



Case Study Remediation in Neath Port Talbot

St Modwen Developments

Richard Mitchener

Mike Poland

Plan Design Enable

Remediation Approach

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Key sites in former BP portfolio in South Wales

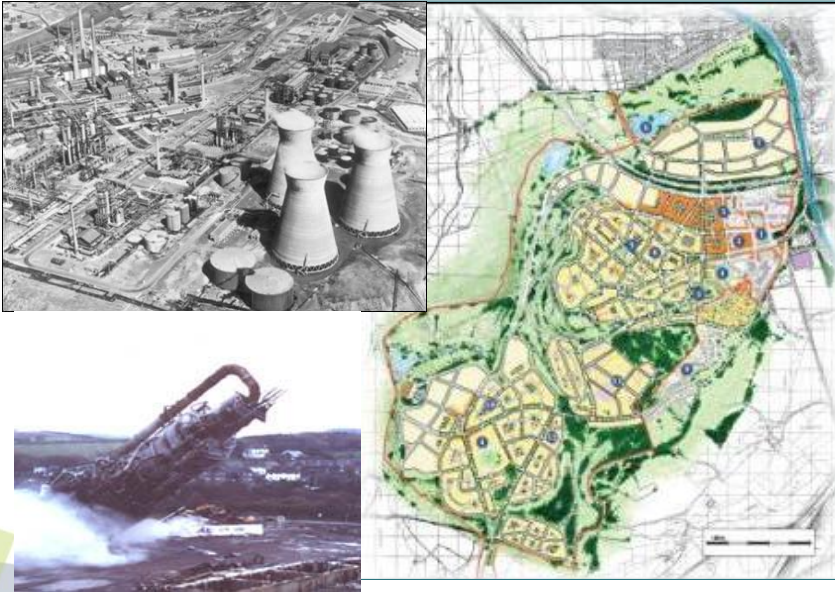
- Management of BP Legacy
 - “Suitable for use” not definable at present
 - Boundary protection
 - Mass reduction => MNA can occur
- Perception Management
- Interaction of site specific factors on:
 - Coed Darcy
 - Baglan
 - Transit





Llandarcy Transformation...

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Environmental Risk Management

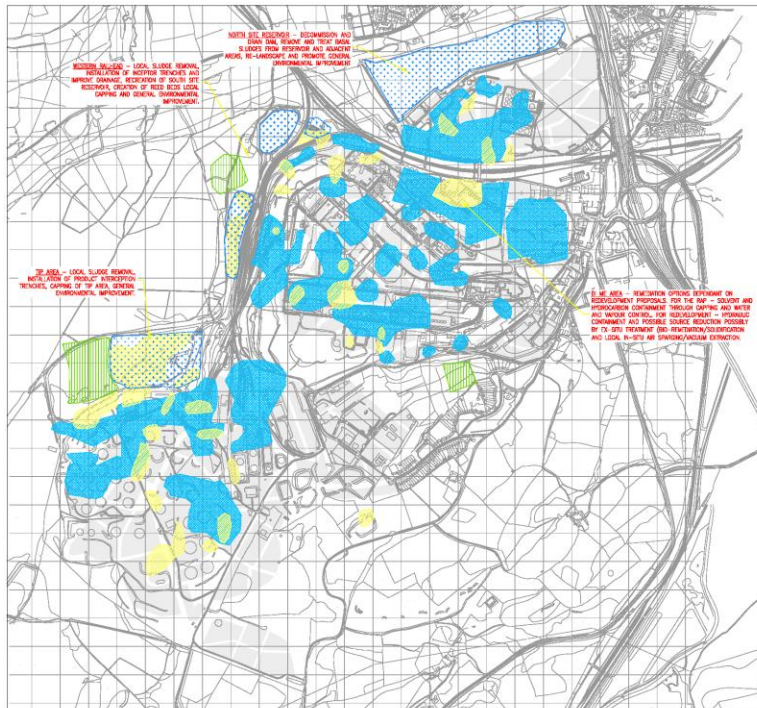
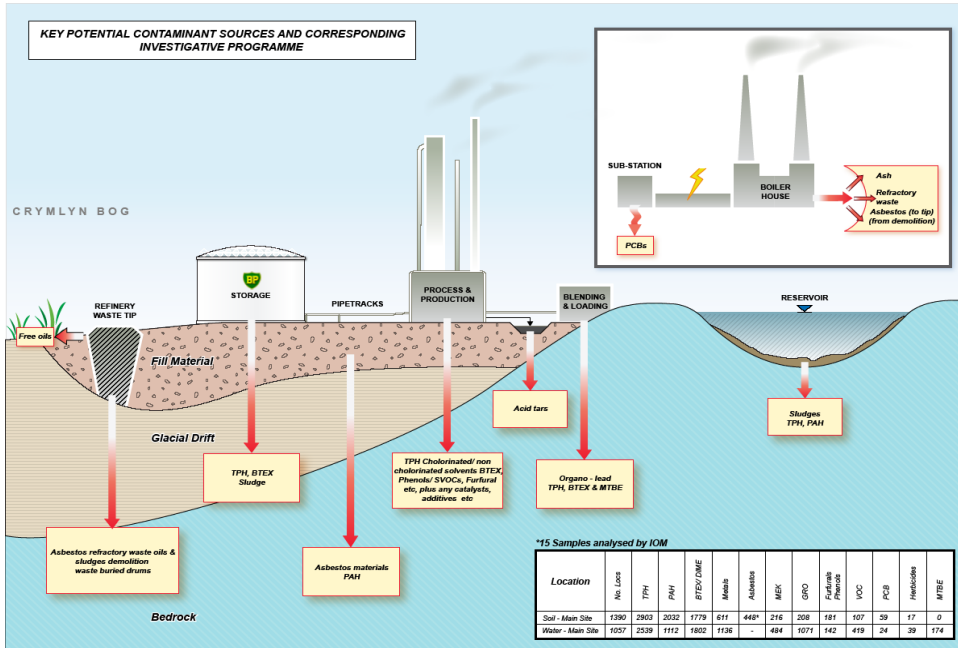
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Historical land-use that has resulted in the release of contamination to the ground and groundwater.

The principal contaminants:

- Petroleum hydrocarbons
- Chlorinated Solvents
- Metals and Asbestos
- Varied spatial distribution



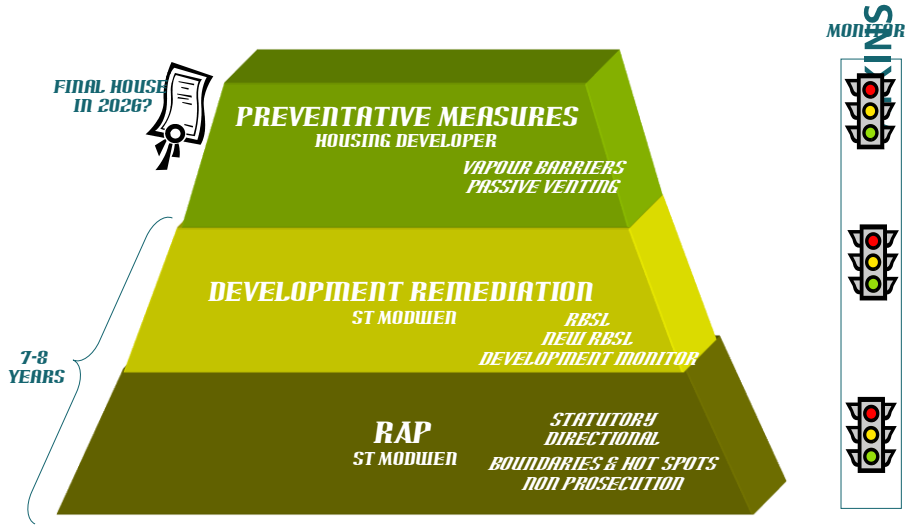


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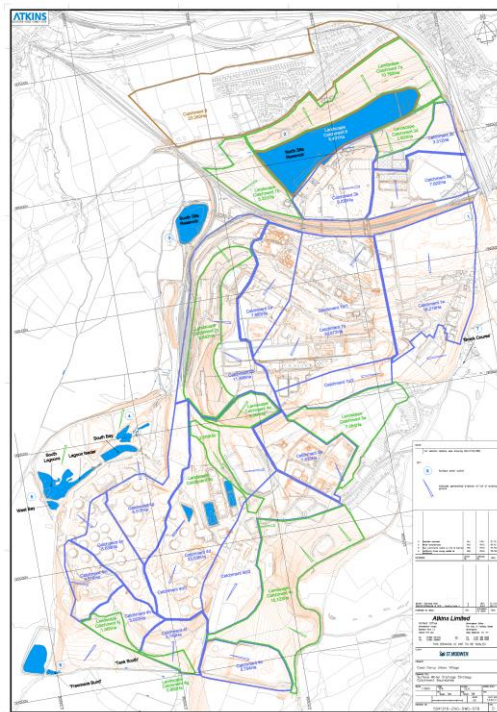






Remediation Process/Management

Catchment Management



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Transit

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Transit - Masterplan

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Transit - Remediation

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Dune Complex to Chemical Works

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Dune Complex to Chemical Works

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Site developed progressively from 1960s

Sand dunes levelled

Slag from nearby steel/ironworks imported

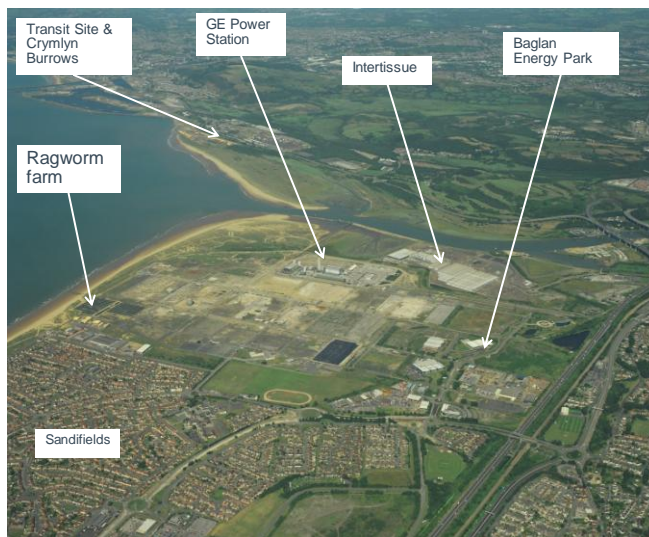
Maximum extent/operation in late 70s, wind down and demolition in 80s and 90s

Last facility removed in 2005



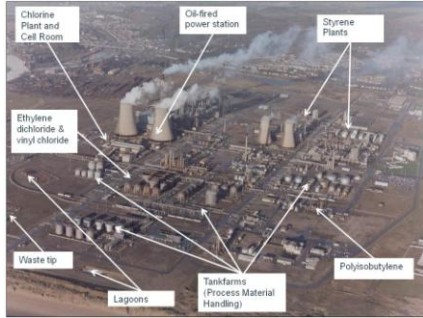
Today

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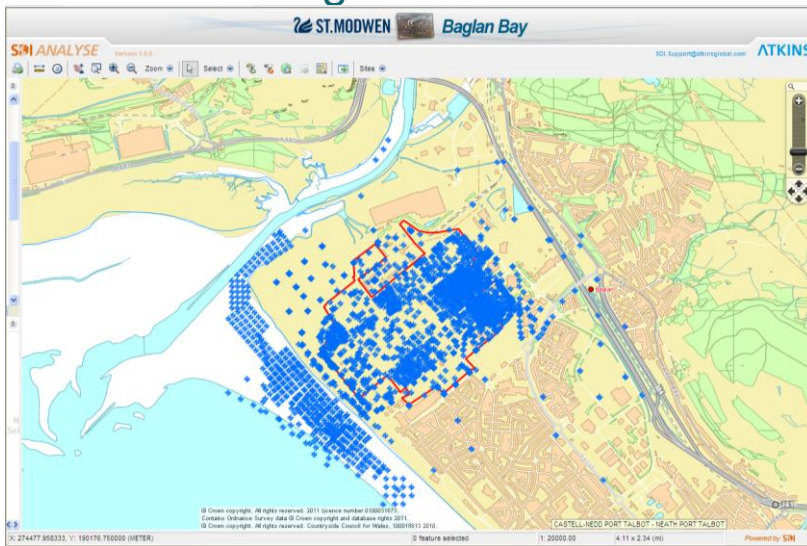
Sources?

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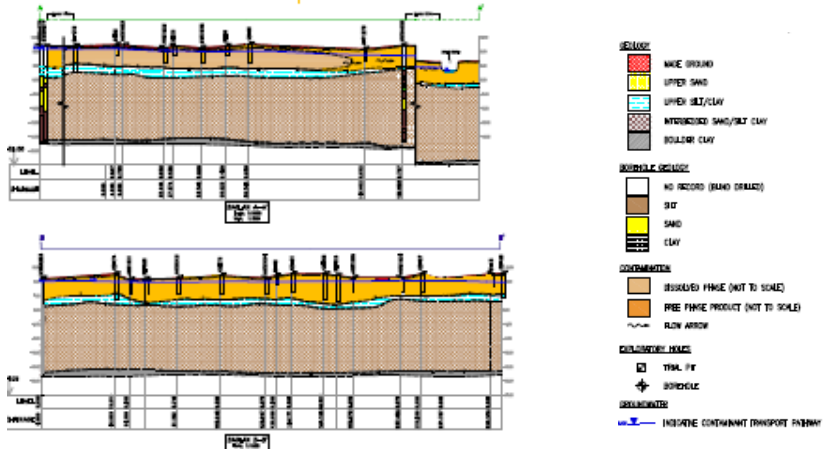
Ground Investigation

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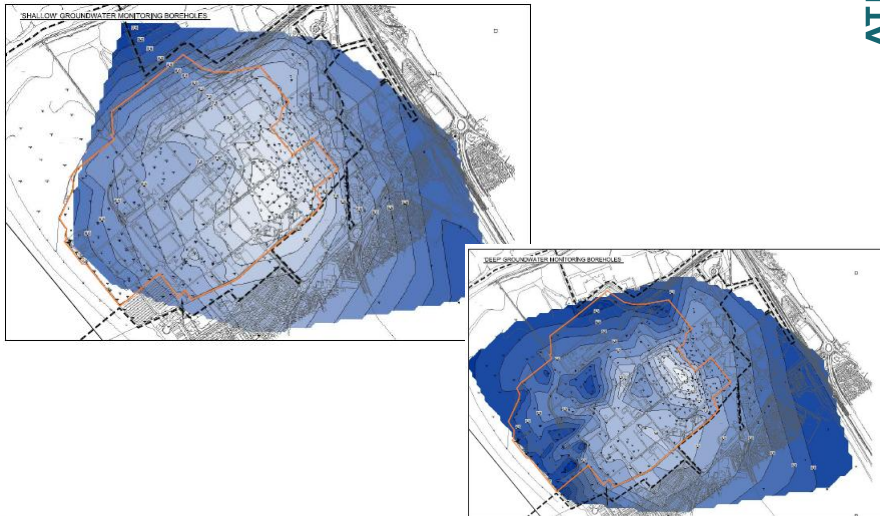
Geology

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Hydrogeology

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Microbial Studies

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How do you demonstrate MNA?

Aim: to get definitive proof that

- The right microbes are there
 - Cultures, gene counts using qPCR
- The microbes are doing what they are supposed to
 - Baited traps using C-13-labeled contaminant
 - C-13 ends up mineralised and in the biomass.
 - Benzene and phenol both used.



Risk Assessment – Human health

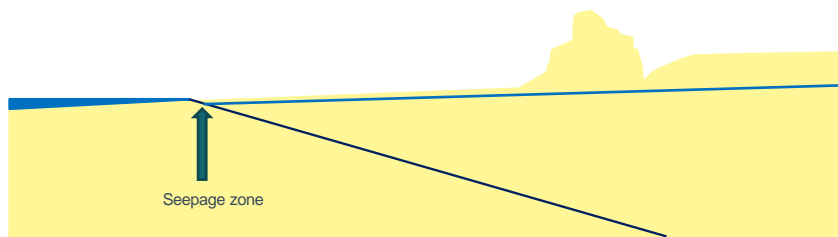
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Key issues:

- Who uses the beach?
- How much do they use it?
- How do they come into contact with contamination?

Get real data!

- CCTV recording of beach
- Dog walkers main users, duration can be estimated
- Loads of monitoring to understand exposure
 - Contaminated water close to low tide

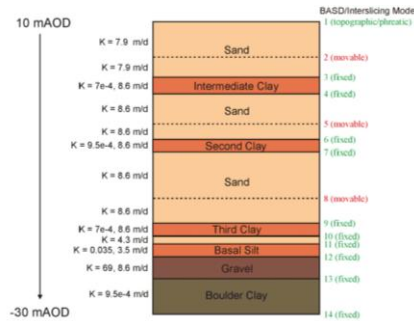


Risk Assessment – Controlled Waters

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Styrene areas key remediation objective

- Aquifer properties well known
 - Site testing, CSIRO model
 - MNA occurrence being demonstrated
 - Infiltration high – flushing
- Declining source appropriate?
 - But check equations carefully
 - Decline of soil source or just assume that one pore volume of contamination



The Future

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