

Crude Desalter Level Problems and the Nuclear Option

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Separation vessels Desalters

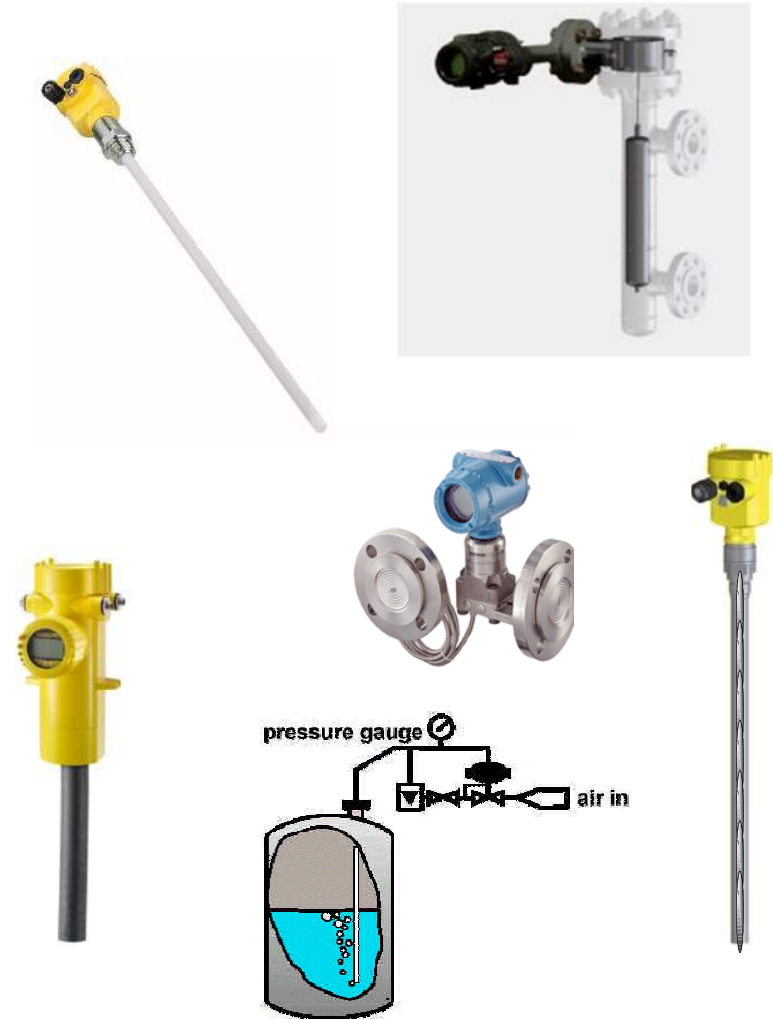


What technologies are used to measure interface level in separation vessels?

Separation Measurements

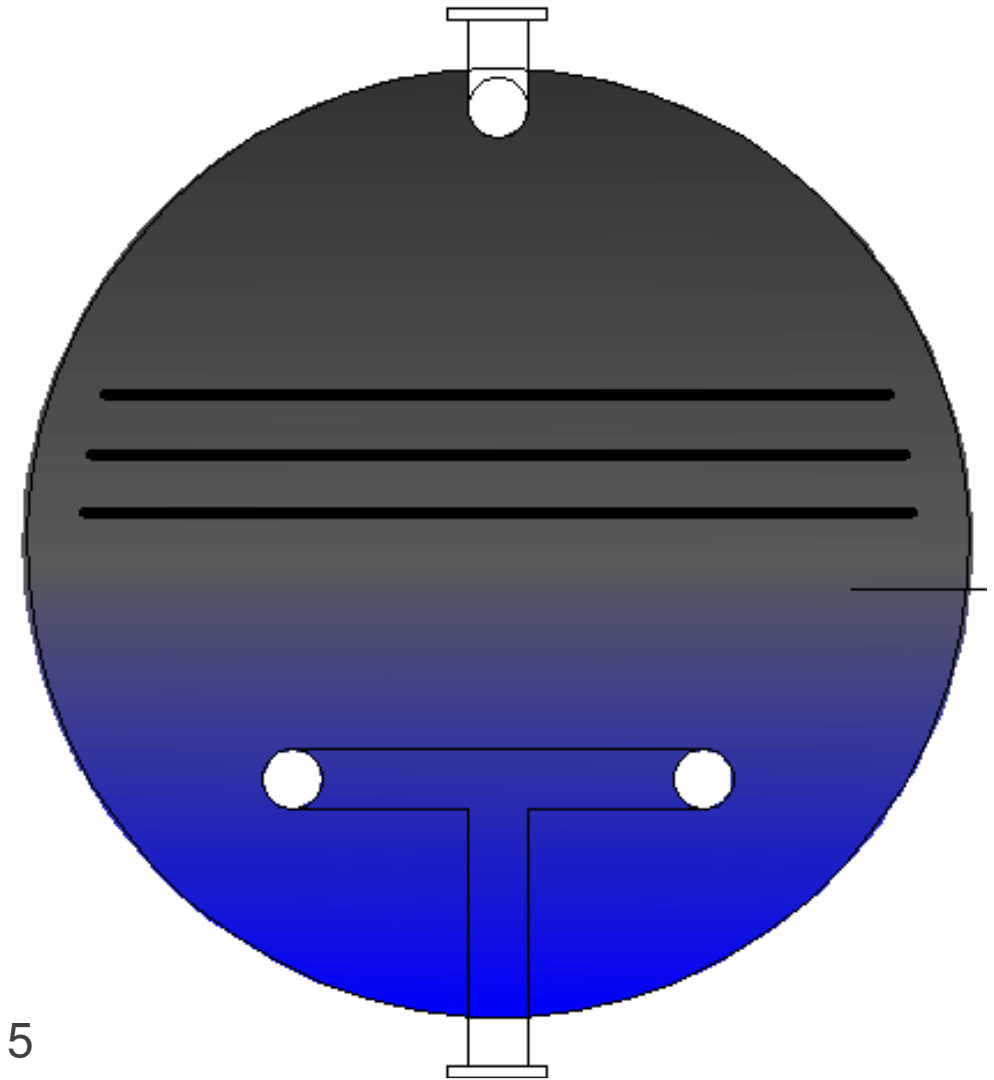
When the interface is “clean”, several technologies can be used

- Guided Wave Radar
- Displacers
- Differential Pressure
- Capacitance
- Bubblers
- Nuclear



Clean Interface

Most interface level technologies measure a physical characteristic of the process fluids and infer a level.



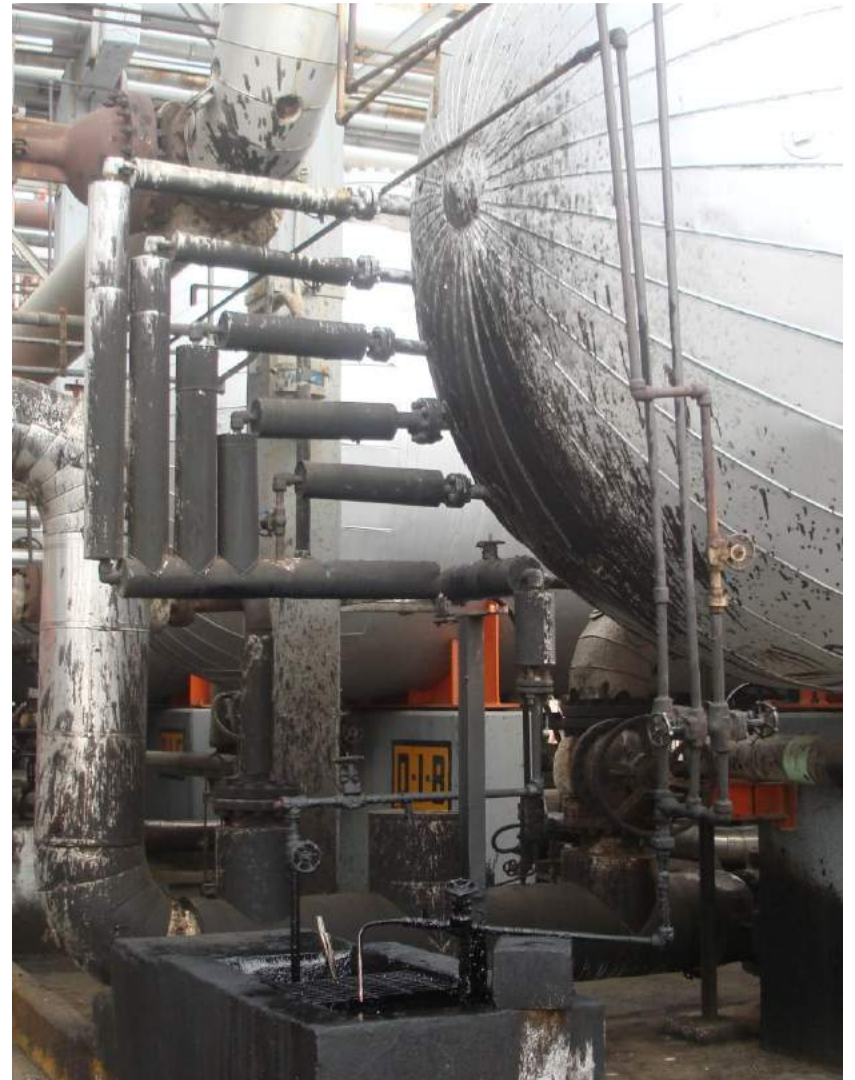
Reality with Emulsions

Manual Sampling Systems

Resulting in Over / Under treatment of emulsion

Water too high into the grid

Oil under carry into the WWTP

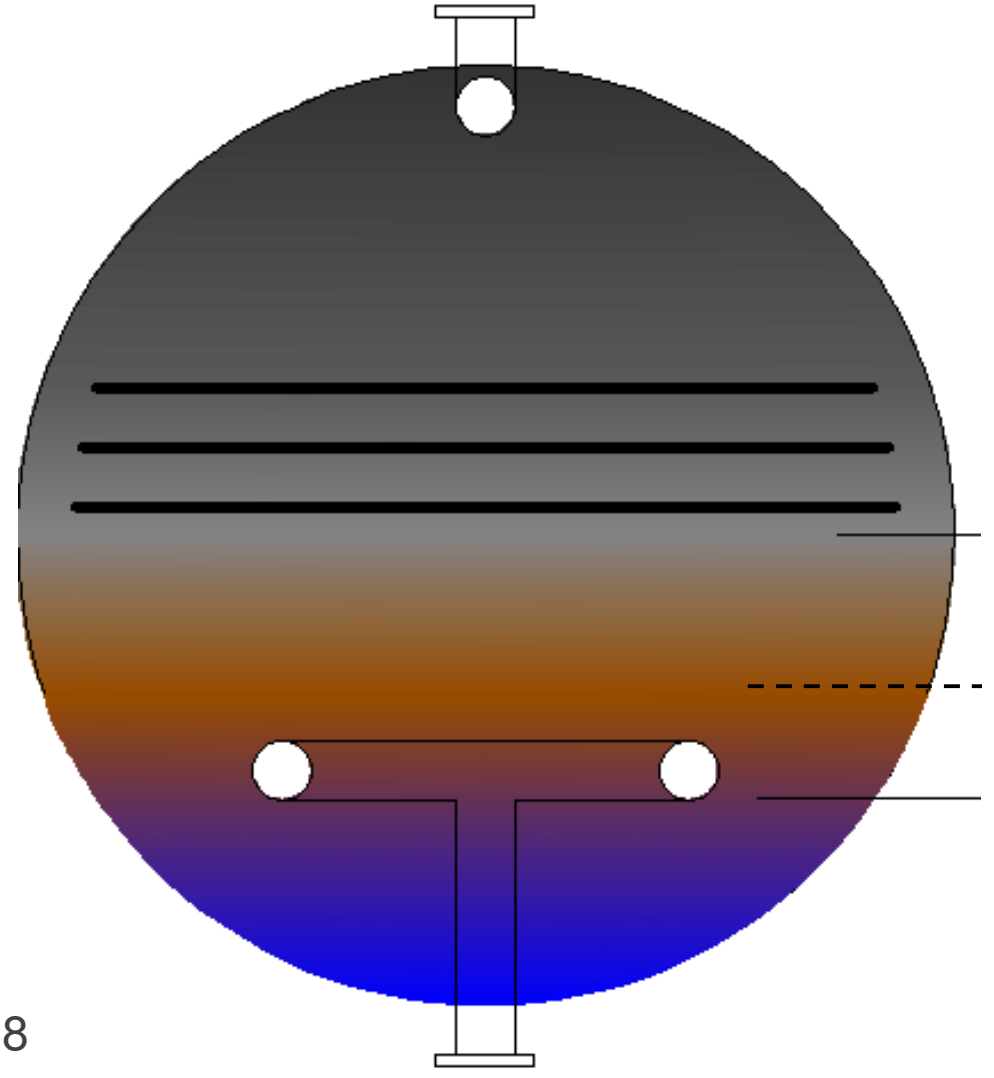


How effective are they really???

Emulsion layers

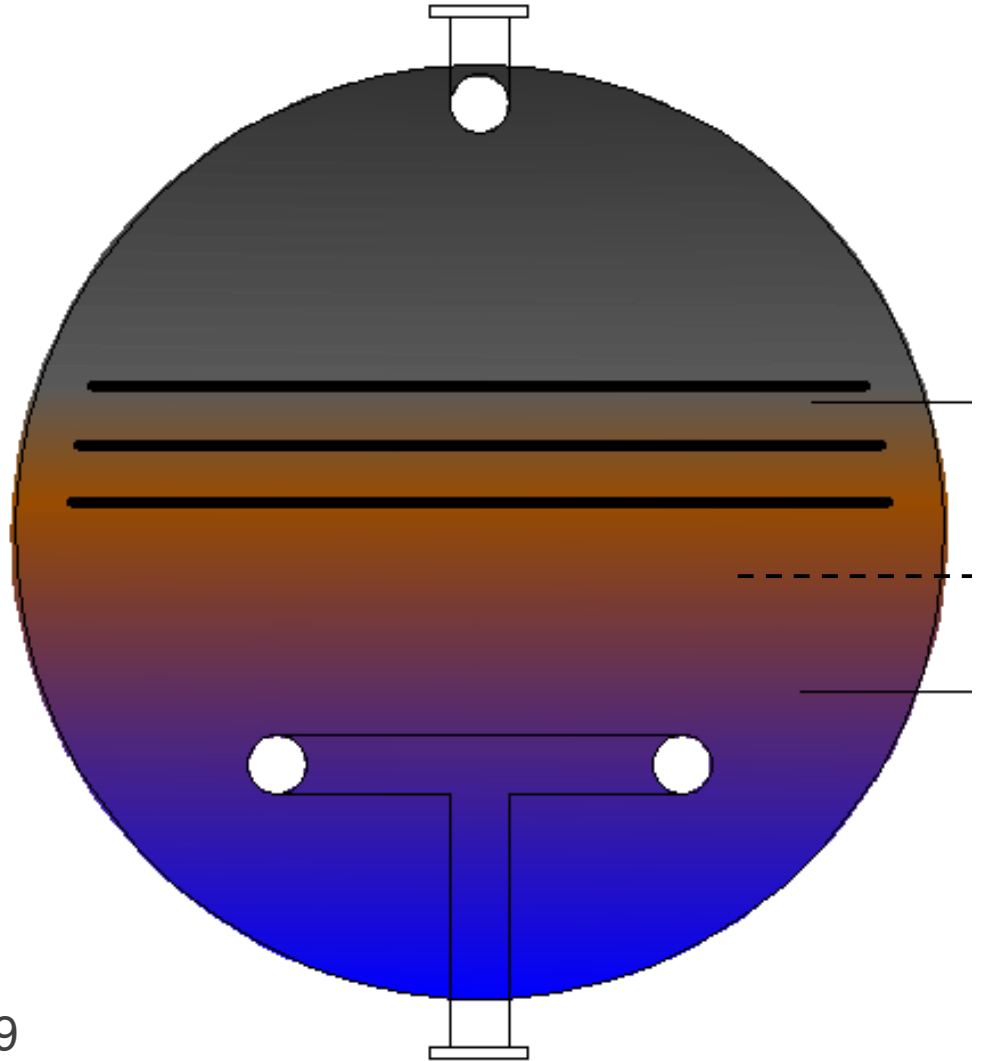
When there are emulsions present, which technologies can be used?

Nuclear



Emulsion layers

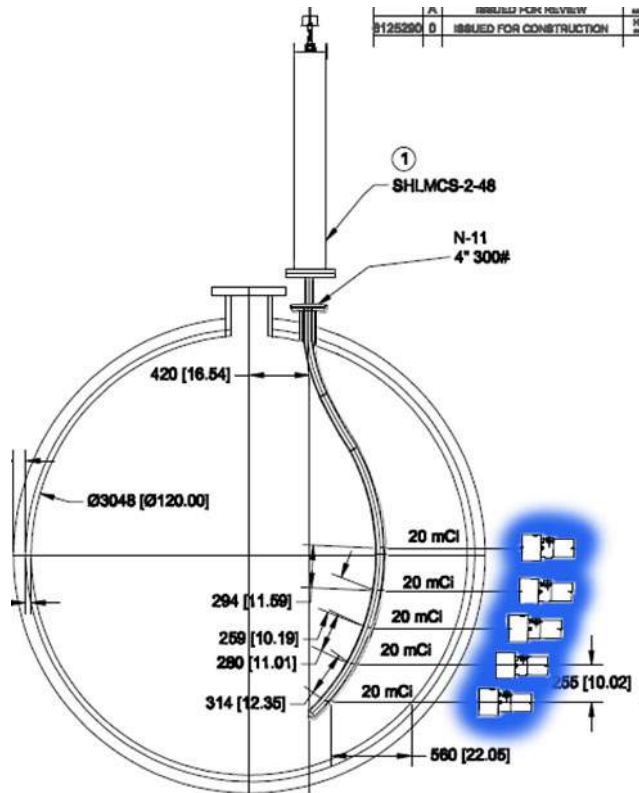
Cannot track both the bottom and the top of the emulsion at the same time.





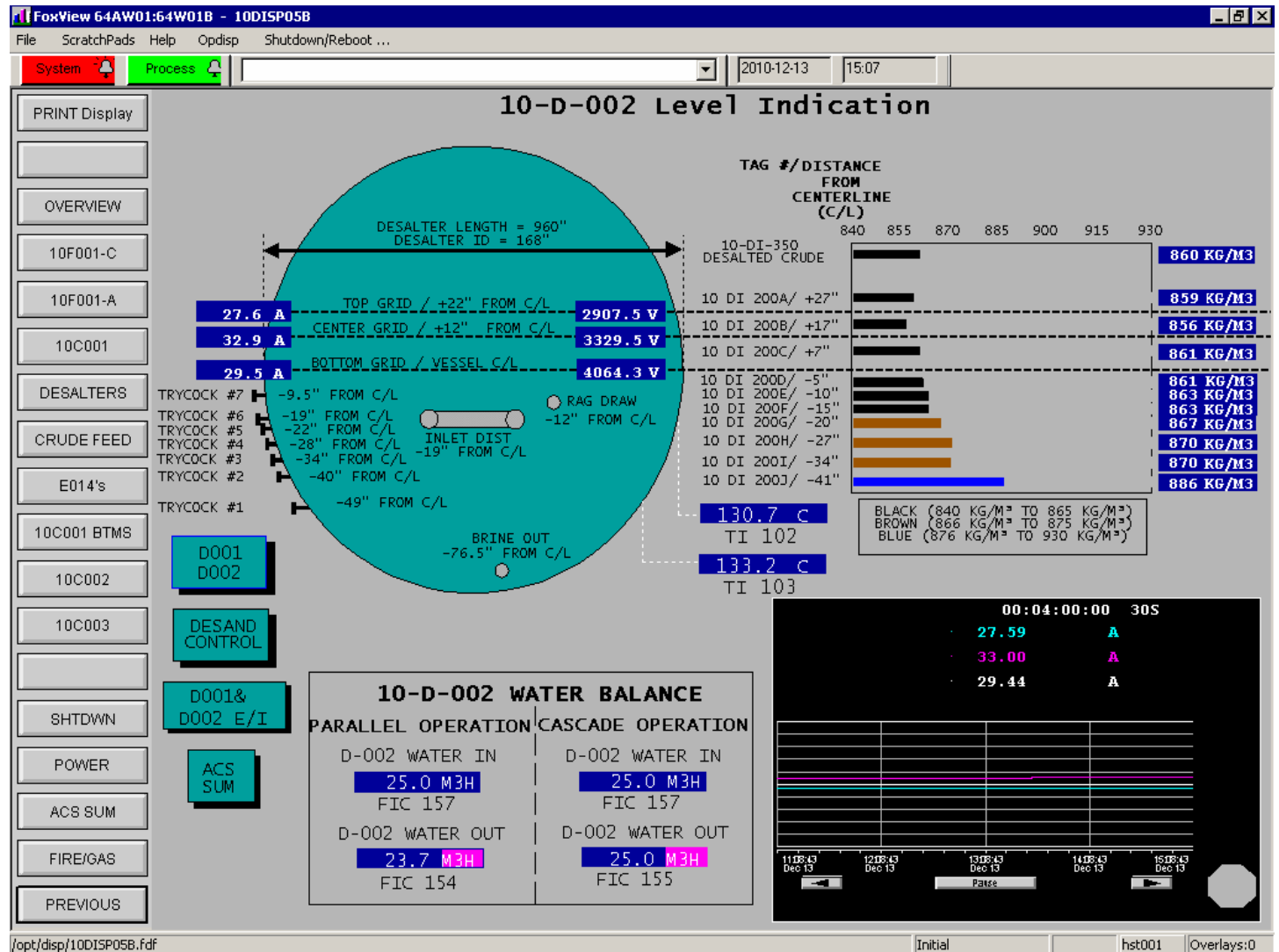
Crude Desalters

MDA Technology Components

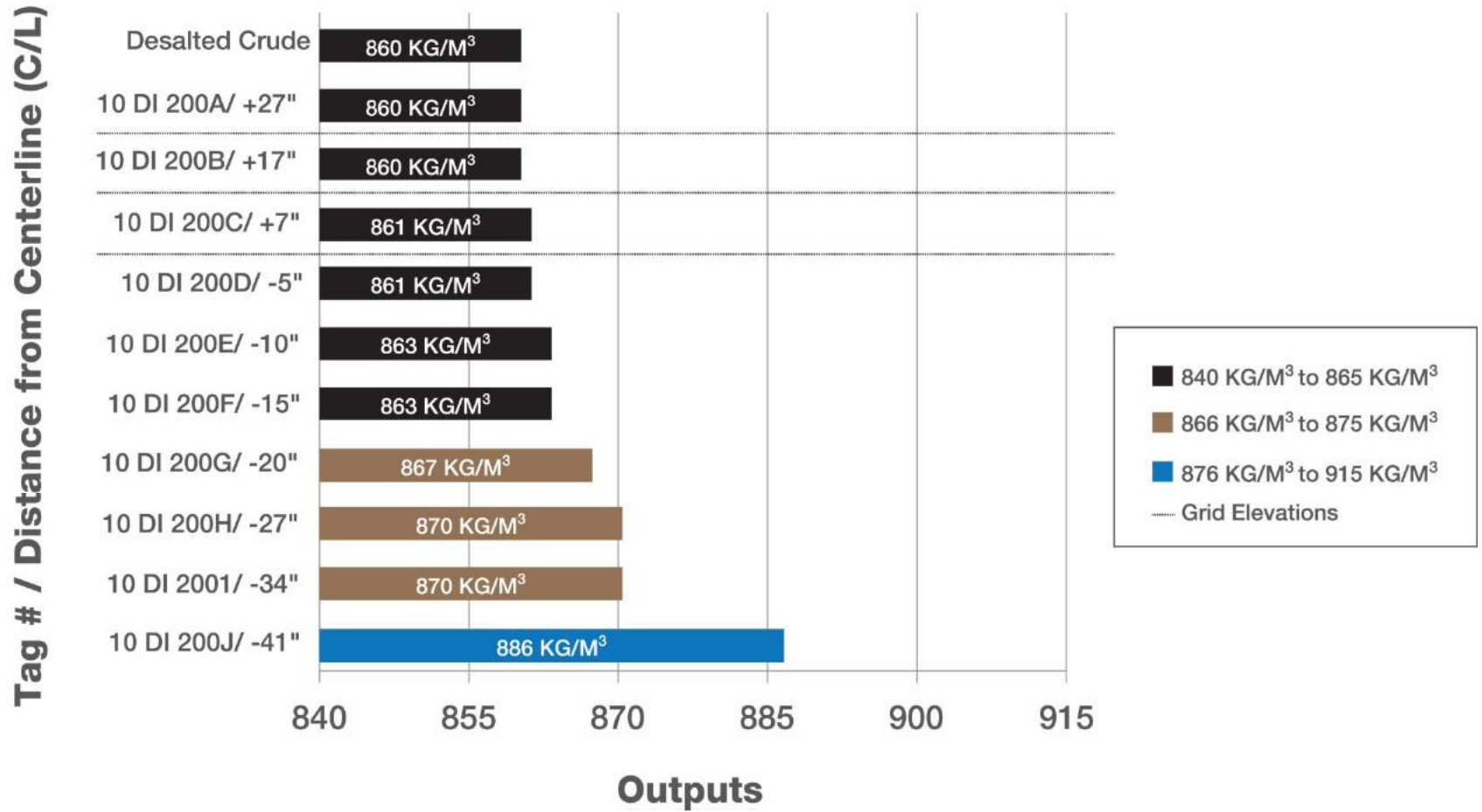


- Fixed radiation based profile system consisting of
 - Flange mounted source holder
 - Small Cesium sources in a drywell
 - High sensitivity density gauges mounted on the outside of the vessel

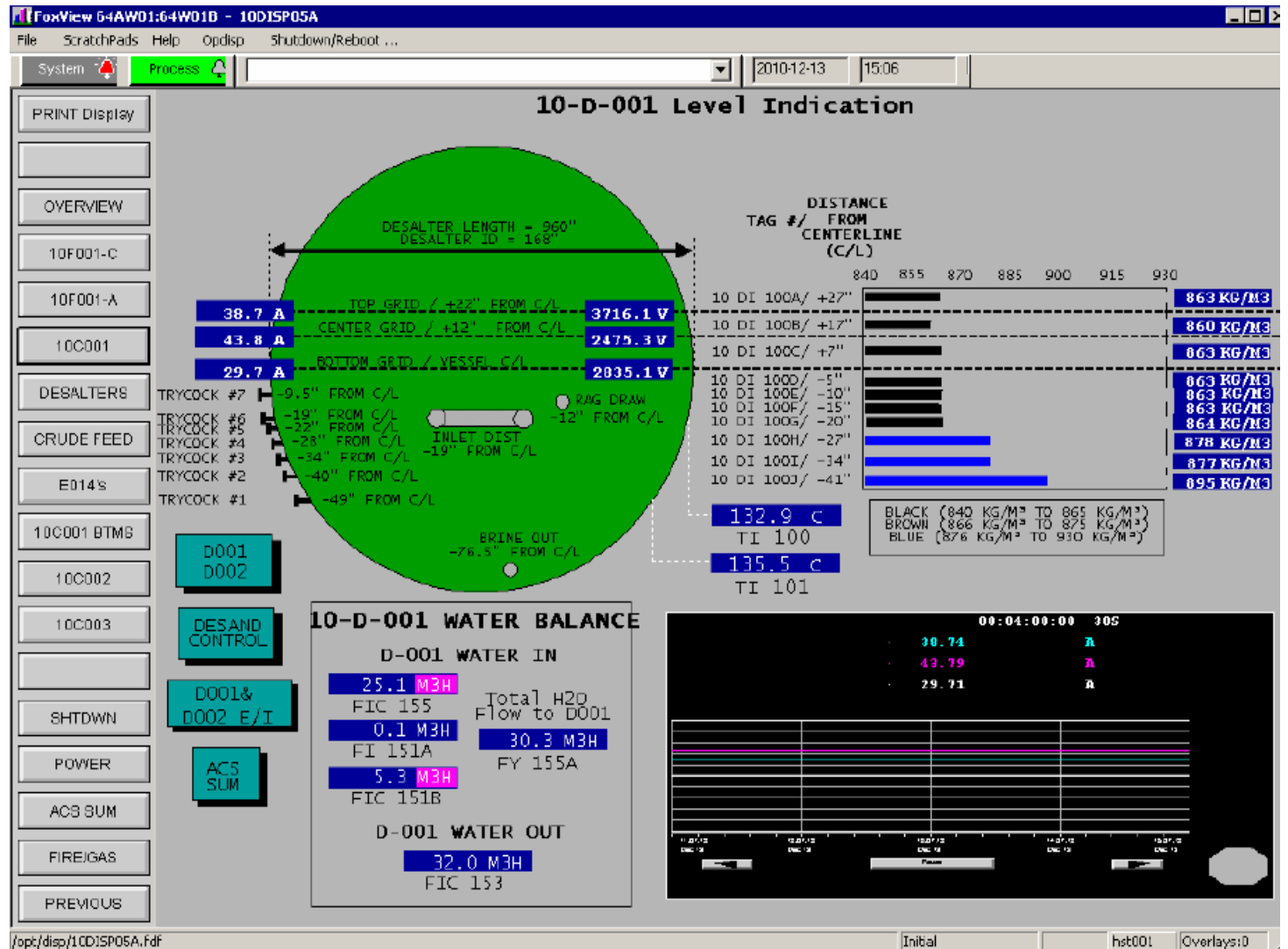
Density Profile



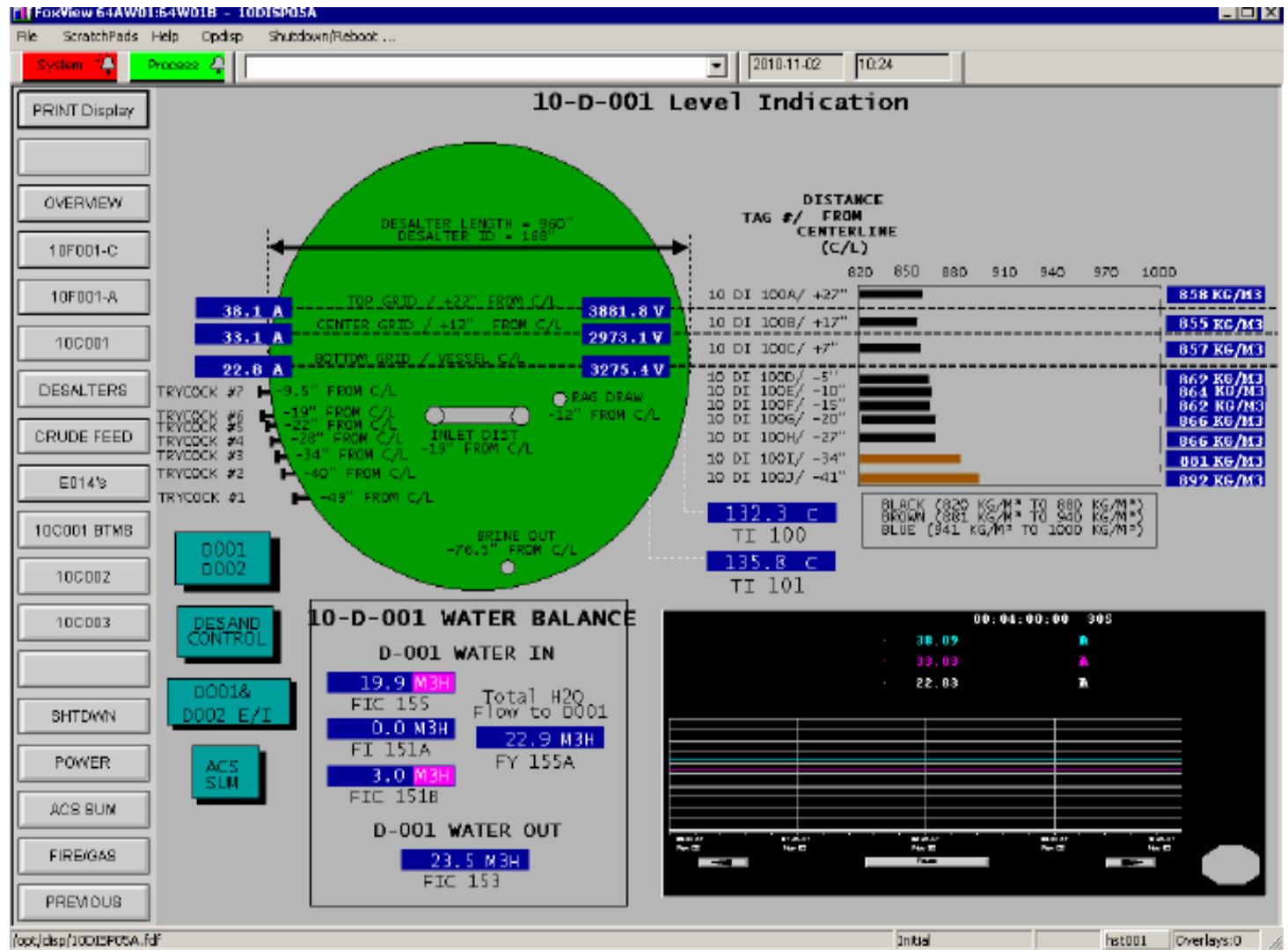
MDA Output Chart



Density Profile



Density Profile



Conclusion

Nuclear measurement technologies can measure the emulsion.

Nuclear technology tends to have a higher reliability.

Lower Lifetime cost of ownership