

From: Margot Cronin [<mailto:margotcronin@marine.ie>]
Sent: 04 October 2010 17:13
To: Karen Creed
Cc: Terry McMahon; Francis X O Beirn
Subject: Haulbowline and Dublin Port DaS applications

Hi Karen,

Attached you'll find my comments regarding the DaS applications for Haulbowline and Dublin Port.

If you need clarification on anything, please don't hesitate to let me know.

Best regards,
Margot

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Dumping at Sea application
Naval Service, Haulbowline, Co Cork.

Application by: Department of Defence
Quantity: 36 000 tonnes

Sediment Chemistry:
(See attached summary table and sample location map)

Sediment chemistry was assessed on the basis of report id 20012238 – 1. In general, the chemistry was very similar both in concentrations and locations to the previous analyses of 2003. Again, the area of concern is at the pontoon, where sample NB6 demonstrated class 3 concentrations of zinc, copper and lead. Sample NB5 (of the same location) also had Class 3 levels of zinc, with mid class 2 concentrations of copper, lead and PCB (Σ ICES 7). Areas of concern are listed as follows:

Sample	Result	Comment
NB1 (west side of basin)	Class 2 + – Cu, Zn	
NB5 Pontoon	Class 3 ++ – Zn Class 2 ++ – Cu, Pb Class 2 ++ – PCB Class 2 + – TBT&DBT	Sediment chemistry here is very similar to previous analysis. V low class 2 for TBT&DBT
NB6 Pontoon	Class 3 – Zn +++ Class 3 – Cu +	Same location as NB5 above
NB8 (Off Rat Island)	Class 2 – Pb +	

(+ low level, ++ mid level, +++ high level)

All samples can be classed as predominantly silt/mud, with <63um fraction ranging from 66% to 100%. The measured results for the CRM for metals are all acceptable, albeit a little lower than the certified values.

Previous analyses in 1992, 1997 and 2003 indicate similar localised contamination in the area around the pontoon. The area was dredged in 2004¹ and yet the levels of heavy metal contamination do not appear to be declining.

Following discussions with staff at the Naval Base in January regarding remediation of the area, a follow up sampling and testing plan was sent to the Naval Service. I'm not aware whether or not that plan was carried out.

Recommendations:

On the basis of the test results from 2008, it appears that the area around the pontoon should be delineated on the basis of contamination, and treated separately. I would recommend that

¹ 45 000 tonnes of sediment were dredged and dumped at sea in 2004. At the time, the existing provisional Irish action levels were significantly less restrictive for some contaminants (e.g. lead, zinc, nickel), although more restrictive for others (e.g. cadmium, chromium, mercury). The provisional action levels were amended in 2006 on the basis of more recently available eco-toxicity results.

the contaminated sediments from this area should be subjected to some form of clean up / remediation procedure in order that the problem of contamination would be dealt with. Options include:

- Over-dredging of a selected area of the basin followed by in-situ burial of more contaminated material, thus restricting the contaminated sediment to the area they are already in.
- Confined disposal at the dumpsite i.e. capping with clean sediment, however, given the depth of water at the dumpsite (35-40m), the lack of coarse sediment available and the relatively small amount of clean sediment, this may prove difficult.
- Treatment of the contaminated material prior to dumping at sea e.g. cementing the sediment, thus binding the contamination and also increasing the density of the material, this making it less liable to resuspension.
- Removal and export of the contaminated material.

I have no objection to the unconfined (conventional) dumping at sea of the remainder of the material from the general area, but would recommend that dumping takes place at slack water.

Margot Cronin
Marine Institute
04 October 2010

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Sample Number	Position Latitude	Position Longitude	% <63um	% OC	METAL Cu mg kg ⁻¹	METAL Zn mg kg ⁻¹	METAL Pb mg kg ⁻¹	METAL As mg kg ⁻¹	METAL Ni mg kg ⁻¹	OT Σ TBT + DBT mg kg ⁻¹	PCB Σ 7 PCB kg ⁻¹
NB0	51d 50.4329'	008d 17.9464'	94.8	1.02	26.1	123	39.9	9.16	26.2		1.3
NB1	51d 50.4760'	008d 17.9807'	81.2	1.53	41	181	53.8	10.7	31	0.02	1.75
NB2	51d 50.4438'	008d 17.9090'	88.6	2.12	23.4	113	37.4	9.12	25.7		
NB3	51d 50.4321'	008d 17.8524'	88.5	2.34	29.6	159	54.2	8	23	0.04	1.62
NB4	51d 50.5112'	008d 17.9165'	99.8	1.91	25.9	148	42.4	8.41	23.7	0.02	
NB5	51d 50.5451'	008d 17.9663'	83.7	1.50	75.5	630	118	8.38	22.7	0.1	70.72
NB6	51d 50.5423'	008d 17.9724'	94.8	2.51	118	1840	289	9.17	29.7	0.16	
NB7	51d 50.5773'	008d 18.0318'	65.6	2.18	20	102	34.4	6.07	21.5		1.45
NB8	51d 50.5257'	008d 18.1542'	83.9	2.29	29.9	116	106	6.12	23.5		0.36
					43.38	379.11	86.12	8.35	25.26		



Sediment sample positions (ING)
 Naval Base, Haulbowline
 November, 2008



OID	EASTING	NORTHING
0	179387	65395
1	179348	65475
2	179430	65415
3	179495	65393
4	179422	65540
5	179365	65603
6	179358	65598
7	179290	65663
8	179149	65568

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