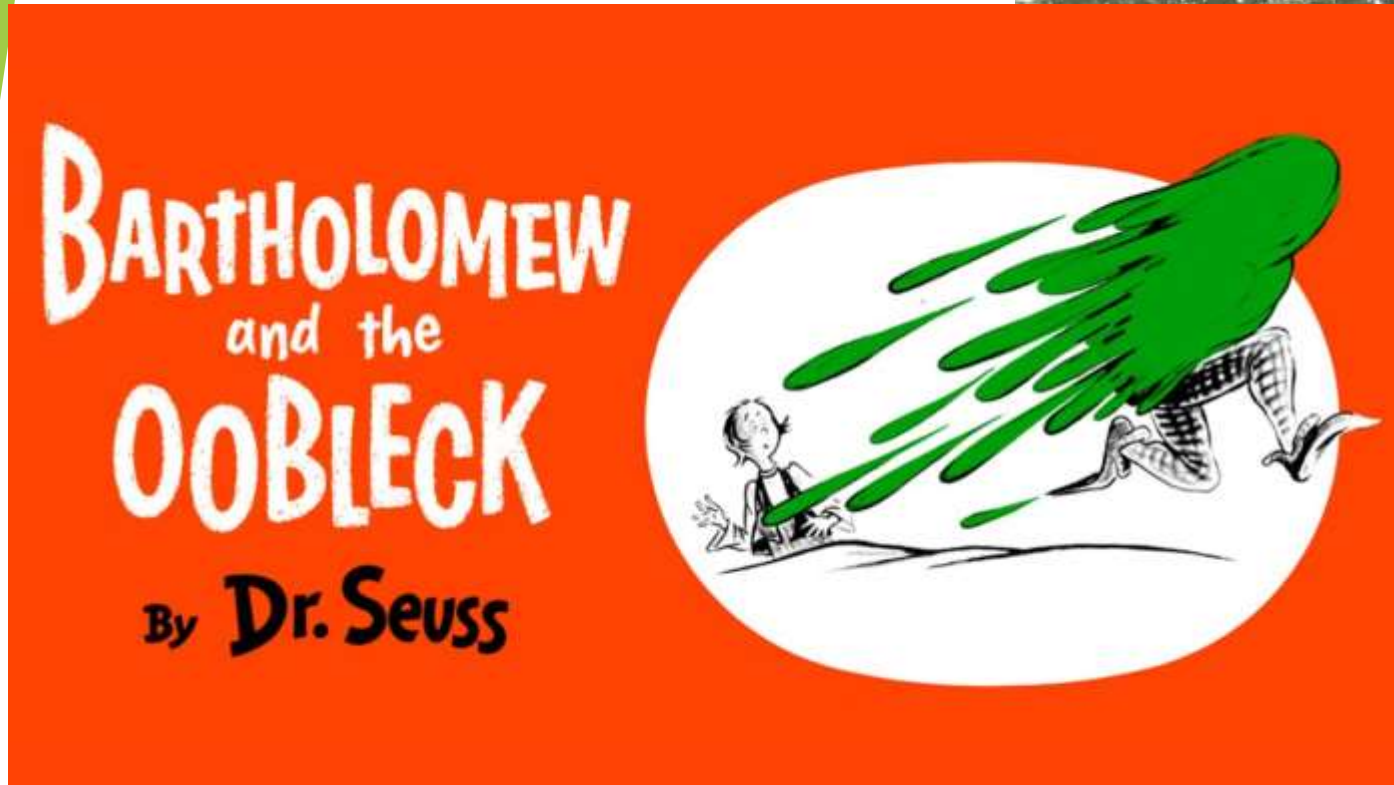


Learnings from Leachate Management: Design Considerations



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Leachate (Oobleck)





Redundancy - Force Main

- ▶ Build redundant force mains into your designs...pipes fill with all kinds of interesting minerals and buildups.



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Redundancy -Electrical

► Drop lots of power and communications cable! Install additional power and control cables. More than you think you will need.



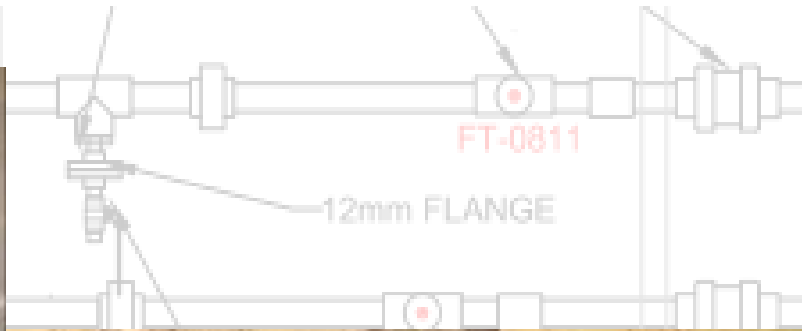
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Material Selection

- ▶ Aluminum camlocks dissolve FAST!
- ▶ Stainless Steel –CF8M (Cast SS) butterfly valve dissolves!
- ▶ Pins in plastic cam locks dissolve
- ▶ Stainless fittings are not always the answer!





Sump Maintenance

- ▶ Sumps fill up with sediment, precipitates and mechanical objects be prepared to deal with them. They are compliance points! Don't lose them! Periodic maintenance as opposed to neglect
- ▶ Hoses from the deep



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Sump Cleaning



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Data Collection

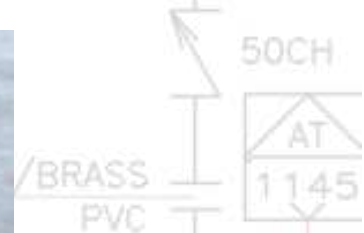
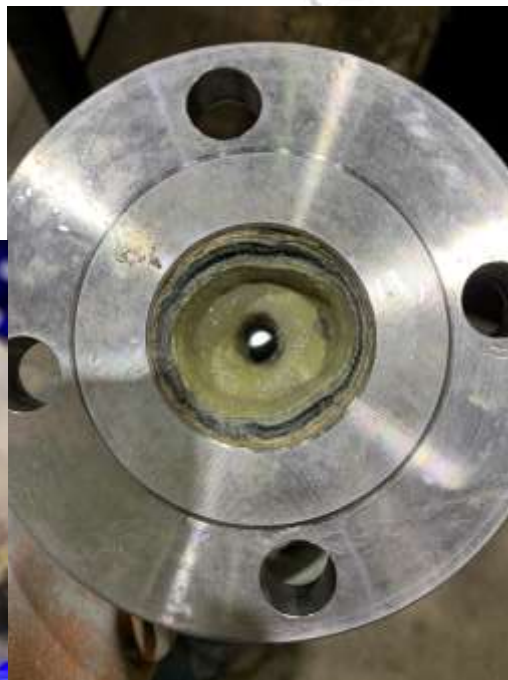
- ▶ Avoid data gaps in leachate monitoring... saves a lot of time in reporting
- ▶ Quality flow meters and level transducers are critical!
- ▶ Lightning protection! July long weekend events. Grounding and Bonding!



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50CH



SCHD80 PVC



50X25

Pumps: Pneumatic vs. Electric

- ▶ Pneumatic pumps can introduce air into leachate piping, causing precipitates and scale to build up.
- ▶ Wet air fills pump bladders and can freeze.
- ▶ Electric pumps are simple and reliable.



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Open Air Sumps

- ▶ Requires insulation and heat trace OR seasonal operation.
- ▶ Difficult to prevent freezing.
- ▶ Rodents/Birds/Wildlife can cause damage.



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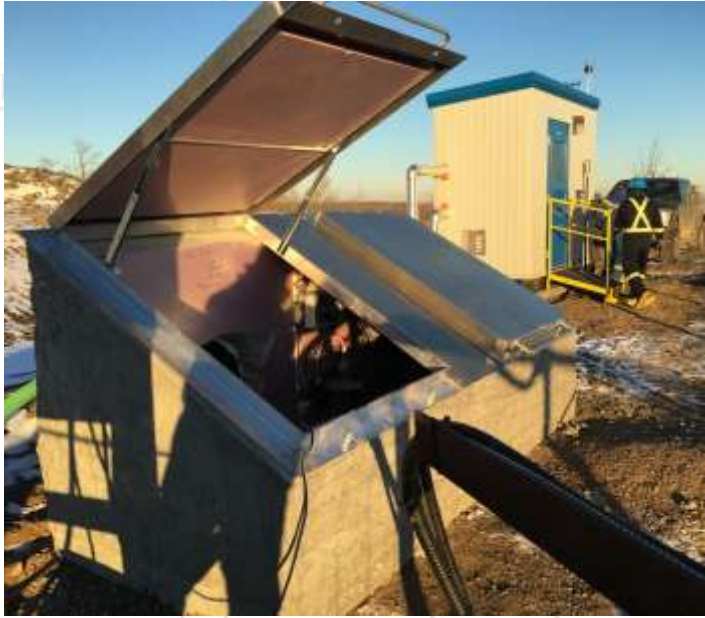


Enclosed Sumps

- ▶ Potential for landfills gases to accumulate.
- ▶ Gas monitoring (LEL and H₂S) may be required.
- ▶ Cleaner and more secure.
- ▶ Less likely to freeze.



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Sump Bunker with Metering Shack

- ▶ Best option for most situations.
- ▶ Cleaner and safer.
- ▶ No gas accumulation inside building
- ▶ Less likely to freeze.



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Questions?



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