

Harwell WSA Groundwater Remediation Update

April 2024

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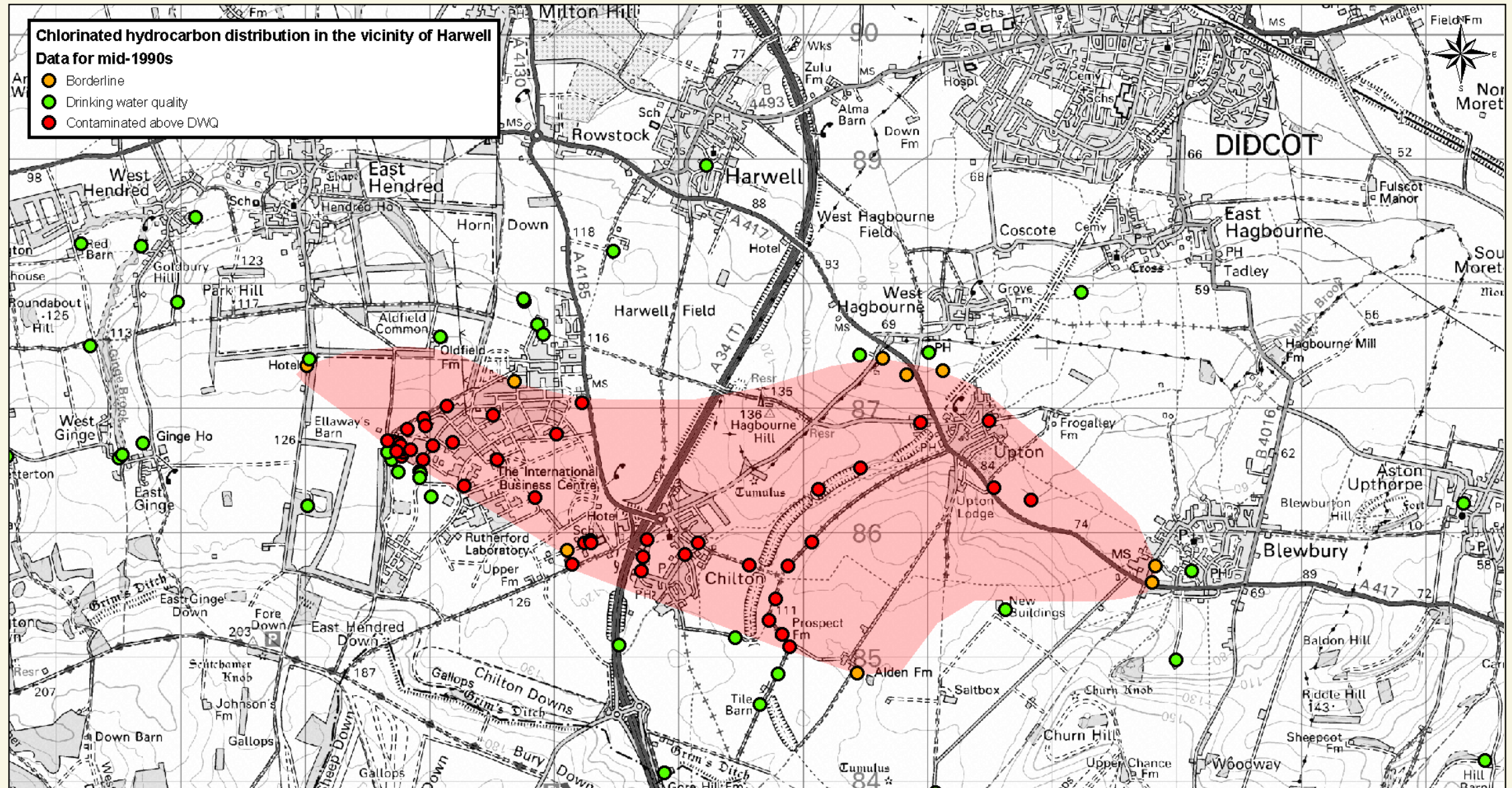
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Chemical Contamination of Groundwater at Harwell

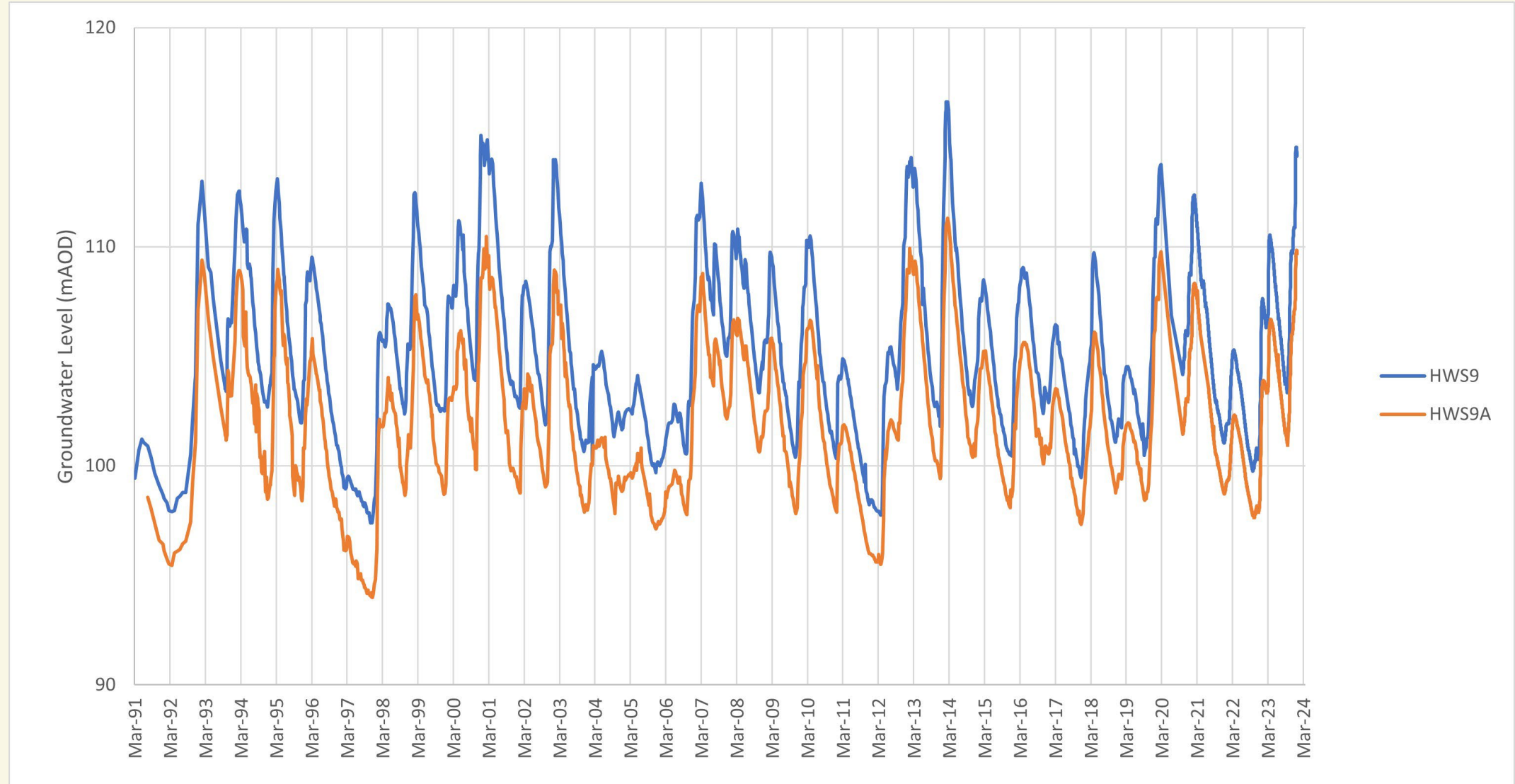
- Groundwater contamination by chemicals identified in 1989
- Linked to waste disposal in unlined pits at two sites:
 - The Southern Storage Area or SSA
 - The Western Storage Area or WSA
- The chemicals are mainly chlorinated solvents - widely used in the past for metal degreasing etc
- The rock directly underlying the area is Chalk – an aquifer, regionally used for public water supply and locally for private water supplies
- Significant work carried out over 35 years to deal with the issue in terms of sources, pathway & receptors



Historic Extent of Plume



Chalk Groundwater Levels at Harwell 1991 to 2024



Groundwater Remediation Strategy – Sources:

Southern Storage Area

- Southern Storage Area:
 - 1993 – 2002: Hydraulic Groundwater Containment Plant (Photo)
 - 2000 – 2002: Chemical waste pits removed by SSA land remediation
 - SSA Groundwater Plant shut down in 2002, following agreement with EA that there was no overall environmental benefit in continued operation
- SSA never part of the Nuclear Licenced Site/Designated Site



OFFICIAL Groundwater Remediation Strategy – Sources: Western Storage Area

- Western Storage Area (WSA):
 - 1994 - present: Hydraulic Groundwater Containment
 - 2004: Chemical pit waste removal
 - 2005 – 2011: Thermally Enhanced Soil Vapour Extraction



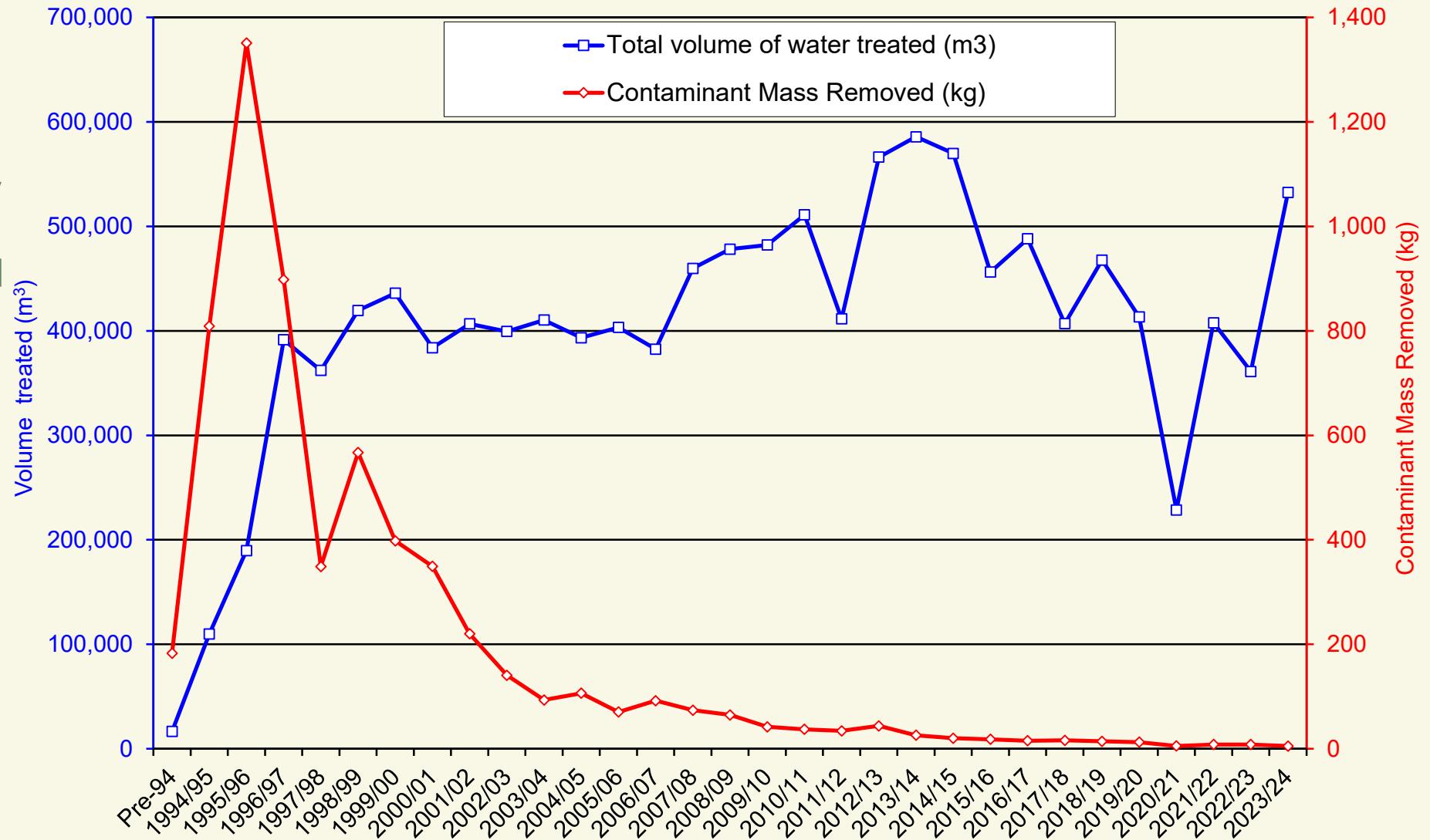
Groundwater Remediation Strategy – Pathway & Receptors

- Pathway:
 - Borehole & surface water monitoring carried out by contractor (currently WSP)
 - Will continue long-term
 - Subject to ongoing review and optimisation
- Receptors:
 - Public water supply boreholes in the area no longer in use for other reasons
 - Ongoing liaison with EA and local authority Environmental Health officers regarding potential new private water supplies in the plume area



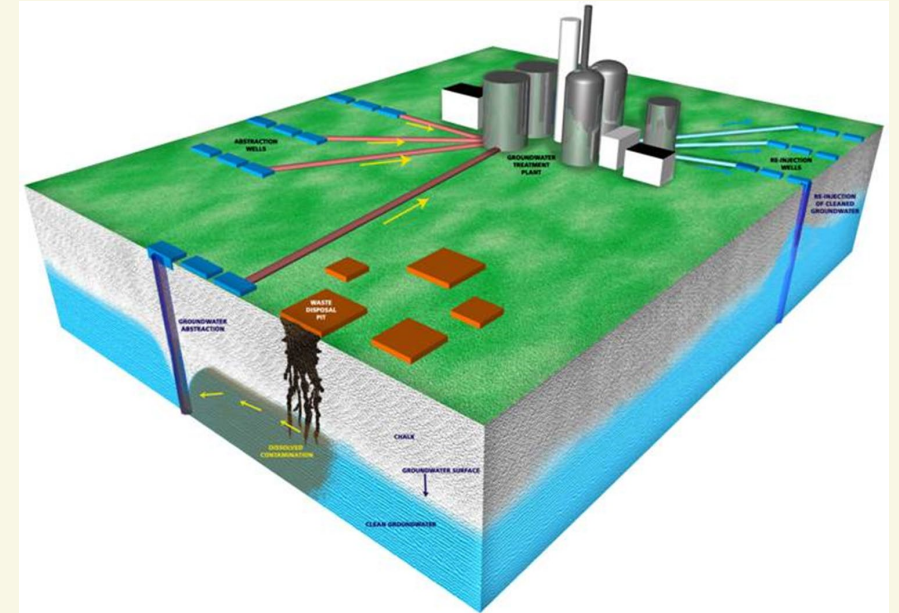
WSA Groundwater Plant Performance Data

- Over 30 years of operation (2 different plants)
- Operational availability over 99% for past 10 years (excluding Covid 19 pause)
- Contaminant concentrations in treated water over 1000 times lower than 1994
- 12.5 billion litres of groundwater treated



Groundwater Plant Closure Case

- Concentrations of contaminants in the water before treatment are now often less than drinking water standards
- Estimates (WSP 2024) suggest that only low quantities of contaminants remain at the WSA
- The financial and environmental impact of running the plant are significant (200,000 kWh of electricity per year)
- Work to evaluate closure case started in 2022 (WSP)
- Use of the Land Contamination Risk Management (LCRM) framework agreed with the EA late last year
- Preliminary Risk Assessment report completed by WSP
- Next steps will include:
 - Sustainability assessment
 - Detailed environmental risk assessment
 - Dialogue with the Environment Agency
 - Agreement and implementation of detailed closure plan



Groundwater Remediation - Summary

- Chemical contamination of groundwater took place from 1950s to 1980s
- Since groundwater contamination identified in 1989, extensive work undertaken to successfully address the issue
- Closure case for groundwater plant at WSA being prepared
- Groundwater monitoring will continue for many years, but scope will be subject to ongoing review to ensure fitness for purpose

