



# Cleared vapor liquid separator of radioactive NORM

10 gallons of FQE® NORM-Clear removed radioactivity and saved \$30,000

## CHALLENGE

Separator contained 300 CPM of radioactivity which is above permissible limits to where it cannot be placed back into service or repurposed

## SOLUTION

- Remove NORM embedded in the metal surface of separator
- Used just 10 gallons of NORM-Clear in water to soak

## RESULTS

- Decontamination of separator below permissible limits allowed asset to be reused at a savings of \$30,000
- Simply use NORM-Clear treatment over 5 days
- No extra mixing or heating required to remove hazard

## PRODUCTS



## Radioactivity trapped in surface creating an exposure hazard

Inherently, naturally occurring radioactive materials (NORM) is prevalent in several areas of the Oil & Gas (O&G) industry. NORM is in the producing reservoir rock which we get the oil and gas from.

During the O&G production and refining operations, radioactive material can accumulate throughout the process. Mineral scale deposits from hard brine water may contain radium (226Ra or 228Ra). In natural gas transfer or processing operations, radon gas is prevalent which decays to radioactive polonium (214Po) or lead (210Pb).

These radioactive materials get deposited, entrained, or even trapped in the surface of the metal to present a radioactive hazard. A metal surface may appear perfectly clean but have a radioactive signature which could unknowingly expose personnel with radiation.

## Fill, soak, and drain

The client filled the separator (12 feet tall x 14 inches diameter) with a 10% solution of NORM-Clear in water which equated to only 10 gallons of product. The solution sat at ambient June Texas temperatures with no extra mixing for 5 days. The tank was drained and tested to verify that the original 300 CPM was restored to background levels. A simple procedure of fill, soak, and drain was executed successfully.

## Safer, easier, and cost effective

The radioactive NORM was removed from the process unit which mitigated and removed the NORM health exposure risks. The alternative scenario was a waste disposal cost of \$10-15,000 plus a replacement and installation cost of \$12-15,000 for a new unit with installation. Decontaminating with 10 gallons of NORM-Clear was not only more responsible but also provided a significant cost savings.



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## CASE HISTORY

NORM CLEAR saves radioactive Vapor Liquid Separator

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