

Modeling the Influence of Tidal Pumping on the Transport of Naphthalene Through an AquaBlokTM Cap

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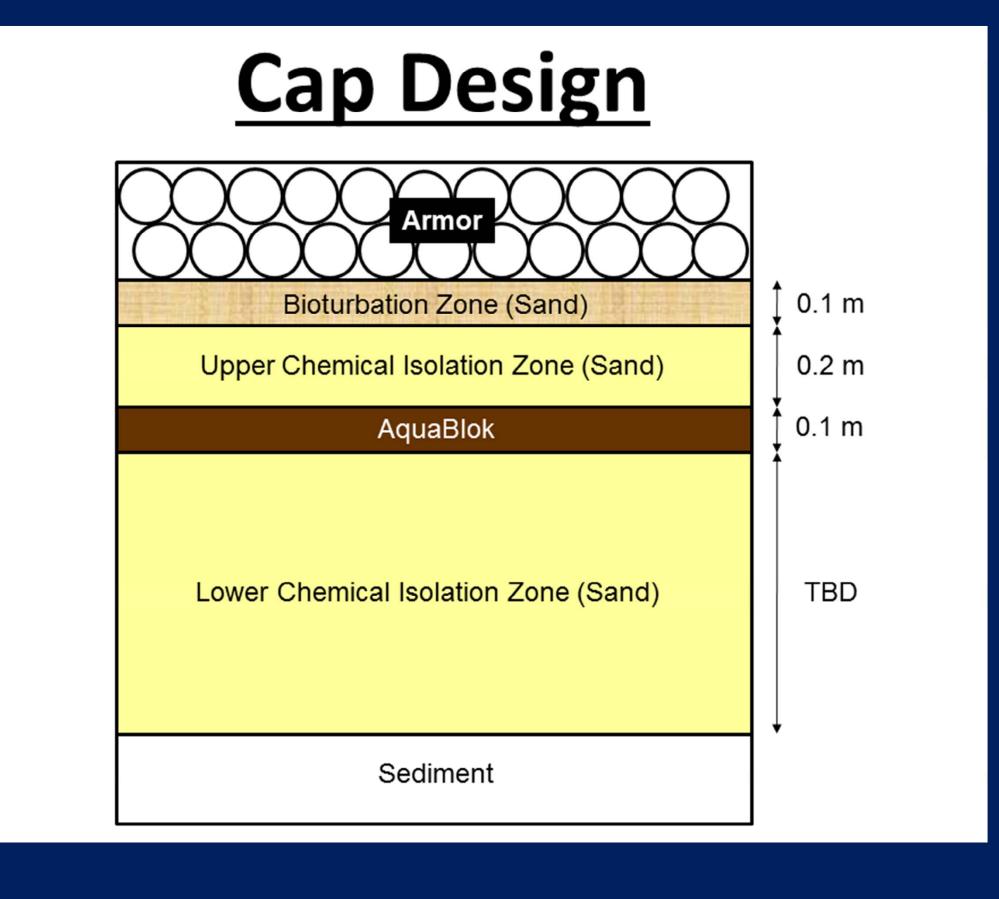
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Remediation Plan SEASYAN FLOATS DEVENTERED OF TRANSFER PIT TRANSFER P

Background

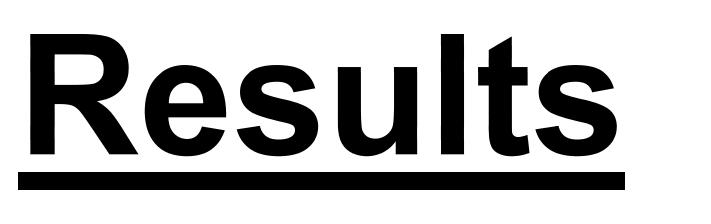
- Naphthalene present in sediments below cap (up to 2 mg/L after dredging)
- Risk-based MCL for Naphthalene: 0.044 mg/L
- AquaBlok cap proposed

Goal: To design thickness of lower isolation layer in cap to ensure risk-based MCL achieved at compliance point.

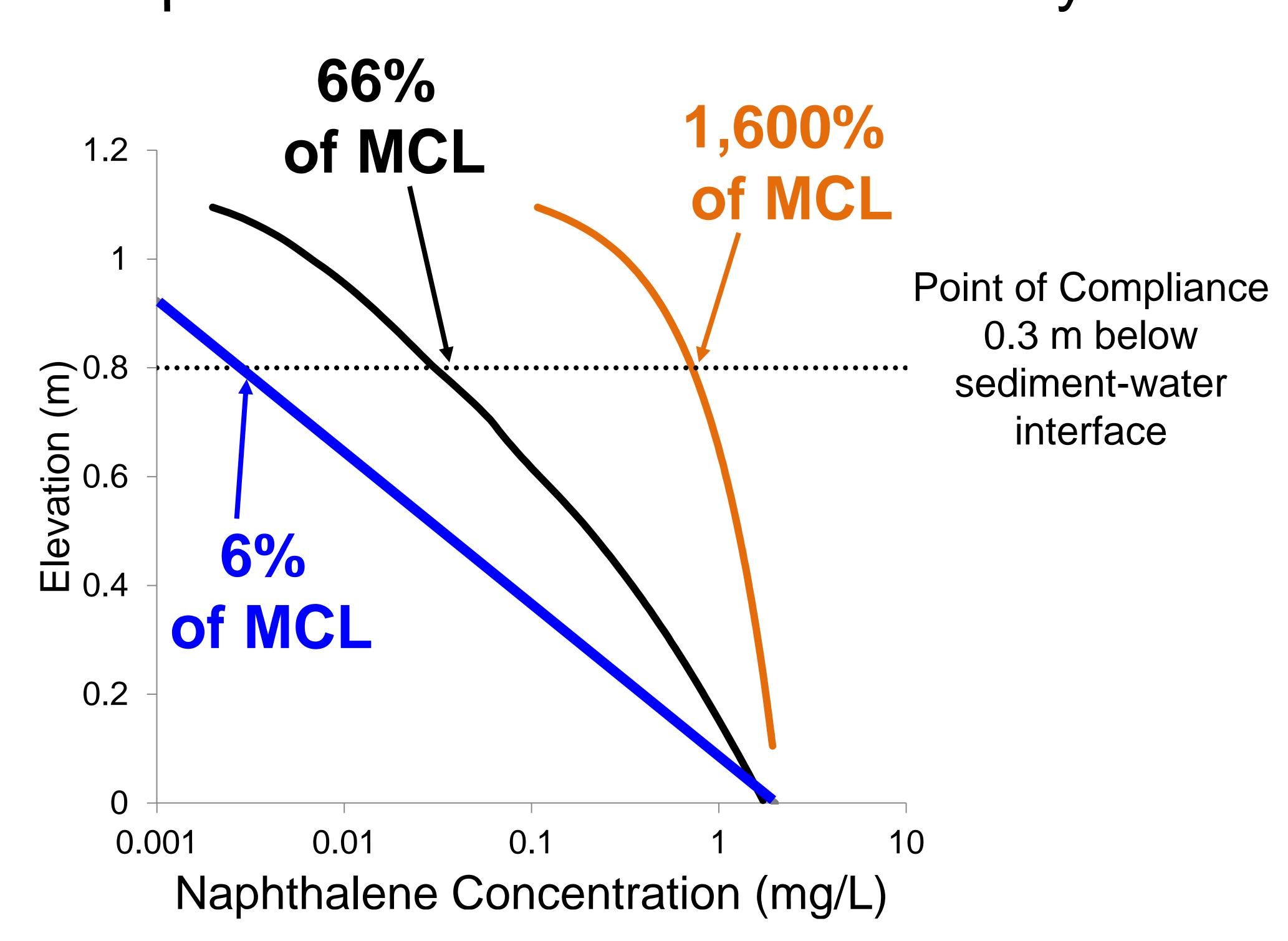


Approach

- 1. Will sand cap be protective?
- 2. AquaBlokTM cap:
- Simple diffusion model first
- Verify results with numerical tidal pumping model
- Re-design cap thickness if required



- 1. One-meter sand cap: Not protective
- 2. AquaBlokTM diffusion model: 0.4 m layer
- 3. AquaBlokTM tidal model: 0.7 m layer



Conclusions

- Little attenuation in sand cap
- Tidal pumping needs to be modeled for site-specific AquaBlokTM cap design
- Lower isolation thickness of 0.7 m to meet risk-based MCL at compliance point
- Consider influence of armor sedimentation on cap design
- Buffer zone at edge of cap to mitigate horizontal transport

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