NEAR SURFACE LATERAL MOVEMENT OF CONTAMINANTS FROM ON-SITE SANITATION

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Aim

• Define the processes of nutrient and pathogen migration from pit latrine and pour flush systems

• Determine “safe” distances for water extraction
**Outcome**

Hydropedology

- Unspecified material with signs of wetness, mottling: Clay - 62% clay, 36% sand
- Red apedal B: Clay - 42% clay, 42% sand
- Orthic A: Clay Loam - 36% clay, 44% sand

K\(_{\text{sat}}\) = 1.65 cm/hr
K\(_{\text{sat}}\) = 0.50 cm/hr
K\(_{\text{sat}}\) = 0.50 cm/hr

Geophysics

- Vertical exaggeration is 2.76

Monitoring

- Rainfall
- Vertical infiltration & through-flow
- Through-flow

VIP leach pits

- 30 m: *E. coli* impact (18,600 MPN/100ml)
- 57 m: Nitrate impact (109.92 mg/l) & phosphate impact (12.94 mg/l)

Groundwater moving towards the reader, which surfaces at the seepage face

Inconsistent through-flow via preferential flow pathways
Conclusion

• Consistent nutrient and pathogen migration to 3m

• Intermittent nutrient and pathogen migration to 60m

• Near-surface lateral flow processes are important during high rainfall events.
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Thank You