

Teesworks Dredging of the Tees

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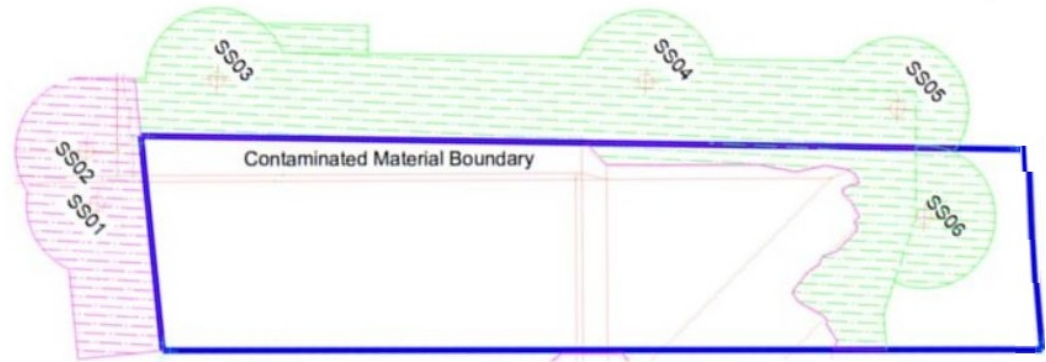
Capital Dredge Exclusion Zone

- Area so contaminated the dredged material could not be disposed of at sea
- Use of closed bucket
- Avoid contamination of River Tees



The Closed Bucket that Wasn't

- Test river bed after closed bucket dredge
- Found contamination
- Remediated
- More contamination after dredge than before
- Clean dredging contaminated riverbed



Metals	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Mercury (Hg)	Nickel (Ni)	Lead (Pb)	Zinc (Zn)
SS03	-2	-26	-31	-37	-38	-6	-13	-24
SS04	1	-64	-34	-25	-27	-28	-37	-40
SS05	11	-36	-31	-29	-28	-24	-27	-24
SS06	-4	-33	-24	-21	-23	-18	-15	-10

OrganCl	AHCH	BHCH	GHCH	DIELDRIN	HCB	PPTDE	PPDDE	PPDDT
SS03	90	64	81	45	-789	-63	-833	-233
SS04	76	61	75	61	-756	15	-507	52
SS05	83	50	71	35	-739	-30	-587	43
SS06	72	39	72	40	-1056	-16	-660	-200

Decision on Disposal of Dredged Material - CEFAS ACTION LEVELS

- Cefas action levels are currently used by the Marine Management Organisation (MMO) as part of a weight of evidence approach to decide how suitable it is to dispose of dredged sediments at sea.
- Cefas's guideline action levels for the disposal of dredged material are not statutory contaminant concentrations for dredged material
- The action levels are not 'pass/fail' criteria but triggers for further assessment.

SEFAS: ACTION CRITERIA

	Action Level 1	Action Level 2
Contaminant / Compound	mg/kg Dry Weight (ppm)	mg/kg Dry Weight (ppm)
Arsenic	20	100
Mercury	0.3	3
Cadmium	0.4	5
Chromium	40	400
Copper	40	400
Nickel	20	200
Lead	50	500
Zinc	130	800
Orgotins; TBT DBT MBT	0.1	1
PAHs	0.1 (Dibenzoanthracene 0.01)	
PCB's, sum of ICES 7	0.01	none
PCB's, sum of 25 congeners	0.02	0.2
*DDT	*0.001	

ACTION REQUIREMENTS IN DREDGED MATERIAL

- 1) Contaminant levels above action level 2 is generally considered unsuitable for sea disposal.
- 2) Contaminant levels below action level 1 are of no concern - unlikely to influence the licensing decision.
- 3) Contaminant levels between action levels 1 and 2 requires further consideration and testing before a decision can be made.

Key: concentrations of elements or compounds in dredged material, by orders of magnitude of CEFAS Action Level 1

< Action Level 1

Between x 1 and x 2 Level 1

Between x2 and x5 Level 1

Between x6 and x15

Between x16 and x30

> x30



Napthalene (PAH) in borehole and vibrocore sediment sample



- < Action Level 1
- Between x 1 and x 2 Level 1
- Between x2 and x5 Level 1
- Between x6 and x15
- Between x16 and x30
- > x30



Maximum Level of Infringement of Level 1 by Element or Compound

