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Ms Laura Todd
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Dear Laura

PILBARA IRON ORE AND INFRASTRUCTURE PROJECT
Review of Sampling and Analysis Plan (Draft 6)

URS has reviewed the document and has the following comments.

The review of sediment sampling procedures for contaminant status was undertaken by Ian Baxter of the Environmental Services Group who, on behalf of the Commonwealth Department of the Environment and Heritage, routinely reviews Sampling and Analysis Plans prepared in accordance with the National Ocean Disposal Guidelines for Dredged Material. He has also prepared Sampling and Analysis Plans for URS clients across Australia.

Acid Sulphate Soils (ASS) sampling procedures were reviewed by Dr Elio Novello and Melanie Nunn of the Geotechnical Services Group, and comparison was made with "Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils in Queensland 1998" – Ahern et al (1998) as adopted by WA Department of the Environment in 2003.

Sediment Contaminants

1. The inclusion of cadmium and silver as "contaminants of concern" (Section 3.2) is interesting, given that they were below laboratory detection levels during recent sampling campaigns (refer Table 1). However, as the detection levels were close to Guideline screening levels the sampling programme will benefit from their inclusion in the suite of analytes in order to confirm whether there is any low level contamination by these metals.
2. The number of sampling locations for sediment contaminants (Section 4.2.1) has been calculated in accordance with the Guidelines. The rationale for basing the calculation upon the volume of potentially contaminated material is sound, given the results from preliminary geotechnical investigations which indicate that the average thickness of the soft sediment layer is approximately 1.0 m. Anthropogenic contaminants would not be incorporated within the underlying hard strata (compact clay in the intertidal areas and rock pavement in the subtidal areas). The rationale for halving the number of sample locations in the Mid-basin subtidal area ("probably contaminated") and the Anderson Point subtidal area ("probably clean") is consistent with Section 3.3.1 of the Guidelines. It is considered that analysis of these samples, coupled with analysis of samples from deeper in the dredging profile (collected during geotechnical drilling), will adequately characterise the contaminant status of the material to be dredged.

3. The method of placing the sampling locations within the dredging areas (i.e. random selection of grid squares across each dredging area) accords with Section 3.3.1 of the Guidelines).
4. The Guidelines' recommendations for field replication (refer Section 3.3.7) have not been fulfilled. The absence of this fundamental QA/QC procedure, which is designed to provide a measure of within-site variability in contaminant concentrations, may not be an issue for concern if concentrations are well below Guideline Screening Levels. However, should concentrations be close to Screening Levels then further sampling (with adequate replication) may be required by DoE/EPA to provide greater confidence in determining whether concentrations are statistically less than Screening Levels.
5. The methodology applied in collecting sub-samples from the sediment cores does not accord with the Guidelines (refer Section 3.3.3). Samples were collected from 10-20 cm thick layers within the core rather than for the full 0-50 cm and 50-100 cm strata. This is a particular issue for the surface stratum as contaminant concentrations would be expected to be highest in the very surface sediment layer. However the presence of some surface (0-10 cm) samples from each of the areas where coring was undertaken, in combination with the samples from 30-50 cm depth, will provide some measure of the contaminant status of the 0-50 cm stratum. The need for further sampling of the full 0-50 cm stratum can be assessed upon receipt of the analytical data.

Acid Sulphate Soils

The technique generally complies with the Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils. Whilst sampling intervals (1.5 m), sample quantity and sampling of distinct horizons are not in strict accordance with the Guidelines, there is a commitment to undertake further investigations if ASS become apparent. The proposed sample quantities will be sufficient for laboratory analysis of ASS.

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We trust the above adequately fulfils your current requirements. Should you wish to any discuss any aspects of the review, please do not hesitate to contact Ian Baxter or the undersigned.

Yours faithfully
URS AUSTRALIA PTY LTD

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