



Proposal

## **Stockpile Investigation**

Former Albright & Wilson Works,  
Whitehaven, Cumbria



*Prepared for:*  
Rhodia UK Limited

*Prepared by:*  
URS Corporation Limited  
*In association with*

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## **1. INTRODUCTION**

URS Corporation Ltd. (URS) is pleased to provide Rhodia UK Limited (Rhodia) the following proposal for the investigation of materials within eight stockpiles at the former Albright & Wilson Facility, Whitehaven.

## **2. OBJECTIVES**

A total of eight stockpiles of waste spoil are present on the site. URS understands the spoil has been derived from on site sources, being generated during construction of the two balancing ponds and from other on site works. Dredging waste from the off-site Sandwith Beck is also present on site, forming two stockpiles (referred to in this proposal as Stockpiles 7a and 7b, as discussed further below).

The objectives and scope of works for the current investigation are as follows:

- Accurately determine the stockpile volumes using Global Position System (GPS) surveying equipment;
- Geochemical testing of stockpile materials for a targeted suite of analysis;
- Screening assessment of the analytical results against generic and site specific screening criteria using the URS in-house screening tools that were set-up during previous contracts for Rhodia. The results will be used to determine whether the stockpile materials are suitable for use on site without treatment, and whether there are any restrictions on what locations on site the materials can be used; and
- Development of a management plan outlining on site re-use strategies, treatment and disposal options and outline costing for the stockpile materials. Costing will be at a level of detail adequate for Rhodia to select the preferred strategy. A Waste Classification for each stockpile will be included.

URS have subdivided the works above into the following office and site-based tasks, and these are discussed further below:

- **Task 1** – Preliminary Works
- **Task 2** – Site Works
- **Task 3** – Laboratory Analysis
- **Task 4** – Reporting

### **3. TASK 1 – PRELIMINARY WORKS**

The following preliminary tasks will be undertaken prior to the start of site work activities:

- The site specific Health, Safety and Environment Plan (HSEP) that was prepared for the URS' 2007 Phase II intrusive investigation will be updated to cover the proposed works. URS do not consider that the current works fall under the remit of the CDM (2007) Regulations;
- Appointment and mobilisation of approved URS subcontractors (specialist surveying contractors and laboratories); and
- Arrangement and management of site logistics (field equipment, consumables etc.).

### **4. TASKS 2 & 3 – SITE WORKS & ANALYSIS**

The site works are subdivided into the following elements, as discussed further below:

- Surveying of the stockpiles; and
- Collection of representative samples from each stockpile.

#### **4.1. Surveying**

URS will commission a specialist subcontractor to survey, in XYZ orientations, the stockpile profiles. The subcontractor will be supervised by a URS field engineer.

Surveying will be undertaken using GPS technology, and the results will be presented as a site plan illustrating the boundaries of the stockpiles and spot heights (taken at regular, systematic spacing) across each stockpile.

The surveying information will be submitted to URS following the works, and will not be available to the field engineer on site. However, to inform on the sampling strategy outlined in Section 4.2 below, the field engineer will liaise with the surveying subcontractor to estimate approximate stockpile volumes whilst on site.

The surveying is anticipated to take two consecutive working days.

#### **4.2. Stockpile Sampling**

URS has developed a strategy for the collection of soil samples from the stockpiles in accordance with appropriate sections of the following guidance documents:

- ISO 10381-8:2006(E). Soil Quality – Sampling – Part 8: Guidance on Sampling Stockpiles.
- ISO 10381-1:2002. Soil Sampling Quality – Part 1: Guidance on the Design of Sampling Programmes.

- BSI British Standards (PD CEN/TR) 15310-1:2006. Characterisation of Waste – Sampling Waste Materials – Part 1: Guidance of Selection and Application of Criteria for Sampling Under Various Conditions.

During a site walkover by Frank Wigley of URS in January 2008, estimate dimensions for the stockpiles were recorded from which approximate stockpile volumes have been calculated. The sampling frequency and strategy developed is based on these approximate volumes. If field surveying results indicate the estimated volumes underestimate the actual volumes by greater than 25%, it will be necessary to increase the sampling scope of works. URS will liaise with Rhodia to discuss any changes required, and will seek authorisation to proceed prior to undertaking the revised works. Any increase in project costs will be chargeable to Rhodia on a time and materials basis, in line with the previously agreed rate structure (as discussed further below).

The sampling methodology and strategy is summarised below (full details will be presented in an appendix to our report).

- Collection of 27 composite soil samples, comprising a minimum of five sample increments within each composite;
- Collection of 11 composite soil samples for leachate preparation (2 part, BS EN 12457-3) and subsequent water (leachate) analysis;
- Composite sampling using a pegged-out W sampling pattern. The 5 increments are then mixed thoroughly on a clean plastic sheet to form the composite. The value of this method is that it reduces systematic error from subjective choice of subsample by sampling personnel. It is also in accordance with published guidance;
- Samples will be collected using a hand-auger with >6cm split spoon device from between 0.25 – 3.00m below ground level. The hand-auger will be brushed clean using a wire brush between increment locations to limit the potential for cross contamination between samples;
- Field engineers will make a detailed description of each composite sample in accordance with BS5730;
- Soil and leachate samples are to be collected from the stockpile pile materials only. No provision for collection of samples from the ground either beneath/adjacent to the stockpile has been made;
- Each sample increment will be screened in the field using a Photo-Ionisation Detector (PID) fitted with 10.2 or 10.6eV lamp (considered appropriate to the anticipated composition of stockpiled materials);
- The location of the sampling increments will be annotated on a field sketch by the URS field engineer;
- Each soil sample will be submitted for the following analysis: pH, CLEA metals, Hexavalent Chromium, Polycyclic Aromatic Hydrocarbons (PAH) Priority 16, Total

Petroleum Hydrocarbon with Criteria Working Group speciation (TPHCWG), Total Sulphate, Total Phosphorus. 8 samples (one from each stockpile) will be tested for Total Organic Carbon;

- Each leachate sample will be submitted for the following analysis: pH, CLEA metals, Hexavalent Chromium, Polycyclic Aromatic Hydrocarbons (PAH) priority 16, Total Petroleum Hydrocarbon with Criteria Working Group speciation (TPHCWG), Soluble Sulphate, Total Phosphorus, anionic surfactants;
- Samples will be submitted to ALcontrol Laboratory, Chester on a standard 5-day turnaround for soils, and 15-day for leachates (to allow for settlement and subsequent waters analysis). ALcontrol are approved under URS' Quality System (ISO 9001) and hold UKAS and MCERTs accreditation for the majority of the proposed analysis;
- No provision for collection of Waste Acceptance Criteria (WAC) samples has been made. If any of the materials are hazardous waste, and require disposal to landfill then WAC testing will be required before disposal;
- Due to the labour intensive nature of the composite sampling method, as required by the guidance documents, the sampling costs are based on two URS field engineers, working three consecutive working days on site;
- The sampling and surveying works will be undertaken simultaneously, with the field engineers undertaking the sampling whilst also supervising the surveying subcontractors;
- URS do not anticipate the presence of live subsurface utilities (i.e. drains, power cables) within the stockpiles, therefore no provision in the costs has been made for specialist utility clearance by a subcontractor.

## **5. TASK 4 – REPORTING**

### **5.1. Scope of reporting**

URS will report the findings of the proposed investigation as follows:

- Outline of the fieldworks undertaken;
- Calculation of stockpile volumes from the survey drawings;
- A table of sample ID, detailed sample descriptions and PID values;
- Evaluation of the soil dataset for each stockpile to define 95% Upper Confidence Limit (UCL) concentrations for use in the Generic Screening Assessment (assuming the data to fall into a lognormal distribution). The 95% UCL being taken as representing the whole stockpile population. The assessment will also include evaluation, based on sub-population composite samples, of areas within each stockpile that have 'hotspot' concentrations. It will not be possible to undertake statistical hotspot analysis (Max

Value Test) on data from the smaller stockpiles due to the limited number of samples proposed to be collected;

- Generic Screening Assessment of new analytical data against criteria for Human Health and Controlled Waters previously generated for the site (using the soil 95% UCL concentrations). Human health screening will be by direct comparison of the stockpile concentrations to the site specific criteria for public open space use. Controlled waters screening will use a generic stage 2 screen only because Stage 3 for controlled waters depends on the use location;
- Classification of the stockpile materials with respect to the Hazardous Waste classification guidance<sup>1</sup> – with assessments made for each stockpile, and where appropriate, for subpopulations of larger stockpiles in which potentially separable ‘hotspots’ are identified. This task will be reported as a summary table, in which the Waste Classification for each stockpile will be reported, and where appropriate which hazardous properties codes the materials possess;
- A costed action plan for the management and re-use of the stockpile material will be presented in the report. The action plan will be based on the assumption that stockpile materials will be re-used on site. The plan will indicate whether, on the basis of the generic assessments, re-use is a viable option, or whether modification of the stockpile materials is likely to be required or whether specific management/design precautions will be required to allow the reuse (including selecting location for use on the basis of controlled waters risk). For the latter possibility, stage 3 controlled waters risk assessment may be needed. This is potentially an iterative task and it is difficult to estimate at this stage what scope of work will be needed. A provisional allowance has been made;
- Figures to include, but not limited to: site location, stockpile profile figure (from surveying subcontractor), sample location plan (indicating sampling increment locations).
- Appendices to include tabulated site data (with statistical computations, as appropriate) and laboratory analytical certificates.

## 5.2. Environment Agency approval

A draft report will be issued to Rhodia as an Acrobat pdf file by e-mail. Following receipt and agreement of one set of consolidated comments, we will, with Rhodia’s agreement forward the report without cost information to the Environment Agency for approval of the remedial strategy. We anticipate that the report will form an Appendix of the Remediation Statement.

Our fee estimate allows for 2 sets of amendments to be made following Environment Agency comments. We assume that following agreement of the final text we will issue 3 hard copies to the Environment Agency, 1 to Copeland Borough Council, 2 to ERM / LRT and 2 to Rhodia.

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<sup>1</sup> Environment Agency, 2005. Hazardous Waste: Interpretation of the Definition and Classification of Hazardous Waste (Second Edition, Version 2.1). Technical Guidance WM2.



No allowance for attendance of, or preparation for meetings (via phone, or site/client office) has been made in the current proposal. We consider that adequate meetings are likely to be allowed for in the management and oversight contract.

## 6. PROJECT SCHEDULE, COST AND TERMS AND CONDITONS

### 6.1. Project Schedule

The proposed project schedule is as follows:

- **Task 1** – Preliminary Works – to be completed one week following receipt of written authorisation to proceed;
- **Task 2** – Site Works – Assumes three days onsite for URS (with two days for the specialist subcontractor);
- **Task 3** – Laboratory Analysis – 15-working day (due to leachate test settlement).
- **Task 4** – Reporting – draft report to be issued approximately four weeks following receipt of complete analytical results.

### 6.2. Project Cost and Conditions

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