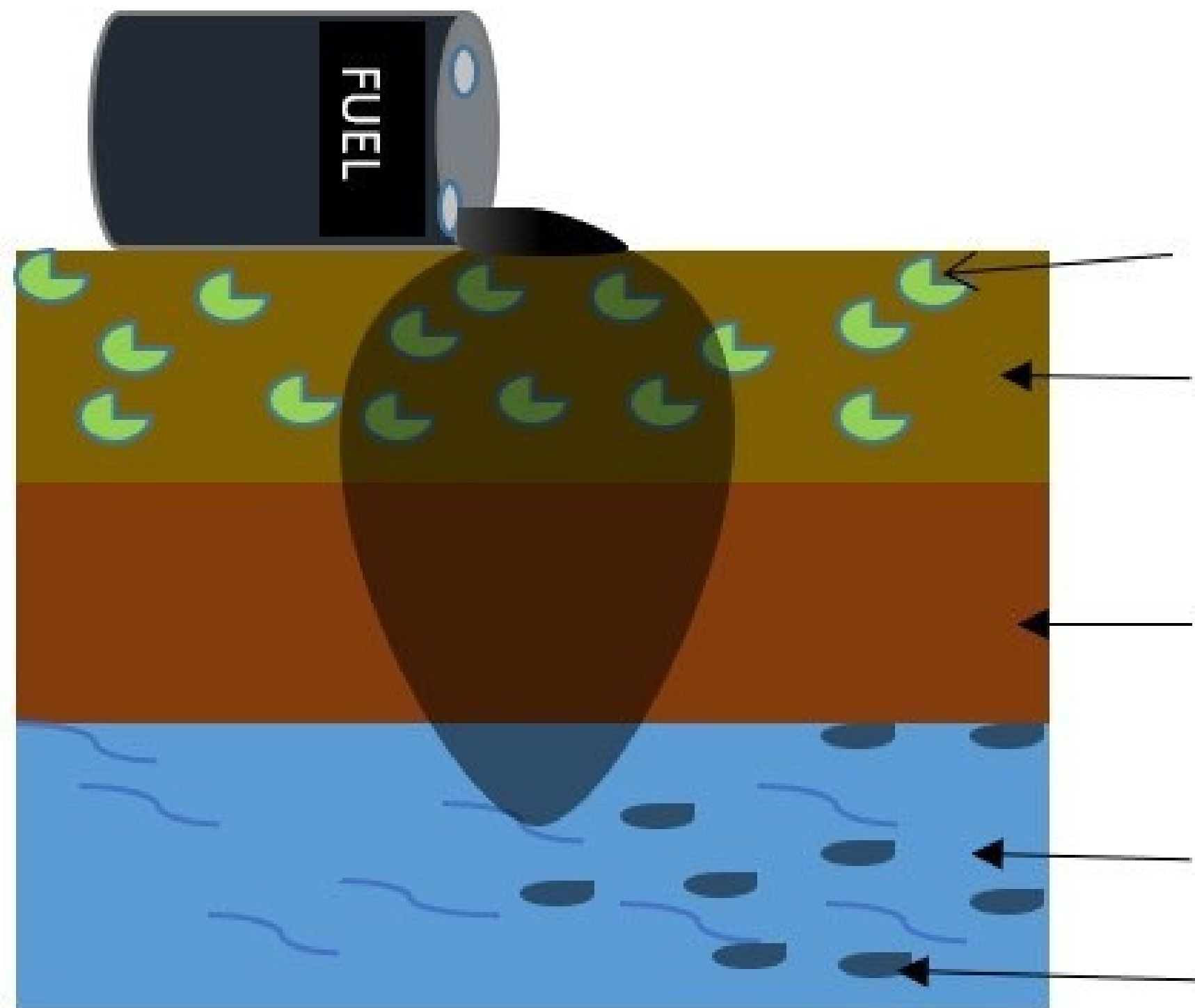
Zofia



Aryna



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Microorganisms

Aerated soil

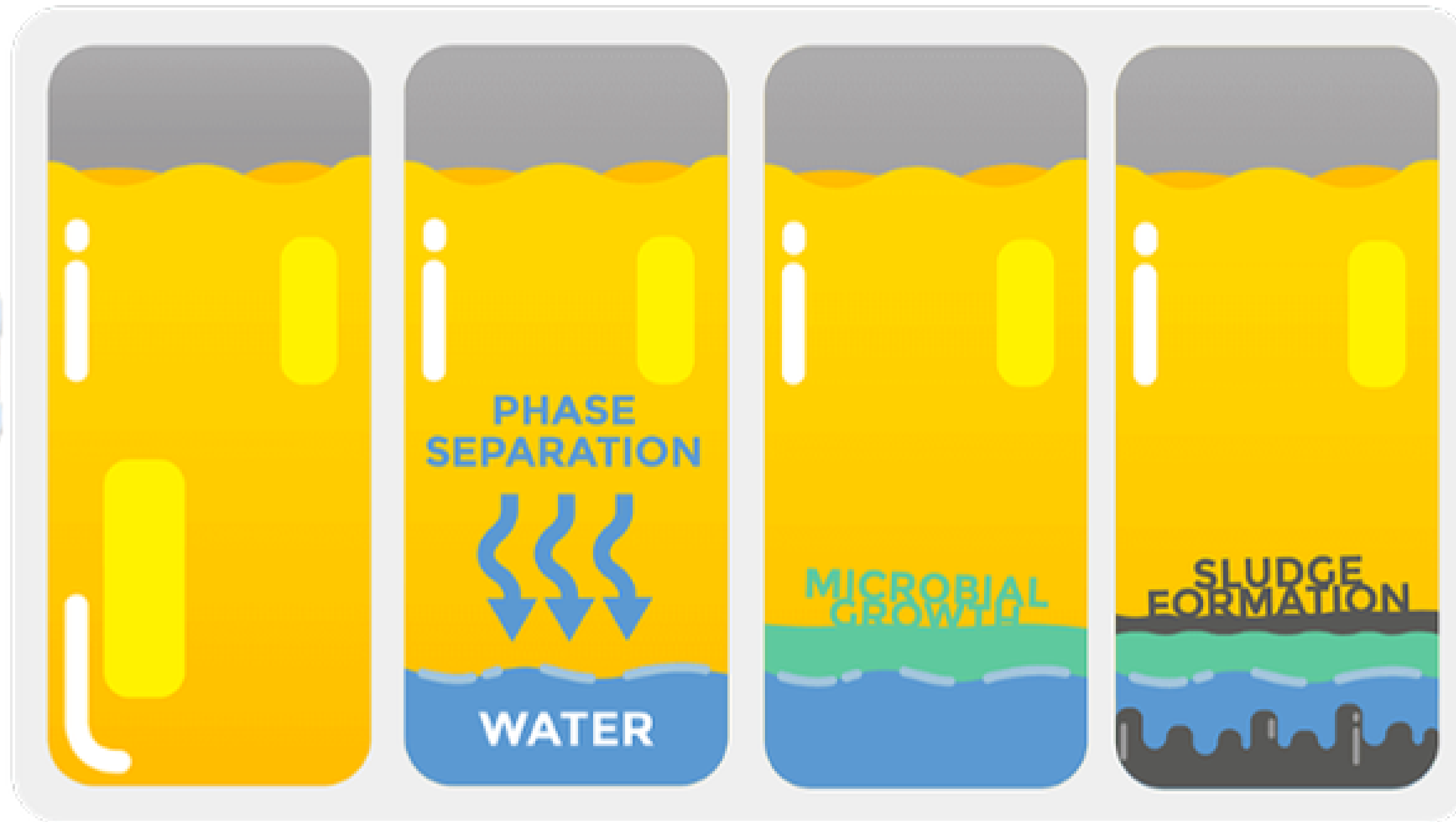
Non-aerated soil

Groundwater

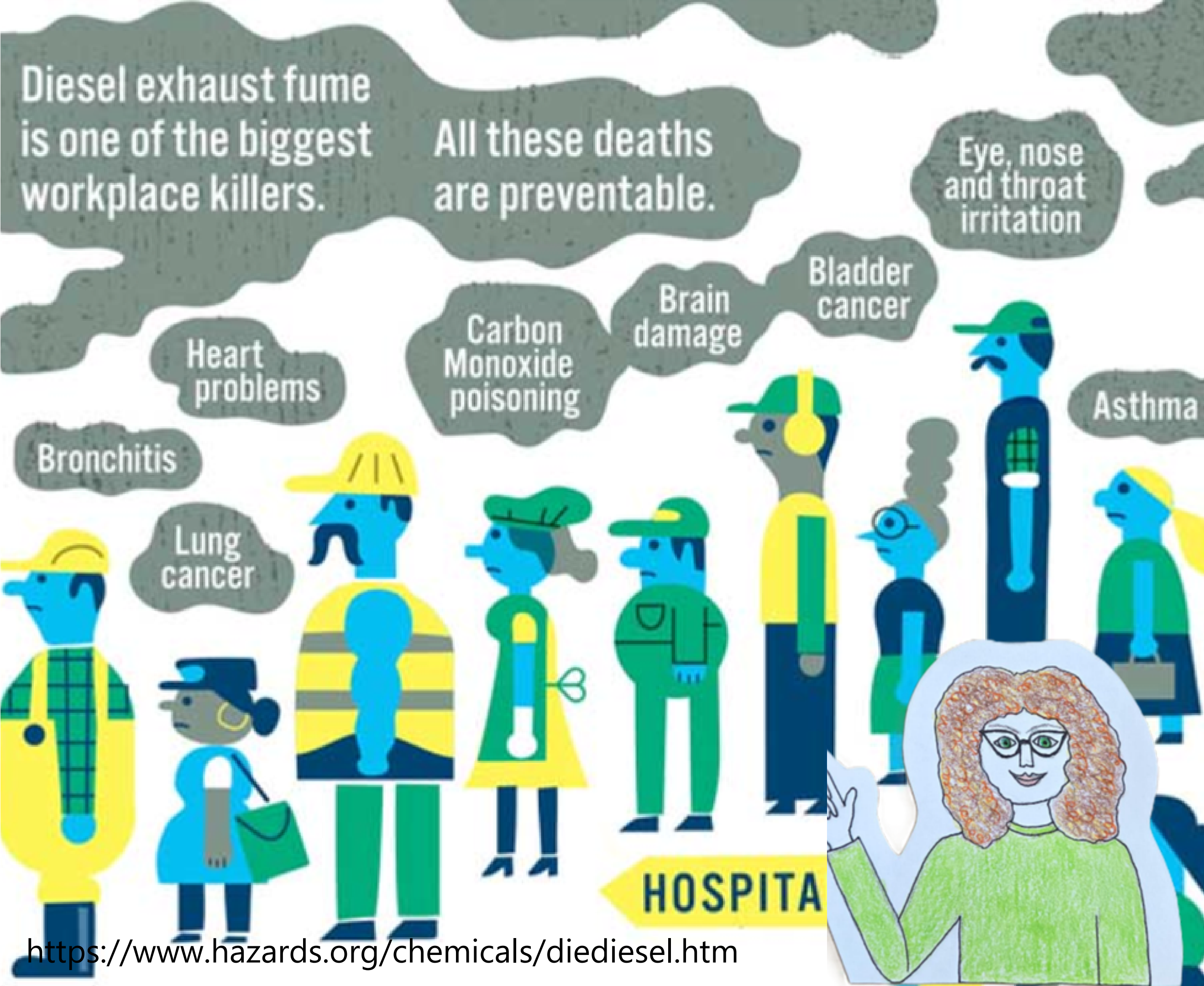
Fuel droplets



DIESEL CONTAMINATION



TIME



DIESEL FUEL OIL

DANGER

FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED. CAUSES SKIN IRRITATION. MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS. MAY CAUSE DROWSINESS OR DIZZINESS. SUSPECTED OF CAUSING CANCER. MAY CAUSE DAMAGE TO THYMUS, BLOOD, AND LIVER.



FLAMMABLE HARMFUL/IRRITANT HEALTH HAZARD

PREVENTION

Keep away from heat, sparks, and open flames. No Smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment and non-sparking tools. Take precautionary measures against static discharge. Do not breathe vapors. Wash hands and any other contaminated skin thoroughly after handling. Wear protective gloves. Use only outdoors or in a well ventilated area.

RESPONSE

IF SWALLOWED: Immediately call a poison center or doctor. Do NOT induce vomiting. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water/shower and soap. Wash contaminated clothing before reuse. IF EXPOSED OR CONCERNED: Get medical advice. Call a poison center or doctor if you feel unwell. IN CASE OF FIRE: Use foam, water spray or fog. Dry chemical, carbon dioxide or sand may be used for small fires only. Do NOT use water in a jet.

STORAGE

Store in a secure, cool and well-ventilated place. Keep container tightly closed.

DISPOSAL

Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

For more information reference SDS

<https://www.emedco.com/chemical-ghs-signs-diesel-fuel-oil-82579.html>

<https://www.hazards.org/chemicals/diediesel.htm>



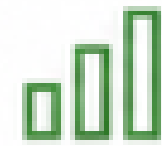
CoPol



RECOGNIZE



REMEDiate

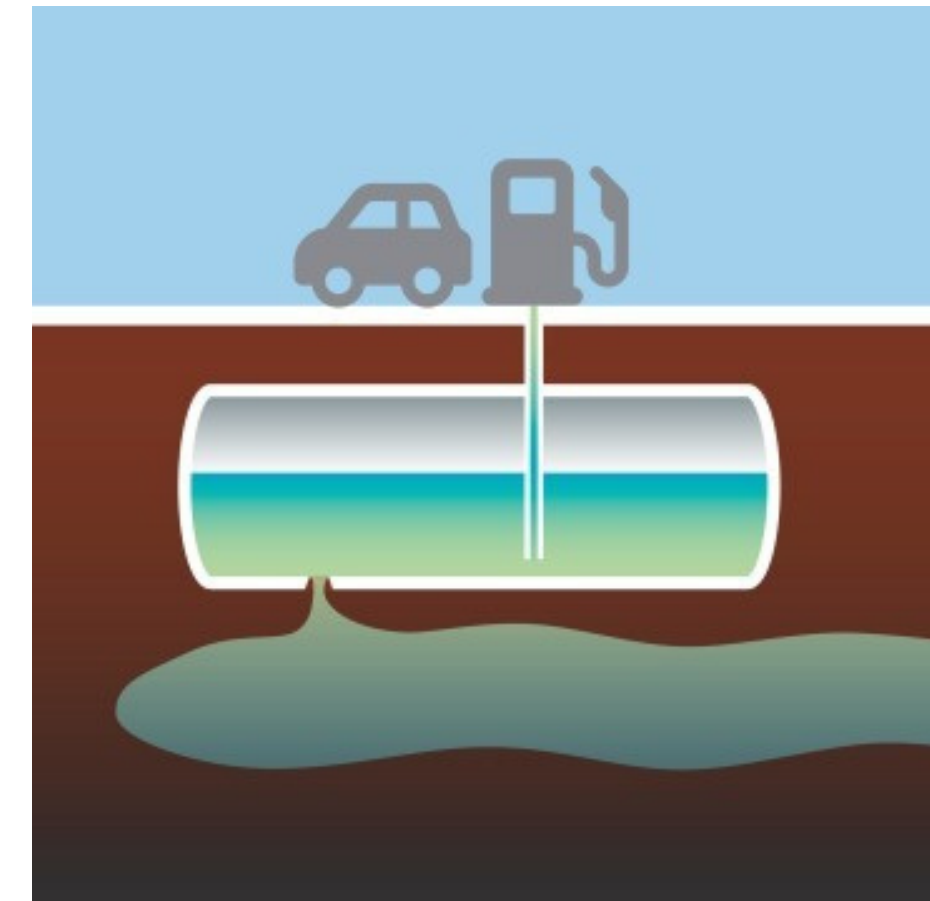


MONITOR

SOIL CONTAMINATION ASSESSMENT,
REMEDiation & MONITORING



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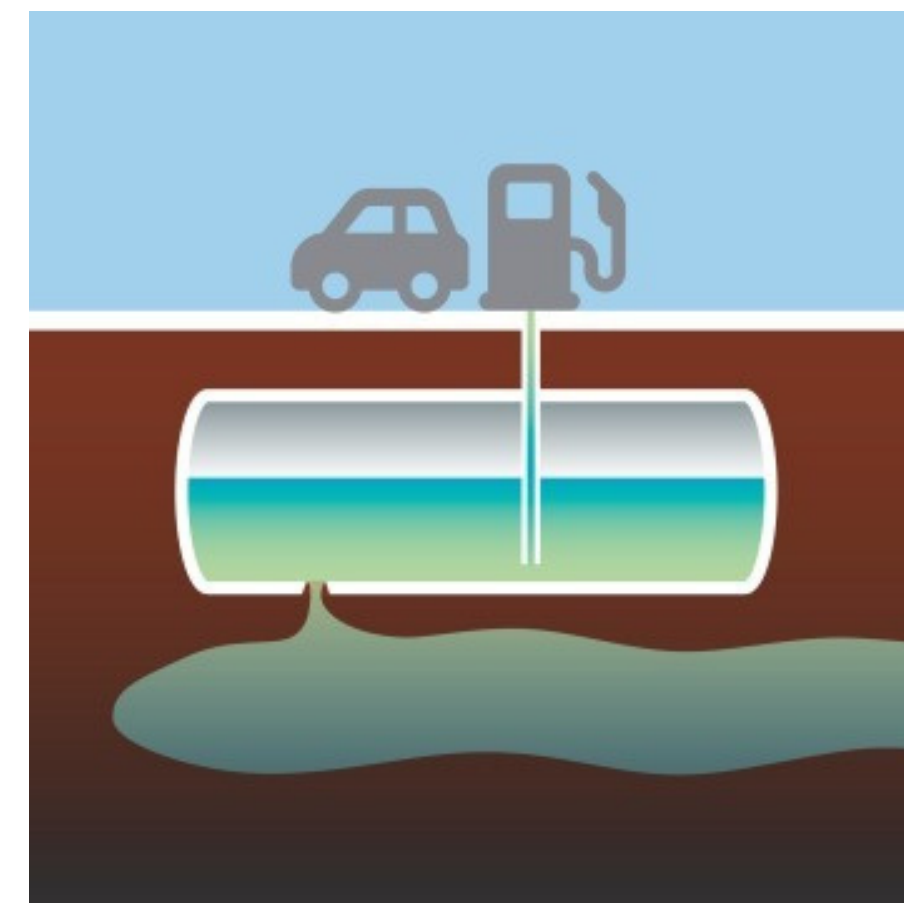
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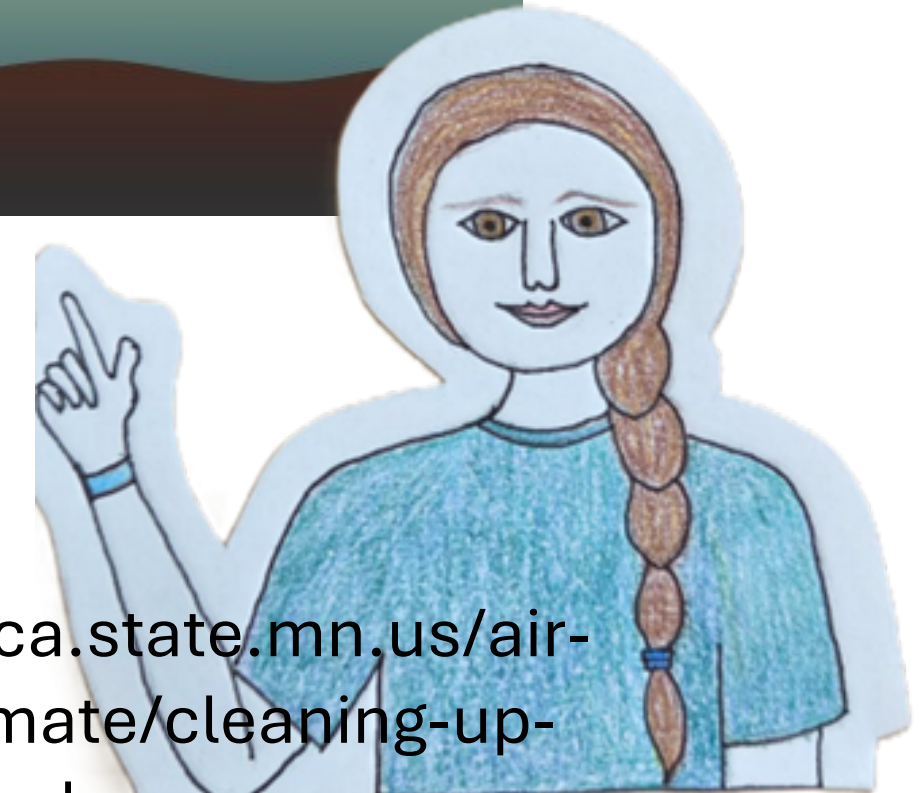
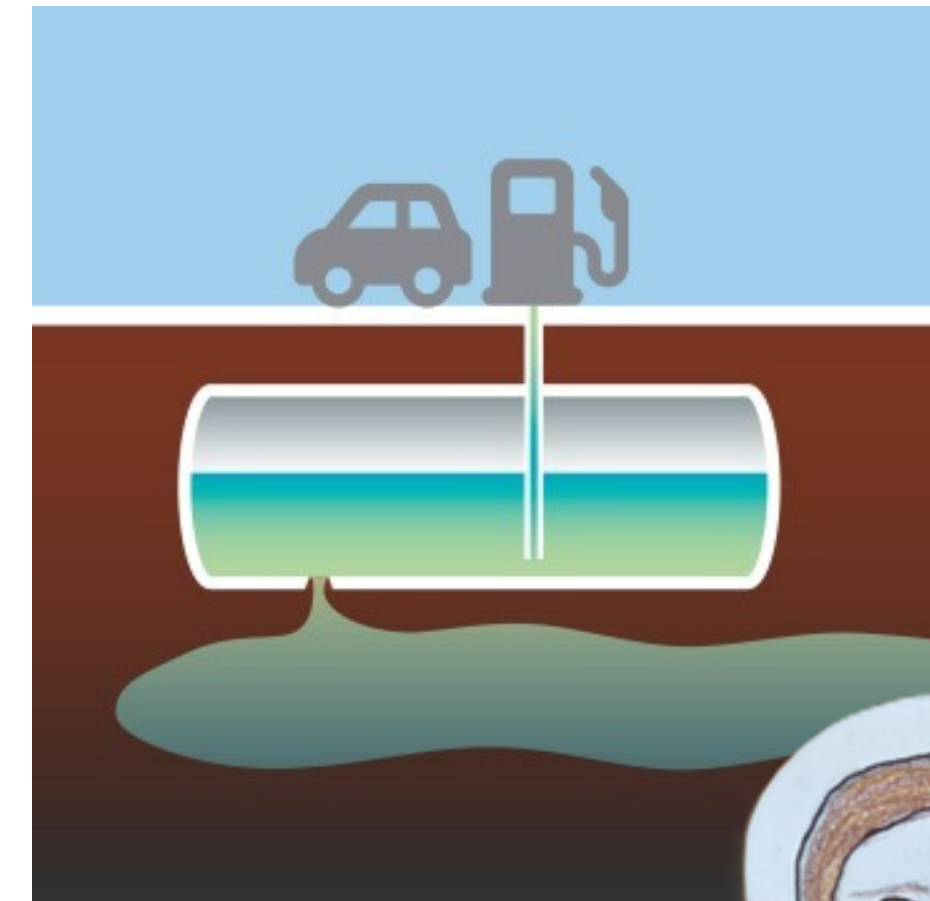


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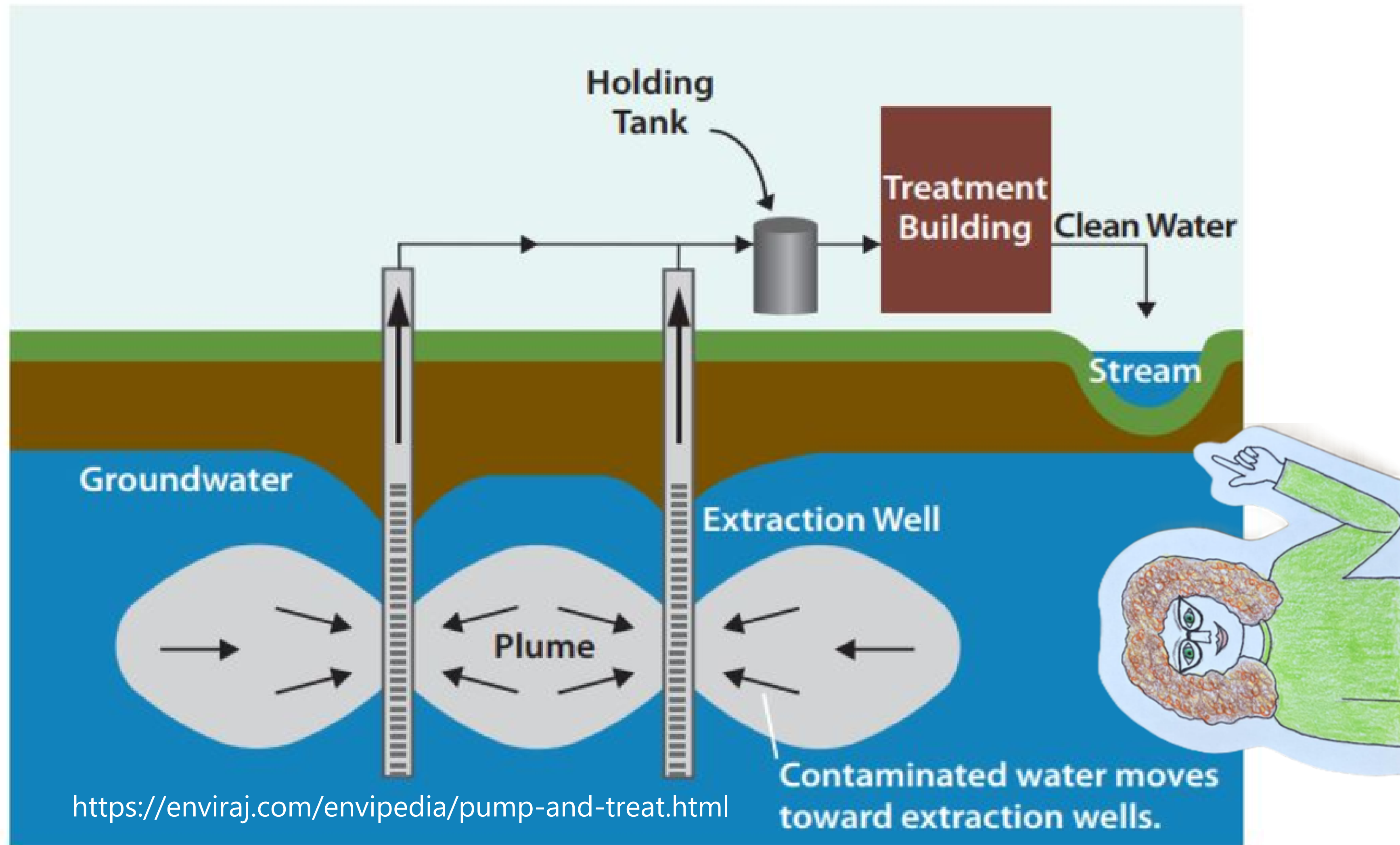
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<https://www.medonet.pl/zdrowie/zdrowie-dla-kazdego/bakterie-z-glebi-ziemi-zaskoczyly-naukowcow-maja-niezwykla-odpornosc/wmzkwxj>



Used standards



Environmental Protection Law

Regulation of the Minister of the Environment
on the Method of Conducting an Assessment of
Soil and Land Surface Contamination

Act on the Prevention and Remediation of
Environmental Damage

Used standards



PN-ISO 10381 Soil Quality – Sampling Standards

PN-EN ISO 15175, Soil Quality – Characterization of Soil in Relation to Groundwater Protection

PN-EN ISO/IEC 17025

PN-EN ISO 16072

PN-EN ISO 22030





<https://www.delfind.pl/produkt/georadar-ds2000-4/>

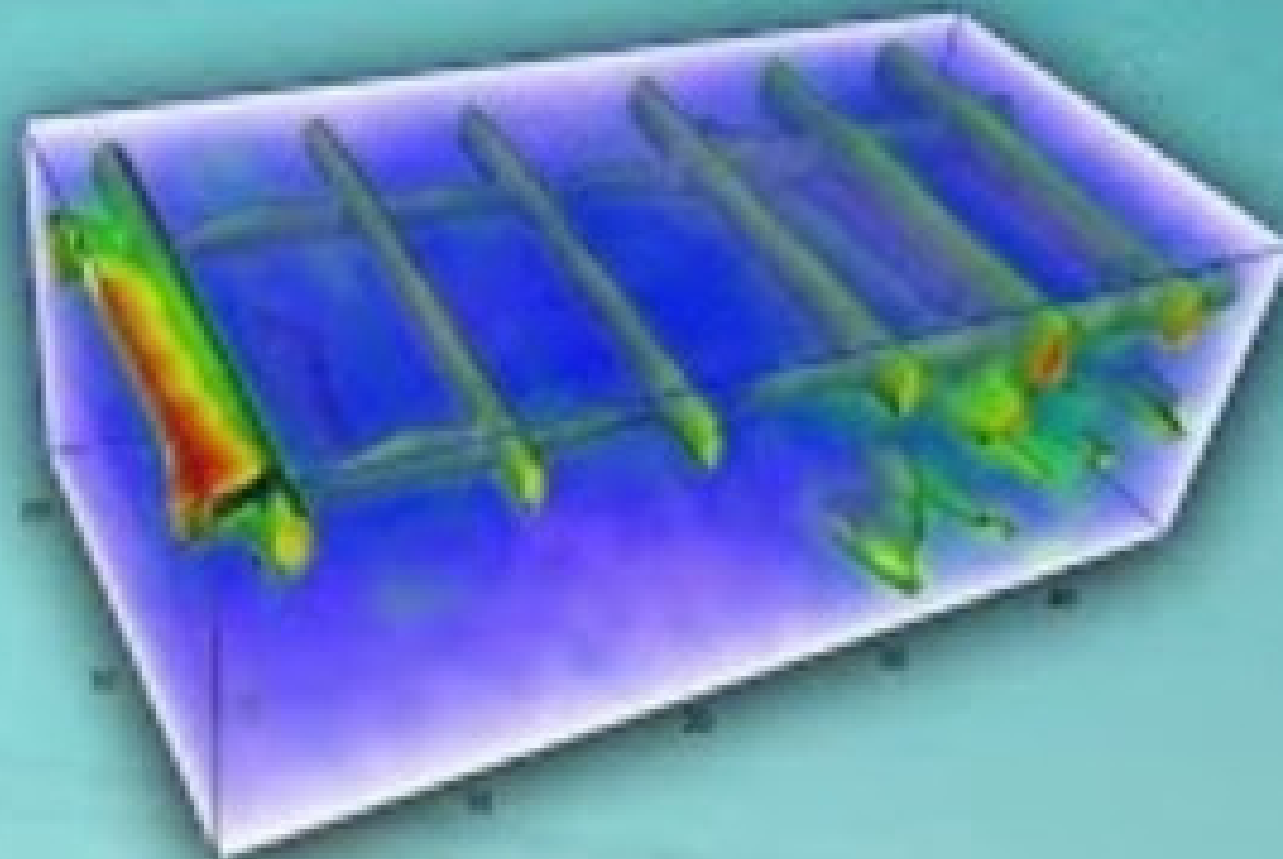
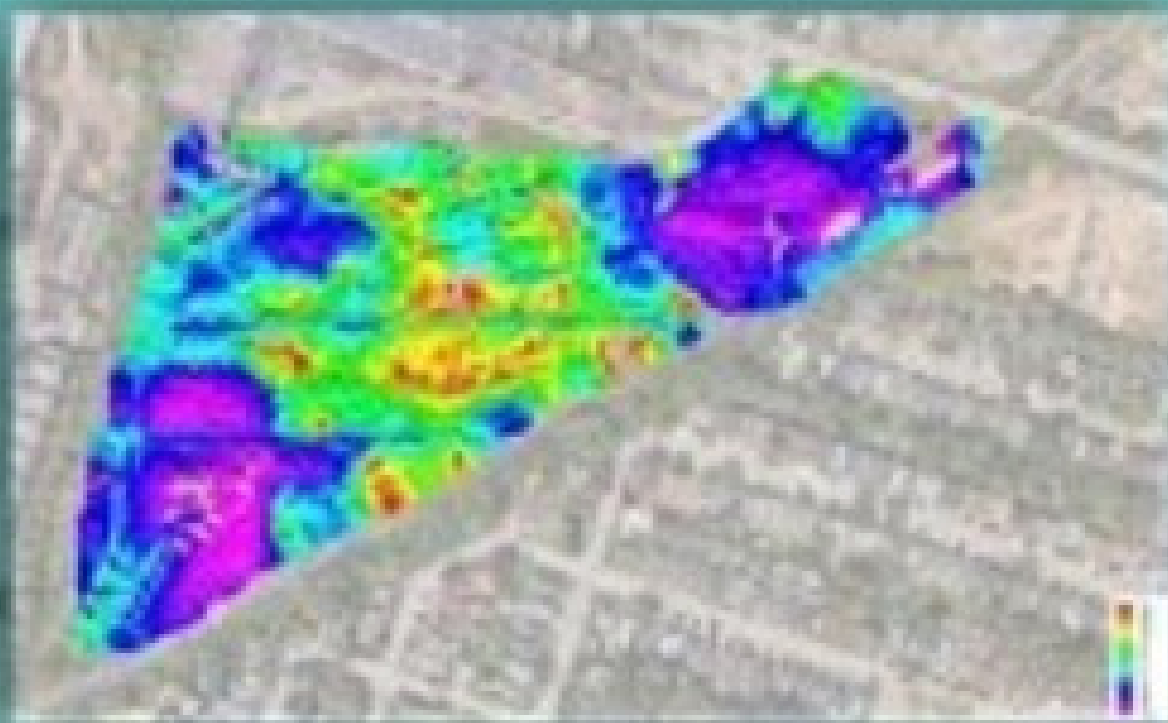


<https://pomiar24.pl/pl/aktualnosci/jaki-dron-dla-geodety-wybrac-wskazowki-cechy-i-specyfikacja-61.html>



<https://summ-it.pl/najpopularniejsze-bazy-danych-rodzaje-baz-danych/>





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EUROPEAN GREEN DEAL



<https://www.ssh.aau.dk/green-deal-or-no-deal-the-eu-s-climate-crossroads-e145771>





<https://theturfgrassgroup.com/turf-maintenance/a-healthy-lawn-starts-with-healthy-soil/>



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accordance with standards,
specified in assignment
instructions.



