

B 1 TASK SUMMARY

This Appendix provides a report of the field works and laboratory chemical analysis undertaken to meet the objectives defined in Section 2 of the main report. The justification for the scope of works, sample locations and analytical suite are presented in the URS proposal 1941NG1111 (dated 16th February 2007), along with subsequent correspondence with the Environment Agency in Appendix A.

The soil and groundwater investigation undertaken as part of the additional measures required by the preliminary remediation statement¹ was undertaken as a series of tasks as summarised below:

- Task 1 Preliminary Works;
- Task 2 Trial Pitting/Soil Sampling;
- Task 3 Shallow Groundwater Sampling and Levelling; and
- Task 4 Laboratory Analysis and Data Management

B 2 TASK 1 – PRELIMINARY WORKS

Prior to commencement of site works, a Health and Safety Plan was developed, URS approved subcontractors including: Joy Plant (groundworks and trial pit excavation) and Survey Systems (Surveyors) were mobilised to site.

A site walkover was conducted on 1st March 2007 by representatives of URS, Rhodia and Huntsman. The scope of the site works was discussed, and in particular the identification of underground services in the investigation area. Once this had been completed, the position of each investigation location was agreed and marked out. It was agreed that should a location require moving, the prior consent of Rhodia and/or Huntsman would be requested.

Mobilisation to site occurred on 2nd March 2007. Following the discussions held during the site walkover, the Rhodia supervisor issued a permit, authorising intrusive works at each of the identified locations.

Prior to undertaking site investigation works all personnel from URS or its sub contractors (Joy Plant, Global Probing and Sampling, Survey Systems) were given a safety induction by URS's Site Safety Officer (SSO).

¹ Former Albright and Wilson Works, Whitehaven, Cumbria: Site Remediation Statement. Rhodia UK Ltd, URS. May 2006 (ref: 44319877/R2234.B01)

B 3 TASK 2 – SITE WORKS

Site works commenced at 10am on 2nd March 2007 and were completed on 13th March 2007.

B 3.1 Investigation Locations and Rationale

The rationale for the number and locations of trial pits and the suite of laboratory chemical analysis is presented in Appendix A and was based on an approximate simple grid pattern to allow delineation of the previously identified potential contaminants of concern, and provide confidence in providing representative data on the entire condition of the plot including for those areas in which there was no data currently available. The sampling locations are indicated on Figure 3.

B 3.2 Trial Pitting

Trial Pitting was undertaken between 5th March 2007 and 6th March 2007. Prior to excavation, each location was cleared with a Cable Avoidance Tool (CAT Scan). The presence of thick concrete covering a small part of the area of Plot F it was necessary to use a hydraulic breaker attached to a backhoe excavator to advance through. In total 6 trial pits of approximate area 1m x 3.5m were advanced using a mechanical backhoe excavator to a maximum depth of 2.9m bgl.

Soil inspection and sampling were undertaken as described in Section 3.4. The excavations were discontinued on contact with natural ground that appeared uncontaminated or on bedrock. The trial pits were backfilled with arisings in the reverse order to their excavation, then compacted using the bucket and tracks of the excavator.

B 3.3 Soil Inspection and Sampling

The URS field engineer logged the geological sequence observed as the excavation progressed. To assess the potential for contamination, soil samples were taken at regular intervals for headspace analysis (typically every 0.5m). Additional samples were taken for headspace analysis if there was any visual or olfactory evidence of contamination, or where there were pertinent changes in the geology. These samples were screened using a photoionisation detector (PID meter) fitted with a 10.6 eV bulb to assess the potential for chemical impact from volatile hydrocarbons.

Soil samples were collected at a variety of depths from both contaminated and uncontaminated horizons, from the Made Ground and from the natural ground to provide a robust, valid and comprehensive assessment. These were placed directly into containers supplied by the laboratory, and stored under chilled conditions prior to dispatch to the URS approved laboratory (Alcontrol Geochem).

B 4 TASK 3 – GROUNDWATER SAMPLING AND LEVELLING

B 4.1 Groundwater Sampling

Prior to sampling, depth to water (or free phase oil product below ground level) was measured in each well using an oil/water interface probe. The two existing ERM wells onsite (ERM 1 and ERM 2) were sampled on 12th March 2007.

The groundwater monitoring round for the two wells ERM1 and ERM2 was conducted on 12th March 2007. Measurement of the depth to water (or free phase oil product below ground level) was conducted using an oil/water interface probe.

B 4.2 Levelling

A levelling survey of all locations relative to Ordnance Datum and the national grid coordinates was conducted by a specialist sub-contractor (Survey Systems) between 12th March and 14th March 2007. For the monitoring wells, the depth to the top of the pipe and the cover level was measured to use in conjunction with the groundwater data to determine the groundwater flow direction.

B 5 TASK 4 - LABORATORY ANALYSIS AND DATA MANAGEMENT

As stated in Section 3.1.2 of the Remediation Statement¹, the final analytical schedule was determined by the ground conditions at the site during the investigation. Leachate samples were also scheduled from the soil samples in order to gain an understanding of the potential concentrations that may be leached from the soil (and subsequently enter the groundwater).

The analytical suite was determined by the contaminants of concern identified within the conceptual site model derived by Copeland Borough Council, and the further information obtained through URS's Phase II investigation as well as review of the historical processes undertaken at the site. The rationale for the final analytical suite is discussed in the report. The samples submitted for analysis, together with the full analytical suite are given in Table 1.