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CD9/1/C

Email 1

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## Tom Roberts

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**From:** Smith, Mark <MarkA.Smith@fccenvironment.co.uk>  
**Sent:** 09 July 2021 13:39  
**To:** Wall, Clive  
**Cc:** Claire Finney; Nicholson, Matthew  
**Subject:** STF  
**Attachments:** Pre-Op Condition Response DRAFT V4.pdf

Good afternoon Clive

Hope you're well,

Please find attached details of the Pre Condition Response for the STF

Regards

Mark

**MarkA Smith – Site Business Manager**

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from waste to resource



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CD9/1/C

Email 1 attachment

Pre-Operation Condition: Mechanical Screening of Soils with  
Asbestos Debris

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## **Pre-Operation Condition: Mechanical Screening of Soils with Asbestos Debris**

The following pre-operative condition is included in permit variation reference: EPR/HP3632RP/V003.

*Prior to the use of the mechanical screener for the pre-screening of asbestos contaminated soils under activity reference AR2 a report shall be submitted for written permission detailing the following aspects:*

- *Evidence to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design.*
- *Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on site.*
- *Details of monitoring checks, audits and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed.*

### **1.0 Introduction**

The original permit variation proposed for the Edwin Richards site followed the approved approach of pre-screening soils prior to hand-picking as implemented under the mobile treatment licensing regime.

The original permit variation for treating soils with asbestos was issued in February 2018. The main principles of this application were to:

- Receive soils with limited amounts of visible and sporadic bound fragments of asbestos-containing materials (ACMs), such as asbestos cement, and specific low levels of free dispersed asbestos fibres (chrysotile <0.1% and mixed/other forms of asbestos <0.01%) based upon asbestos mineral type. This application was different in this respect to that of other soil treatment facilities that can accept licensable asbestos products such as asbestos insulation and asbestos insulating board (AIB) and higher levels of asbestos fibres in soil
- The aim of this was to eliminate the potential for significant levels of airborne respirable asbestos fibres (i.e. above 0.01f/ml, the level referred to by HSE as the clearance indicator limit) to be generated by the type of contaminated soils that would be accepted for treatment. The waste acceptance procedures were designed specifically to eliminate the risk of significant levels of airborne respirable asbestos fibres from being generated, in compliance with the fundamental principle of BAT.
- The limits on different types of asbestos fibres were chosen based upon peer reviewed scientific journals that undertook laboratory scale experiments on unbound asbestos in artificially dried soil. Any soil exceeding these conservative thresholds would, and has been rejected prior to treatment at Edwin Richards.
- The requirement of engineering control for abating fugitive asbestos emissions was largely therefore negated by strict and effective management (administrative controls) of the source feedstock being limited to soils with no potential for airborne asbestos release. This

focus on source control being fully aligned with the elimination principle within the risk hierarchy.

- Elimination of risk at source is a far more effective approach than reliance on reduction measures such as; in this case, enclosure containment and active HEPA air filtration.
- Dust suppression using water dosed with a proprietary non-foaming surfactant for asbestos suppression would be the secondary form of operational control, or mitigation, after the strict waste acceptance procedures were completed.
- Bound asbestos debris carefully would be removed by hand-picking, however, the use of pre-screening to separate different size soil fractions as readily approved under the mobile treatment license regime for use outdoors on brownfield remediation projects across the UK, was rejected as being unsuitable by the Environment Agency permitting team during the original 2018 permit variation.
- Asbestos monitoring datasets from both soil screening and asbestos hand-picking projects were submitted to the Environment Agency prior to the 2018 variation and were from mobile treatment license projects rather than site-specific to the Edwin Richards soil treatment facility site.
- It is argued here that such monitoring data is relevant as it pertains to waste treatment operations carried out outdoors and with contaminated soils containing far more asbestos than the materials that are proposed to be accepted and treated at Edwin Richards.
- Asbestos monitoring would be undertaken during the hand-picking operation to ensure that airborne respirable asbestos fibre concentrations did not exceed 0.01 fibres/ml of air. This target being 10% of the HSE control limit, referred to as the Clearance Indicator Limit.

During the operation of the hand-picking, it was clear at an early stage that the picking station was subject to significant damage from oversize debris. More worryingly, the risks to workers from injury from oversize debris were elevated. This risk of injury would have been largely eliminated prior to picking had the pre-screening operation been approved under the permit.

A proposal was made to the Environment Agency in early 2019 to undertake a brief soil screening trial to provide site specific asbestos monitoring data that would be used in support of a permit variation application. The EA feedback from this proposal was to submit a permit variation without any site-specific soil screening emissions data.

Due to continued elevated risk of injury to workers and slow processing speed of the hand-picking, a permit variation was submitted in June 2019. This was duly made in November 2019 and issued as a permit variation with the previously described pre-operation condition in June 2021. The main changes to the asbestos section of the operating techniques were as follows:

- External storage of 10,000t of asbestos contaminated soils awaiting treatment
- Pre-screening of asbestos contaminated soils inside the existing building prior to hand-picking

No changes were proposed to the waste acceptance criteria.

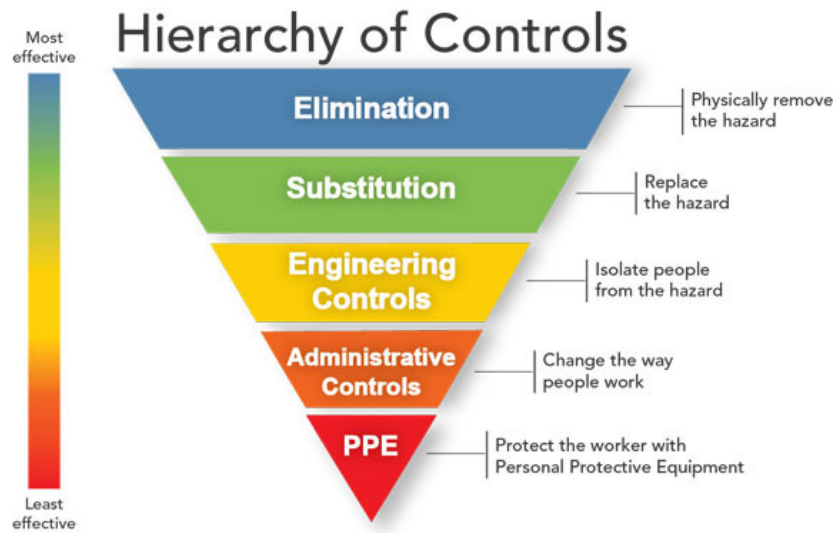
A significant change to the external monitoring was proposed within the Emissions Management and Monitoring Plan submitted as part of the permit variation. This included external monitoring for airborne respirable asbestos fibres to ensure that the levels were lower than the 0.0005f/ml stated

as being suitably 'acceptable' in terms of potential health risk in WHO air quality guidance<sup>1</sup>. This Emissions Management and Monitoring Plan was approved by the Environment Agency as part of the determination of the permit issued in June 2021.

A separate note on asbestos in air monitoring strategy and methodology for asbestos-contaminated soil processing [based on a separate report on air quality guidance<sup>2</sup>] is included in Appendix A and has been completed by Mr Stephen Forster, Remedia Group Limited, Chair of the Joint Industry Working Group on Asbestos in Soil and C&D Materials. A copy of Mr Forster's CV is also included in Appendix A.

## 2.0 Hierarchy of Control

The next section will list the controls present at the site and how this meets the well-established principle of managing hazards through a Hierarchy of Controls. This process is shown in Figure 1 and described in further detail in Table 1.



**Figure 1.** Hierarchy of Controls

<sup>1</sup> Air Quality Guidelines For Europe, World Health Organisation. Second Edition, 2000.

<sup>2</sup> AQ thresholds in report '2020-SF-748R02 - Provectus, Environmental Permit Review v1.

**Table 1.** Hierarchy of Controls for Asbestos Removal from Soil

	Control	Mitigation
1	Elimination	<p>Waste acceptance procedures including a &lt;0.1% chrysotile and a conservative free dispersed asbestos fibre threshold for amphibole asbestos (amosite, crocidolite, etc.) of &lt;0.01% are designed to eliminate asbestos emissions by ensuring no friable asbestos or soil fibres are at concentrations that would result in airborne respirable fibre release. This is verified by recent air monitoring data in Appendix B that continues to confirm that the levels of asbestos fibres inside the asbestos building is always &lt;0.0005f/ml.</p> <p>The data provided is verification of the efficiency of the waste acceptance procedures and elimination of unacceptable levels of hazard and consequential risk potential prior to the treatment process commencing.</p>
2	Substitution	<p>Substituting the hand-picking of 'as received' soils with the hand-picking of 'screened' soils reduces the risk of injury due to manual handling of oversize materials, as well as plant emissions from the process as the pre-screening of soils significantly reduces the time required for completing soil treatment</p> <p>There are no options for further substitution with the existing process to reduce respirable asbestos fibre emissions due to the elimination of the emission potential through strict initial waste acceptance criteria and procedures</p>
3	Engineering Control	<p>Hazards are generated through dust emissions and so a dust suppression system comprising of a surfactant/water misting system is installed within the building. The routine asbestos monitoring is undertaken without any form of active dust suppression. This has verified that operating the dust suppression is not required to reduce airborne respirable asbestos fibre concentrations. However, the misting system has been used as an alternative to the tractor and bowser dust suppression system for general dust control within the building to reduce traffic collision risk potential. Data collected from within the building, and outside, has verified that respirable asbestos fibre concentrations (without dust suppression) has remained below the (very low) 'ambient background concentration of 0.0005 fibres/ml. This has validated that the building offers no benefit for the reduction of airborne asbestos concentrations and that the waste acceptance procedures are the main mitigation measure for preventing elevated airborne respirable asbestos fibre concentrations. Enclosure of the screener and active ventilation through a HEPA filter has been requested by the Environment Agency, the benefit of the use an enclosure and a HEPA filter is reviewed later.</p>
4	Administration Controls	<p>The pre-screening will allow a change of work by eliminating the need for manual handling of oversize and reducing the need for hand-picking stockpiles on several occasions due to the concealment of asbestos debris below oversize materials or within the fines fraction.</p>
5	Personal Protective Equipment (PPE)	<p>There are no changes proposed to PPE as there have been no detectable emissions and so the protection factor of the PPE has always been more than adequate.</p>

### 3.0 Emission Targets

#### Airborne Asbestos Limits: Permit Requirements

The permitted emissions target for airborne respirable asbestos fibres at the site is 0.01 fibres/ml. This is detailed within Table S3.3 Process monitoring requirements of permit reference EPR/HP3632RP.

- Air testing within the building (labelled as 'dust shed') for the duration of the asbestos hand-picking works and, once pre-operational condition 1 has been given written permission, at all times when the mechanical screening of waste soil is taking place.
- Outside air testing when asbestos contaminated soils are being received, handled and moved within the site. Outside Sampling points as detailed in drawing no.100993 – Asbestos DWG3/Rev1 dated October 2020.

Where total respirable fibre concentrations exceed 0.01 fibres/ml in any sample<sup>3</sup>, that sample must be submitted for analysis by scanning electron microscopy (SEM) to confirm the concentration of asbestos fibres present and confirm the asbestos fibre types detected.

In line with M17 monitoring guidance:

- Pumped sampling 1m above ground level
- Flow rate = 8 litres/ minute
- Minimum sample volume = 480 litres
- Filter pore size = 0.8-1.2µm

Asbestos fibre limit of detection (LOD) = 0.001 fibres/ml<sup>4</sup>

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<sup>3</sup> The analytical procedure counts all fibres and does not distinguish between asbestos and non-asbestos fibres

<sup>4</sup> The Limit of Quantification, or LOQ, is 0.01 fibres/ml



#### 4.0 Anticipated Emissions

**Table 2.** Expected emissions from each stage of the Hierarchy of Control measures

	Control	Mitigation	Expected Airborne Total Respirable Fibre Emissions
1	Elimination	Waste acceptance procedures are designed to eliminate respirable asbestos fibre emissions by ensuring no friable asbestos or soil fibres are present in accepted wastes at concentrations that would result in any significant airborne release above 'ambient background' level. No further changes are proposed to this approach	<0.01 fibres/ml at all times, <0.0005 fibres/ml when monitored on a quarterly basis
2	Substitution	Substituting the hand-picking of 'as received' soils with the hand-picking of 'screened' soils reduces the risk of injury due to manual handling, as well as plant emissions from the process as the pre-screening of soils significantly reduces the time required for completing soil treatment There are no options for further substitution with the existing process. This is due to elimination of detectable respirable asbestos fibre emissions above the specified LOQs through the proven efficiency of the initial waste acceptance criteria and reception testing	<0.01 fibres/ml at all times, <0.0005 fibres/ml when monitored on a quarterly basis
3	Engineering Control	An existing misting system is present in the building on the walls of the storage bays. It is proposed to add a further dust misting system to the screening decks of the soil screener to provide additional airborne dust containment capacity at the site for use if required.	<0.01 fibres/ml at all times, <0.0005 fibres/ml when monitored on a quarterly basis
4	Administration Controls	No changes are proposed to access to the area due to the absence of asbestos emissions	<0.01 fibres/ml at all times, <0.0005 fibres/ml when monitored on a quarterly basis
5	Personal Protective Equipment (PPE)	No changes are proposed to PPE used at the site as the works remain as Notifiable Non-Licensed Works (NNLW) and no increase in emissions will result from the use of a soil screener	<0.01 fibres/ml at all times, <0.0005 fibres/ml when monitored on a quarterly basis

## 5.0 Emissions Abatement

It needs to be noted that the already approved picking station causes similar disturbance compared to soil screening i.e. excavation works, loading into a hopper, transfer of materials on conveyors and deposit of soil on the ground. However, neither the screening, nor hand picking process involves crushing soil which could result in the change in composition of bound asbestos debris. Monitoring inside the building on site has consistently shown that asbestos fibre concentrations in the air are below <0.0005f/ml when tested to this quantification level and below <0.01f/ml on all other occasions using the testing method stated in the permit. This significant volume of testing data validates that the waste acceptance criteria and procedures implemented at the site as being entirely effective without the need for further mitigation.

The Environment Agency have requested that the screener is enclosed and that an active HEPA filtration system is installed as there is a perception that soil screening will generate significantly elevated airborne respirable asbestos fibre emissions. As shown by quarterly data submitted to the EA, emissions will be below the 0.01 fibre/ml criteria stated in the permit at all times, and will be below the much more conservative 'ambient background' threshold of 0.0005 fibre/ml during quarterly monitoring, so it is unclear what further mitigation would be afforded by the use of a containment enclosure and an active HEPA filtration system.

In the context of asbestos fibre emissions, an active HEPA filtration system is only required by the HSE when asbestos removal of ACMs in situ is being undertaken inside buildings and where such work is classed as licensed asbestos works. In such cases, HSE require that a negative pressure, HEPA filtered enclosure is constructed, tested and maintained for the duration of the removal works and clearance testing. Such activities include removal of the high hazard materials such as asbestos coatings, thermal insulation and AIB where the anticipated asbestos fibre in air concentrations will well exceed the statutory control limit of 0.1 fibres/ml. None of these materials are accepted or treated at Edwin Richards.

For some external works e.g. removal of AIB soffits, a partial enclosure may suffice, but negative pressure and active HEPA filtration systems may not be required. For some non-licensed work indoors, such as the removal of textured decorative coatings ('Artex') a partial enclosure is normally required but active HEPA filtration systems are not required. For most non-licensed asbestos removal projects, no enclosure will be required. Friable asbestos types such as AIB and Artex are not accepted or treated at the site.

For working with asbestos-contaminated soil industry guidance prepared by Mr Forster, and agreed with the HSE<sup>5</sup>, specifies that the default position for even licensed work is that neither an enclosure nor active HEPA filtration systems are required.

At the Edwin Richards site, bound asbestos materials will be treated such that the work is classed on a precautionary basis as notifiable non-licensed. This alone justifies the elimination of any requirements to undertake the operation, or any part of it, inside an actively vented and HEPA filtered enclosure.

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<sup>5</sup> Control of Asbestos Regulations 2012. Interpretation for Managing and Working with Asbestos. in Soil and Construction and Demolition Materials: Industry Guidance. CL:AIRE, 2016 (CAR-SOIL)

In accordance with ARCA guidance<sup>6</sup>, the air exchange rate within an asbestos enclosure must be 8 air exchanges per hour with a negative pressure of -5pa to ensure adequate containment of asbestos fibres if an enclosure is breached. Further supporting information is included in Health and Safety Laboratory report RR988 “Ventilation of enclosures for removal of asbestos containing materials”.

There was no evidence supplied by the Environment Agency during the permit determination as to why a HEPA filter was required to be compliant with the requirements of BAT, environmental permitting guidance, or what levels of emissions justified further mitigation than those already employed at the site.

It is clear from the foregoing that the use of an enclosure and HEPA filtration for the activities being undertaken at Edwin Richards, including the addition of soil screening, does not constitute BAT. Such controls might be considered BAT as applied to processes where asbestos-containing products are manufactured, an activity that is now prohibited in the UK and throughout the EU by law.

As stated previously, HSE does not require full containment enclosures equipped with active HEPA filtration for any non-licensed works.

Therefore, there is no proposal to implement a HEPA filter at the Edwin Richards site for the following reasons:

- The waste acceptance procedures at the Edwin Richards site are sufficiently conservative to ensure that the asbestos emissions are eliminated at source in line with stage 1 of the hierarchy of control
- Monitoring of the internal air quality of the building has confirmed that has been below the detection limit of <0.0005 fibres/ml on each occasion it has been tested and below <0.01 fibres/ml on all other occasions during the treatment of asbestos soils. This is predominantly undertaken without the use of the dust suppression system and confirms that the waste acceptance procedures have been entirely effective
- Similar monitoring on soil screeners treating asbestos contaminated soils have confirmed that airborne asbestos will not increase above the approved permit limits and monitoring during the commissioning phase and for the entire operational phase will demonstrate this.
- The soil screener will not result in airborne asbestos above the permit asbestos limit irrespective of mitigation measures available due to the overwhelming efficiency of the initial waste acceptance strategy.
- Direct dust suppression measures using water and proprietary surfactant has been approved and used previously as a form of secondary mitigation without any elevated asbestos levels being recorded and so is deemed to be entirely effective without the need for further mitigation

Soil screening prior to hand-picking of asbestos from soils on a picking line regularly has been approved on many brownfield site remediation projects which are regulated by the Environment Agency under a mobile treatment license regime. A document titled ‘Asbestos in Soil, a pan European perspective’ and published by NICOLE (Network for Industrially Co-ordinated Sustainable Land Management in Europe), June 2021 is included in Appendix C. Examples of projects where

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<sup>6</sup> GN006-V1119-Air management in asbestos enclosures. Asbestos Contractors Removal Association, 2019.

external dry screening was implemented on asbestos contaminated soils is included on pages 26-28, p39-41, p48, p49-52 within this document.

In this respect, there has never been to our knowledge any requirement imposed by the Environment Agency (or indeed the Health and Safety Executive (HSE), the principal regulator for health and safety under the Control of Asbestos Regulations 2012 – CAR 2012) for the use of asbestos enclosures and/or HEPA filtration under negative pressure around any element of the asbestos remediation process that is carried out routinely outdoors, albeit with a range of other controls measures applied.

We believe that the Pre-Operative Condition as applied to the operation of the static Edwin Richards site is not commensurate with relevant industry best practice, BAT, any requirement under CAR 2012 and the associated Approved Code of Practice and Guidance and is not necessary in pursuant of securing and maintaining the protection of employee or public health against fugitive asbestos fibre emissions.

In so saying, we note the definition of BAT in Article 3 of the Industrial Emissions Directive:

“‘best available techniques’ means the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole.”

In addition, Sector Guidance Note IPPC S5.06 states the following about BAT:

- The essence of BAT is that the techniques selected to protect the environment should achieve an appropriate balance between environmental benefits and the costs incurred by Operators.
- EQS). Essentially, BAT requires measures to be taken to prevent emissions - and measures that simply reduce emissions are acceptable only where prevention is not practicable.
- The BAT approach first considers what emission prevention can reasonably be achieved (covered by Sections 2 and 3 of this Guidance) and then checks to ensure that the local environmental conditions are secure.

We believe that the proposal as it stands demonstrates compliance with the BAT requirement, without the addition of enclosures and active HEPA filtration.

## **6.0 Discharge of Pre-Operational Conditions**

The measures to discharge of the pre-operational conditions are now presented.

**Table 3.** Discharge of Pre-Operational Conditions

1	Evidence to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design	Refer to Table 4
2	Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on site.	Refer to Table 5
3	Details of monitoring checks, audits and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed.	Refer to Table 6

The management of emissions from the soil screener is now described with mitigation measures and emissions limits.

**Table 4.** Soil Screening Abatement and Monitoring Provisions

Risk	Mitigation	Emissions
Preventing Airborne Release of Asbestos	<ul style="list-style-type: none"><li>• Strict Waste Acceptance testing at reception to confirm that no unbound asbestos is present and &lt;0.1% w/w chrysotile and &lt;0.01% w/w all other forms of asbestos</li><li>• Rejection of any unbound asbestos or fibre levels exceeding permit thresholds</li><li>• Dust suppression of stockpiles prior to screening using existing dust suppression infrastructure</li><li>• Installing new dust suppression infrastructure on soil screening conveyors as further containment and additional reassurance to the Environment Agency</li><li>• Use of tarpaulins to cover external stockpiles</li></ul>	Below airborne asbestos threshold limits at all times <sup>7</sup>

Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on site is included in Table 5.

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<sup>7</sup> Monitoring at all times to confirm levels <0.01 fibres/ml, quarterly monitoring to confirm levels <0.0005 fibres/ml

**Table 5.** Commissioning, Operation and Maintenance Checks

Activity	Measures Employed	Emissions
Commissioning	<ul style="list-style-type: none"> <li>• Screener will be located within the soil storage bays once internal bay walls have been partially removed in accordance with the structural engineers report</li> <li>• Existing dust suppression mist system is to be extended to the soil screener and installed with spray rails on the fines, mid range and oversize conveyors – this is tested to ensure adequate water pressure across all misting points</li> <li>• Weekly monitoring for first four weeks to ensure that baseline level is &lt;0.0005 fibres/ml and below 0.01 fibres/ml at all other times</li> </ul>	<ul style="list-style-type: none"> <li>• Air monitoring to confirm atmosphere &lt;0.0005 fibres/ml during initial soil screening on a weekly basis for the initial four weeks, and &lt;0.01 fibres/ml at all other times in accordance with permit requirements</li> </ul>
Operational	<ul style="list-style-type: none"> <li>• Standard plant equipment checks in accordance with suppliers instructions</li> <li>• Ensure that dust suppression measures are employed at all times on the bay walls and soil screener conveyors</li> <li>• Air monitoring at all times during soil screening</li> </ul>	<ul style="list-style-type: none"> <li>• Air monitoring to confirm atmosphere &lt;0.01 fibres/ml at all times</li> <li>• Quarterly monitoring to confirm levels remain below a boundary limit of &lt;0.0005 fibres/ml</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>• Operatives servicing the equipment to wear the same level of PPE as asbestos removal operatives and access and exit the site via the approved decontamination system</li> <li>• Pressure checks on the mist system and surfactant addition rates to ensure in alignment with suppliers instructions</li> <li>• Whilst the screener would be permanent on site, if the soil screening plant is required to be removed, then decontamination by wet washing will be implemented in accordance with HSE guidance. No use of dry brushing or methods that could liberate any bound asbestos debris will be allowed</li> <li>• Air monitoring during decontamination works and 3 number swab tests to confirm working surfaces of soil screener are free from detectable levels of asbestos fibres</li> </ul>	<ul style="list-style-type: none"> <li>• &lt;0.01 fibres/ml during maintenance works</li> <li>• Four stage clearance test in accordance with ARCA guidance on reoccupation</li> </ul>

Details of monitoring checks, audits and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed are included in Table 6.

**Table 6.** Monitoring, Audits and Emergency Procedures

Activity	Measures Employed
Monitoring	<p>If the dust suppression mist system is not operational then works will cease. In the unlikely event that airborne asbestos is &gt;0.01 fibres/ml then airborne monitoring will be repeated immediately and works stopped after samples are obtained until the second round of results are available.</p> <p>For external quarterly monitoring, the criteria are included in Table 2 of Appendix A for the lower detection limit implemented on a quarterly basis. Conduct monitoring and review of wind direction for potential off-site contributory factors with weather station data.</p> <p>Conduct review of waste input materials and resample potential source stockpiles for laboratory analysis.</p> <p>Conduct further operational checks on fugitive dust controls.</p> <p>Enter report in Site Log</p>
Audits	<p>The site is subject to regular audits by FCC quality staff to ensure that the works are implemented in accordance with accredited quality systems on site, the environmental permit and site specific risk assessments and method statements. A quarterly review of all data is reviewed by the compliance section of FCC as part of their permit reporting requirements.</p>
Emergency Procedures	<p>All operations Stop – conduct urgent review of Asbestos Risk Assessment and Asbestos Plan of Work.</p> <p>Conduct review of wind direction for potential off-site contributory factors.</p> <p>Conduct comprehensive review of all input materials.</p> <p>Conduct comprehensive operational checks on fugitive dust controls.</p> <p>Submit retained sample filter(s) for urgent SEM-EDXA analysis.</p> <p>No commencement of operations until a safe system of work is established</p> <p>Implement any regulatory reporting required by the environmental permit</p>

Internal Criteria for Boundary Air Monitoring

A review of appropriate asbestos concentrations for mitigation was prepared by Mr Steve Forster, Chair of the Joint Industry Working Group on Asbestos in Soil and C&D Materials. The complete document is included in Appendix A. This document was completed for the site to establish a stringent set of air quality criteria for background monitoring. This is not for permit compliance reasons, rather to supplement the existing monitoring dataset and provide further reassurance that emissions are effectively controlled on site.

The air quality criteria proposed in this document are more conservative than <0.01 fibres/ml required for compliance with the permit. To achieve the lower detection limit, some modifications to the M17 methods are proposed in line with MCERTS requirements. The aim of the external monitoring is to maintain a quarterly monitoring record of boundary air quality to supplement the air monitoring required under the Environmental Permit.

A summary of the proposed criteria for boundary monitoring is provided in Table 7 below.

**Table 7.** Monitoring Thresholds and Alert Levels Using Lower Detection Limits for External Monitoring

Routine Activity Monitoring (internal)		Routing Boundary Monitoring (external)	
Green Alert	<0.002 fibres/ml <5 fibres counted	Green Alert	<0.0005 fibres/ml <5 fibres counted
Amber Alert	<0.002 fibres/ml >5 and <10 fibres counted	Amber Alert	<0.0005 fibres/ml >5 and <10 fibres counted
Red Alert	<>0.002 fibres/ml >10 fibres counted	Red Alert	<=>0.0005 fibres/ml >10 fibres counted

The mitigation measures for Green/Amber and Red Alerts are provided in Table 2 of the document in Appendix A.

To support the asbestos monitoring frequency, an on-site laboratory is being built for asbestos sampling and analysis by a third party. This is currently being registered with MCERTS to allow the site to become accredited for asbestos sampling and counting. It is anticipated that this will be operational and produce on-site, accredited reports during 2022 once MCERTS accreditation for the site is obtained. Prior to this the existing accredited asbestos subcontractor will continue to implement the monitoring at the site.



**APPENDIX A – EXTERNAL ASBESTOS MONITORING NOTE: STEVE FORSTER + CV**

## APPENDIX A

### OUTLINE ASBESTOS IN AIR MONITORING STRATEGY AND METHODOLOGY

1. **Outline Air Monitoring Strategy for Asbestos-Contaminated Soil Processing Operations at Soil Treatment Facilities (STFs)**
2. Respirable asbestos fibres have the potential to cause serious health affects if inhaled in significant concentrations. This potentially could have an impact upon both exposed STF operatives and visitors to STFs, in addition to people outside of the Site who may become exposed to significant fugitive emissions.
3. In order to demonstrate that the operational controls that will be put in place to mitigate the potential risks of exposure to respirable asbestos fibres are sufficient to eliminate significant risk, FCC will undertake monitoring for respirable asbestos fibres to check that fibres are not being released into the atmosphere on- and off-site.
4. In most circumstances, however, it is recognised that the extent of dilution in the environment of the very low levels of fugitive respirable asbestos fibres in air that may be anticipated from the proposed operation of the STF, will be considered sufficient to discount any significant exposure to members of the public over 100m from a potential source of any fugitive emissions arising from routine operations at the STF.
5. Asbestos in air monitoring will be undertaken generally in accordance with the provisions of HSE document 'HSG248'<sup>1</sup> by a laboratory accredited by UKAS to SO/IEC 17025 at the Site as identified below:
  - a. Baseline ambient monitoring conducted on the proposed site of a proposed STF (baseline activity monitoring)
  - b. Baseline ambient monitoring conducted at selected locations on the boundary of the STF Site, both upwind and downwind of the proposed site of a STF (baseline boundary monitoring)
  - c. Routine ambient monitoring conducted adjacent to potential dust-generating activities during representative periods of operation of the STF
  - d. Routine ambient monitoring conducted at selected locations (as in b. above) on the boundary of the Site, both upwind and downwind, during representative periods of operation of the STF (operational activity monitoring)
6. Since it is highly unlikely that any employee carrying out operations on the STF will be subjected to elevated airborne asbestos concentrations approaching or exceeding the Control Limit of 0.1 fibres/ml averaged over four hours, or the Short-Term Exposure Limit of 0.6 f/ml over any 10-minute period, the need for personal sampling may be discounted.

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<sup>1</sup> Health and Safety Executive. Asbestos: the analysts' guide for sampling, analysis and clearance procedures. HSG248. 2006. HSE.

7. It is recognised that boundary monitoring has its limitations; the primary emphasis when mitigating potential risks should be on ensuring control of exposure and spread of asbestos **at source** during operations that could potentially generate fugitive emissions.
8. Consequently, FCC will place significant reliance on ensuring that the operational controls that are set out in the Asbestos Plan of Work (APOW) for the STF and based on the Asbestos Risk Assessment (ARA) are monitored effectively and that any perceived failure or reduction in performance of these will trigger a 'Work Stop' action and a comprehensive review of the ARA and APOW.
9. Consequently, less reliance will be placed on boundary monitoring results to flag when a review of controls is required, rather the monitoring will be conducted as a means of providing reassurance to management, the regulators (Environment Agency and the Local Planning Authority) and members of the public that operations are being sufficiently well-controlled in accordance with the **As Low as is Reasonably Practicable** (ALARP) principle so as to present negligible risk.
10. It is anticipated that both baseline and operational boundary monitoring samples will be collected from a maximum of four boundary locations representative of potential off-site receptor risks at the STF, to be determined.
11. It is anticipated that baseline and operational activity monitoring samples will be collected from a minimum of two locations representative of on-site activities at the STF, to be determined.

## **12. Outline Sampling and Analytical Strategy**

13. The objective of the sampling strategy is to permit most samples taken on-site during the course of a day to be analysed on-site same day by the Analyst.
14. The sampling methodology implemented by the Analyst based on this outline strategy will be such that the Limit of Quantification (LOQ) of the method used for sampling and analysis on site, for a total of 20 fibres counted using phase contrast optical microscopy (PCOM), will be no greater than 0.002 fibres/ml for baseline and routine activity monitoring samples and 0.0005 fibres/ml, the WHO guideline value<sup>2</sup>, for baseline and routine boundary monitoring
15. The LOQ is expected to be achieved by using a sample pooling approach, nominally with the following variable sampling and analysis parameters:

### Baseline and routine activity monitoring

- a. Number of filters per pooled sample – 2
- b. Sample flow rate – 15 litres/minute
- c. Sample duration – 80 minutes
- d. Litres per sample filter – 1,200
- e. Minimum average graticule areas counted per sample filter – 200

### Baseline and routine boundary monitoring

- f. Number of filters per pooled sample – 4
- g. Sample flow rate – 15 litres/minute
- h. Sample duration – 160 minutes
- i. Litres per sample filter – 2,400
- j. Minimum average graticule areas counted per sample filter – 200

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<sup>2</sup> WHO. Air quality guidelines for Europe. WHO Regional Publications, European Series, No. 91. 2nd edition. 2000. WHO Regional Office for Europe

16. The Analyst will verify that the minimum LOQ can be achieved by reference to HSG248 and specifically calculate and report the final result in accordance with the formula and requirements of Appendix A1.35.
17. Routine activity monitoring will be undertaken at representative locations close to the activities being carried out, but not in such close proximity as to increase the potential for sample filters to become occluded by dust particles, or for the operations themselves to interfere with the safe operation of the sampling pumps.
18. Routine boundary monitoring will be undertaken at three locations downwind and one location upwind of the operations being carried out. Sampling locations must be selected to ensure that there is minimal possibility for members of the public to interfere with the safe operation of the sampling pumps.
19. Samples will be taken at a height of 1.5 to 2m above ground. The sampling flow rate will be set to achieve a minimum sample volume over a specified time period as above.
20. The monitoring at each location will comprise the use of a reliable battery-operated high-volume flow-compensated air-sampling pump and a 25mm diameter mixed ester of cellulose or cellulose nitrate membrane filter of 0.8 to 1.2um pore size with a printed grid mounted in a thoroughly cleaned sampling head and cowl all in accordance with the provisions of HSG248.
21. Pumps must be capable of:
  - giving a smooth airflow;
  - having flow set to within  $\pm 5\%$  for flow rates  $>2 \text{ litres.min}^{-1}$ ;
  - maintaining this flow rate during the period of sampling.
22. The pump's battery must have sufficient power to operate within the specified flow limits for the duration of the measurement.
- 23. Outline Analytical Strategy – Extended Analysis**
24. The PCOM fibre counting method does not distinguish between asbestos fibres and other fibres that may be present in the air (e.g. gypsum, mineral wool, fibreglass, cellulose etc.).
25. Accordingly, provision will be made by the Analyst to retain one half of each sample filter to be sent off-site for analysis by scanning electron microscopy coupled with energy-dispersive x-ray analysis (SEM-EDXA), should the need arise due to elevated PCOM total fibre counts, to positively identify asbestos fibres to a quantification limit of less 0.0005 fibres/ml.
- 26. Quality Assurance**
27. FCC will ensure that an effective quality assurance/quality control (QA/QC) system will be put in place to ensure high-quality results and to eliminate invalid data.
- 28. Operational Monitoring and Response Standards**
29. In order to serve as a cross-check on the efficiency of operational controls, in the absence of any perceived failure or reduction in performance of these, the thresholds in Table 1 will be adopted:

Table 1 – Monitoring Thresholds and Alert Levels

<u>Routine activity monitoring</u>		<u>Routine boundary monitoring</u>	
<b>Green Alert</b>	<0.002 fibres/ml < 5 fibres counted	<b>Green Alert</b>	<0.0005 fibres/ml < 5 fibres counted
<b>Amber Alert</b>	<0.002 fibres/ml > 5 and <10 fibres counted	<b>Amber Alert</b>	<0.0005 fibres/ml > 5 and <10 fibres counted
<b>Red Alert</b>	<>0.002 fibres/ml >10 fibres counted	<b>Red Alert</b>	<=>0.0005 fibres/ml >10 fibres counted

30. For routine activity monitoring:

Table 2 – Monitoring Alert Levels and Actions

<u>Routine activity monitoring</u> <u>and</u> <u>Routine boundary monitoring</u>	
<b>Green Alert</b>	Normal operational state.
<b>Amber Alert</b>	Conduct review of wind direction for potential off-site contributory factors. Conduct review of waste input materials. Conduct operational checks on fugitive dust controls; increase as necessary. Initiate repeat sampling as appropriate. Enter report in Site Log.
<b>Red Alert</b>	All operations Stop – conduct urgent review of Asbestos Risk Assessment and Asbestos Plan of Work. Initiate repeat sampling as appropriate. Conduct review of wind direction for potential off-site contributory factors. Conduct review of input materials. Conduct operational checks on fugitive dust controls. Amend Asbestos Risk Assessment and Asbestos Plan of Work as required. Enter initial report in Site Log. Submit retained sample filter(s) for urgent SEM-EDXA analysis. Review Asbestos Risk Assessment and Asbestos Plan of Work as required. Update initial report in Site Log.

### 31. Reporting

32. All monitoring data will be held on site in an accessible format for the purposes of regulatory inspection and compilation of management reports.

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**Mr Stephen Francis Forster****Expert Witness Curriculum Vitae**

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**Qualifications, training, accreditation**

I hold a B.Sc. degree with honours in Geology, 1987 and a M.Sc. degree in Earth Science and the Environment, 1991. I am a Chartered Environmentalist (CEnv) since 2005, a Fellow of the Geological Society (FGS) since 2005, a member of the Institution of Environmental Sciences (MIEnvSc) since 2005 and a Member of the British Occupational Hygiene Society (BOHS) since 2013.

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**Summary of experience and past and present positions**

I have over 30 years' experience practicing in environmental consultancy, in various roles, including responsibilities for the investigation, assessment and management of asbestos and contaminated land. Prior to forming Remedia Group Limited, I held senior positions in two major UK environmental consultancies specialising in both asbestos and contaminated land management, ranging from Associate and Regional Manager at Mowlem Environmental Sciences Group (CL Associates and Environmental Contamination Services, part of Mowlem plc), to Operational Director at Casella Science & Environment Ltd.

**Present position: Owner/Director, Remedia Group Limited (May 2015 to present)**

Past positions:

- Director, IEG Technologies UK Limited (2005 to 2018)
- Principal Consultant, Asbestos Surveying and Management, AAR Environmental Limited (2005 to 2014)
- Principal Consultant, Soil Remediation and Environmental Impact Assessment, Casella Science & Environment (Nigeria) Ltd (2004)
- Regional Manager (South & East) & National Business Development Manager, Asbestos Surveying and Management, Mowlem plc/Environmental Contamination Services (2003)
- Associate/Regional Manager, Contaminated Land and Environmental Services, Mowlem plc/CL Associates (2002 to 2003)
- Director, Contaminated Land and Groundwater, steveforster Associates (2001 to 2002)
- Operational Director, Natural and Built Environment and Asbestos Management, Casella Science & Environment Ltd (1997 to 2001)
- Manager, Natural Environment, Casella Science & Environment Ltd (1993 to 1997)
- Senior Scientist, Natural Environment, Casella Environmental (1991 to 1993)
- Senior Scientist, Asbestos Management, Casella Environmental (1989 to 1991)
- Scientist, Asbestos Monitoring & Management, Casella Environmental (1988 to 1989)
- Scientist, Asbestos Monitoring, Thames Analysis (London) Ltd (1987 to 1988)

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## **Principal professional specialisms**

I have developed broad-ranging practical experience and expertise in the fields of both asbestos management and contaminated land investigation, including: undertaking asbestos surveys in buildings (management and refurbishment/pre-demolition); asbestos management; investigation and assessment of asbestos-contaminated land, recycled C&D materials and wastes; forensic reviews of environmental data and reports, specifically on asbestos-contaminated land; development of policy, procedures and guidance for asbestos-contaminated land; asbestos in soil training.

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## **Relevant experience as an expert advisor/witness**

1. I was engaged as an Expert by Solicitors under Part 35 CPR to act on behalf of a major developer to assist with matters in relation to asbestos in soils and the on-site management, recording and reporting of asbestos contaminated materials on site and the monitoring processes in place during planned remediation works.

Specifically, I was instructed to prepare a report confirming the requirements of the Control of Asbestos Regulations 2012 (CAR2012) as they apply to the remediation works being undertaken on the site and to undertake a review of the remediation strategy being implemented on Site provide my expert opinion as to whether it is compliant with the requirements of the Control of Asbestos Regulations 2012 as they apply to the remediation of asbestos in soils.

Furthermore I was required, to the extent that I identified that the current remediation strategy was deficient and did not comply with the CAR2012 and/or any other legislation and/or statutory requirements that I considered were applicable to the remediation works, to provide my expert opinion as to any measures that I considered necessary in relation to the remediation strategy to address those deficiencies so that the remediation strategy was compliant.

2. I was engaged as an independent Expert by Solicitors under Part 35 CPR to act on behalf of three parties (Customer, Client and Principal Contractor) in respect of preliminary pre-action stages of a dispute that arose from the unexpected discovery of asbestos in the ground on the site of an industrial development project. The instruction comprised a review of relevant documentation relating to the dispute, including relevant contracts, reports, correspondence, etc., production of a documentation gap analysis, timeline sequencing and identification of key facts relating to the presence of/identification and quantification and/or failure to identify and quantify asbestos in the made ground, both in situ and within the stockpiled materials.

In addition, I was required to undertake an assessment of the timeline of events against the required standards, in order to determine what was done (or not done) in respect of the identification of asbestos prior to earthworks commencing and what occurred subsequently that resulted in the remediation scheme that was implemented, specifically whether this may be considered to have been 'reasonable' in compliance with the required standards, given the circumstances.

I was required to produce a detailed technical report setting out relevant considerations in relation to the technical approach that was adopted by the parties to managing asbestos risks on the site in line with current asbestos regulations, the accompanying Approved Code of Practice and Guidance and the required standards, in relation to the investigation of potentially contaminated land and, specifically, investigation and identification of asbestos in soil, and the remediation thereof.

3. I was engaged as an Expert to act on behalf of a construction client seeking further arbitration in the matter of a contract dispute in respect of land which was found to be significantly contaminated by asbestos following demolition of structures on their developer client's land.

Significant and previously unrecorded and widespread levels of asbestos contamination of the made ground on the site severely affected my client's operations; the asbestos contamination uncovered by them ranged from sporadic (occasional) pockets of fragments of ACMs to buried asbestos demolition wastes (gross contamination) below the surface of the ground to various degrees across approximately two thirds of the site. This had significant consequential adverse effect on both cost and programme for which my client sought recompense from the developer through a Compensation Event.

I was commissioned to provide expert advice to my client's legal and property teams on the nature, extent and significance of the asbestos contamination and remedial measures. I undertook a forensic review and assessment of documentation relevant to the dispute. My brief was to provide carefully considered professional opinion in respect of how the issue of asbestos in the ground had been addressed by the developer's consultants, and I was requested to advise on whether my client had made an adequate assessment of the nature and degree of asbestos contamination likely to be encountered on site and which would require remediation during the redevelopment works, based on the information provided to them by the developer at pre-tender stage.

4. I was previously engaged as an Expert to act on behalf of a potential claimant seeking redress at adjudication in respect of land which was found to be contaminated by asbestos following demolition of structures on their client's land, advising my client's legal and property teams on the nature, extent and significance of the asbestos contamination.
5. I was previously engaged as a Party Appointed Expert to act on behalf of a claimant pursuing damages in respect of the acquisition of commercial land which was found to be contaminated with asbestos wastes.
6. I was previously engaged as a Party Appointed Expert to act on behalf of a claimant pursuing a claim in respect of the pollution of residential land by domestic heating oil.



**Recent consultancy commissions in the field of asbestos-contaminated land include:**

1. An independent review of public objections to an application for planning consent to construct and operate a Soil Treatment Facility with an Asbestos Picking Operation submitted to a County Council. (Client: Major UK landfill operator, July 2020). [Nottinghamshire]
2. Multi-phase consultancy input to the development of an effective asbestos remediation strategy on an inner city brownfield site, design and execution of supplementary ground investigations, input to the development of CAR 2012 risk assessments and Plans of Work for several subcontractors, provision of advice on selection of main phase remediation contractor, site attendance during remediation works, validation sampling and analysis of imported recycled aggregate and completion of an independent Verification Report to enable discharge of relevant Planning Condition prior to completion of the development. (Client: UK construction firm, September 2019-August 2020). [London]
3. Completion of an independent Verification Report to enable discharge of relevant Planning Condition prior to completion of an office development on a brownfield site following completion of remediation, including removal of asbestos from buildings, demolition, and site clearance, to enable discharge of relevant Planning Condition prior to completion of the development. (Client: Major UK design and build contractor, December 2019-October 2020). [Oxfordshire]
4. An independent review and assessment of suspected asbestos-contaminated made ground on a developable plot of land at the site of a major pharmaceutical and biopharmaceutical production and research facility, including the development of an appropriate and compliant strategy for the investigation, sampling, and waste classification of the material prior to excavation and treatment/disposal. (Client: Major pharmaceutical and biopharmaceutical firm, June-July 2019). [Cheshire]
5. Completion of an independent Verification Report to enable discharge of relevant Planning Condition following completion of a retail development on a brownfield site following completion of remediation, including removal of asbestos from buildings, demolition, and site clearance, to enable discharge of relevant Planning Condition. (Client: UK retailer, March-November 2019). [Wiltshire]
6. Consultancy advice on scope and extent of supplementary investigations to determine presence of asbestos contamination in shallow made ground prior to commencement of an office development on a brownfield site, to enable the development of a comprehensive remediation strategy involving removal of asbestos from buildings, demolition, and site clearance to enable compliance with relevant Planning Condition. (Client: Major UK design and build contractor, July-October 2018). [Oxfordshire]
7. Provision of considered opinion on the assessment of requirements for addressing asbestos contamination of process effluent lagoon sludge (Client: waste treatment firm, October 2018). [Cheshire]

8. Assessment of potential risks arising from the beneficial reuse of remediated and processed made ground containing low levels of dispersed asbestos fibre contamination beneath residential gardens and public open space on a prestigious residential development and provision of an expert independent report resulting in the discharge of relevant planning conditions (Client: remediation contractor, 2018). [St Helens]
  9. Assessment of potential risks arising from surface and near-surface asbestos contamination at hotspot sites along the route of a proposed water main (Client: Major UK civils contractor, 2017). [Leeds]
  10. Design, development and costing of asbestos management and monitoring plan and works; preparation of CAR 2012 risk assessment and Plan of Work; provision of advice on managing risks from residual asbestos contamination in made ground during ground stabilisation works prior to redevelopment, (Client: UK manufacturing firm, June 2016-2018). [Leamington Spa]
  11. Critical technical review of asbestos contamination investigation reports; surface investigation and assessment of asbestos contamination; provision of advice on the risk assessment of asbestos contamination in waste soils and demolition arisings on a recycling site; consideration of options and budget costs for remediation (Client: major UK law firm, June 2016-2017). [Preston]
  12. Critical technical review of asbestos contamination investigation reports and remediation strategy; provision of advice on risk assessment of residual asbestos contamination in made ground prior to redevelopment, (Client: UK manufacturing firm, October 2015-January 2016). [Leamington Spa]
  13. Review and assessment of asbestos contamination investigation data; provision of opinion on implications for the development of site remediation options prior to redevelopment, (Client: English Regional Police Authority, January 2014). [London]
  14. Critical technical review of documentation related to asbestos contamination in crushed demolition arisings and stockpiled material; assessment of the nature and scale of identified asbestos contamination in the context of existing legislation and guidance, as well as a range of options for minimising the potential risk to and human health from asbestos prior to, during and following development; assessment of material remediation/recycling options prior to redevelopment, (Client: Major UK design and build contractor, August 2013). [London]
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## **Awards, accolades, and other professional responsibilities**

I am Chair (2011 to present) of the Environmental Industries Commission/CL:AIRE Joint Industry Working Group (JIWG) on Asbestos in Soil and Construction & Demolition Materials, leading a broad cross-sectoral initiative to promote and guide the development and implementation of UK non-statutory industry guidance for the investigation, analysis, assessment, remediation and management of asbestos in soils.

I was a member of the DEFRA Project Steering Group and assisted in the editing of a research report concerning the determination of typical background concentrations of asbestos in near-surface soils of selected public open space areas of England and Wales to define representative concentrations in areas not expected to be subject to significant contamination (SP1014, 2016 to 2018).

I was the JIWGs representative member of the Standing Committee of Analysts Working Group, charged with developing a methodology for the laboratory quantification of asbestos in soils and associated materials, published by the Standing Committee of Analysts in 2017 (2013 to 2017) and lead on the redrafting of an update to this methodology for republication in 2020.

In addition, I was a member of the HSE's Committee for Fibre Measurement Working Group 2, assisting with the development of guidance on the investigation and assessment of asbestos contaminated land for inclusion in the revised (in prep) HSG 248, The Analysts' Guide.

I was awarded the Independent Asbestos Training Providers Industry Contribution Award 2014 in recognition of his work and efforts within the contaminated land sector of the asbestos Industry.

I was a member of the CIRIA Project Steering Group and assisted in the development of industry guidance on asbestos in soil and made ground, a guide to understanding and managing risks (C733, 2012 to 2013).

I am also a lead technical trainer in the subject of asbestos-contaminated land, developing and delivering a variety of specialist courses around the UK including Asbestos Awareness for Land Professionals and Non-Licensed Work for Land Professionals, as well as programmed and bespoke courses on the CAR-SOIL industry guidance. I am regularly invited to present about asbestos in soil at industry conferences, workshops and industry group events.

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## **Other relevant qualifications**

I hold the British Occupational Hygiene Society (BOHS) Certificate in Occupational Hygiene: S301 Asbestos and Other Fibres (credit).

I previously held the United States Environmental Protection Agency (US EPA) AHERA Asbestos Abatement Supervisor & Building Inspector certification.

I previously held the German Federal Institute for Occupational Safety & Health (BAuA) TRGS 519 Certified Asbestos Abatement Supervisor certification.

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### **Published books and editorial roles**

I have written guidance in conjunction with the Health and Safety Executive on the application of the HSE Approved Code of Practice on the application of the Control of Asbestos Regulations 2012 to the field of asbestos in soil and construction and demolition materials: Control of Asbestos Regulations 2012, Interpretation for Managing and Working with Asbestos in Soil and Construction & Demolition Materials, Industry guidance (CAR-SOIL, published July 2016).

In addition, I was co-developer of a unique qualitative Decision Support Tool which allows users to model the nature and degree of asbestos contamination of ground materials to determine the hazard and exposure ranking and likely licensing status of work carried out on those materials. This DST has been designed to be compatible with the JIWGs CAR-SOIL guidance.

In my role as Chair of the Joint Industry Working Group on Asbestos in Soil and Construction & Demolition Materials I have a leading responsibility for the drafting of technical author briefs as well as co-authoring the guidance document: Asbestos in Soil, Made Ground and Construction & Demolition Materials, Industry Code of Practice – Practitioners' Guidance (JIWG AiSCoP, in prep).

I co-authored a UK Department of the Environment research report on monitoring techniques and technologies for contaminated land.

I designed and managed UK Department of the Environment research study designed to investigate the environmental and health and safety impacts of waste composting operations (chemical, microbiological, odour, noise, air quality) and was the lead author of the resulting report.

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**APPENDIX B - ASBESTOS MONITORING: INTERNAL AIR QUALITY**

<b>Job N<sup>o</sup>: J182625</b>		<b>Type of Test: Background</b>		<b>Certificate N<sup>o</sup>: J182625/MP01</b>				
<b>Client Details</b>			<b>Site Details</b>			<b>Calibration &amp; Traceability Information</b>		
<b>Name:</b> Provectus Soils Management Ltd			<b>Contact Name:</b> Charlie Gould			Flow meter ID : 0549 1006		
<b>Address:</b> Regent House Bath Avenue Wolverhampton WV1 4EG			<b>Address:</b> Edwin Richards Soil Treatment Facility Portway Road Rowley Regis B65 9DN			Graticule Diameter: 100 (µm)		Stage micrometer ref : 1098
<b>Tel:</b> 07966 507386			<b>Tel:</b> 07535 251907			HSE/NPL test slide ref: 2000		
<b>Fax:</b>			<b>Fax:</b> N/A			Block 5 resolved on HSE/NPL test slide?: Yes		
<b>Email:</b> andy.clee@soilsuk.com.rpost.biz			<b>Email:</b> N/A			Barometer ID:0429*		A'pheric Pressure: 997 (mb)
						Thermometer ID: 0429**		Temp: 23 (°C)
						Timer ID:		Microscope ref: 1025

Sample N <sup>o</sup>	Head N <sup>o</sup>	Pump N <sup>o</sup>	Location Description	Time		Run time (mins)	Flow rate (l/min)			Sample volume (litres)	Fibres counted	Fields counted	Limit of quantification (f/ml)	Reported fibre concentrations (f/ml)
				on	off		on	mean	off <sup>1</sup>					
MP001985	0285	0255	Up wind	10:45	12:25	100	12.0	12.0	12.0	1200	1.5	200	0.001	< 0.0005
MP001986	0393	0539	Up wind	10:45	12:25	100	12.0	12.0	12.0	1200	0.5	200		
MP001987	0562	0579	Up wind	10:45	12:25	100	12.0	12.0	12.0	1200	0.5	200		
MP001988	0569	0710	Up wind	10:45	12:25	100	12.0	12.0	12.0	1200	1	200		
													continued on next page.	

Client Details		Site Details		Calibration & Traceability Information	
<b>Name:</b> Provectus Soils Management Ltd		<b>Contact Name:</b> Charlie Gould		Flow meter ID : 0549 1006	
<b>Address:</b> Regent House Bath Avenue Wolverhampton WV1 4EG		<b>Address:</b> Edwin Richards Soil Treatment Facility Portway Road Rowley Regis B65 9DN		Graticule Diameter: 100 (µm)	Stage micrometer ref : 1098
<b>Tel:</b> 07966 507386		<b>Tel:</b> 07535 251907		HSE/NPL test slide ref: 2000	
<b>Fax:</b>		<b>Fax:</b> N/A		Block 5 resolved on HSE/NPL test slide?: Yes	
<b>Email:</b> andy.clee@soilsuk.com.rpost.biz		<b>Email:</b> N/A		Barometer ID:0429*	A'pheric Pressure: 997 (mb)
				Thermometer ID: 0429**	Temp: 23 (°C)
				Timer ID:	Microscope ref: 1025

Sample N <sup>o</sup>	Head N <sup>o</sup>	Pump N <sup>o</sup>	Location Description	Time		Run time (mins)	Flow rate (l/min)			Sample volume (litres)	Fibres counted	Fields counted	Limit of quantification (f/ml)	Reported fibre concentrations (f/ml)
				on	off		on	mean	off <sup>1</sup>					
				MP001989	0570		0711	Up wind	10:46					
MP001990	0640	0865	Up wind	10:46	12:26	100	12.0	12.0	12.0	1200	1	200		
MP001991	0641	0868	Up wind	10:46	12:26	100	12.0	12.0	12.0	1200	0.5	200		
MP001992	0644	0947	Up wind	10:46	12:26	100	12.0	12.0	12.0	1200	0.5	200		

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Client Details		Site Details		Calibration & Traceability Information	
<b>Name:</b> Provectus Soils Management Ltd		<b>Contact Name:</b> Charlie Gould		Flow meter ID : 0549 1006	
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<b>Tel:</b> 07966 507386		<b>Tel:</b> 07535 251907		HSE/NPL test slide ref: 2000	
<b>Fax:</b>		<b>Fax:</b> N/A		Block 5 resolved on HSE/NPL test slide?: Yes	
<b>Email:</b> andy.clee@soilsuk.com.rpost.biz		<b>Email:</b> N/A		Barometer ID:0429*	A'pheric Pressure: 997 (mb)
				Thermometer ID: 0429**	Temp: 23 (°C)
				Timer ID:	Microscope ref: 1025

Sample N <sup>o</sup>	Head N <sup>o</sup>	Pump N <sup>o</sup>	Location Description	Time		Run time (mins)	Flow rate (l/min)			Sample volume (litres)	Fibres counted	Fields counted	Limit of quantification (f/ml)	Reported fibre concentrations (f/ml)
				on	off		on	mean	off <sup>1</sup>					
MP001993	0715	0949	Within warehouse	10:50	12:30	100	12.0	12.0	12.0	1200	0.5	200	0.001	< 0.0005
MP001994	0716	0950	Within warehouse	10:50	12:30	100	12.0	12.0	12.0	1200	0.5	200		
MP001995	0717	1043	Within warehouse	10:50	12:30	100	12.0	12.0	12.0	1200	1	200		
MP001996	0718	2047	Within warehouse	10:50	12:30	100	12.0	12.0	12.0	1200	1	200		
													continued on next page.	



Client Details		Site Details		Calibration & Traceability Information	
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<b>Email:</b> andy.clee@soilsuk.com.rpost.biz		<b>Email:</b> N/A		Barometer ID:0429*	A'pheric Pressure: 997 (mb)
				Thermometer ID: 0429**	Temp: 23 (°C)
				Timer ID:	Microscope ref: 1025

Sample N <sup>o</sup>	Head N <sup>o</sup>	Pump N <sup>o</sup>	Location Description	Time		Run time (mins)	Flow rate (l/min)			Sample volume (litres)	Fibres counted	Fields counted	Limit of quantification (f/ml)	Reported fibre concentrations (f/ml)
				on	off		on	mean	off <sup>1</sup>					
MP001997	0719	2048	Within warehouse	10:51	12:31	100	12.0	12.0	12.0	1200	0.5	200		
MP001998	0720	2050	Within warehouse	10:51	12:31	100	12.0	12.0	12.0	1200	2	200		
MP001999	0721	2052	Within warehouse	10:51	12:31	100	12.0	12.0	12.0	1200	1.5	200		
MP002000	0722	2054	Within warehouse	10:51	12:31	100	12.0	12.0	12.0	1200	1	200		

continued on next page.

Client Details		Site Details		Calibration & Traceability Information	
<b>Name:</b> Provectus Soils Management Ltd		<b>Contact Name:</b> Charlie Gould		Flow meter ID : 0549 1006	
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<b>Fax:</b>		<b>Fax:</b> N/A		Block 5 resolved on HSE/NPL test slide?: Yes	
<b>Email:</b> andy.clee@soilsuk.com.rpost.biz		<b>Email:</b> N/A		Barometer ID:0429*	A'pheric Pressure: 997 (mb)
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				Timer ID:	Microscope ref: 1025


Sample N <sup>o</sup>	Head N <sup>o</sup>	Pump N <sup>o</sup>	Location Description	Time		Run time (mins)	Flow rate (l/min)			Sample volume (litres)	Fibres counted	Fields counted	Limit of quantification (f/ml)	Reported fibre concentrations (f/ml)		
				on	off		on	mean	off <sup>1</sup>							
				MP002001	0675		2055	Down wind	11:12						12:52	100
MP002002	0826	2056	Down wind	11:12	12:52	100	12.0	12.0	12.0	1200						
MP002003	0989	2057	Down wind	11:12	12:52	100	12.0	12.0	12.0	1200						
MP002004	0990	2058	Down wind	11:12	12:52	100	12.0	12.0	12.0	1200						
												occluded due to dust		occluded due to dust	occluded due to dust	occluded due to dust
												continued on next page.				

Client Details		Site Details		Calibration & Traceability Information	
<b>Name:</b> Provectus Soils Management Ltd		<b>Contact Name:</b> Charlie Gould		Flow meter ID : 0549 1006	
<b>Address:</b> Regent House Bath Avenue Wolverhampton WV1 4EG		<b>Address:</b> Edwin Richards Soil Treatment Facility Portway Road Rowley Regis B65 9DN		Graticule Diameter: 100 (µm)	Stage micrometer ref : 1098
<b>Tel:</b> 07966 507386		<b>Tel:</b> 07535 251907		HSE/NPL test slide ref: 2000	
<b>Fax:</b>		<b>Fax:</b> N/A		Block 5 resolved on HSE/NPL test slide?: Yes	
<b>Email:</b> andy.clee@soilsuk.com.rpost.biz		<b>Email:</b> N/A		Barometer ID:0429*	A'pheric Pressure: 997 (mb)
				Thermometer ID: 0429**	Temp: 23 (°C)
				Timer ID:	Microscope ref: 1025

Sample N <sup>o</sup>	Head N <sup>o</sup>	Pump N <sup>o</sup>	Location Description	Time		Run time (mins)	Flow rate (l/min)			Sample volume (litres)	Fibres counted	Fields counted	Limit of quantification (f/ml)	Reported fibre concentrations (f/ml)			
				on	off		on	mean	off <sup>1</sup>								
				MP002005	0992		2059	Down wind	11:13						12:53	100	12.0
MP002006	0993	2060	Down Wind	11:13	12:53	100	12.0	12.0	12.0	1200							
MP002007	0994	2061	Down wind	11:13	12:53	100	12.0	12.0	12.0	1200							
MP002008	0996	2083	Down wind	11:13	12:53	100	12.0	12.0	12.0	1200							
											occluded due to dust				occluded due to dust	occluded due to dust	occluded due to dust
											continued on next page.						

Client Details		Site Details		Calibration & Traceability Information	
<b>Name:</b> Provectus Soils Management Ltd		<b>Contact Name:</b> Charlie Gould		Flow meter ID : 0549 1006	
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<b>Tel:</b> 07966 507386		<b>Tel:</b> 07535 251907		HSE/NPL test slide ref: 2000	
<b>Fax:</b>		<b>Fax:</b> N/A		Block 5 resolved on HSE/NPL test slide?: Yes	
<b>Email:</b> andy.clee@soilsuk.com.rpost.biz		<b>Email:</b> N/A		Barometer ID:0429*	A'pheric Pressure: 997 (mb)
				Thermometer ID: 0429**	Temp: 23 (°C)
				Timer ID:	Microscope ref: 1025

Sample N°	Head N°	Pump N°	Location Description	Time		Run time (mins)	Flow rate (l/min)			Sample volume (litres)	Fibres counted	Fields counted	Limit of quantification (f/ml)	Reported fibre concentrations (f/ml)
				on	off		on	mean	off <sup>1</sup>					
MP002009	0726	N/A	Field Blank	N/A	N/A	0	N/A	0.0	N/A	0			Field Blank	

<b>Date of Sampling:</b> 07 Jun 2021	<b>Date of Analysis:</b> 09 Jun 2021	<b>Date of Issue:</b> 09 Jun 2021	<b>Name of Analyst:</b> Jack Pardoe	<b>Signature of Analyst:</b> 
---	---	--------------------------------------	--	---

<sup>1</sup> Where the flow rate drops at the final reading a mean of the two measurements should be used to calculate the volume sampled.

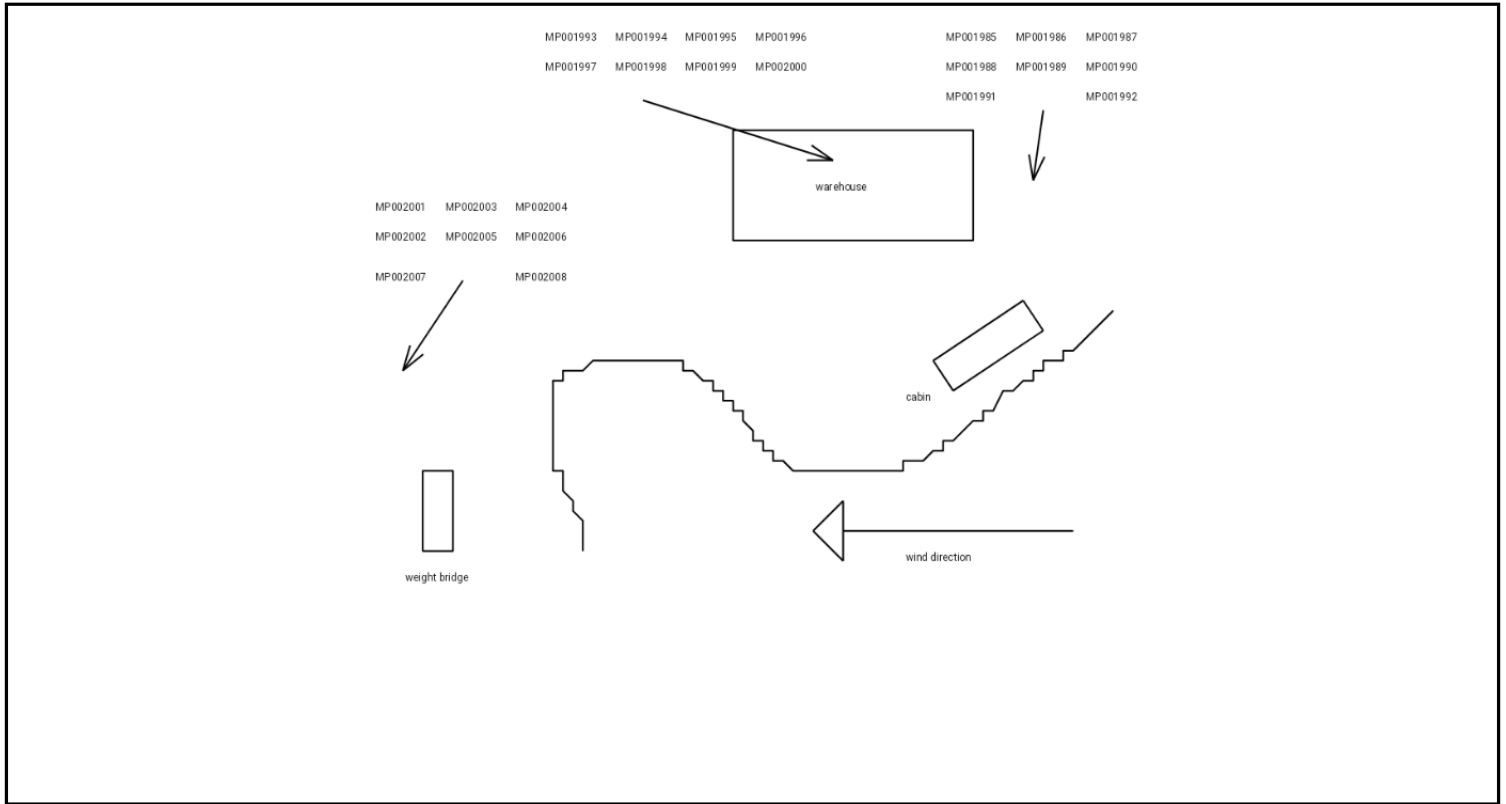
This certificate is issued in accordance with our documented in house method for analysing airborne fibre concentrations which is accredited by UKAS and follows guidance in HSG 248.


**Riverside Environmental Services Ltd**, Unit 12, Whiffens Farm, Clement Street, Hextable, Kent, BR8 7PQ **Tel:** 01322 875 730 **email:** info@riverside-es.com

Job N <sup>o</sup> : J182625/MP01	Airborne Fibre Concentration Certificate N <sup>o</sup> : J182625/MP01
-----------------------------------	--

<b>Opinions and interpretations expressed below are outside the scope of accreditation</b>
Baseline background monitoring conducted up wind, down wind, and within contaminated soils sorting shed.

## Sample Location Diagram



Date: 09 Jun 2021	Name of Analyst: Jack Pardoe	Signature: 
-------------------	------------------------------	---

Riverside Environmental Services Ltd, Unit 12, Whiffens Farm, Clement Street, Hextable, Kent, BR8 7PQ  
 Tel: 01322 875 730 email: info@riverside-es.com

This test report shall not be reproduced except in full, without the written approval of Riverside Environmental Services Ltd.

## CERTIFICATE OF ANALYSIS

**ANALYSIS REQUESTED BY:** Riverside Environmental Services Ltd      **CONTRACT NO:** S19191  
Unit 12  
Whiffens Farm  
Clement Street  
Hextable  
BR8 7PQ  
**DATE OF ISSUE:** 22.06.21

**DATE SAMPLES RECEIVED:** 18.06.21

**DATE SAMPLES ANALYSED:** 22.06.21

**SAMPLES:** Eight airborne dust samples each supplied on one half of a gridded MCE membrane filter

**ANALYSIS REQUESTED:** Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

### METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue from each plasma ashing is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm<sup>2</sup> has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials.

The method used for analysis is documented in IOM instruction manual No.1 and is based on Asbestos International Association, Recommended Technical Method No. 2 (RTM2, AIA 1984) and International Standards Organisation (2002), International Standard 14966.

### REFERENCES:

Asbestos International Association. (1984). Method for the determination of airborne asbestos fibres and other inorganic fibres by Scanning Electron Microscopy. Recommended Technical Method No. 2 (RTM2): AIA, London.

International Standards Organisation (2002). International Standard 14966. Ambient Air: Determination of numerical concentration of inorganic fibrous particles- Scanning electron microscopy method.

**RESULTS:**

**Client Ref:** Downwind samples

Sample No.	Volume (l)	<sup>(1)</sup> No. of Resp. Fibres Found	<sup>(1)</sup> No. of Fields Searched	Total Fibre Conc <sup>n</sup> (fml <sup>-1</sup> )
SEM 1	9600	0	400	ND<0.0003*

**ND** – None Detected

**\* DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 9600 litres is used the 95% confidence limit is 0.0003 fml<sup>-1</sup> for the number of fields searched.

**COMMENTS:**

No asbestos fibres were detected during the analysis of this sample.

At the client's request, the half membrane filters were combine to create a single pooled sample. A greater number of screen areas than that used for our standard analysis were also analysed in order to achieve a lower limit of detection.

The combined sample was too dusty to be analysed as received. Following plasma ashing, the residue from the samples was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on the entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

<sup>(1)</sup> UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.



AUTHORISED BY: .....

**S Clark**  
*Mineralogy Section Manager*

**APPENDIX C- 'ASBESTOS IN SOIL, A PAN EUROPEAN PERSPECTIVE' NICOLE, JUNE 2021**





# ASBESTOS IN SOIL

A pan european perspective



# ASBESTOS IN SOIL

A pan european perspective



**NICOLE**

Network for Industrially Co-ordinated Sustainable Land Management in Europe

# ASBESTOS IN SOIL - A PAN EUROPEAN PERSPECTIVE

## Foreword

There are common themes and good practice running throughout Europe with respect to the management of asbestos in soil, although many variations in approach exist.

As with other contaminants, the assessment and management of asbestos risks should follow a risk based assessment approach (source-pathway-receptor analysis) with selection of appropriate remediation following a suitable remedial options appraisal.

However, many decisions regarding the remediation and management of asbestos in soils are based on stakeholder perception and a subjective or emotive response (i.e. hazard based rather than risk-based).

As demonstrated in this report there are few European countries with clear standards and detailed guidance. This document provides an overview of best practice in the industry with a pan European perspective and with some case studies to illustrate typical responses to asbestos in soils impacts.

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**CAUTION**

**BURIED ASBESTOS**

**DO NOT DISTURB THIS AREA  
WITHOUT PRIOR APPROVAL**

Asbestos warning sign | AECOM

# 1 Introduction

Asbestos is a common and challenging contaminant in soil; a legacy of widespread historic use in buildings and poor historic control of construction waste, building demolition, and re-use of crushed demolition aggregate as made ground.

Hazard, risk perception and acceptance can vary widely amongst stakeholders and the management of asbestos in soil can vary widely as a result.

Differing stakeholder positions on risk acceptance or risk avoidance (zero tolerance) can have a significant impact on project designs, programmes, and costs, and there is little harmonisation in approach across Europe.

Asbestos in soils is increasingly recognised by those involved in the management of brownfield



Degraded asbestos debris in soil | AECOM



Visual detection of asbestos during remediation | NTP

land regeneration as a potentially high-cost, risk-driven issue, and this publication seeks to: provide a pan-European perspective; identifying opportunities for harmonisation; improve awareness and understanding; and promote greater consistency.

The content of this publication reflects the work of the NICOLE Asbestos Working Group from 2017 to 2021.

The aims of the NICOLE Working Group were to: Compare and contrast current industry approaches, regulatory positions and quality and availability of existing guidance in European Countries as an initial “baselining” exercise to help identify significant differences and opportunities for harmonisation.



Improve awareness and understanding in managing the risks of asbestos in soil (considering its occurrence both on its own and as a co-contaminant with other pollutants) by advocating a pragmatic approach and promoting greater consistency where possible.

These aims were to be achieved by:

1. Collating information on, and benchmarking of, current methods, standards and guidance for the characterisation, risk assessment, remediation and regulation of asbestos in soils that are currently adopted by industry and regulators in European Countries;
2. Identifying how asbestos contaminated soils (including those also contaminated with other pollutants) are currently remediated in different countries, considering different

treatment technologies and the availability (or otherwise) of appropriate disposal/ treatment facilities;

3. Identify existing research efforts into characterisation, risk assessment and remediation, and identify research opportunities that could support a sustainable pragmatic approach; and
4. Identifying case studies that support and improve confidence in risk management decisions and in developing best practice.

## 2 NICOLE Survey of Members

To establish a baseline of current legislation, guidance and practice in European countries, a detailed survey was issued to NICOLE and Common Forum members in 2018. Three years on and very little has changed. The survey comprised 70 questions covering 6 topic areas.

These were:

1. Legislative provision and regulatory position
2. Good practice industry guidance
3. Laboratory methods
4. Waste classification, handling and disposal
5. Remediation options
6. Research and innovation

12 responses were received for 6 countries.

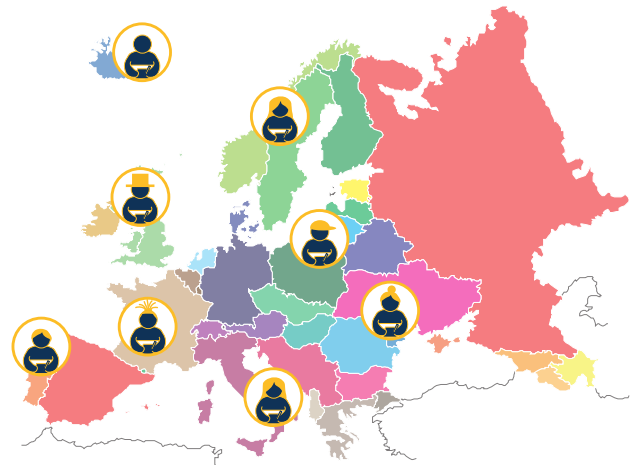


Figure 2.1 NICOLE Network Survey of members

### 3 Legislative and Regulatory Positions

One potential harmonising factor is EU Directive 2009/148/EC, on the protection of workers from the risks related to exposure to asbestos at work, that sets out occupational health and safety requirements for work involving asbestos. However, even with this in place, the control limits for asbestos in air vary considerably across Europe, ranging from the Directive Control Limit of 0.1f/ml in the UK to 0.002f/ml in The Netherlands (50x lower). No country has specific legal provision solely addressing exposure to as-



Asbestos cement fragments in soil | AECOM

bestos in soil, although it is increasingly recognised that disturbance of asbestos containing soil is an activity that is captured by existing asbestos-specific occupational regulations relating to work in buildings (e.g. maintenance, refurbishment and demolition).

Country	Occupational exposure limit (f/ml 8hr TWA)
EU limit value (2009/148/EC)	0.1 (100,000f/m <sup>3</sup> )
UK	0.1
France	0.01
Italy	0.01
Germany	0.001
Netherlands	0.002 (with intention to reduce to 0.0003)

Table 3.1 Occupational exposure limit

**Presence of AiS guidance.** Detailed sampling and testing protocols. Air and soil guidelines. Regular testing

**Absence of AiS guidance.** Reliance on OSH and waste regulations. No regular testing

There is a stark divergence between those countries with detailed regulatory guidance on the risk management of asbestos in soil and those countries with no specific regulatory guidance for asbestos in soil. It was discussed at the NICOLE workshop in Warsaw in November 2019 that asbestos is considered to be an emerging soil contaminant in Germany, and in many Eastern European countries, even though in other countries it has been recognised as a contaminant of concern for decades. Where detailed guidance is in place, it is largely based on

the research of RIVM and TNO published between 2003-2008.

The only European regulatory guidance levels for asbestos in soil are those published by the Dutch, Belgian and Italian authorities. The Dutch and Belgian authorities adopt a Tiered approach and use the same Tier 1 value, but importantly use different definitions for those values.

Dutch Tier 1  
Intervention value  
= 100mg/kg (sum  
of chrysotile+10x  
amphibole as  
measured by NEN  
5707)

Flanders Tier 1  
Intervention value  
= 100mg/kg (sum  
of fixed + x10 loose  
fibres (all asbestos  
types) as measured  
by TEM)

## 4 Industry Good Practice

It is only common among a small number of European Countries to test made ground soil samples for asbestos as part of a normal site investigation. Sampling is either carried out using typical practice adopted for contaminated land or using detailed prescriptive practice specific to asbestos (such as for the Netherlands and Belgium). Guidance on sampling strategies, sample plans, laboratory test methods, and requirements for site staff competency/qualifications is mixed, with no common approach across the countries surveyed.

When suspected asbestos is observed in the soil there is a legal requirement under workplace regulations to put in place procedures to manage the associated risks. If suspected asbestos is found onsite during site investigation or remediation works, the general procedure is to stop work, make

the work area safe and temporarily vacate the area until the risk assessment and method statements for the work can be revised. Actions can include the use of dust suppression, asbestos survey of the area, confirmatory laboratory testing of the identified material, and use of Licensed contractors to remove the asbestos. Work should only ever continue if safe methods of work can be put in place.



Signing of an asbestos impacted area | NTP

Guidance Questions	Belgium (Flanders)	Belgium (Wallonia)	France	Italy	Portugal	Spain	UK
Is the testing of brownfield sites for asbestos commonplace?	yes	yes	no	yes	yes	not	yes
Is guidance available for the risk management of asbestos in soil?	yes	yes	yes	no	no	no	yes
Does the guidance fill a gap in regulatory guidance?	yes	no	yes	no	no	no	yes
Is the guidance entirely country specific?	no	no	yes	yes	no	no	yes
Does the guidance advocate a tiered approach?	yes	no	no	no	no	no	yes
Does guidance include method on soil sampling if asbestos is present?	yes	yes	no	yes	no	no	yes
Does the guidance recommend air testing during site-based activities?	no	no	yes	yes	yes	no	yes
Does the guidance advocate health and safety precautions during sitebased activities?	yes	yes	yes	yes	yes	yes	yes
Does the guidance advocate a guideline for asbestos in soil?	yes	yes	no	no	no	no	no
Is there any guidance on how to assess risk from asbestos fibres being present in water?	no	no	no	no	no	no	no

Table 4.1 Summary of questionnaire responses on good practice guidance

## 5 Approaches to Ground Investigation

Some of the specific aspects of ground investigation identified in the survey included:

The importance of desk study and site walkover to establish the likelihood of asbestos being present. Sampling strategies – can be targeted or random/systematic.

Sampling approach – size and frequency. Dutch, Belgian, and SoBRA guidance require/advocate the use of much larger sample sizes that typically used for other soil contaminants. The Dutch and Belgian guidance also specify sample frequency, e.g. 1 sample per 50 m<sup>3</sup> or 1 per 1000 m<sup>2</sup>.

Activity based sampling is occasionally used. This is in essence what the RIVM/TNO guidance was based on, what is described in US EPA guidance,



Asbestos sampling activities in Belgium | AECOM

and what is advocated in SoBRA guidance to better understand the likelihood of asbestos fibres becoming airborne as a result of soil disturbance.

Other ground condition factors are important to risk, including soil type, vegetation or other surface cover, and moisture content.



Asbestos sampling activities in Belgium | AECOM

Differing views exist as to whether ground investigation falls under occupational regulations for work with asbestos (as per in buildings).

Requirement for suitably trained/experienced staff. For example, Dutch guidance requires specific certification and accreditation for inspection and sampling of soils.

Asbestos was found to be present in up to 20% of made ground samples according to SoBRA research in the UK based on 150,000 soil samples submitted to UK laboratories between 2015 and 2018.



## 6 Detecting asbestos in soil

Asbestos sampling activity in UK | AECOM



The conceptual understanding of the spatial distribution of asbestos is fundamental to the design of an investigation and the interpretation of the results. Is it a delineable area subject to asbestos disposal? Is it dispersed fragments across a wide area? What is the likelihood of detecting the asbestos using your sampling strategy?

Grid Size	Probability of detecting one ACM fragment	Sample size as a proportion of grid square
100	1 in 100,000	0.01%
50	1 in 10,000	0.04%
10	1 in 1000	1%

Table 6.1 Probability of detecting asbestos based on a soil sample size of 1 litre

The reliability of the site investigation is a function of:

- Sample size
- Sample density

As noted previously the Dutch and Belgian authorities, and SoBRA in the UK, advocate taking larger samples for asbestos compared to typical size of soil samples taken for other contaminant testing because of the greater uncertainties involved in sampling for asbestos in soil.

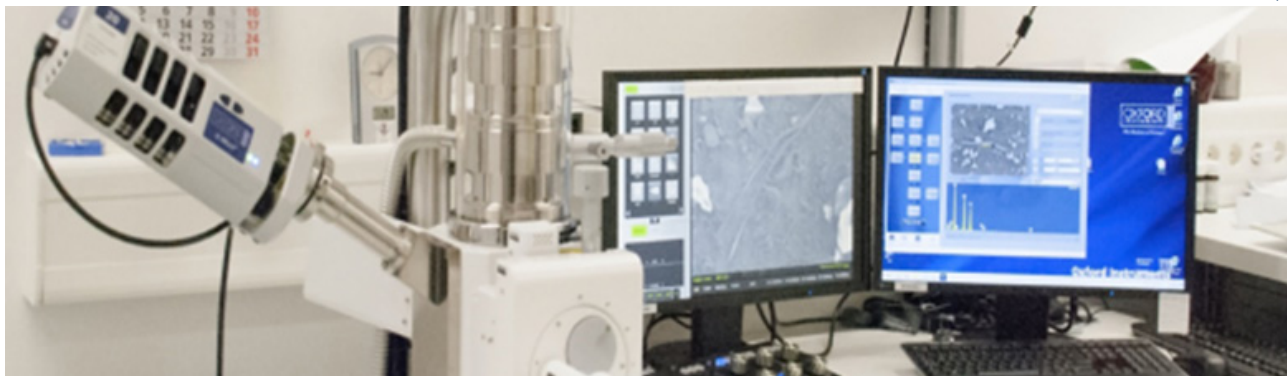
The theoretical probability of detecting a small area of isolated asbestos fragments in soil can be extremely low. If random fragments are found in soil the probability of more unidentified fragments being present in the soil can be high.



Samples taken in The Netherlands | NTP

## 7 Laboratory Methods

Electron microscope



Laboratory methods vary widely across Europe. Some countries have very detailed analytical methods that are embedded in the regulatory guidance (for example the Netherlands and NEN Standard 5707). Other countries such as the UK have a mixture of methods published by regulatory bodies (HSE for HSG248) and industry bodies (SCA Blue Book Method\*).

Current European Standards specifically for quantifying asbestos in soil include: NEN 5707 (The Netherlands) SCA Blue Book Method (UK)\*

*\* Withdrawn in October 2020 due to concerns over validation triggered by AISS results*

The methods that are available vary depending on the regulatory context and purpose of the test.

The three most common purposes are:

1. Bulk analysis for the presence of asbestos (driven by occupational regulation)
2. Air monitoring (also driven by occupational regulation)
3. Gravimetric quantification for waste classification

The reliability of laboratory test methods can be better understood by studying the inter-laboratory proficiency schemes, such as those provided by the UK Health & Safety Laboratory schemes (including AISS) [\[link\]](#)

Detailed standards for quantification in soil are the least common and also tend to have the greatest variability. When a single standard method is not mandated by regulation, interlaboratory variability can be high. Each laboratory undertaking the often multi-stage analytical process slightly differently—be it in the sample preparation, the mass of sub-sample analysed, the magnification of the microscope used, the type of microscopic method (PLM, PCOM, SEM, TEM), the assumed composition of man-made asbestos products, or the fibre counting rules employed.

## 8 Waste Classification, Handling and Disposal

The classification, handling and disposal of asbestos and soil impacted asbestos waste is addressed by the EU Waste Framework Directive (2008/98/EC) and is potentially the most harmonised aspect of dealing with asbestos in soil across Europe as a result.

All European countries adopt the 0.1% hazardous waste threshold.

Soil that contains identifiable pieces of asbestos containing material (i.e. any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye), then the soil is regarded as hazardous waste.

Collection of asbestos fragments should be done using double bagged, be labelled asbestos waste,



Double bagging of asbestos waste in UK | Ramboll



Double bagging of asbestos waste in UK | Ramboll

and shipped using the correct waste transfer documentation.

Large asbestos sheets can be wrapped in 1000 gauge polythene sheeting, labelled as above and placed in an enclosed and locked skip.

The transport of asbestos impacted soils can be either in enclosed containers or in sheeted lorries by a licensed waste carrier.

It is important to note that in accordance with the waste hierarchy, the volume of hazardous waste should be reduced by physical separation of visible asbestos from residual soils (if feasible).

## 9 Approaches to Risk Assessment

Motor-powered breathing system | NTP



The most established approaches to risk assessment for asbestos in soil in Europe are the frameworks developed by VROM (now IenW) and OVAM, and with the latter OVAM framework being highly influenced by the earlier VROM framework. Further steps to better understand the potential fibre release of asbestos from the affected land are in-

troduced by the US EPA framework that advocates activity-based sampling, and UK good practice that advocates the better understanding of dust and asbestos fibre release from soil disturbance.

Published research on which the frameworks are based is limited, and dated—the research that

forms the basis of the VROM framework dates from the 1990s, and a core piece of research advocated in the UK guidance dates from the 1980s.

vary (see section on Ground Investigation), there is a common theme to the frameworks that is illustrated in the diagram below.

Whilst individual frameworks vary in the detail, and the data requirements for those frameworks


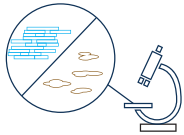

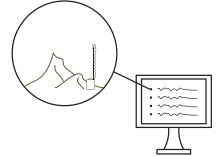
Tier	Tier 1	Tier 2	Tier 3	Tier 4
Data	Basic soil characterisation 	Differentiation in asbestos form and type 	Respirable fibre content in soil. Particle size fraction of interest 	Site-specific fibre-release data 
Criteria	Generic assessment criteria (not asbestos type specific)	Generic assessment criteria for asbestos types and/or forms	Generic assessment criteria for respirable fibre content	Site-specific assessment criteria

Figure 9.1 Common theme in frameworks



Hobmoor School – Birmingham, UK | Google Maps



Frequently occurring fragments of asbestos cement and AIB were discovered

**Ramboll was commissioned by Balfour Beatty Construction Limited to develop and implement an asbestos remediation strategy to enable the construction of a new school.**

Previously developed as industrial land, the historic review and site visit established significant volumes of demolition rubble from prefabricated buildings across the site. The proposed development included landscaping, sports areas and



Asbestos finds | Ramboll

earthworks reprofiling. This meant significant cut and fill works across the site with soil containing demolition rubble.

Asbestos Containing Material (ACM) was encountered during site clearance, so a specialist survey contractor was commissioned for soil sampling and perimeter air monitoring. The asbestos detected in this survey was asbestos cement (chrysotile), asbestos insulation board (amosite) and found in the topsoil till a depth of 1,00-1,50 meters. The pollutant linkages identified during construction and operation were potential exposure to free fibres from friable materials from the asbestos cement and insulation board.

The remedial options appraisal included:

- Dig contaminated soil and dump on site in

vegetation strip; costs over £800 000,

- Hand pick asbestos material, capping with imported top soil (0,3 meters) and install a marker layer between clean top soil and contaminated soil underneath; costs approximately £500 000,
- Assess the risks of in situ reusing the top soil.

Pockets of asbestos covered much of the site at depths up to 5m.



Asbestos finds—hand picking | Ramboll



Processing plant | Ramboll

Based on the options appraisal a bespoke methodology was developed and a comprehensive worldwide review of asbestos legislation and guidelines was undertaken. The final remediation strategy designed comprised of:

1. Hand picking of asbestos cement and asbestos insulation board fragments,
2. Trommel sieving of soil on a 14 mm mesh,

3. Air monitoring for fibres across the perimeter of the site and in the "Control Zone",
4. Works carried out by a licensed contractor with a HSE approved asbestos methodology.

A dust and fibre release experiment was designed to estimate the potential fibre release during school operation, which could be released by soil derived indoor dust. This was done by simulating a realistic and real time situation. For this a 12 m<sup>3</sup> sealed enclosure was built into the school with an air lock entry. The soil in the sealed enclosure was vigorously disturbed to generate dust. The indoor air was monitored and sampled. The samples were tested with Phase Contrast Optical Microscopy (PCOM) analyses.

The remediation delivered a screened top soil which was suitable for re-use in the landscape area



Indoor air experiment | Ramboll

without requirement of a cover layer. The worst case activities were simulated and tested and concluded no residual fibres and low residual risks. All air monitoring results were below detection limit of the standard HSE method i.e.  $<0.01$  f/ml during the earthworks. And the air testing experiment (sam-

ples repeatedly disturbed) did not generate airborne fibre concentrations above limit of detection of the standard HSE method ( $<0.01$  f/ml).

The new school is in place and the landscaping offers a nice area around it.



Before and after construction | Ramboll

## 10 Risk-Based Soil Guidelines

There are few published guideline values for asbestos in soil in Europe. Those that are published are summarised below:

Country/ Region	Guideline Value	Additional Information
The Netherlands	Tier 1: 100mg/kg Tier 2: 1000mg/kg (non-friable) or 100mg/kg friable Tier 3: 10mg/kg respirable fibres	Soil Remediation Circular 2013 Annex 3. Concentrations defined as the sum of chrysotile + x10 amphibole and as the average dry weight concentration over a maximum spatial unit of 1000m <sup>2</sup> . Samples to be taken and analysed as per SIKB Protocol 2018 and NEN 5707.
Italy	1000mg/kg	D.Lgs 152/06. Analysis required to be either SEM for asbestos content <1% or DRX/FTIR for asbestos contents >1%.
Belgium/ Flanders	100mg/kg	Phase 1—minimum of two 10 litre sieved soil samples per 1000m <sup>2</sup> of unpaved ground. If concentration < 100mg/kg or >70cm bgl, no action required. If >100mg/kg, further site-specific inspection (Phase 2) required. Concentrations defined as the sum of fixed fibres + x10 loose fibres.
Belgium/ Wallonia	100mg/kg	Concentrations defined as the sum of bonded fibres + x10 unbound fibres. If concentration is > 100mg/kg but <500mg/kg it is acceptable to use soil beneath 1m clean soil + geotextile.
Belgium/ Brussels	100mg/kg Intervention Value 80mg/kg Remediation Value	If the results obtained for a sample exceed the intervention standard for asbestos or if there is a question of pollution (in the sense of art. 3 25° of the Soil Ordinance), a detailed soil survey must be carried out.

Table 10.1 Published guidelines in Europe

# 11 Approaches to Risk Management

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Risk perception and stakeholder acceptance of a risk-based approach to asbestos is potentially a far stronger driver of intervention than for many other soil contaminants. Zero tolerance or an abundance of caution towards asbestos can drive remediation towards “non-detect” solutions.

There are well established risk assessment decision frameworks available, for example the Australian, US EPA, Dutch, and Belgian approaches. What is not well understood is how often those frameworks are used past “Tier 1”.

Is the challenge to prove the worth of the more detailed risk assessment Tiers? Is the scientific evidence sufficient to be able to persuade stakeholders that the risk is acceptable? Does the retention of asbestos-containing soils on-site leave

constraints on land-use that is not cost-beneficial? Detailed risk assessment has its place and can be valuable in situations where it is not possible and not sustainable to remove the asbestos entirely. This is illustrated in the decision flowchart on the next page.

The difference in the prescriptive nature and detail of frameworks for individual countries and the sustainability of the output from those frameworks is worth further consideration.

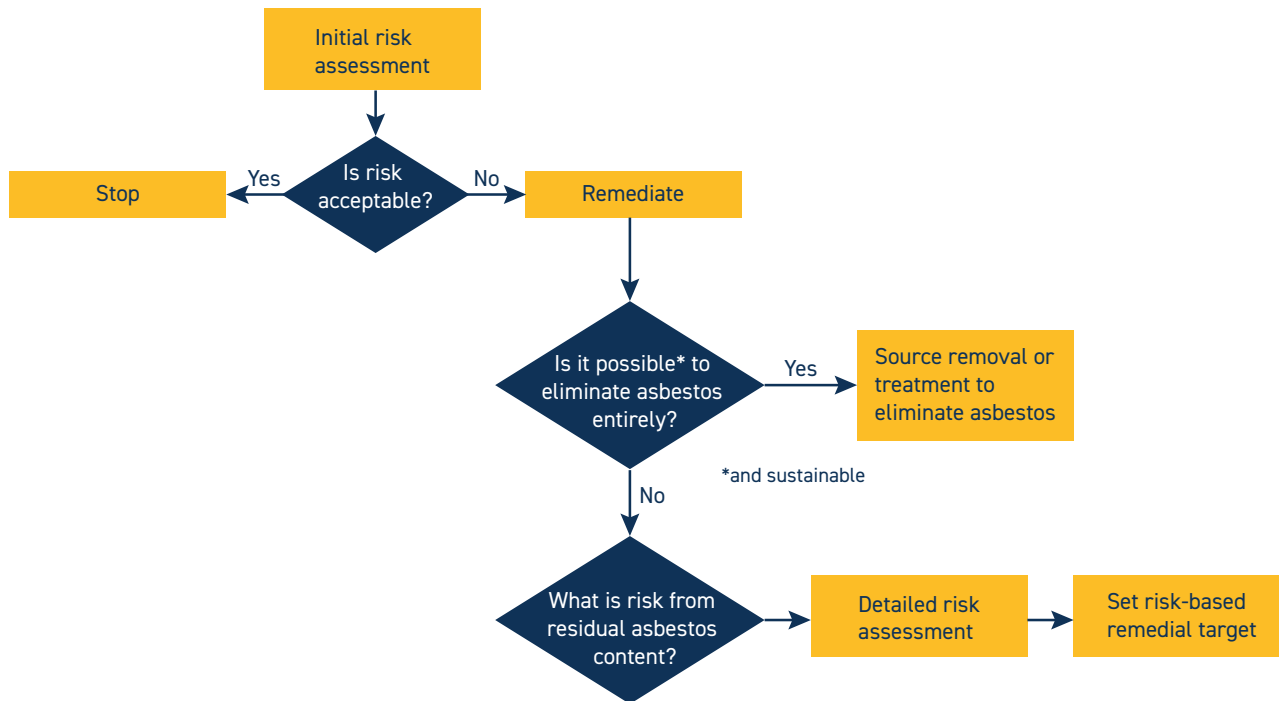


Figure 11.1 Approaches to Risk Management

## 12 Research and Innovation

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Little innovation was specifically identified by the respondents to the questionnaire. A literature review of the most recent developments (within a 5 year time window) in the fields of analytical methodologies, remediation technologies and survey studies has been carried out for NICOLE through the analysis of scientific publications hosted at all the Web of Science databases [\[Link\]](#).

Asbestos investigations have historically focused on commercial asbestos fibers, which were commonly defined in regulations as chrysotile, crocidolite, amosite, tremolite, actinolite, and anthophyllite. Investigations now include other types of elongate mineral particles such as winchite and richterite (van Orden, 2018).

The most common analytical methods for asbestos analysis are polarised light microscopy (PLM),

phase contract optical microscopy (PCOM) and electron microscopy (either scanning (SEM) or transmission (TEM)).

Cossio et al (2018) improved the sensitivity and precision and enhanced the productivity of a Scanning Electron Microscopy with Energy Dispersive Spectrometry (SEMEDS) methodology for the analysis of asbestos in a natural confining matrix and also with a very low asbestos content.

Wroble et al (2017) compared different soil sampling and analytical methods for asbestos quantification in order develop a toolbox for better assessment in order to overcome the difficulties that exist in the detection of asbestos at low concentrations and its correspondent extrapolation from soil concentrations to air concentra-



tions. Sampling was performed using two distinct methods: traditional discrete (“grab”) and incremental sampling methodology (ISM). Analysis was carried out using PLM, TEM and a combination of these two methods were used. Using a Fluidized Bed Asbestos Segregator (FBAS) followed by TEM analysis resulted in the detection of asbestos at locations that were not detected using other analytical methods.

Fibre counting by automated image analysis using fluorescence microscopy has been evaluated by Alexandrov et al (2015). There is the potential from this for faster analysis and less human error, but whilst good validation for medium to high fibre concentrations was achieved, for lower fibre concentrations it was less accurate.

In the last 5 years just a few articles mentioned innovative or upgraded technologies for the asbestos treatment in contaminated sites, mostly considering biological treatment.

Mohanty et al. (2018) examined whether environmentally relevant concentrations of siderophores (exudates from bacteria and fungi that facilitate iron mobilisation and uptake) could alter chrysotile toxicity. Iron removal by siderophores decreased the carcinogenicity of the fibres, the fungal exudates being more effective than those from the bacteria. However, the authors stated that this approach should be more deeply explored in order to develop a viable strategy to manage asbestos-contaminated sites. Native bacteria and fungi from asbestos mines in India (*Aspergillus tubingensis* and *Coemansia reverse*) have

also reportedly been used to detoxify asbestos (Bhattacharya et al. 2015 & 2016).

Gonneau et al. (2017) evaluated the capacity of crop cultivar and grasses for the phytoremediation of soils containing asbestos from natural and anthropogenic causes. The presence of asbestos caused less or no impact on the plant growth when compared to other factors such as the presence of heavy metals or lack of nutrients.

Valouma et al. (2016) used a combined treatment of oxalic acid dihydrate with silicates (tetraethoxysilane and pure water glass (potassium silicate)) to achieve total destruction of chrysotile. Oxalic acid leaching followed by the tetraethoxysilane addition was more appropriate for cases of glushinskite recovery; while an Oxalic acid leaching followed by water glass ma-

naged to encapsulate the asbestos fibers, which might be a valid option for onsite asbestos detoxification.

A small number of commercial companies have developed innovative solutions to asbestos remediation:

- An Italian company offers an innovative remediation technology that uses microwave energy to convert asbestos waste to an inert material. The technology involves a movable reactor that can heat the asbestos and produce a reusable inert material [\[Link\]](#).
- A Japanese company Sagasaki offers 'ND Lock', a solidification solution based on calcium polysulphide (CaSx) formulation. The treatment involves a crystallization and decomposition process. Numerous applications relating to asbestos treatment are given on their website.

## 13 Remediation Options

The most common remediation approach in many countries is still to “dig and dump” (i.e. excavate and dispose to an off-site landfill). A question is whether this is a sustainable approach? The risk is removed by removing the hazard (i.e. the source) but does the context of site use permit a lower impact solution?

The trigger for remediation is also different between countries. For example, mandatory testing for microscopic fibres in soil whenever a construction activity takes place versus action only if visible asbestos waste is encountered. In France, all road asphalt has to be tested for the presence of asbestos as part of any road improvement scheme.

From the questionnaire responses it is clear that there is substantial variation in remediation



Typical remediation earthworks activities in UK | AECOM

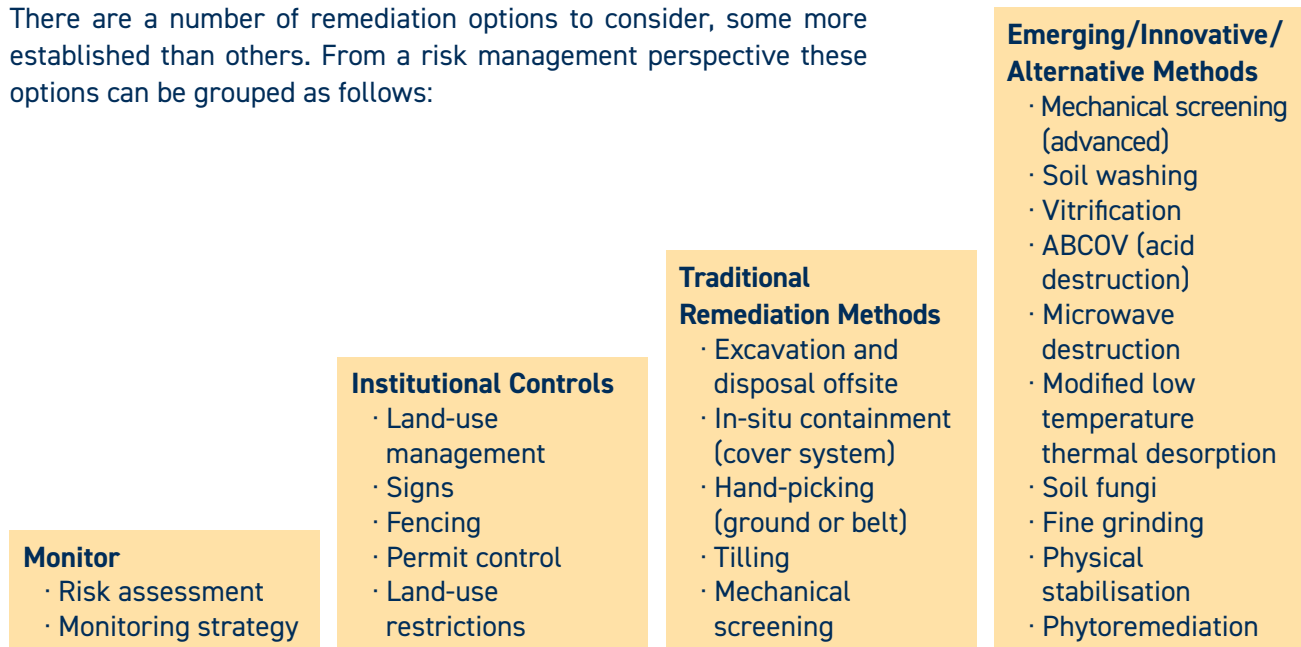


Damping down of stockpiled material with water spray | AECOM

triggers, in what restrictions and requirements the identified presence of asbestos introduces, and in the remediation standards enforced. Even if the value of the remediation standard appears at face value to be the same (for example for The Netherlands and Belgium), the detailed definition of that value is different.

What is generally recognised in the questionnaire responses is that the presence of asbestos in the ground can have a significant effect on land use and costs for remediation (either in the cost for remediating the asbestos itself as a risk and remediation driver, or in the additional cost for remediating a different risk driving contaminant because of the co-presence of asbestos).

There are a number of remediation options to consider, some more established than others. From a risk management perspective these options can be grouped as follows:



The following scheme (next page) presents the risk management based considerations for the remedial options.

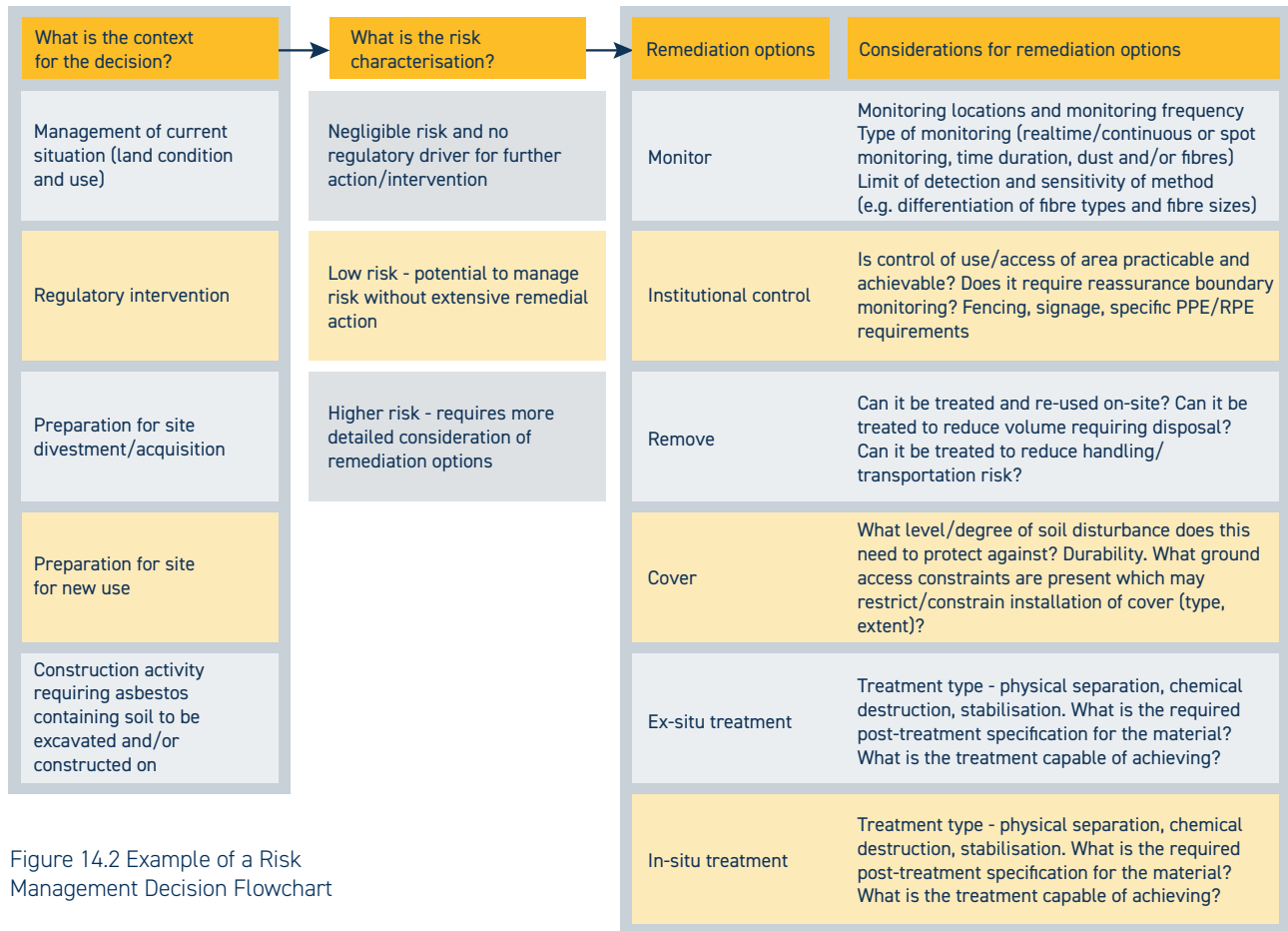


Figure 14.2 Example of a Risk Management Decision Flowchart

**John F Hunt demolished and remediated this former 44-acre foundry / iron works site in Ipswich. The mixed-use site also held two historic landfills containing inert and 'difficult' waste.**

Part of the works involved the management of 35,000 m<sup>3</sup> of previously unidentified fibrous asbestos in soil. This unforeseen event had not been budgeted for and could have potentially rendered the project unviable. John F Hunt worked quickly and pragmatically with the client's consultants and regulators to agree a solution to enable the re-use of materials on site, making the necessary adjustments to the remedial design and Materials Management Plan.

An innovative process engineered approach of complex sorting and cement stabilisation of the



Futura Business Park – Ipswich, UK | John F Hunt

All forms of asbestos were discovered including crocidolite lagging.



Pockets of asbestos covered much of the site at depths up to 5m.

Asbestos finds | John F Hunt

soil was agreed with the regulators to derive site won engineered fill that was suitable for use.

Due to the nature of the asbestos, the remediation works were undertaken as Licensed Asbestos Works managed by John F Hunt.

Contaminated soil was fed into a three-way screener. The oversize material off the screener was proven to be suitable for re-use. The mid-size component was passed to an 'asbestos picking station' where six operatives hand removed visible asbestos products; in some instance the material was passed though the picking station twice to ensure the re-use criteria of <math><0.1\%</math> asbestos (w/w) was achieved. Fine material coming off the screener was passed to a mill unit where



2% cement was added. The stabilised fines were fed onto a stacking conveyor with misting sprays that deposited the material directly into the excavation.

Throughout the works the air was monitored by an independent Asbestos Analyst to demonstrate that the control measures were suitable.

The processed soil was tested to show compliance with the Remediation Strategy, following which it was placed and compacted to form a development platform 1.5m below the finished site level.

John F Hunt were able to successfully treat 65,000 tonnes of asbestos contaminated soil using innovative techniques that ultimately saved the client over £10,000,000 in disposal costs.



Processing plant | John F Hunt

A number of innovations in remediation have either been proposed and/or implemented by remediation specialists, as exemplified in some of the case studies included in this document and the listing of potential options on page 37. Innovation does not have to be a completely new technology, and can include the innovative use of an existing technology.

Examples of this include the use of:

- Cement impregnated geotextiles for cover systems (see photographs to the right)
- Low temperature driers or thermal desorption units to extract loose fibres by drying + extraction of airborne fibres
- Mechanical screening (dry and/or wet)



Installation of surface barrier geotextile | Curtis Barrier Intl

A comprehensive review of remediation technologies is provided in a report by Bureau KLB for the Dutch Ministry for Infrastructure and Water Management published in 2018. This was driven by the need to reduce the unsustainable volume of asbestos contaminated soils being disposed to landfill in the Netherlands.



Mechanical screening of excavated soil | AECOM

Remedial objectives can shape option choices. For example:

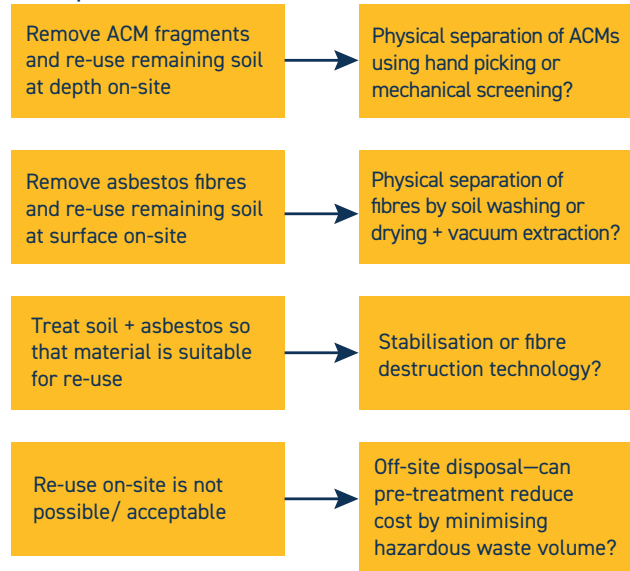


Figure 13.1 Examples of choices for different Remedial objectives

Factors to consider in remedial selection can include:

- Types of asbestos present
- Levels of asbestos present
- Area / volume of impacted soil
- Timescales
- Client risk perception / avoid land blight
- Sustainability
- Presence of other contamination
- Current and/or proposed land-use
- Site location (and proximity to receptors)
- Occupational health constraints
- Remediation standard required
- Other requirements for soil (e.g. geotechnical)



Removing asbestos contaminated soil | NTP

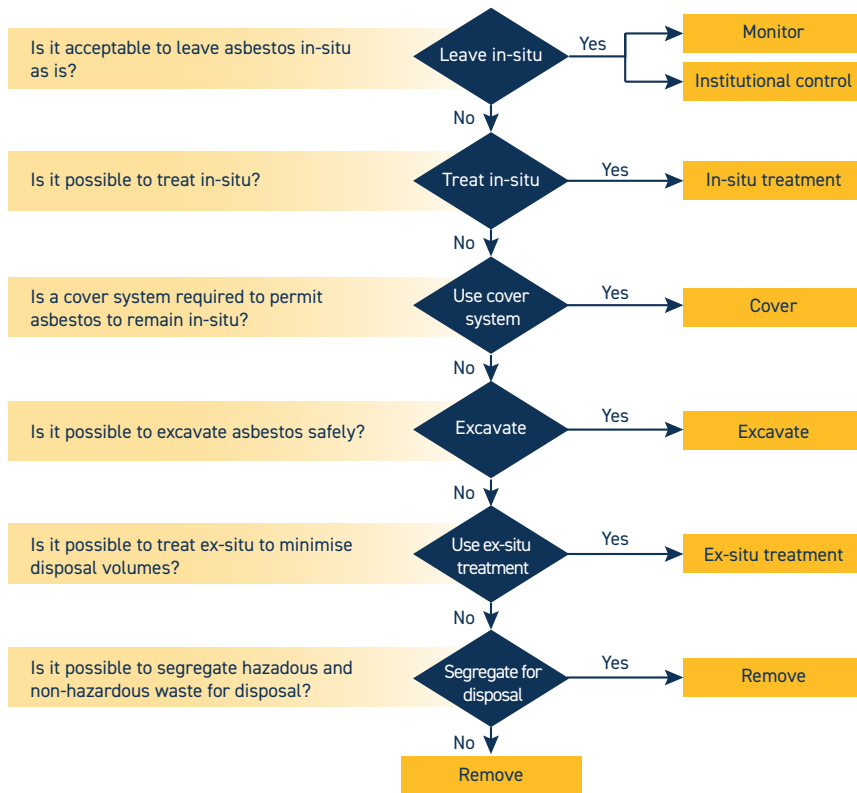


Figure 13.2 Example of a Remediation Decision Flowchart

## 14 Sustainable Remediation

Trommel screening of excavated soil | McAuliffe



Asbestos in soil remediation options should be considered in accordance with sustainable remediation frameworks (e.g. SuRF). Does the remediation approach represent the best solution when considering environmental, economic and social factors as agreed with stakeholders? How can successful remediation best be achieved with

minimal environmental impact? What remedial solution delivers the greatest cost-benefit? Does the selected approach transfer impacts to future generations?

A simple example is the consideration of on-site physical separation to maximise the re-use of



Belt-picking station | McAuliffe



Hand picking of asbestos fragments on a belt | McAuliffe

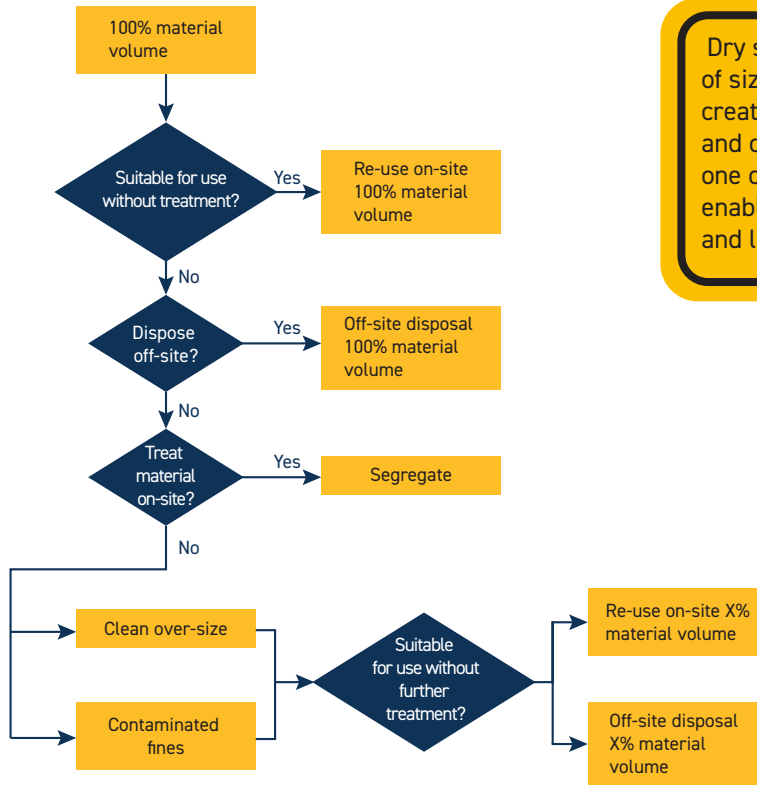
material on-site and minimise off-site waste disposal. One way of viewing this is via a decision flowchart such as the examples on the following pages which illustrate the decision process and disposal volume reduction created by the adoption of mechanical separation treatment techniques. The use and sequencing of the material screening techniques will be influenced by a number of factors including:

- Cost of treatment versus cost of disposal
- Particle size distribution of material
- Remediation standard

Hazardous waste volume



Volume re-used



Dry screening and separation of size fractions could create clean size-fractions and concentrate asbestos in one or more size fractions, enabling re-use of some material and lowering disposal volumes

Figure 14.1 An example of a treatment decision process for dry screening as a sustainable option



### **AECOM developed a remediation and excavated materials management strategy for the redevelopment of a former car part manufacturing facility located in the UK.**

The presence of soil contaminants necessitated a remediation and earthworks strategy that had sustainability at its core: maximising reuse of site-won material, and minimising off-site disposal whilst at the same time providing a safe development platform. The remediation strategy sought to first treat organic-based contamination through ex-situ bioremediation. Alongside the remediation works, an excavated materials management plan (MMP) was developed under the CL:AIRE Definition of Waste: Development Industry Code of Practice (Code of Practice) to support the earthworks design. Demolition of the former buildings and hard standing oc-

curred alongside the soil remediation under separate contract by a third party. Four stockpiles of screened demolition materials (approx. 26,500 m<sup>3</sup>) were prepared for re-use. However, these materials were subsequently found to contain a proportion of asbestos containing materials (ACM) which had in places also contaminated the ground as the stockpiles had been moved around by the contractor.



Asbestos finds | AECOM

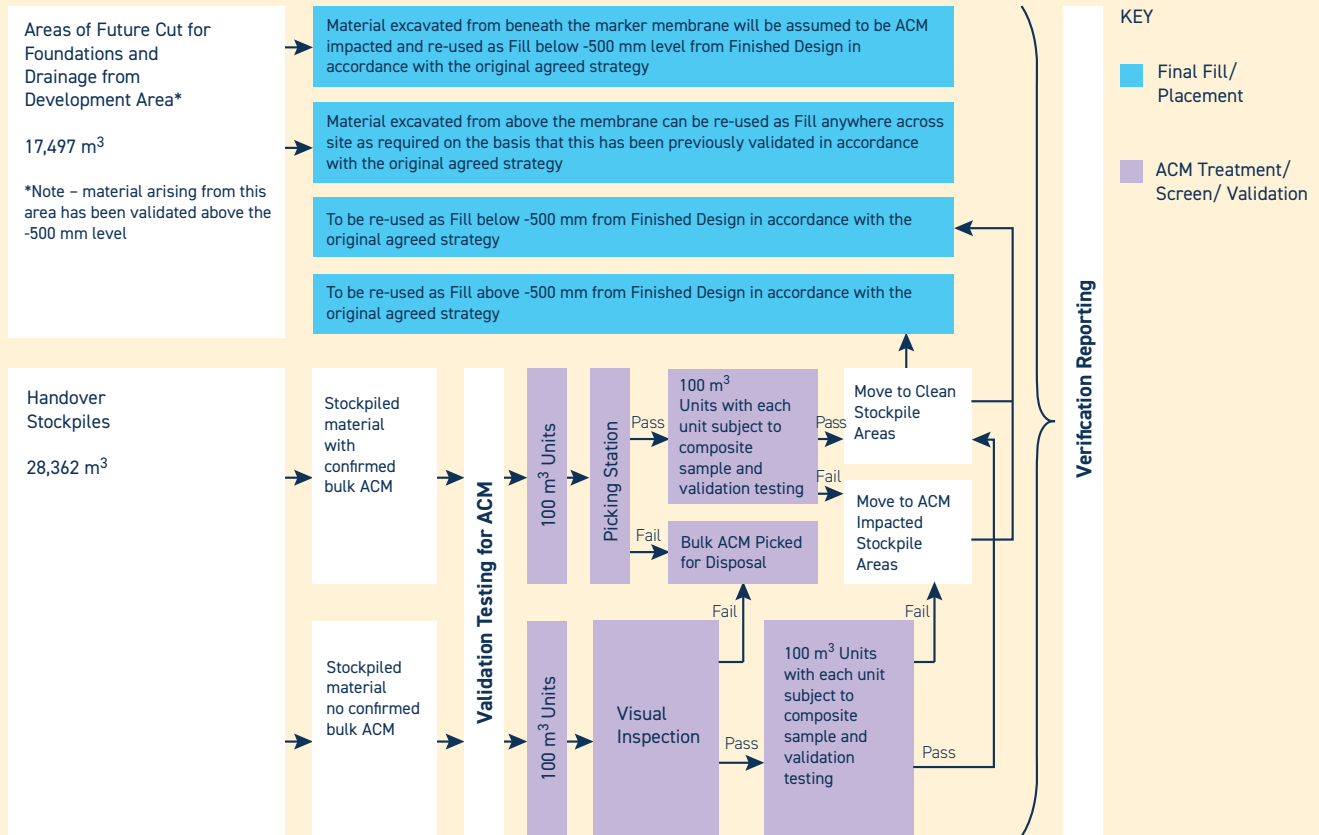


Figure C2.1 Material Management Flowchart

In order for the stockpiled materials to be re-used as part of the consented design a revised strategy was required to ensure the appropriate and safe re-use of these materials. AECOM prepared a detailed assessment on the levels of ACM and asbestos free fibres recorded in the materials and also quantified the level of risk posed by the materials. The soil re-use strategy was developed in accordance with the Control of Asbestos Regulations (2012) and the HSE Approved Code of Practice for managing and working with asbestos (ACoP L143) and gained regulatory agreement.

The strategy developed for the areas of impacted ground centred on a minimum of 500mm validated clean cover being placed below finished design level with the installation of a geotextile marker membrane at the interface of the clean cover

and existing ground level. The strategy also made provision for selected 6F2 (UK highway's grade of aggregate) stockpiles impacted with asbestos to be



Installation of the cover system | AECOM

treated through mechanical screening, sorting and hand picking to generate screened material that met agreed validation criteria (<0.001% asbestos). The mechanical screening successfully separating the larger size fractions that were free of asbestos from the smaller size fractions where the asbestos tended to be. The treated larger size fractions could then be recrushed to produce graded material suitable for use in the development without restriction. Stockpiles that were not treated were tracked and used in dedicated areas of the development under 500mm of clean cover with geotextile marker membrane. In areas where soils containing ACM were placed beneath cover, the strategy set out the principles and expectations for a future site management strategy that would need to be adopted upon completion.

The approach taken at this site ensured that the excavated and site-won materials were managed sustainably on site, minimising potential off-site disposal and material import consistent with the original design aspirations and expectations attached to the planning consent.

## 15 Opportunities for Harmonisation

There are opportunities for and benefits of harmonisation:

- The advocacy of sustainable approaches to risk management
- Greater recognition of the cost-benefit of waste minimisation using ex-situ or in-situ techniques
- A common understanding of risk and a risk-based, proportionate, response to asbestos in soil

There are also barriers to harmonisation that ultimately will limit the degree of harmonisation that is possible. For example:

- Different national legislation and regulatory guidance
- Differing risk perception and/or prioritisation
- Differing scale of issue
- Differing scientific opinion



Figure 15.1 Harmonised approach

## 16 Concluding Remarks


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The problem of asbestos contaminated soil is a common one across Europe, albeit to varying degrees and largely linked to the historic use and management of asbestos in construction and demolition of buildings. It is a recognised challenge for the risk management of existing land use and the re-purposing of brownfield land in some but not all European countries. As result there are well established guidance and procedures in place in some countries and an absence in others. The variability in approaches is marked, with highly detailed and prescriptive regulator-driven guidance in countries such as The Netherlands and Belgium, and less prescriptive industry-led guidance in the UK.

The opportunities for harmonisation across countries are few—certainly in the short-term, and this is driven by the different legislature and regulatory

guidance in each country and the large differences in investigation approaches across European countries that have guidance in place. It is also evident that the approaches in countries are not all entirely risk-based. For example, the requirement to remove all visible fragments of asbestos in soil in Italy irrespective of the soil standard in Italy of 1000 mg/kg (which is the EU hazardous waste limit for asbestos). For many countries it is still the case that no risk-based guidance exists for asbestos in soil, and in those countries (unless gross asbestos contamination is identified) the consideration of low or trace levels of asbestos in soil is not a default consideration in site investigation design and land management.

There is therefore a place for advocating good practice in investigation, in risk assessment, and in



remediation, employing the best science and utilizing the most sustainable remediation options. This is relevant both for European countries where regulation and guidance is currently absent, and for European countries where guidance is in place.

The pace of change in asbestos regulation and guidance is slow and there are opportunities to learn from countries outside of Europe, for example the work of the US EPA in the USA and the work of the Australasian Land and Groundwater Association (ALGA) and BRANZ Ltd in Australia and New Zealand.



**CONTENT DISCLAIMER:**

This publication does not necessarily represent the opinions of all NICOLE members.



# Acknowledgements

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The co-authors gratefully acknowledge the review and constructive feedback on the early drafts of this publication by their colleagues at AECOM and Ramboll, and the patience of the NICOLE Steering Group.

# Acronyms and Abbreviations

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**ACM** Asbestos containing material

**AIB** Asbestos insulation board

**AISS** UK Health and Safety Laboratory (HSL) Proficiency Testing for Asbestos in  
<https://www.hsl.gov.uk/proficiency-testing-schemes/aiss>

**DRX** X-ray diffraction

**f/ml** a unit of measurement for air (asbestos fibres per millilitre of air sampled)

**f/m<sup>3</sup>** a unit of measurement for air (asbestos fibres per cubic metre of air sampled)

**FTIR** Fourier transform infrared spectrometry

**HSE** UK Health and Safety Executive <https://www.hse.gov.uk/>

**OVAM** Public waste agency of Flanders <https://www.ovam.be/>

**PCOM** Phase-contrast optical microscopy (alternative acronym used is PCM)

**PLM** Polarised light microscopy

**RIVM** Netherlands National Institute for Public Health and the Environment  
<https://www.rivm.nl/en>



**SCA** UK Standing Committee of Analysts  
<http://standingcommitteeofanalysts.co.uk/>

**SEM** Scanning electron microscopy

**SoBRA** UK Society of Brownfield Risk Assessment <https://sobra.org.uk/>

**SuRF** Sustainable Remediation Forum <https://www.sustainableremediation.org/>  
and <https://www.claire.co.uk/projects-and-initiatives/surf-uk>

**TEM** Transmission electron microscopy

**TNO** Netherlands Organisation for Applied Scientific Research  
<https://www.tno.nl/en/>

**VROM** Former Netherlands Ministry of Housing, Spatial Planning and the  
Environment (since 2010 with the Ministry of Infrastructure and the Environment)

**US EPA** United States Environmental Protection Agency <https://www.epa.gov/>

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# Colofon

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Design & lay-out:	Just Josi, The Netherlands
Issued:	June 2021
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NICOLE is a leading forum on industrially co-ordinated sustainable land management in Europe, promoting co-operation between industry, academia and service providers on the development and application of sustainable technologies. The overall objective of NICOLE is to pro-actively enable European industry to identify, assess and manage industrially contaminated land efficiently, cost-effectively, and within a framework of sustainability.

Further information: [www.NICOLE.org](http://www.NICOLE.org)



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CD9/1/C

Email 2

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## Tom Roberts

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**From:** Wall, Clive <clive.wall@environment-agency.gov.uk>  
**Sent:** 20 July 2021 17:40  
**To:** Smith, Mark  
**Cc:** Claire Finney; Nicholson, Matthew  
**Subject:** RE: STF

Hello Mark,

I started to review your submission against the pre-operational measure requirements. However I quickly realised you appear to dispute the requirements, specifically the need to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design.

I am unable to approve this report.

If you are unhappy with the pre-operational measure requirements you will need to appeal the permitting decision. I would have expected you to have put this forward during the application stage rather than as part of the report submission to me.

Details of your rights of appeal are set out in the letter that accompanied the permit issue.

Please contact me if you have any queries about this.

Clive

### Clive Wall

**PPC Compliance Officer** | West Midlands Area

**Environment Agency** | Sentinel House, 9 Wellington Crescent, Fradley Park, Lichfield, WS13 8RR

**Contact | Mob:** 07710 903407 | **Ext:** 02030252966 | **Int:** 52966 | **Email:** [clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

**Incident management standby roles:** EM Site Controller | EM Duty Officer | Tactical Liaison Officer



Creating a better place  
for people and wildlife



---

**From:** MarkA Smith [mailto:MarkA.Smith@fccenvironment.co.uk]  
**Sent:** 09 July 2021 13:39  
**To:** Wall, Clive <clive.wall@environment-agency.gov.uk>  
**Cc:** Claire Finney <ClaireFinney@Byrnelooby.com>; Mat Nicholson <Mat.Nicholson@fccenvironment.co.uk>  
**Subject:** STF

Good afternoon Clive

Hope you're well,

Please find attached details of the Pre Condition Response for the STF

Regards

Mark

**MarkA Smith – Site Business Manager**

Mobile.07850 606472 | Email: [markasmith@fccenvironment.co.uk](mailto:markasmith@fccenvironment.co.uk)

FCC Environment | Edwin Richards | Portway Road, | Rowley Regis | Warley | West Midlands | B65 9BT |

<http://www.fccenvironment.co.uk/>



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CD9/1/C

Email 3

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## Tom Roberts

---

**From:** Nicholson, Matthew <Mat.Nicholson@fccenvironment.co.uk>  
**Sent:** 22 July 2021 11:59  
**To:** Wall, Clive; Smith, Mark  
**Cc:** Claire Finney; Cheetham, Mark  
**Subject:** RE: STF

Good Morning Clive

Further to your email below please could we arrange a meeting to discuss the pre-op condition requirements as we would like to better understand what the expectation was in regards to the full enclosure of the mechanical screener and the collection of all dust emissions via a HEPA filter or other suitable design.

The reason for seeking clarification on this is that mechanical screens are not fully enclosed and dust suppression is achieved with water/mist sprays rather than an active air extraction system so what the pre-op condition is seeking is not something that, to our knowledge, is available in the market. Given the wording of the pre-op condition we wondered if the EA had any examples/experience of such equipment you could refer us to?

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We are trying to find a way of complying with the pre-op condition hence the proposals that have been put forward for a trial one month period of monitoring to demonstrate that the abatement measures control dust emissions. This has been done with a view that if through actual monitoring data, which can be done in real time, the dust abatement measures proposed prove effective then it would negate the need for an active air extraction system as emissions are effectively abated and controlled by another method.

<b>Reference</b>	<b>Pre-operational measures</b>
1	<p>Prior to the use of the mechanical screener for the pre-screening of asbestos contaminated soils under activity reference AR2 a report shall be submitted for written permission detailing the following aspects:</p> <ul style="list-style-type: none"><li>• Evidence to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design.</li><li>• Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on site.</li><li>• Details of monitoring checks, audits and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed.</li></ul> <p>No mechanical pre-screening of asbestos contaminated soils under activity reference AR2 shall commence unless the Environment Agency has given prior written permission under this condition.</p>

Your comments regarding appeal are noted and of course that option is available to us but I feel it would be better for all parties if we could have a positive discussion regarding the requirements and expectations of the pre-op condition as the current wording does present some practical issues in being able to comply with it.

Would you be available for a MS teams meeting on either 11<sup>th</sup>, 12<sup>th</sup> or 13<sup>th</sup> August?

Kind regards

Mat

**Mat Nicholson - Estates Manager (South)**

| Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)  
FCC Environment | Home Based | <http://www.fccenvironment.co.uk/>



---

**From:** Wall, Clive [mailto:clive.wall@environment-agency.gov.uk]  
**Sent:** 20 July 2021 17:40  
**To:** MarkA Smith <MarkA.Smith@fccenvironment.co.uk>  
**Cc:** Claire Finney <ClaireFinney@Byrnelooby.com>; Mat Nicholson <Mat.Nicholson@fccenvironment.co.uk>  
**Subject:** RE: STF

Hello Mark,

I started to review your submission against the pre-operational measure requirements. However I quickly realised you appear to dispute the requirements, specifically the need to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design.

I am unable to approve this report.

If you are unhappy with the pre-operational measure requirements you will need to appeal the permitting decision. I would have expected you to have put this forward during the application stage rather than as part of the report submission to me.

Details of your rights of appeal are set out in the letter that accompanied the permit issue.

Please contact me if you have any queries about this.

Clive

**Clive Wall**

**PPC Compliance Officer** | West Midlands Area

**Environment Agency** | Sentinel House, 9 Wellington Crescent, Fradley Park, Lichfield, WS13 8RR

**Contact | Mob:** 07710 903407 | **Ext:** 02030252966 | **Int:** 52966 | **Email:** [clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

**Incident management standby roles:** EM Site Controller | EM Duty Officer | Tactical Liasion Officer



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for people and wildlife



---

**From:** MarkA Smith [<mailto:MarkA.Smith@fccenvironment.co.uk>]  
**Sent:** 09 July 2021 13:39  
**To:** Wall, Clive <[clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)>  
**Cc:** Claire Finney <[ClaireFinney@Byrnelooby.com](mailto:ClaireFinney@Byrnelooby.com)>; Mat Nicholson <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>  
**Subject:** STF

Good afternoon Clive

Hope you're well,

Please find attached details of the Pre Condition Response for the STF

Regards

Mark

**MarkA Smith – Site Business Manager**

Mobile.07850 606472 | Email: [markasmith@fccenvironment.co.uk](mailto:markasmith@fccenvironment.co.uk)

FCC Environment | Edwin Richards | Portway Road, | Rowley Regis | Warley | West Midlands | B65 9BT |

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---

CD9/1/C

Email 4

---

## Tom Roberts

---

**From:** Wall, Clive <clive.wall@environment-agency.gov.uk>  
**Sent:** 26 July 2021 15:31  
**To:** Nicholson, Matthew; Smith, Mark  
**Cc:** Claire Finney; Cheetham, Mark  
**Subject:** RE: STF

Hello Mat,

I am happy to participate in a meeting as long as you make clear the specifics on what you want to know so that I can ensure the right people can attend.

The requirements of the pre-operational condition are clear and the meeting should not be to negotiate/appeal about them.

Please note that we would charge for our time in attending the meeting.

I am available on the 12<sup>th</sup> (pm) but on leave the rest of the week.

Clive

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**From:** Mat Nicholson [mailto:Mat.Nicholson@fccenvironment.co.uk]  
**Sent:** 22 July 2021 11:59  
**To:** Wall, Clive <clive.wall@environment-agency.gov.uk>; MarkA Smith <MarkA.Smith@fccenvironment.co.uk>  
**Cc:** Claire Finney <ClaireFinney@Byrnelooby.com>; Mark Cheetham <Mark.Cheetham@fccenvironment.co.uk>  
**Subject:** RE: STF

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Table S1.3 Pre-operational measures	
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Kind regards

Mat

**Mat Nicholson - Estates Manager (South)**

| Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)

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**From:** Wall, Clive [<mailto:clive.wall@environment-agency.gov.uk>]

**Sent:** 20 July 2021 17:40

**To:** MarkA Smith <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>

**Cc:** Claire Finney <[ClaireFinney@Byrnelooby.com](mailto:ClaireFinney@Byrnelooby.com)>; Mat Nicholson <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>

**Subject:** RE: STF

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Please contact me if you have any queries about this.

Clive

**Clive Wall**

**PPC Compliance Officer** | West Midlands Area

**Environment Agency** | Sentinel House, 9 Wellington Crescent, Fradley Park, Lichfield, WS13 8RR

**Contact | Mob:** 07710 903407 | **Ext:** 02030252966 | **Int:** 52966 | **Email:** [clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

**Incident management standby roles:** EM Site Controller | EM Duty Officer | Tactical Liasion Officer



---

**From:** MarkA Smith [<mailto:MarkA.Smith@fccenvironment.co.uk>]  
**Sent:** 09 July 2021 13:39  
**To:** Wall, Clive <[clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)>  
**Cc:** Claire Finney <[ClaireFinney@Byrnelooby.com](mailto:ClaireFinney@Byrnelooby.com)>; Mat Nicholson <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>  
**Subject:** STF

Good afternoon Clive

Hope you're well,

Please find attached details of the Pre Condition Response for the STF

Regards

Mark

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CD9/1/C

Email 5

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## Tom Roberts

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**From:** Nicholson, Matthew <Mat.Nicholson@fccenvironment.co.uk>  
**Sent:** 03 August 2021 11:20  
**To:** Wall, Clive; Smith, Mark  
**Cc:** Claire Finney; Cheetham, Mark; Jon Owens  
**Subject:** RE: STF

Hi Clive

Thanks for your email and apologies for my delay in responding as I have been on leave.

Unfortunately the 12<sup>th</sup> is not possible for us anymore so please can you suggest some alternate dates when you are available (please note I am on leave week of 16<sup>th</sup>). With respect to payment for the meeting please let me know how much this will be.

With regards your request for clarity on the specifics of what we wish to discuss I felt my previous email outlined this and I have highlighted specific sections for your reference. However; to further clarify it is the wording of the first bullet point that is the main point for discussion and we want to understand what the EA's expectations are and given our previous submission with alternate suggested approach why this was not considered to fall within the wording '*..or other suitable design*'.

As you have previously noted we have the opportunity for appeal and of course that option remains open to us; however, we are keen to discuss the pre-op condition with you to try to understand what it was seeking to achieve and how in practical terms it was expected to work before having to take that path. If we can find a practical solution then that would seem better for all parties.

To be clear the request for a meeting is not intended to negotiate the requirements of the pre-op condition but as set out above and highlighted below it is to clarify what the EAs requirements are to comply with the pre-op condition as the way the pre-op is worded is unclear as to what/how the HEPA filter is to be used or what would be considered '*..or other suitable design*' and as explained below there are technical and practical issues in attaching a HEPA filter and positive extraction system to a mechanical screen operated inside a large shed and we wish to discuss what the EAs expectations are to comply with the pre-op condition.

Kind regards

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FCC Environment | Home Based | <http://www.fccenvironment.co.uk/>



from waste to resource

---

**From:** Wall, Clive [mailto:clive.wall@environment-agency.gov.uk]

**Sent:** 26 July 2021 15:31

**To:** Mat Nicholson <Mat.Nicholson@fccenvironment.co.uk>; MarkA Smith <MarkA.Smith@fccenvironment.co.uk>

**Cc:** Claire Finney <ClaireFinney@Byrnelooby.com>; Mark Cheetham <Mark.Cheetham@fccenvironment.co.uk>  
**Subject:** RE: STF

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**Sent:** 22 July 2021 11:59  
**To:** Wall, Clive <[clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)>; MarkA Smith <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>  
**Cc:** Claire Finney <[ClaireFinney@Byrnelooby.com](mailto:ClaireFinney@Byrnelooby.com)>; Mark Cheetham <[Mark.Cheetham@fccenvironment.co.uk](mailto:Mark.Cheetham@fccenvironment.co.uk)>  
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**From:** Wall, Clive [<mailto:clive.wall@environment-agency.gov.uk>]

**Sent:** 20 July 2021 17:40

**To:** MarkA Smith <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>

**Cc:** Claire Finney <[ClaireFinney@Byrnelooby.com](mailto:ClaireFinney@Byrnelooby.com)>; Mat Nicholson <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>

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Please contact me if you have any queries about this.

Clive

**Clive Wall**

**PPC Compliance Officer** | West Midlands Area

**Environment Agency** | Sentinel House, 9 Wellington Crescent, Fradley Park, Lichfield, WS13 8RR

**Contact | Mob:** 07710 903407 | **Ext:** 02030252966 | **Int:** 52966 | **Email:** [clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

**Incident management standby roles:** EM Site Controller | EM Duty Officer | Tactical Liasion Officer



---

**From:** MarkA Smith [<mailto:MarkA.Smith@fccenvironment.co.uk>]  
**Sent:** 09 July 2021 13:39  
**To:** Wall, Clive <[clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)>  
**Cc:** Claire Finney <[ClaireFinney@Byrnelooby.com](mailto:ClaireFinney@Byrnelooby.com)>; Mat Nicholson <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>  
**Subject:** STF

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Regards

Mark

**MarkA Smith – Site Business Manager**

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---

CD9/1/C

Email 6

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## Tom Roberts

---

**From:** Wall, Clive <clive.wall@environment-agency.gov.uk>  
**Sent:** 05 August 2021 10:53  
**To:** Nicholson, Matthew; Smith, Mark  
**Cc:** Claire Finney; Cheetham, Mark; Jon Owens; Hadley, Richard; Hall, Chris  
**Subject:** RE: STF  
**Attachments:** 20210720 Charging letter PO1.pdf

Hello Mat,

I have set out below what our expectations are with regard to the pre-operational condition. Essentially it is to comply with BAT.

The first bullet point requires the screening activity to be fully enclosed and emissions from this abated. Chemical Waste : Appropriate Measures, section 5.1, point 10 requires that where an emission is expected, all treatment vessels must be enclosed and if vented to atmosphere only via an appropriate scrubbing and abatement system. An asbestos fibre emission is expected from the screening activity so the pre-op condition requires evidence to demonstrate that the screener is enclosed and abated. We do not have any examples/experience of such equipment we can refer you too.

The wording 'other suitable design' refers to the type of abatement/filter system to be used so as not to prescribe a HEPA filter. It does not allow for the screener to not be enclosed. We expect an emission regardless of your dust abatement measures so it is not possible to negate the need for enclosure/abatement.

I'm not trying to avoid a meeting to discuss this if you still think there is a need for one. We would charge for our time at £100 per hour, as set out in the letter I sent you on 20/07/2021, copy attached.

Kind regards

Clive

### **Clive Wall**

**PPC Compliance Officer** | West Midlands Area

**Environment Agency** | Sentinel House, 9 Wellington Crescent, Fradley Park, Lichfield, WS13 8RR

**Contact | Mob:** 07710 903407 | **Ext:** 02030252966 | **Int:** 52966 | **Email:** [clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

**Incident management standby roles:** EM Site Controller | EM Duty Officer



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for people and wildlife



---

**From:** Mat Nicholson [mailto:Mat.Nicholson@fccenvironment.co.uk]

**Sent:** 03 August 2021 11:20

**To:** Wall, Clive <clive.wall@environment-agency.gov.uk>; MarkA Smith <MarkA.Smith@fccenvironment.co.uk>

**Cc:** Claire Finney <ClaireFinney@Byrnelooby.com>; Mark Cheetham <Mark.Cheetham@fccenvironment.co.uk>; Jon Owens <Jon.Owens@provectusgroup.com>

**Subject:** RE: STF

Hi Clive

Thanks for your email and apologies for my delay in responding as I have been on leave.

Unfortunately the 12<sup>th</sup> is not possible for us anymore so please can you suggest some alternate dates when you are available (please note I am on leave week of 16<sup>th</sup>). With respect to payment for the meeting please let me know how much this will be.

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FCC Environment | Home Based | <http://www.fccenvironment.co.uk/>

---

**From:** Wall, Clive [<mailto:clive.wall@environment-agency.gov.uk>]

**Sent:** 26 July 2021 15:31

**To:** Mat Nicholson <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>; MarkA Smith <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>

**Cc:** Claire Finney <[ClaireFinney@Byrnelooby.com](mailto:ClaireFinney@Byrnelooby.com)>; Mark Cheetham <[Mark.Cheetham@fccenvironment.co.uk](mailto:Mark.Cheetham@fccenvironment.co.uk)>

**Subject:** RE: STF

Hello Mat,

I am happy to participate in a meeting as long as you make clear the specifics on what you want to know so that I can ensure the right people can attend.

The requirements of the pre-operational condition are clear and the meeting should not be to negotiate/appeal about them.

Please note that we would charge for our time in attending the meeting.

I am available on the 12<sup>th</sup> (pm) but on leave the rest of the week.

Clive

---

**From:** Mat Nicholson [<mailto:Mat.Nicholson@fccenvironment.co.uk>]

**Sent:** 22 July 2021 11:59

**To:** Wall, Clive <[clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)>; MarkA Smith <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>

**Cc:** Claire Finney <[ClaireFinney@Byrnelooby.com](mailto:ClaireFinney@Byrnelooby.com)>; Mark Cheetham <[Mark.Cheetham@fccenvironment.co.uk](mailto:Mark.Cheetham@fccenvironment.co.uk)>

**Subject:** RE: STF

Good Morning Clive

Further to your email below please could we arrange a meeting to discuss the pre-op condition requirements as we would like to better understand what the expectation was in regards to the full enclosure of the mechanical screener and the collection of all dust emissions via a HEPA filter or other suitable design.

The reason for seeking clarification on this is that mechanical screens are not fully enclosed and dust suppression is achieved with water/mist sprays rather than an active air extraction system so what the pre-op condition is seeking is not something that, to our knowledge, is available in the market. Given the wording of the pre-op condition we wondered if the EA had any examples/experience of such equipment you could refer us to?

There are also practical issues associated with an active air system on the entire shed due to the volumes of air involved and the nature of the building which has a large open door. The use of a HEPA filter would seem to be more appropriate for a smaller confined space such as an enclosed picking line and we wondered if that was the intention here rather than the entire space?

We are trying to find a way of complying with the pre-op condition hence the proposals that have been put forward for a trial one month period of monitoring to demonstrate that the abatement measures control dust emissions. This has been done with a view that if through actual monitoring data, which can be done in real time, the dust

abatement measures proposed prove effective then it would negate the need for an active air extraction system as emissions are effectively abated and controlled by another method.

Table S1.3 Pre-operational measures	
Reference	Pre-operational measures
1	<p>Prior to the use of the mechanical screener for the pre-screening of asbestos contaminated soils under activity reference AR2 a report shall be submitted for written permission detailing the following aspects:</p> <ul style="list-style-type: none"><li>• Evidence to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design.</li><li>• Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on site.</li><li>• Details of monitoring checks, audits and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed.</li></ul> <p>No mechanical pre-screening of asbestos contaminated soils under activity reference AR2 shall commence unless the Environment Agency has given prior written permission under this condition.</p>

Your comments regarding appeal are noted and of course that option is available to us but I feel it would be better for all parties if we could have a positive discussion regarding the requirements and expectations of the pre-op condition as the current wording does present some practical issues in being able to comply with it.

Would you be available for a MS teams meeting on either 11<sup>th</sup>, 12<sup>th</sup> or 13<sup>th</sup> August?

Kind regards

Mat

**Mat Nicholson - Estates Manager (South)**

| Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)  
FCC Environment | Home Based | <http://www.fccenvironment.co.uk/>



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**From:** Wall, Clive [<mailto:clive.wall@environment-agency.gov.uk>]  
**Sent:** 20 July 2021 17:40  
**To:** MarkA Smith <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>  
**Cc:** Claire Finney <[ClaireFinney@ByrneLooby.com](mailto:ClaireFinney@ByrneLooby.com)>; Mat Nicholson <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>  
**Subject:** RE: STF

Hello Mark,

I started to review your submission against the pre-operational measure requirements. However I quickly realised you appear to dispute the requirements, specifically the need to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design.

I am unable to approve this report.



If you are unhappy with the pre-operational measure requirements you will need to appeal the permitting decision. I would have expected you to have put this forward during the application stage rather than as part of the report submission to me.

Details of your rights of appeal are set out in the letter that accompanied the permit issue.

Please contact me if you have any queries about this.

Clive

**Clive Wall**

**PPC Compliance Officer** | West Midlands Area

**Environment Agency** | Sentinel House, 9 Wellington Crescent, Fradley Park, Lichfield, WS13 8RR

**Contact | Mob:** 07710 903407 | **Ext:** 02030252966 | **Int:** 52966 | **Email:** [clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

**Incident management standby roles:** EM Site Controller | EM Duty Officer | Tactical Liasion Officer



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**From:** MarkA Smith [<mailto:MarkA.Smith@fccenvironment.co.uk>]  
**Sent:** 09 July 2021 13:39  
**To:** Wall, Clive <[clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)>  
**Cc:** Claire Finney <[ClaireFinney@Byrnelooby.com](mailto:ClaireFinney@Byrnelooby.com)>; Mat Nicholson <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>  
**Subject:** STF

Good afternoon Clive

Hope you're well,

Please find attached details of the Pre Condition Response for the STF

Regards

Mark

**MarkA Smith – Site Business Manager**

Mobile.07850 606472 | Email: [markasmith@fccenvironment.co.uk](mailto:markasmith@fccenvironment.co.uk)

FCC Environment | Edwin Richards | Portway Road, | Rowley Regis | Warley | West Midlands | B65 9BT |

<http://www.fccenvironment.co.uk/>



from waste to resource

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CD9/1/C

Email 6 attachment

Letter EA to FCC – Charging Letter dated 20.07.2021

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Mark Smith  
FCC Environment  
Edwin Richards Quarry Soil Treatment  
Centre  
Portway Road  
Rowley Regis  
Warley  
B65 9BT

Our ref: HP3632RP/PO1  
Your ref:  
Date: 20/07/2021

Dear Mark

**Additional compliance activity for an approval under a permit condition in accordance with paragraph 14 (1) of the Environment Agency (Environmental Permitting) (England) Charging scheme 2018**

**Permit number:** HP3632RP

**Regulated facility:** Edwin Richards Quarry Soil treatment Centre, Portway Road, Rowley Regis, Warley, West Midlands, B65 9BT

Following your recent submission for approval under permit condition for Pre-operational Measure Reference 1 (use of mechanical screener for screening asbestos contaminated soils) we write to inform you that we will be charging for the time and costs that we incur for this work.

We will be charging at an hourly rate of £100 per hour for assessing the submission for approval under a permit condition.

We estimate that it will take up to 8 hours to complete the review and approval process for the above submission. Please note that this is only a provisional estimate and is subject to change once we actually undertake the review of your submission.

Please contact me should you have any questions about this.

Yours sincerely

Clive Wall  
PPC Compliance Officer  
Direct Dial: 02030252966  
Email: [clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)  
Sentinel House, 9 Wellington Crescent, Fradley Park, Lichfield, Staffs WS13 8RR.

Customer services line: 03708 506 506  
Email: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

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CD9/1/C

Email 7

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## Tom Roberts

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**From:** Nicholson, Matthew <Mat.Nicholson@fccenvironment.co.uk>  
**Sent:** 17 September 2021 14:16  
**To:** Wall, Clive; Steve Forster; Jon Owens; Cheetham, Mark; Hadley, Richard; Hall, Chris; Steve Forster - Remedia  
**Cc:** Claire Finney; Smith, Mark  
**Subject:** ERQ STF Meeting  
**Attachments:** Indicative mark up for cover on screener.pdf

Hi Clive

For our meet next Wednesday please see below outline of what we would like to discuss.

The EA rejected our previous submission under pre-op condition 1 and you responded to clarify that the EA require an enclosure on the screen with an active extraction system. The permit pre-op condition is copied below for reference and further to our initial submission we would like to discuss how to satisfy the first bullet which requires the screen is enclosed and connected to an active abatement system with HEPA filter.

Table S1.3 Pre-operational measures	
Reference	Pre-operational measures
1	<p>Prior to the use of the mechanical screener for the pre-screening of asbestos contaminated soils under activity reference AR2 a report shall be submitted for written permission detailing the following aspects:</p> <ul style="list-style-type: none"><li>• Evidence to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design.</li><li>• Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on site.</li><li>• Details of monitoring checks, audits and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed.</li></ul> <p>No mechanical pre-screening of asbestos contaminated soils under activity reference AR2 shall commence unless the Environment Agency has given prior written permission under this condition.</p>

As previously mentioned, this is not standard practice within the soil treatment industry as shown by the pan European NICOLE document submitted in our initial response to the pre-op condition and there are practical difficulties in achieving this as it is not something that is available off the shelf so will need to be bespoke made. The wording of the pre-op condition says all dust emissions from the screening operation are directed to an active abatement system with HEPA filter or other suitable design. We also consider that the standard to be met for this process and any abatement is to demonstrate that asbestos fibres in air always meet the limit set in the permit i.e. <0.01f/ml asbestos fibres in air.

To achieve this we believe it is possible to manufacture an enclosure to act as a cover for the screener deck as indicated on the attached marked up image. This enclosure can then have active extraction applied and the emissions directed to a HEPA filter as per the pre-op condition.

Your previous email referenced the EA guidance for *Chemical Waste: Appropriate Measures for Permitted Facilities* ([Chemical waste: appropriate measures for permitted facilities - Guidance - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/chemical-waste-appropriate-measures-for-permitted-facilities)) and Section 5.1 point 10 which is as follows:

*10. Where an emission is expected, all treatment or reactor vessels must be enclosed. Only vent them to the atmosphere via an appropriate scrubbing and abatement system (subject to explosion relief).*

The guidance referred to is for chemical waste and chemical waste treatment; and whilst it is acknowledged the asbestos screening is permitted as a Physico-chemical treatment activity, it is clearly a physical process and not a chemical treatment process with a 'treatment or reactor vessel' and it's difficult to see how asbestos contaminated soil could be regarded as chemical waste.

However; notwithstanding the applicability, or otherwise, of the referenced guidance to the asbestos segregation operation we are keen to find an approach to satisfy the pre-op condition and we have reviewed the referenced guidance for where the principles may apply to the operations being carried out.

From review Section 6 *emissions control appropriate measures*, in particular Section 6.2 *fugitive emissions to air* contains details which could broadly be applied. The parts of Section 6.2 we consider applicable are copied below for reference and highlighted yellow with further comments provided in red.

3. To make sure fugitive emissions are collected and directed to appropriate abatement, your treatment plant must use high integrity components (for example, seals or gaskets). Your treatment plant must be fully enclosed, with air extraction systems located close to emission sources where possible. - The proposed enclosure of the screening deck would enable the extraction system to be located as close as possible to the potential emission source

4. You must use your waste pre-acceptance, waste acceptance and site inspection checks and procedures to identify and manage wastes that could cause, or are causing, fugitive emissions to air. When you identify any of these wastes you must:

- take appropriate, risk assessed measures to prevent and control emissions Waste acceptance procedures are paramount to the process and are used to manage the waste stream that is to be passed through the screener to ensure that emissions are controlled
- prioritise their treatment or transfer – this is the priority and purpose of the activities at the site

5. Where necessary, to prevent fugitive emissions to air from the storage and handling of wastes, you should use a combination of the following measures:

- store and handle such wastes within a building or enclosed equipment It is proposed to enclose the screener deck with an active extraction system and HEPA filter
- keep buildings and equipment under adequate negative pressure with an appropriate abated air circulation or extraction system The proposed enclosure of the screener deck achieves this and will meet the emissions limit as specified within the permit
- where possible, locate air extraction points close to potential emissions sources The proposed enclosure of the screener deck with filter achieves this
- use misting systems and wind barriers to prevent dust All working areas are equipped with a full misting system to ensure complete coverage of areas where materials are treated

Before we progress further with this and resubmit details to discharge pre-op condition 1 we wanted to discuss the above to receive any feedback from the EA on the approach and its suitability to address the pre-op condition.

If upon reading the above you consider this an acceptable approach and a meeting is no longer required to discuss then please let me know and we can move straight on to preparing a formal submission under the pre-op condition.

Kind regards

Mat

**Mat Nicholson - Estates Manager (South)**

| Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)  
FCC Environment | Home Based | <http://www.fccenvironment.co.uk/>





from waste to resource



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CD9/1/C

Email 7 attachment  
Indicative mark up for cover on screener

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Area of enclosure with HEPA filter



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CD9/1/C

Email 8

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## Tom Roberts

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**From:** Wall, Clive <clive.wall@environment-agency.gov.uk>  
**Sent:** 29 November 2021 14:33  
**To:** Smith, Mark  
**Cc:** Jon Owens; Nicholson, Matthew  
**Subject:** RE: Soil Treatment Facility  
**Attachments:** compliance report CAR form Pre-Op 1 HP3632RP - 29112021.pdf

Hello Mark,

I've attached a CAR form for our assessment of this, unfortunately it is not approved.

I apologise for the delayed response.

Clive

### Clive Wall

**PPC Compliance Officer** | West Midlands Area

**Environment Agency** | Sentinel House, 9 Wellington Crescent, Fradley Park, Lichfield, WS13 8RR

**Contact | Mob:** 07710 903407 | **Ext:** 02030252966 | **Int:** 52966 | **Email:** [clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

**Incident management standby roles:** EM Site Controller | EM Duty Officer



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for people and wildlife



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**From:** MarkA Smith [mailto:MarkA.Smith@fccenvironment.co.uk]  
**Sent:** 19 October 2021 15:46  
**To:** Wall, Clive <clive.wall@environment-agency.gov.uk>  
**Cc:** Jon Owens <Jon.Owens@provectusgroup.com>; Mat Nicholson <Mat.Nicholson@fccenvironment.co.uk>  
**Subject:** Soil Treatment Facility

Good afternoon Clive,

Unfortunately, Mat is on leave for a couple of weeks, details attached of the screening equipment / spec.

Regards

Mark

**MarkA Smith – Site Business Manager**

Mobile.07850 606472 | Email: [markasmith@fccenvironment.co.uk](mailto:markasmith@fccenvironment.co.uk)

FCC Environment | Edwin Richards | Portway Road, | Rowley Regis | Warley | West Midlands | B65 9BT |

<http://www.fccenvironment.co.uk/>



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CD9/1/C

Email 8 attachment

Compliance report CAR form Pre-Op 1 HP3632RP - 29112021

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**This form will report compliance with your permit as determined by an Environment Agency officer**

Site	ERQ - STC, EPR/HP3632RP/V003		Permit Ref	HP3632RP	
Operator/ Permit holder	Waste Recycling group (Central) Ltd				
Date	29/11/2021		Time in		Out
What parts of the permit were assessed	Pre-Operational Measures Reference 1 - Enclosure & abatement soil screener				
Assessment	Report/data review	EPR Activity:	Installation	X	Waste Op
					Water Discharge
Recipient's name/position	Mark Smith/Site Business Manager				
Officer's name	Clive Wall		Date issued	29/11/2021	

**Section 1 - Compliance Assessment Summary**

This is based on the requirements of the permit under the Environmental Permitting Regulations (EPR). A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our [Compliance Classification Scheme](#) (CCS). CCS scores can be consolidated or suspended, where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your [local office](#).

Permit Conditions and Compliance Summary			Condition(s) breached
a) Permitted activities	1. Specified by permit	N	
b) Infrastructure	1. Engineering for prevention & control of pollution	N	
	2. Closure & decommissioning	N	
	3. Site drainage engineering (clean & foul)	N	
	4. Containment of stored materials	N	
	5. Plant and equipment	N	
c) General management	1. Staff competency/ training	N	
	2. Management system & operating procedures	N	
	3. Materials acceptance	N	
	4. Storage handling, labelling, segregation	N	
d) Incident management	1. Site security	N	
	2. Accident, emergency & incident planning	N	
e) Emissions	1. Air	N	
	2. Land & Groundwater	N	
	3. Surface water	N	
	4. Sewer	N	
	5. Waste	N	
f) Amenity	1. Odour	N	
	2. Noise	N	
	3. Dust/fibres/particulates & litter	N	
	4. Pests, birds & scavengers	N	
	5. Deposits on road	N	
g) Monitoring and records, maintenance and reporting	1. Monitoring of emissions & environment	N	
	2. Records of activity, site diary, journal & events	N	
	3. Maintenance records	N	
	4. Reporting & notification	A	
h) Resource efficiency	1. Efficient use of raw materials	N	
	2. Energy	N	

**KEY:** C1, C2, C3, C4 = CCS breach category ( \*suspended scores are marked with an asterisk),  
 A = Assessed (no evidence of non-compliance), N = Not assessed, NA = Not Applicable, O = Ongoing non-compliance – not scored  
 MSA, MSB, TCM = Management System condition A, Management System Condition B and Technically Competent Manager condition which are environmental permit conditions from Part 3 of schedule9 EPR (see notes in Section 5/6).

<b>Number of breaches recorded</b>	0	<b>Total compliance score</b> (see section 5 for scoring scheme)	0
If the Total No Breaches is greater than zero, then please see Section 3 for details of our proposed enforcement response			



## Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- the part(s) of the permit that were assessed (e.g. maintenance, training, combustion plant, etc)
- where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- any non-compliances identified
- any non-compliances with directly applicable legislation
- details of any multiple non-compliances
- information on the compliance score accrued inc. details of suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

This report should be clear, comprehensive, unambiguous and normally completed within 14 days of an assessment.

We have reviewed your submission for pre-operational measure reference 1 (fully enclosing the screener and extracting and abating all emissions), received by email on 19/10/2021.

The submission is **not approved** for the reasons as explained below.

You propose to only enclose the screener deck. This is not BAT because there is potential for asbestos fibre release either into the air or into the soil from the screening process. All parts of the screening process must be fully enclosed, abated and routed to a point source or sources.

The mechanical treatment of waste is a 'waste treatment process' in the BAT conclusions. Your activity of screening waste soils containing asbestos falls under this heading.

BAT 14 says:

- "In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below"; and
- "Depending on the risk posed by the waste in terms of diffuse emissions to air, BAT 14d is especially relevant." Note - for the avoidance of doubt; we consider the risk of diffuse emissions to air from this process to be high.

BAT 14d says

d.	Containment, collection and treatment of diffuse emissions	<p>This includes techniques such as:</p> <ul style="list-style-type: none"> <li>— storing, treating and handling waste and material that may generate diffuse emissions in enclosed buildings and/or enclosed equipment (e.g. conveyor belts);</li> <li>— maintaining the enclosed equipment or buildings under an adequate pressure;</li> <li>— collecting and directing the emissions to an appropriate abatement system (see Section 6.1) via an air extraction system and/or air suction systems close to the emission sources.</li> </ul>	<p>The use of enclosed equipment or buildings may be restricted by safety considerations such as the risk of explosion or oxygen depletion.</p> <p>The use of enclosed equipment or buildings may also be constrained by the volume of waste.</p>
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The concerns of the BAT conclusions are mostly about dust (total particulate matter). We are also obviously concerned about asbestos fibres which we need to control.

The control mechanism for particulate matter includes “using enclosed equipment” and “maintaining the enclosed equipment... under an adequate pressure” and “collecting and directing the emissions to an appropriate abatement system via an air extraction system ...”

With the emissions channelled to a point source, BAT 8 monitors the “channelled emissions to air with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.”

For mechanical treatment of waste the relevant substance or parameter is “Dust” in accordance with BAT 25.

BAT 25 requires the use of abatement for dust which includes cyclone, fabric filter, wet scrubbing. Additionally given the concerns for asbestos we would expect the use of a high efficacy particulate air (HEPA) filter.

The BAT-AEL is given in Table 6.3:

Table 6.3

**BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from the mechanical treatment of waste**

Parameter	Unit	BAT-AEL (Average over the sampling period)
Dust	mg/Nm <sup>3</sup>	2-5 (1)

(1) When a fabric filter is not applicable, the upper end of the range is 10 mg/Nm<sup>3</sup>.

We accept the upper limit as the BAT-AEL for dust, that is we will set it to be 5 mg/Nm<sup>3</sup>. We will set an emission limit for asbestos (not a BAT-AEL) at 0.1 fibre/ml.

Given the requirement to set a BAT-AEL for dust we require the equipment to be enclosed, and the diffuse emissions (dust) to be channelled to an abated point source and monitored in accordance with the BAT conclusions, with the limits set as laid out above. As discussed we will also set limits for asbestos fibres in the air.

All of the above is supported by the Appropriate Measures guidance for Chemical Waste sector - <https://www.gov.uk/guidance/chemical-waste-appropriate-measures-for-permitted-facilities>

**Section 3- Enforcement Response**

**Only one of the boxes below should be ticked**

You must take immediate action to rectify any non-compliance and prevent repetition. Non-compliance with your permit conditions constitutes an offence\* and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

\*Non-compliance with MSA, MSB & TCM do not constitute an offence but can result in the service of a compliance, suspension and/or revocation notice.

Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.	
In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.	
We will now consider what enforcement action is appropriate and notify you, referencing this form.	

**Section 4- Action(s)**

Where non-compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.

Criteria Ref.	CCS Category	Action Required / Advised	Due Date
See Section 1 above			

## Section 5 - Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- | advise on corrective actions verbally or in writing
- | require you to take specific actions in writing
- | issue a notice
- | require you to review your procedures or management system
- | change some of the conditions of your permit
- | decide to undertake a full review of your permit

Any breach of a permit condition is an offence\* and we may take legal action against you.

| We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.

| Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and or suspension or revocation of the permit.

| A civil sanction Enforcement Undertaking (EU) offer may also be available to you as an alternative enforcement response for this/these offence(s).

### See our Enforcement and Civil Sanctions guidance for further information

*\*A breach of permit condition MSA, MSB & TCM is not an offence but may result in the service of a notice requiring compliance and/or suspension or revocation of the permit.*

This report does not relieve the site operator of the responsibility to

- ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- | ensure you comply with other legislative provisions which may apply.

### Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance which could have a <b>major</b> environmental effect	60
C2	A non-compliance which could have a <b>significant</b> environmental effect	31
C3	A non-compliance which could have a <b>minor</b> environmental effect	4
C4	A non-compliance which has <b>no</b> potential environmental effect	0.1

**Operational Risk Appraisal (Opra)** - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

### MSA, MSB & TCM are conditions inserted into certain permits by Schedule 9 Part 3 EPR

**MSA** requires operators to manage and operate in accordance with a written management system that identifies and minimises risks of pollution.

**MSB** requires that the management system must be reviewed, kept up-to-date and a written record kept of this.

**TCM** requires the submission of technical competence information.

## Section 6 – General Information

### Data protection notice

The information on this form will be processed by the Environment Agency to fulfill its regulatory and monitoring functions and to maintain the relevant public register(s). The Environment Agency may also use and/or disclose it in connection with:

- | offering/providing you with its literature/services relating to environmental matters
- | consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- | carrying out statistical analysis, research and development on environmental issues
- | providing public register information to enquirers
- | investigating possible breaches of environmental law and taking any resulting action
- | preventing breaches of environmental law
- | assessing customer service satisfaction and improving its service
- | Freedom of Information Act/Environmental Information Regulations request.

The Environment Agency may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

### Disclosure of information

The Environment Agency will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within 28 days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

### Customer charter

#### What can I do if I disagree with this compliance assessment report?

You must notify your local officer within 28 days of receipt if, you wish to challenge any part of this compliance assessment report. If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with the officer's line managers. If you wish to raise your dispute further through our official [complaints](#) and Commendations procedure, phone our general enquiry number 03708 506 506 (Mon to Fri 08.00–18.00) and ask for the [customer contact](#) team or send an email to [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk). If you are still dissatisfied, you can make a complaint to the Ombudsman. For advice on how to complain to the [Parliamentary and Health Service Ombudsman](#), phone their helpline on 0345 015 4033.

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CD9/1/C

Email 9c

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## Tom Roberts

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**From:** Nicholson, Matthew <Mat.Nicholson@fccenvironment.co.uk>  
**Sent:** 03 December 2021 18:29  
**To:** Wall, Clive; Smith, Mark  
**Cc:** Jon Owens  
**Subject:** RE: Soil Treatment Facility

Hi Clive

Thanks for your response I think it would be helpful if we could have a discussion with you and your colleagues from our previous call to discuss this as it seems there may be some misunderstanding about the process and what it is practicable to achieve.

We have been very clear in our various submissions in stating we wish to comply with the pre-op condition and are not seeking to be awkward about complying but that there are practical issues in being able to achieve this and hence we want to understand from the EA what it is that is required. The response below is not assisting us in being able to present solutions as it is not clear what the expectation is for **'all dust emissions from the screening operation are directed to an active abatement system...'** or how it would practically be achieved given that it is a soil screen and materials must at some point exit from it whether that be off the end of a conveyor or taken from a stockpile.

I appreciate that the EA are applying BAT and require an active extraction system but it would be worthwhile to have a conversation about how this is achieved so we can move this forward.

Kind regards

Mat

**Mat Nicholson - Estates Manager (South)**

| Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)  
FCC Environment | Home Based | <http://www.fccenvironment.co.uk/>



from waste to resource



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**From:** Wall, Clive <clive.wall@environment-agency.gov.uk>  
**Sent:** 02 December 2021 15:22  
**To:** Mat Nicholson <Mat.Nicholson@fccenvironment.co.uk>; MarkA Smith <MarkA.Smith@fccenvironment.co.uk>  
**Cc:** Jon Owens <Jon.Owens@provectusgroup.com>  
**Subject:** RE: Soil Treatment Facility

Hello Mat,

I've added a couple of comments to your email below.

Clive

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**From:** Mat Nicholson [<mailto:Mat.Nicholson@fccenvironment.co.uk>]

**Sent:** 29 November 2021 17:42

**To:** Wall, Clive <[clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)>; MarkA Smith <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>

**Cc:** Jon Owens <[Jon.Owens@provectusgroup.com](mailto:Jon.Owens@provectusgroup.com)>

**Subject:** RE: Soil Treatment Facility

Hi Clive

Thanks for the CAR form although obviously it is disappointing given the positive meeting held on 22<sup>nd</sup> Sept that the pre-op condition is not approved as we felt that our re-submission under the pre-op condition fairly reflected the discussions held at that meeting and the CAR response seems to only focus on specific BAT requirements without acknowledgment of the practicalities of achieving them.

Couple of observations to make on the CAR as follows:

1. The CAR states an emission limit to be applied is 0.1 fibre/ml but that is different to the permit limit in Table S3.3 which is 0.01 fibres/ml. Please confirm? **The current permit has a limit of 0.01 fibres/ml for fugitive asbestos air sampling. If emissions from the screening process were to be channelled through a point source, we would also set a limit of 0.1 fibres/ml for that point source.**
2. The CAR states that *'all parts of the screening process must be fully enclosed, abated and routed to a point source or sources'* and then goes on to provide BAT references and in particular BAT14d. As we have previously discussed with the EA the issue is the practicality in being able to fully enclose the screen and hence within the pre-op re-submission we put forward a combination of practical techniques including enclosure of the screening deck with active extraction, waste acceptance protocols, monitoring and dampening down to control dust and fibre emissions. And based on the meeting in September we felt that the EA understood these practical difficulties and the proposed approach to demonstrate no emissions through a trial period and monitoring.

It's acknowledged that the CAR quotes BAT14 and includes the wording *'all parts of the screening process must be fully enclosed, abated and routed to a point source or sources'* so would enclosure of the conveyors and screening deck and routing these through an active extraction system with HEPA filter be satisfactory to discharge the pre-op condition? **Enclosure of the conveyors and screening deck may enclose the equipment but the Pre-Operational condition also requires 'all dust emissions from the screening operation are directed to an active abatement system...'** How would this be achieved for the screened soil as it exits the screener/conveyor?

As for the screening deck there are no 'off the shelf' solutions to enclose the conveyors but we have contacted the screen manufacturer to see if there is a bespoke solution that could be fabricated.

It may be helpful if we could speak to someone directly about the above before we produce a further re-submission to discharge the pre-op condition as it may help to ensure that the re-submission is acceptable and hopefully save time in going back and forth with further submissions.

Kind regards

Mat

**Mat Nicholson - Estates Manager (South)**

| Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)

FCC Environment | Home Based | <http://www.fccenvironment.co.uk/>



from waste to resource



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**From:** Wall, Clive <[clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)>  
**Sent:** 29 November 2021 14:33  
**To:** MarkA Smith <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>  
**Cc:** Jon Owens <[Jon.Owens@provectusgroup.com](mailto:Jon.Owens@provectusgroup.com)>; Mat Nicholson <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>  
**Subject:** RE: Soil Treatment Facility

Hello Mark,

I've attached a CAR form for our assessment of this, unfortunately it is not approved.

I apologise for the delayed response.

Clive

**Clive Wall**

**PPC Compliance Officer** | West Midlands Area

**Environment Agency** | Sentinel House, 9 Wellington Crescent, Fradley Park, Lichfield, WS13 8RR

**Contact | Mob:** 07710 903407 | **Ext:** 02030252966 | **Int:** 52966 | **Email:** [clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

**Incident management standby roles:** EM Site Controller | EM Duty Officer



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**From:** MarkA Smith [<mailto:MarkA.Smith@fccenvironment.co.uk>]  
**Sent:** 19 October 2021 15:46  
**To:** Wall, Clive <[clive.wall@environment-agency.gov.uk](mailto:clive.wall@environment-agency.gov.uk)>  
**Cc:** Jon Owens <[Jon.Owens@provectusgroup.com](mailto:Jon.Owens@provectusgroup.com)>; Mat Nicholson <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>  
**Subject:** Soil Treatment Facility

Good afternoon Clive,

Unfortunately, Mat is on leave for a couple of weeks, details attached of the screening equipment / spec.

Regards

Mark

**MarkA Smith – Site Business Manager**

Mobile.07850 606472 | Email: [markasmith@fccenvironment.co.uk](mailto:markasmith@fccenvironment.co.uk)

FCC Environment | Edwin Richards | Portway Road, | Rowley Regis | Warley | West Midlands | B65 9BT | <http://www.fccenvironment.co.uk/>





from waste to resource



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CD9/1/C

Email 10

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## Tom Roberts

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**From:** Nicholson, Matthew <Mat.Nicholson@fccenvironment.co.uk>  
**Sent:** 11 November 2022 17:36  
**To:** iain.storer@environment-agency.gov.uk  
**Cc:** russell.price@environment-agency.gov.uk; Cheetham, Mark; Smith, Mark; Duley, Surjit; Jon Owens  
**Subject:** ERQ STC Pre-op condition 1  
**Attachments:** K0182\_ENV\_LT\_001 BAT Assessment Pre-operational Condition 1 Issue .pdf

Good afternoon Iain

Please see attached a revised submission to discharge pre-operational condition 1 of permit HP3632RP for the soils treatment centre at Edwin Richards Quarry.

If you have any queries regarding the attached please do not hesitate to contact me.

Kind regards

Mat

**Mat Nicholson – Planning and Permitting Manager (South)**

Head Office: 01302 303030 | Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)

FCC Environment, 3 Sidings Court, White Rose Way, Doncaster. DN4 5NU | <http://www.fccenvironment.co.uk/>



from waste to resource



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CD9/1/C

Email 10 attachment

Letter Byne Looby to EA  
K0182\_ENV\_LT\_001 BAT Assessment Pre-operational Condition 1  
Issue, dated 10.10.2022

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Thursday 10 November 2022  
Ref: K0182\_ENV\_LT\_001

+44 (0) 1925 291 111  
sthelens@byrne-looby.com  
www.byrnelooby.com

Re: ERQ Soil Treatment Facility  
Discharge of pre-operational condition 1

To whom this may concern,

Please see enclosed a response to discharge pre-operational condition 1 of Environmental Permit Reference: EPR/HP3632RP/V003.

The pre-operational condition 1 states:

*Prior to the use of the mechanical screener for the pre-screening of asbestos contaminated soils under activity reference AR2 a report shall be submitted for written permission detailing the following aspects:*

- *Evidence to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design.*
- *Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on site.*
- *Details of monitoring checks, audits, and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed.*

This letter addresses the above requirements in three stages:

- 1) A Best Available Techniques (BAT) assessment has been undertaken against relevant BAT guidance to demonstrate the mechanical screener is to be operated in accordance with BAT by being enclosed with any dust emissions directed via an active abatement system via a HEPA filter or other suitable design.
- 2) The proposed commissioning, operational and maintenance procedures for the mechanical screener and active abatement system to be implemented on site. This may be subject to revision on advice from the approved subcontractor installing the air abatement system.
- 3) Monitoring, audits, and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed. Testing and monitoring of the air abatement system may be subject to revision based on advice from the approved subcontractor installing the air abatement system.

## BAT Assessment

The following regulations and guidance have been reviewed and assessed to ensure the operation of the mechanical screener for the pre-screening of asbestos contaminated soils meets Best Available Techniques (BAT) and appropriate measures requirements:

- BAT Conclusions for Waste Treatment. 10 August 2018<sup>1</sup>
- Environment Agency. Chemical waste: appropriate measures for permitted facilities. 18 November 2020

The following BAT conditions are considered to be applicable to the operation of the screener for the mechanical treatment of waste soils containing asbestos:

**BAT 14** states: *In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below.*

- a) *minimising the number of potential diffuse emission sources*
- b) *selection and use of high-integrity equipment*
- c) *corrosion prevention*
- d) *Containment, collection, and treatment of diffuse emissions*
- e) *Dampening*
- f) *maintenance*
- g) *Cleaning of waste treatment and storage areas*
- h) *Leak detection and repair (LDAR) programme*

**BAT14d** references **Section 6.1 channelled emissions to air** in regard to appropriate abatement systems. The following description is provided: *collecting and directing the emissions to an appropriate abatement system (see Section 6.1) via an air extraction system and/or air suction systems close to the emission sources.* Section 6.1 sets out systems that may be utilised as channelled emissions to air abatement systems, the pollutant(s) abated and a description of each air abatement technique.

Under Section 2.1 General BAT conclusions for the mechanical treatment of waste **BAT 25** is applied for emissions to air.

**BAT 25** states: *In order to reduce emissions to air of dust, and of particulate-bound metals, PCDD/F and dioxin-like PCBs, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.*

- a) *Cyclone*
- b) *Fabric filter*
- c) *Wet scrubbing*
- d) *Water injection into the shredder*

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<sup>1</sup> Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (notified under document C(2018) 5070) (Text with EEA relevance.)

BAT 25 is predominantly focussed on treatment of metal wastes but as for BAT14d, which it references, it also connects to Section 6.1 of the BAT guidance which, as set out above, relates to channelled emissions to air abatement systems. An assessment of the abatement systems is provided at Table 2.

For any channelled emissions to air **BAT 8** is applied which contains requirements for monitoring with regards to monitoring methodology and frequencies. *BAT is to monitor channelled emissions to air with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.*

Assessment has been undertaken of the proposed mechanical waste treatment operation against the applicable BAT and are provided in Table 1 (BAT 14), Table 2 (BAT 25, Section 6.1) and Table 4 (BAT 8).

**BAT 14 In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below.**

Depending on the risk posed by the waste in terms of diffuse emissions to air, BAT 14d is especially relevant.

**Table 1: BAT Assessment -BAT 14**

	<b>Technique</b>	<b>Description</b>	<b>Applicability</b>	<b>BAT Assessment</b>
a	minimising the number of potential diffuse emission sources	<p>This includes techniques such as:</p> <ul style="list-style-type: none"> <li>• appropriate design of piping layout (e.g., minimising pipe run length, reducing the number of flanges and valves, using welded fittings and pipes);</li> <li>• favouring the use of gravity transfer rather than using pumps;</li> <li>• limiting the drop height of material;</li> <li>• limiting traffic speed;</li> <li>• using wind barriers</li> </ul>	General applicability	<p>Minimisation of diffuse emission sources are controlled via the following techniques employed by the Operator:</p> <p><b>Limitations on asbestos fibres in soil</b></p> <p>The Operator has the following restrictions placed on soils contaminated with asbestos as stated in Table S2.4 of the Permit:</p> <ul style="list-style-type: none"> <li>○ Asbestos in unbound fibrous form (FREE CHRYSOTILE FIBROUS ASBESTOS IN THE SOIL MUST BE &lt; 0.1% w/w. OTHER FORMS OR MIXED FORMS OF FIBROUS ASBESTOS IN THE SOIL MUST BE &lt;0.01% w/w)</li> <li>○ Contains identifiable pieces of bonded asbestos (any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye).</li> </ul> <p>Waste Soil containing &gt;0.1% w/w asbestos is classified as hazardous waste. The limits applied to the soil accepted at the facility are below this threshold.</p> <p>This is to limit the potential for airborne respirable asbestos fibres which is limited to 0.01 fibres/ml. This concentration was determined as the concentration where the generation of elevated levels of asbestos fibres was considered to be highly unlikely in laboratory conditions. Waste acceptance procedures are therefore designed to eliminate respirable asbestos fibre emissions by ensuring no friable</p>



	Technique	Description	Applicability	BAT Assessment
				<p>asbestos or asbestos fibres are present in accepted wastes at concentrations that would result in any significant airborne release above ‘ambient background’ level.</p> <p>Any soils containing unbound asbestos or fibre levels exceeding permit thresholds are rejected.</p> <p>Only soils with a moisture content &gt;15% are to be pre-screened. Generally, soil moisture content is ~20% or above on received soils. Soils are dampened down where required prior to pre-screening. This further limit any potential for liberation of fibres through handling/treatment.</p> <p>Monitoring of the soil treatment activity since the commencement of treatment in 2018 has demonstrated that the waste acceptance provisions have been entirely effective in preventing airborne asbestos fibres being elevated above the permit thresholds.</p> <p><b>Limiting the drop height of material</b></p> <p>The conveyor belt is used on the screener will be set at the lowest height level to limit the drop height of material after screener. The deposit point from the picking station is used as one of the monitoring points to ensure the method does not result in asbestos fibres emissions.</p> <p><b>Containment within enclosed building</b></p> <p>The mechanical screener will be operated within an enclosed building with all emissions abated via a HEPA filter. Please see Section 14.d regarding the enclosed building and air abatement system.</p> <p>The Operator conducts and will conduct monitoring of the processes for asbestos fibres and PM10. Details of the monitoring is provided in Table 4.</p>

	<b>Technique</b>	<b>Description</b>	<b>Applicability</b>	<b>BAT Assessment</b>
b	selection and use of high-integrity equipment	<p>This includes techniques such as:</p> <ul style="list-style-type: none"> <li>• valves with double packing seals or equally efficient equipment;</li> <li>• high-integrity gaskets (such as spiral wound, ring joints) for critical applications;</li> <li>• pumps/compressors/agitators fitted with mechanical seals instead of packing;</li> <li>• magnetically driven pumps/compressors/agitators;</li> <li>• appropriate service hose access ports, piercing pliers, drill heads, e.g., when degassing WEEE containing VFCs and/or VHCs.</li> </ul>	applicability may be restricted in the case of existing plants due to operability requirements.	The air abatement system comprising the extraction hoods, extraction ductwork and HEPA filter is to be installed and commissioned by approved subcontractor to the appropriate quality standards. All equipment and ductwork are subject to regular inspections in accordance with the manufacturer’s recommendations. All equipment and ductwork will be operated in accordance with BS EN 15727:2010 or equivalent.
c	corrosion prevention	<p>This includes techniques such as:</p> <ul style="list-style-type: none"> <li>• appropriate selection of construction materials;</li> <li>• lining or coating of equipment and painting of pipes with corrosion inhibitors.</li> </ul>	General applicability	The air abatement system comprising the extraction hoods, extraction ductwork and HEPA filter is to be installed and commissioned by an approved subcontractor. All equipment and ductwork will be operated in accordance with BS EN 15727:2010 or equivalent. The extraction hoods and ductwork will be fabricated from galvanised steel which resists corrosion and has durability and longevity.
d	Containment, collection, and treatment of diffuse emissions	<p>This includes techniques such as:</p> <ul style="list-style-type: none"> <li>• storing, treating, and handling waste and material that may generate diffuse emissions in enclosed buildings and/or enclosed equipment (e.g., conveyor belts);</li> <li>• maintaining the enclosed equipment or buildings under an adequate pressure;</li> <li>• collecting and directing the emissions to an appropriate abatement system (see Section 6.6.1) via an air extraction</li> </ul>	The use of enclosed equipment or buildings may be restricted by safety considerations such as the risk of explosion or oxygen depletion. The	<p>The Operator proposes to operate the mechanical screener in an enclosed Soil Treatment Building with any diffuse emissions abated from the building via HEPA filter.</p> <p>To achieve enclosure of the screening operation it is proposed to install doors to the existing entrances to the building, which would be closed during screening operations, and for air from within the building to be directed to an active abatement system fitted with a HEPA filter. The HEPA filter will vent externally from the building to the outside air.</p>

	Technique	Description	Applicability	BAT Assessment
		system and/or air suction systems close to the emission sources.	use of enclosed equipment or buildings may also be constrained by the volume of waste.	<p>The building comprises a steel portal frame supported by reinforced steel joists with cladding and lower-level external concrete walls. Within the concrete walls there are two defined entrances for mobile plant and soil inputs.</p> <p>The two entrances are the main openings to the building and facilitate the majority of passive ventilation and air flow. The main ventilation through the entrances to the building near to the soil processing plant will therefore be contained during soil screening operations to minimise passive air transfer.</p> <p>To ensure containment of diffuse emissions generated during the soil processing, there is a requirement to ensure extraction directly around the soil screener and picking station and for the collected air to be directed to a HEPA filter. This will ensure the removal of particulates prior to discharge as a point source emission via a HEPA Filter. Extraction hoods and associated dust extraction pipework are to be installed within the Soil Treatment Building to effectively extract the air including any diffuse emissions with all air abated via the HEPA filter.</p> <p>The existing layout and proposed air abatement system are shown on drawing entitled “Proposed Extraction and HEPA system” dated 06/10/22.</p> <p>To reduce passive ventilation, and potential short circuiting of the extraction system during screening operations, the two entrances will be fitted with quick closing AD95 Rapid Roll doors. These provide opening speeds of up to 2000mm per second (dependent on door size and motor) and closing of 500mm per second. The door openings are 6m in height and therefore from being fully open in 3 seconds would then be fully closed in 12 seconds.</p> <p>Monitoring is to be undertaken in the building and of the HEPA filter as stated in Table 4.</p>
e	Dampening	Dampening potential sources of diffuse dust emissions (e.g., waste storage, traffic areas, and open handling processes) with water or fog	General applicability	A permanently installed dust suppression system is present in the Soil Treatment Building and can be operated when required. Surfactant is added to the suppression system as a precautionary measure in the unlikely event of amphibole asbestos fibres being present (Amphibole fibres are hydrophobic (unlike chrysotile fibres) and

	Technique	Description	Applicability	BAT Assessment
				<p>this makes the fibres more difficult to remove from airborne suspension or likewise immobilise them on soil surfaces with water alone). In addition to the installed dust suppression system there are mobile atomisers and dust cannons.</p> <p>Dust suppression of stockpiles is proposed prior to screening.</p>
f	maintenance	<p>This includes techniques such as:</p> <ul style="list-style-type: none"> <li>ensuring access to potentially leaky equipment;</li> <li>regularly controlling protective equipment such as lamellar curtains, fast-action doors.</li> </ul>	General applicability	<p>The Sites Management System contains maintenance procedures for all mobile and fixed plant, infrastructure, and equipment. The screener will be subject to maintenance in accordance with manufacturer’s instructions. Visual inspections of the condition of the plant are proposed on a daily basis.</p> <p>The air abatement system on installation will be tested for reduced performance. Flow rates within the air extraction system will be measured weekly by the monitoring technician on site to check for potential blockages in the HEPA filter or if a filter change is required. Cat B trained asbestos operatives will undertake the HEPA filter change under a safe system of work. Spent filters will be double bagged and put into the on site lockable asbestos skip.</p> <p>Routine checks are undertaken as standard on the mist system and surfactant addition rates to ensure compliance with the suppliers’ instructions. This is undertaken during weekly equipment checks.</p> <p>The two entrances to the Soil Treatment Facility will be fitted with quick closing doors as detailed in 14 d above.</p>
g	Cleaning of waste treatment and storage areas	This includes techniques such as regularly cleaning the whole waste treatment area (halls, traffic areas, storage areas, etc.), conveyor belts, equipment, and containers.	General applicability	<p>The Soil Treatment Building in which the screen will operate is maintained with daily housekeeping. Areas are emptied of treated soil as soon as validation results are obtained to allow reuse elsewhere on site.</p> <p>The screener, conveyor belt and associated plant are cleaned as required when accumulations of cohesive soils are observed on the screener decks during the working day.</p>

	Technique	Description	Applicability	BAT Assessment
h	Leak detection and repair (LDAR) programme	See Section 6.6.2. When emissions of organic compounds are expected, a LDAR programme is set up and implemented using a risk-based approach, considering in particular the design of the plant and the amount and nature of the organic compounds concerned.	N/A	This is not applicable. However, equipment and ductwork are subject to regular inspections in accordance with the manufacturer's recommendations and repairs made as necessary.

BAT 14d is assessed further below with reference to the requirement for *collecting and directing the emissions to an appropriate abatement system (see Section 6.6.1) via an air extraction system and/or air suction systems close to the emission sources*. Only techniques for abating dust have been considered in Table 2 below. BAT 25 excludes the HEPA filter requirement and as pre-operational condition 1 requires an active abatement system with a HEPA filter or other suitable design consideration has been given to applicable abatement for dust as detailed in Section 6.1.

No BAT is provided for abatement of asbestos fibres in air. A precautionary approach has been undertaken by the Operator in assessing the suitability of the abatement systems to be applied with regards to the nature and scale of the activities to be undertaken i.e., mechanical screening of soils containing asbestos, the emissions to be abated i.e., asbestos fibres and dust. The assessment is provided in Table 2.

**Table 2 – BAT assessment for abatement system – Section 6.1**

Technique	Pollutant(s) abated	Description	Suitability
Cyclone	Dust	Cyclone filters are used to remove heavier particulates, which 'fall out' as the waste gases are forced into a rotating motion before they leave the separator. Cyclones are used to control particulate material, primarily PM10.	As cyclones are mainly used as preliminary separators for coarse dust such as PM10 it was not considered appropriate abatement.
Electrostatic precipitators (ESP)	Dust	Electrostatic precipitators operate such that particles are charged and separated under the influence of an electrical field. Electrostatic precipitators are capable of operating under a wide range of conditions. In a dry ESP, the collected material is mechanically removed (e.g., by shaking, vibration, compressed air), while in a wet ESP it is flushed with a suitable liquid, usually water.	Electrostatic precipitators trap fine particulate matter in applications where a large amount of gas needs treatment and where a wet scrubber is not appropriate. This is usually for flue glasses. Due to the characteristic of the air to be abated which may contain asbestos fibres, wet scrubbing was not considered to be appropriate nor required.

Fabric filter	Dust	Fabric filters, often referred to as bag filters, are constructed from porous woven or felted fabric through which gases are passed to remove particles. The use of a fabric filter requires the selection of a fabric suitable for the characteristics of the waste gas and the maximum operating temperature.	Due to the characteristic of the air to be abated which may contain asbestos fibres, the fabric filter was not considered to be suitable as it does not provide as sufficient abatement/removal rate as other abatement options. As it is not considered there is a large amount of particulates that will require filtering out and due to the size of the asbestos fibres it is considered that a fabric filter would not be a suitable other design to the requirement for a HEPA filter.
HEPA filter	Dust	HEPA filters (high-efficiency particle air filters) are absolute filters. The filter medium consists of paper or matted glass fibre with a high packing density. The waste gas stream is passed through the filter medium, where particulate matter is collected.	Due to the emissions from the screening process potentially containing asbestos fibres the use of a HEPA filter to abate the emissions from the active extraction system, to be installed within the Soil Treatment Building, was considered the most appropriate option as it is an absolute filter and filters out smaller particulates, including asbestos fibres. Pre-operational condition 1 states that air must be abated via a HEPA filter or other suitable design. The Operator proposes the installation of a HEPA filter to effectively abate any emissions from the Soil Treatment Building. A HEPA filter can provide removal rates up to 99.9% and therefore it is considered the most efficient air abatement option.
Wet scrubbing	Dust, volatile organic compounds, gaseous acidic compounds (alkaline scrubber), gaseous alkaline compounds (acid scrubber)	The removal of gaseous or particulate pollutants from a gas stream via mass transfer to a liquid solvent, often water or an aqueous solution. It may involve a chemical reaction (e.g., in an acid or alkaline scrubber). In some cases, the compounds may be recovered from the solvent.	Due to the characteristic of the air to be abated, which would be limited to particulates and potential asbestos fibres, wet scrubbing was not considered to be appropriate nor required.

**Proposed commissioning, operational and maintenance procedures**

Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on Site are provided in Table 3.

**Table 3. Commissioning, Operation and Maintenance Checks**

Activity	Measures Employed	Emissions
Commissioning	<ul style="list-style-type: none"> <li>• Screener will be located within the building</li> <li>• HEPA filter and extraction ductwork to be installed and commissioned by approved subcontractor.</li> <li>• Full details of the air abatement system and HEPA filter will be submitted to the Agency on installation.</li> <li>• Undertake air sampling for first five days of operation at HEPA discharge point for dust and PM10</li> <li>• Daily air monitoring for asbestos fibres within Soil Treatment Building during operation of soil screening at the locations shown on the “Proposed Extraction and HEPA system” for first four weeks to confirm baseline level is generally maintained &lt;0.0005 fibres/ml as monitored previously.</li> </ul>	Below compliance criteria of 0.01 fibres/ml and generally below a target level <0.0005 fibres/ml.
Operational	<ul style="list-style-type: none"> <li>• Standard plant equipment checks in accordance with suppliers’ instructions</li> <li>• Ensure that dust suppression measures are employed at all times</li> <li>• Daily air monitoring for asbestos fibres within Soil Treatment Building during operation of soil screening at the locations shown on the “Proposed Extraction and HEPA system” to confirm atmosphere &lt;0.01 fibres/ml or below at all times as required by Table S3.3 of the Permit.</li> <li>• Quarterly air monitoring of asbestos fibres to confirm levels are also generally below the design target limit of &lt;0.0005 fibres/ml</li> <li>• Weekly PM10 and dust monitoring at HEPA filter exhaust location using light-scattering optical particle counter (nephelometer)</li> </ul>	Below daily compliance criteria of 0.01 fibres/ml and quarterly trigger level of <0.0005f/ml
Maintenance	<ul style="list-style-type: none"> <li>• Operatives servicing the equipment to wear the same level of PPE as asbestos removal operatives and access and exit the site via the approved decontamination system</li> <li>• Weekly checks on the mist system and surfactant addition rates to ensure in alignment with suppliers’ instructions</li> <li>• Whilst the screener would be permanent on site, if the soil screening plant is required to be removed, then decontamination by wet washing will be implemented in accordance with HSE guidance. No use of dry brushing or methods that could liberate any bound asbestos debris will be allowed</li> <li>• Daily air monitoring of asbestos fibres during decontamination works in accordance with Table S3.3 of the Permit</li> </ul>	Below compliance criteria of 0.01 fibres/ml.

Details of monitoring checks, audits, and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed are included in Table 4.

**Table 4. Monitoring, Audits and Emergency Procedures – BAT 8**

Activity	Measures Employed															
Monitoring	Asbestos fibre monitoring is to continue as per the permit requirements as detailed below.															
	<p><b>Permit Table S3.3 Process monitoring requirements extract (excluding bold text)</b></p> <table border="1" data-bbox="264 456 1477 1529"> <thead> <tr> <th data-bbox="264 456 608 551">Emission point reference or source or description of point of measurement</th> <th data-bbox="611 456 751 551">Parameter</th> <th data-bbox="754 456 1007 551">Limit</th> <th data-bbox="1010 456 1182 551">Monitoring frequency</th> <th data-bbox="1185 456 1477 551">Monitoring standard or method</th> </tr> </thead> <tbody> <tr> <td data-bbox="264 555 608 1037">                     Air testing within the building for the duration of the asbestos handpicking works and, once pre-operational condition 1 has been given written permissions, at all times when the mechanical screening of waste soil is taking place.   <b>[Sampling points ASB1-4 are shown on the Drawing entitled “Proposed Extraction and HEPA system” dated 06/10/22]</b> </td> <td data-bbox="611 555 751 1037">Asbestos fibres</td> <td data-bbox="754 555 1007 1037">                     0.01 fibres/ml                       Where total fibre concentration exceeds 0.01 fibres/ml in any sample, that sample must be submitted for electron microscopy to confirm the concentration of asbestos fibres present                 </td> <td data-bbox="1010 555 1182 1037">                     During the asbestos hand picking works 1 hour at 8 l/min   <b>[This will also be applicable to the mechanical screener]</b> </td> <td data-bbox="1185 555 1477 1037">                     In line with M17 monitoring guidance While asbestos is being treated.                     <ul style="list-style-type: none"> <li>• Pumped sampling</li> <li>• 1m above ground level</li> <li>• Flow rate = 8 litres/minute</li> <li>• Minimum sample volume = 480 litres</li> <li>• Filter pore size = 0.8-1.2µm</li> </ul>                     Asbestos fibre limit of detection = 0.001 fibres/ml                 </td> </tr> <tr> <td data-bbox="264 1041 608 1529">                     Outside air testing when asbestos contaminated soils are being received, handled and moved within the site                       Outside Sampling points as detailed in drawing no.100993 –Asbestos DWG3/Rev1 dated October 2020.                 </td> <td data-bbox="611 1041 751 1529">Asbestos fibres</td> <td data-bbox="754 1041 1007 1529">                     0.02 fibres/ml                       Where total fibre concentration exceeds 0.01 fibres/ml in any sample, that sample must be submitted for electron microscopy to confirm the concentration of asbestos fibres present                 </td> <td data-bbox="1010 1041 1182 1529">                     During receipt, handling and movement of asbestos contaminated soil within the site 1 hour at 8 l/min or other agreed period in writing.                 </td> <td data-bbox="1185 1041 1477 1529">                     In line with M17 monitoring guidance While asbestos is being treated.                     <ul style="list-style-type: none"> <li>• Pumped sampling</li> <li>• 1m above ground level</li> <li>• Flow rate = 8 litres/minute</li> <li>• Minimum sample volume = 480 litres</li> <li>• Filter pore size = 0.8-1.2µm</li> </ul>                     Asbestos fibre limit of detection = 0.001 fibres/ml                 </td> </tr> </tbody> </table>	Emission point reference or source or description of point of measurement	Parameter	Limit	Monitoring frequency	Monitoring standard or method	Air testing within the building for the duration of the asbestos handpicking works and, once pre-operational condition 1 has been given written permissions, at all times when the mechanical screening of waste soil is taking place.  <b>[Sampling points ASB1-4 are shown on the Drawing entitled “Proposed Extraction and HEPA system” dated 06/10/22]</b>	Asbestos fibres	0.01 fibres/ml  Where total fibre concentration exceeds 0.01 fibres/ml in any sample, that sample must be submitted for electron microscopy to confirm the concentration of asbestos fibres present	During the asbestos hand picking works 1 hour at 8 l/min  <b>[This will also be applicable to the mechanical screener]</b>	In line with M17 monitoring guidance While asbestos is being treated. <ul style="list-style-type: none"> <li>• Pumped sampling</li> <li>• 1m above ground level</li> <li>• Flow rate = 8 litres/minute</li> <li>• Minimum sample volume = 480 litres</li> <li>• Filter pore size = 0.8-1.2µm</li> </ul> Asbestos fibre limit of detection = 0.001 fibres/ml	Outside air testing when asbestos contaminated soils are being received, handled and moved within the site  Outside Sampling points as detailed in drawing no.100993 –Asbestos DWG3/Rev1 dated October 2020.	Asbestos fibres	0.02 fibres/ml  Where total fibre concentration exceeds 0.01 fibres/ml in any sample, that sample must be submitted for electron microscopy to confirm the concentration of asbestos fibres present	During receipt, handling and movement of asbestos contaminated soil within the site 1 hour at 8 l/min or other agreed period in writing.	In line with M17 monitoring guidance While asbestos is being treated. <ul style="list-style-type: none"> <li>• Pumped sampling</li> <li>• 1m above ground level</li> <li>• Flow rate = 8 litres/minute</li> <li>• Minimum sample volume = 480 litres</li> <li>• Filter pore size = 0.8-1.2µm</li> </ul> Asbestos fibre limit of detection = 0.001 fibres/ml
	Emission point reference or source or description of point of measurement	Parameter	Limit	Monitoring frequency	Monitoring standard or method											
Air testing within the building for the duration of the asbestos handpicking works and, once pre-operational condition 1 has been given written permissions, at all times when the mechanical screening of waste soil is taking place.  <b>[Sampling points ASB1-4 are shown on the Drawing entitled “Proposed Extraction and HEPA system” dated 06/10/22]</b>	Asbestos fibres	0.01 fibres/ml  Where total fibre concentration exceeds 0.01 fibres/ml in any sample, that sample must be submitted for electron microscopy to confirm the concentration of asbestos fibres present	During the asbestos hand picking works 1 hour at 8 l/min  <b>[This will also be applicable to the mechanical screener]</b>	In line with M17 monitoring guidance While asbestos is being treated. <ul style="list-style-type: none"> <li>• Pumped sampling</li> <li>• 1m above ground level</li> <li>• Flow rate = 8 litres/minute</li> <li>• Minimum sample volume = 480 litres</li> <li>• Filter pore size = 0.8-1.2µm</li> </ul> Asbestos fibre limit of detection = 0.001 fibres/ml												
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Additional air monitoring for asbestos fibres is undertaken on a quarterly basis via scanning electro microscopy (SEM) to ensure baseline level of asbestos emissions to air is generally <0.0005 fibres/ml.																
In accordance with BAT 8. BAT is to monitor channelled emissions to air with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.																
PM10 and total dust to be monitored at the HEPA filter over a 1hr period weekly. The HEPA filter will be added to the monitoring requirements under Table S3.1 of the Permit as an additional Point source emission to air. Monitoring standards and methodology will be agreed with the Agency.																



<b>Table S3.1 Point source emissions to air - proposed HEPA Filter inclusion</b>						
<b>Proposed monitoring to be agreed.</b>						
<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A3 (HEPA filter)	HEPA filter	Asbestos Fibres	0.01 fibres/ml	Hourly mean	Weekly	As per M17 as described in the permit (Table s3.3) or modified version (air sample increase to 1,440l) to allow for <0.0005f/ml detection limit
		Dust	2-5mg/Nm <sup>3</sup>	Hourly mean	Weekly	Light-scattering optical particle counter (nephelometer).
		PM10	250µg/Nm <sup>3</sup>	Hourly mean	Weekly	Light-scattering optical particle counter (nephelometer).
Monitoring of the point source emission to air from the HEPA filter will be incorporated into the Permit into Table S3.1.						
Audits	The site is subject to regular audits by FCC quality staff to ensure that the works are implemented in accordance with accredited quality systems on site, the environmental permit and site-specific risk assessments and method statements. A quarterly review of all data is reviewed by the compliance section of FCC as part of their permit reporting requirements.					
Emergency Procedures	<p>If any limits of dust, PM10 or asbestos fibres are breached all operations Stop – conduct urgent review of Asbestos Risk Assessment and Asbestos Plan of Work.</p> <ul style="list-style-type: none"> <li>• Conduct review of wind direction for potential off-site contributory factors.</li> <li>• Conduct comprehensive review of all input materials.</li> <li>• Conduct comprehensive operational checks on fugitive dust controls.</li> <li>• Submit retained sample filter(s) for urgent SEM-EDXA analysis.</li> <li>• No commencement of operations until a safe system of work is established</li> <li>• Implement any regulatory reporting required by the environmental permit</li> </ul>					

In summary, the Operator proposes the following controls for monitoring and managing the process which meet BAT:

- Strict waste acceptance procedures to ensure Asbestos soils limited to <0.1%v/v for free chrysotile fibrous asbestos and <0.01%w/w other forms or mixed forms of fibrous asbestos (below the hazardous waste threshold of >0.1%v/v)
- Infrastructure with the ability to modify soil moisture content to ensure >15% prior to treatment

- Dust suppression systems employed around mechanical screen within enclosed Soil Treatment Building with additional surfactant added and mobile dust suppression units available
- Mechanical soil screening operation in enclosed Soil Treatment Building with rapid roll doors
- Air abatement system comprising extraction hoods and associated pipework with all air abated via a HEPA filter.
- Comprehensive monitoring of air for asbestos fibres comprising:
  - Daily asbestos monitoring via phase contrast microscopy (PCM) with a detection limit of 0.01 f/ml. PCM is the analytical choice for occupational monitoring of asbestos. Where occluded slides occur from mobile plant emissions, scanning electron microscopy (SEM) will be employed as an alternative
  - Quarterly asbestos monitoring via scanning electron microscopy (SEM) to quantify asbestos in air which has a target level of <0.0005 f/ml.

Weekly monitoring of HEPA filter for PM10 and dust over a 1hr period weekly. Asbestos fibres will be monitored as specified in the permit rather than at the HEPA filter as this is already at the maximum amount for an asbestos analyst working to specified UKAS limits on asbestos counts per day.

It is considered the commissioning, operational, maintenance, abatement and monitoring procedures proposed for the operation of the mechanical screener for the pre-screening of asbestos contaminated soils meets BAT and therefore meets the requirements of the pre-operational condition. The contents of this letter are therefore considered sufficient to discharge pre-operational condition 1 and allow the pre-screening of asbestos contaminated soils by a mechanical screener at the ERQ Soil Treatment Facility.

Yours sincerely  
For ByrneLooby,



Claire Finney BSc MSc AssocMCIWM  
**Principal Consultant**

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CD9/1/C

Email 11

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## Tom Roberts

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**From:** Price, Russell <russell.price@environment-agency.gov.uk>  
**Sent:** 16 December 2022 15:25  
**To:** Nicholson, Matthew  
**Cc:** Cheetham, Mark; Smith, Mark; Duley, Surjit; Jon Owens; Storer, Iain  
**Subject:** RE: ERQ STC Pre-op condition 1  
**Attachments:** HP3632RP-0445331.pdf

Good Afternoon Matthew

Please see attached response around pre-op condition 1 of permit HP3632RP for the soils treatment centre at Edwin Richards Quarry.

Kind Regards

**Russell Price**

**EPR Installations  
West Midlands Area**

**Environment Agency** | Sentinel House, Wellington Crescent, Fradley park, Lichfield, WS13 8RR

**Contact | 07802533895** | [www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)



**Incident Hotline: 0800 80 70 60 Customer Enquiries: 03708 506 506**

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**From:** Nicholson, Matthew <Mat.Nicholson@fccenvironment.co.uk>  
**Sent:** 11 November 2022 17:37  
**To:** Storer, Iain <iain.storer@environment-agency.gov.uk>  
**Cc:** Price, Russell <russell.price@environment-agency.gov.uk>; Cheetham, Mark <Mark.Cheetham@fccenvironment.co.uk>; Smith, Mark <MarkA.Smith@fccenvironment.co.uk>; Duley, Surjit <surjit.duley@fccenvironment.co.uk>; Jon Owens <Jon.Owens@provectusgroup.com>  
**Subject:** ERQ STC Pre-op condition 1

Some people who received this message don't often get email from [mat.nicholson@fccenvironment.co.uk](mailto:mat.nicholson@fccenvironment.co.uk). [Learn why this is important](#)

Please see attached a revised submission to discharge pre-operational condition 1 of permit HP3632RP for the soils treatment centre at Edwin Richards Quarry.

If you have any queries regarding the attached please do not hesitate to contact me.

Kind regards

Mat

**Mat Nicholson – Planning and Permitting Manager (South)**

Head Office: 01302 303030 | Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)

FCC Environment, 3 Sidings Court, White Rose Way, Doncaster. DN4 5NU | <http://www.fccenvironment.co.uk/>



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CD9/1/C

Email 11 attachment  
EPR Compliance Assessment Report  
Report ID: HP3632RP/0445331

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**This form will report compliance with your permit as determined by an Environment Agency officer**

Site	ERQ - STC, EPR/HP3632RP/V003		Permit Ref	HP3632RP	
Operator/ Permit holder	Waste Recycling group (Central) Ltd				
Date	16/12/2022	Time in		Out	
What parts of the permit were assessed	Review of submission for pre-operational condition 1				
Assessment	Procedure review	EPR Activity:	Installation <input checked="" type="checkbox"/>	Waste Op <input type="checkbox"/>	Water Discharge <input type="checkbox"/>
Recipient's name/position	Mat Nicholson - Planning & Permitting Manager				
Officer's name	Russell Price		Date issued	16/12/2022	

**Section 1 - Compliance Assessment Summary**

This is based on the requirements of the permit under the Environmental Permitting Regulations (EPR). A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our [Compliance Classification Scheme](#) (CCS). CCS scores can be consolidated or suspended, where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your [local office](#).

Permit Conditions and Compliance Summary			Condition(s) breached
a) Permitted activities	1. Specified by permit	A	
b) Infrastructure	1. Engineering for prevention & control of pollution	N	
	2. Closure & decommissioning	N	
	3. Site drainage engineering (clean & foul)	N	
	4. Containment of stored materials	N	
	5. Plant and equipment	N	
c) General management	1. Staff competency/ training	N	
	2. Management system & operating procedures	N	
	3. Materials acceptance	N	
	4. Storage handling, labelling, segregation	N	
d) Incident management	1. Site security	N	
	2. Accident, emergency & incident planning	N	
e) Emissions	1. Air	N	
	2. Land & Groundwater	N	
	3. Surface water	N	
	4. Sewer	N	
	5. Waste	N	
f) Amenity	1. Odour	N	
	2. Noise	N	
	3. Dust/fibres/particulates & litter	N	
	4. Pests, birds & scavengers	N	
	5. Deposits on road	N	
g) Monitoring and records, maintenance and reporting	1. Monitoring of emissions & environment	N	
	2. Records of activity, site diary, journal & events	N	
	3. Maintenance records	N	
	4. Reporting & notification	N	
h) Resource efficiency	1. Efficient use of raw materials	N	
	2. Energy	N	

**KEY: C1, C2, C3, C4 = CCS breach category ( \* suspended scores are marked with an asterisk),**  
**A = Assessed (no evidence of non-compliance), N = Not assessed, NA = Not Applicable, O = Ongoing non-compliance – not scored**  
**MSA, MSB, TCM = Management System condition A, Management System Condition B and Technically Competent Manager condition which are environmental permit conditions from Part 3 of schedule9 EPR (see notes in Section 5/6).**

<b>Number of breaches recorded</b>	0	<b>Total compliance score</b> (see section 5 for scoring scheme)	0
If the Total No Breaches is greater than zero, then please see Section 3 for details of our proposed enforcement response			

## Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- the part(s) of the permit that were assessed (e.g. maintenance, training, combustion plant, etc)
- where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- any non-compliances identified
- any non-compliances with directly applicable legislation
- details of any multiple non-compliances
- information on the compliance score accrued inc. details of suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

This report should be clear, comprehensive, unambiguous and normally completed within 14 days of an assessment.

The permit for WRG issued in June 2021 allows the mechanical treatment by screening of soils containing identifiable pieces of bonded asbestos with the proviso that pre-operational condition 1 is fulfilled. The condition requirement is set out below:

### **Table S1.3 Pre-operational measures**

*1 Prior to the use of the mechanical screener for the pre-screening of asbestos contaminated soils under activity reference AR2 a report shall be submitted for written permission detailing the following aspects:*

- *Evidence to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design.*
- *Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on site.*
- *Details of monitoring checks, audits and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed.*
- 

*No mechanical pre-screening of asbestos contaminated soils under activity reference AR2 shall commence unless the Environment Agency has given prior written permission under this condition.*

The requirement is clear that the mechanical screener must be fully enclosed.

The operator recently brought unenclosed mobile plant onto site to show that mechanically screening soil impacted by asbestos cement does not emit asbestos fibres into the atmosphere. This mobile plant was stopped from operating in their building by the inspectors (Clive Wall and Russell Price). It is not clear how you could viably have been able to monitor for the asbestos fibres from an unenclosed system.

The operator now indicates that:

- since there are no fibrous asbestos emissions from an unenclosed treatment process which was shown by the mobile plant testing (the evidence of this testing is not included in the attached document)
- the mechanical treatment is in a building which can be enclosed and is abated via extraction hoods to a HEPA filter
- they will test the ambient air for asbestos fibres

this fulfils the pre-operational measure.

There are several issues here:



- the requirement of the pre-operational measure is not to provide alternatives to fully enclosing the screener it is **“to demonstrate that the mechanical screener is fully enclosed”**. Without full enclosure the pre-operational condition cannot be fulfilled.
- even if we accept the enclosure of the building as an alternative to full enclosure, the permit does not include the proposed emission point.
- there are no criteria in Table S3.1 for dust or asbestos emissions point source emissions to air which must be included in any fit-for-purpose permit. The dust emission must be controlled at the point source using a BAT-AEL of (at most) 5 mg/m<sup>3</sup> in accordance with BAT 25. The asbestos emission must also be controlled.

I am not minded to accept that the mechanical screening of soils impacted with asbestos cement will not emit asbestos fibres – their testing using mobile plant did not use an enclosed screener and the results of ambient air monitoring is not as rigorous as that from a point source. It is not clear how impacted the soils tested were with pieces of cement sheet, nor that this represents the worst case.

The purpose of the soil screening is to remove over-sized material from the soil to make picking of asbestos cement easier. The mechanical treatment to separate out over-sized material presents a risk of asbestos fibre release from the asbestos cement pieces that are present in the matrix.

In order for you to use the screener in the way that you have indicated, that is an unenclosed screener used in an enclosed building, you will have to apply to vary the existing permit. There is no alternative mechanism for you to proceed with screening using the existing permit.

I am not persuaded that the risk of asbestos fibre release is entirely mitigated especially with the presence of over-size materials in the soil.

In conclusion I am not satisfied that pre-operational condition 1 has been complied with and confirm that no mechanical screening of asbestos contaminated material should take place, including the use of mobile plant.

### Section 3- Enforcement Response

Only one of the boxes below should be ticked

You must take immediate action to rectify any non-compliance and prevent repetition.

Non-compliance with your permit conditions constitutes an offence\* and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

*\*Non-compliance with MSA, MSB & TCM do not constitute an offence but can result in the service of a compliance, suspension and/or revocation notice.*

Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.

In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.

We will now consider what enforcement action is appropriate and notify you, referencing this form.

### Section 4- Action(s)

Where non-compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.

Criteria Ref.	CCS Category	Action Required / Advised	Due Date
---------------	--------------	---------------------------	----------

See Section 1 above			

## Section 5 - Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- advise on corrective actions verbally or in writing
- require you to take specific actions in writing
- issue a notice
- require you to review your procedures or management system
- change some of the conditions of your permit
- decide to undertake a full review of your permit

Any breach of a permit condition is an offence\* and we may take legal action against you.

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and or suspension or revocation of the permit.
- A civil sanction Enforcement Undertaking (EU) offer may also be available to you as an alternative enforcement response for this/these offence(s).

### See our Enforcement and Civil Sanctions guidance for further information

*\*A breach of permit condition **MSA**, **MSB** & **TCM** is not an offence but may result in the service of a notice requiring compliance and/or suspension or revocation of the permit.*

This report does not relieve the site operator of the responsibility to

- ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- ensure you comply with other legislative provisions which may apply.

### Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance which could have a <b>major</b> environmental effect	60
C2	A non-compliance which could have a <b>significant</b> environmental effect	31
C3	A non-compliance which could have a <b>minor</b> environmental effect	4
C4	A non-compliance which has <b>no</b> potential environmental effect	0.1

**Operational Risk Appraisal (Opra)** - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

#### MSA, MSB & TCM are conditions inserted into certain permits by Schedule 9 Part 3 EPR

**MSA** requires operators to manage and operate in accordance with a written management system that identifies and minimises risks of pollution.

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- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law and taking any resulting action
- preventing breaches of environmental law
- assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Information Regulations request.

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CD9/1/C

Email 12

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## Tom Roberts

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**From:** Nicholson, Matthew <Mat.Nicholson@fccenvironment.co.uk>  
**Sent:** 21 December 2022 16:07  
**To:** Price, Russell  
**Cc:** Cheetham, Mark; Smith, Mark; Duley, Surjit; Jon Owens; Storer, Iain  
**Subject:** RE: ERQ STC Pre-op condition 1  
**Attachments:** HP3632RP-0445331.pdf

Good afternoon Russell

Further to your attached response on our submission under Pre-op condition 1 and our conversation on Tuesday this week we provide further comments against the points you have raised (presented in italics) as follows:

*The requirement of the pre-operational measure is not to provide alternatives to fully enclosing the screener it is **“to demonstrate that the mechanical screener is fully enclosed”**. Without full enclosure the pre-operational condition cannot be fulfilled.*

As we discussed through the submissions made under this pre-op condition 1 we have advised that to our knowledge there is not a ‘fully enclosed’ mechanical screener available on the market and as such the wording of the condition, if interpreted as it has been above, is practically impossible to comply with. Our pre-op submission has been made on the basis of trying to comply with the aims of the condition whilst balancing this against what is practically achievable, available in the marketplace and possible to deliver and safely operate. If the EA are aware of a manufacture of ‘fully enclosed’ screens that would satisfy the condition wording we would appreciate being provided with this.

*Even if we accept the enclosure of the building as an alternative to full enclosure, the permit does not include the proposed emission point.*

Your point regarding the need to introduce a new point source emission to the permit is noted, although the observation underlines the difficulties in complying with the EAs pre-op condition wording as clearly the pre-op condition intended there to be a point source emission as the wording requires an active abatement system directed to a HEPA filter. This simply serves to illustrate that the pre-operational condition as worded could not be complied with without a further permit variation. This is not a situation of our making but rather due to the wording of the condition that the EA have put on the permit.

Noting the above contrary position created by the condition wording we consider that the EA could agree the principles of what is proposed subject to the proposals, emissions points and limits being incorporated via a permit variation, and that whilst that variation was being determined to allow the activity to operate in accordance with the ‘agreed in principle’ measures under a local enforcement position. This would seem a pragmatic solution to dealing with the contradictions caused by EA’s permit condition wording.

*There are no criteria in Table S3.1 for dust or asbestos emissions point source emissions to air which must be included in any fit-for-purpose permit. The dust emission must be controlled at the point source using a BAT-AEL of (at most) 5 mg/m<sup>3</sup> in accordance with BAT 25. The asbestos emission must also be controlled.*

To comply with the pre-op condition we included proposed limits within the pre-operational submission. As outlined above we consider it is the EA’s pre-operational condition wording that has caused this contrary position and that the solution is as suggested above.

We have made submissions in an effort to discharge the pre-operational condition as we need to start operating the activity and the delays are having a negative impact on site operations. From the responses received so far it unfortunately appears that what the EA are requesting is practically unachievable. We have requested to discuss this further with your technical specialists and would still appreciate the opportunity to discuss the practicalities of complying with the condition wording.

Please do not hesitate to contact me if you wish to discuss further and/or set up a meeting.

Kind regards

Mat

**Mat Nicholson – Planning and Permitting Manager (South)**

Head Office: 01302 303030 | Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)

FCC Environment, 3 Sidings Court, White Rose Way, Doncaster. DN4 5NU | <http://www.fccenvironment.co.uk/>



---

**From:** Price, Russell <[russell.price@environment-agency.gov.uk](mailto:russell.price@environment-agency.gov.uk)>

**Sent:** 16 December 2022 15:25

**To:** Nicholson, Matthew <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>

**Cc:** Cheetham, Mark <[Mark.Cheetham@fccenvironment.co.uk](mailto:Mark.Cheetham@fccenvironment.co.uk)>; Smith, Mark <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>; Duley, Surjit <[surjit.duley@fccenvironment.co.uk](mailto:surjit.duley@fccenvironment.co.uk)>; Jon Owens <[Jon.Owens@provectusgroup.com](mailto:Jon.Owens@provectusgroup.com)>; Storer, Iain <[iain.storer@environment-agency.gov.uk](mailto:iain.storer@environment-agency.gov.uk)>

**Subject:** RE: ERQ STC Pre-op condition 1

Good Afternoon Matthew

Please see attached response around pre-op condition 1 of permit HP3632RP for the soils treatment centre at Edwin Richards Quarry.

Kind Regards

**Russell Price**

**EPR Installations  
West Midlands Area**

**Environment Agency** | Sentinel House, Wellington Crescent, Fradley park, Lichfield, WS13 8RR

**Contact** | 07802533895 | [www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)



**Incident Hotline: 0800 80 70 60 Customer Enquiries: 03708 506 506**

---

**From:** Nicholson, Matthew <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>

**Sent:** 11 November 2022 17:37

**To:** Storer, Iain <[iain.storer@environment-agency.gov.uk](mailto:iain.storer@environment-agency.gov.uk)>

Cc: Price, Russell <[russell.price@environment-agency.gov.uk](mailto:russell.price@environment-agency.gov.uk)>; Cheetham, Mark <[Mark.Cheetham@fccenvironment.co.uk](mailto:Mark.Cheetham@fccenvironment.co.uk)>; Smith, Mark <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>; Duley, Surjit <[surjit.duley@fccenvironment.co.uk](mailto:surjit.duley@fccenvironment.co.uk)>; Jon Owens <[Jon.Owens@provectusgroup.com](mailto:Jon.Owens@provectusgroup.com)>  
Subject: ERQ STC Pre-op condition 1

Some people who received this message don't often get email from [mat.nicholson@fccenvironment.co.uk](mailto:mat.nicholson@fccenvironment.co.uk). [Learn why this is important](#)

Please see attached a revised submission to discharge pre-operational condition 1 of permit HP3632RP for the soils treatment centre at Edwin Richards Quarry.

If you have any queries regarding the attached please do not hesitate to contact me.

Kind regards

Mat

**Mat Nicholson – Planning and Permitting Manager (South)**

Head Office: 01302 303030 | Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)  
FCC Environment, 3 Sidings Court, White Rose Way, Doncaster. DN4 5NU | <http://www.fccenvironment.co.uk/>



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CD9/1/C

Email 12 attachment  
EPR Compliance Assessment Report  
Report ID: HP3632RP/0445331

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**This form will report compliance with your permit as determined by an Environment Agency officer**

Site	ERQ - STC, EPR/HP3632RP/V003		Permit Ref	HP3632RP	
Operator/ Permit holder	Waste Recycling group (Central) Ltd				
Date	16/12/2022	Time in		Out	
What parts of the permit were assessed	Review of submission for pre-operational condition 1				
Assessment	Procedure review	EPR Activity:	Installation: X	Waste Op:	Water Discharge:
Recipient's name/position	Mat Nicholson - Planning & Permitting Manager				
Officer's name	Russell Price		Date issued	16/12/2022	

**Section 1 - Compliance Assessment Summary**

This is based on the requirements of the permit under the Environmental Permitting Regulations (EPR). A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our [Compliance Classification Scheme](#) (CCS). CCS scores can be consolidated or suspended, where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your [local office](#).

Permit Conditions and Compliance Summary			Condition(s) breached
a) Permitted activities	1. Specified by permit	A	
b) Infrastructure	1. Engineering for prevention & control of pollution	N	
	2. Closure & decommissioning	N	
	3. Site drainage engineering (clean & foul)	N	
	4. Containment of stored materials	N	
	5. Plant and equipment	N	
c) General management	1. Staff competency/ training	N	
	2. Management system & operating procedures	N	
	3. Materials acceptance	N	
	4. Storage handling, labelling, segregation	N	
d) Incident management	1. Site security	N	
	2. Accident, emergency & incident planning	N	
e) Emissions	1. Air	N	
	2. Land & Groundwater	N	
	3. Surface water	N	
	4. Sewer	N	
	5. Waste	N	
f) Amenity	1. Odour	N	
	2. Noise	N	
	3. Dust/fibres/particulates & litter	N	
	4. Pests, birds & scavengers	N	
	5. Deposits on road	N	
g) Monitoring and records, maintenance and reporting	1. Monitoring of emissions & environment	N	
	2. Records of activity, site diary, journal & events	N	
	3. Maintenance records	N	
	4. Reporting & notification	N	
h) Resource efficiency	1. Efficient use of raw materials	N	
	2. Energy	N	

**KEY: C1, C2, C3, C4 = CCS breach category ( \* suspended scores are marked with an asterisk),**  
**A = Assessed (no evidence of non-compliance), N = Not assessed, NA = Not Applicable, O = Ongoing non-compliance – not scored**  
**MSA, MSB, TCM = Management System condition A, Management System Condition B and Technically Competent Manager condition which are environmental permit conditions from Part 3 of schedule9 EPR (see notes in Section 5/6).**

<b>Number of breaches recorded</b>	0	<b>Total compliance score</b> (see section 5 for scoring scheme)	0
If the Total No Breaches is greater than zero, then please see Section 3 for details of our proposed enforcement response			

## Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- the part(s) of the permit that were assessed (e.g. maintenance, training, combustion plant, etc)
- where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- any non-compliances identified
- any non-compliances with directly applicable legislation
- details of any multiple non-compliances
- information on the compliance score accrued inc. details of suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

This report should be clear, comprehensive, unambiguous and normally completed within 14 days of an assessment.

The permit for WRG issued in June 2021 allows the mechanical treatment by screening of soils containing identifiable pieces of bonded asbestos with the proviso that pre-operational condition 1 is fulfilled. The condition requirement is set out below:

### **Table S1.3 Pre-operational measures**

*1 Prior to the use of the mechanical screener for the pre-screening of asbestos contaminated soils under activity reference AR2 a report shall be submitted for written permission detailing the following aspects:*

- *Evidence to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design.*
- *Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on site.*
- *Details of monitoring checks, audits and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed.*
- 

*No mechanical pre-screening of asbestos contaminated soils under activity reference AR2 shall commence unless the Environment Agency has given prior written permission under this condition.*

The requirement is clear that the mechanical screener must be fully enclosed.

The operator recently brought unenclosed mobile plant onto site to show that mechanically screening soil impacted by asbestos cement does not emit asbestos fibres into the atmosphere. This mobile plant was stopped from operating in their building by the inspectors (Clive Wall and Russell Price). It is not clear how you could viably have been able to monitor for the asbestos fibres from an unenclosed system.

The operator now indicates that:

- since there are no fibrous asbestos emissions from an unenclosed treatment process which was shown by the mobile plant testing (the evidence of this testing is not included in the attached document)
- the mechanical treatment is in a building which can be enclosed and is abated via extraction hoods to a HEPA filter
- they will test the ambient air for asbestos fibres

this fulfils the pre-operational measure.

There are several issues here:

- the requirement of the pre-operational measure is not to provide alternatives to fully enclosing the screener it is **“to demonstrate that the mechanical screener is fully enclosed”**. Without full enclosure the pre-operational condition cannot be fulfilled.
- even if we accept the enclosure of the building as an alternative to full enclosure, the permit does not include the proposed emission point.
- there are no criteria in Table S3.1 for dust or asbestos emissions point source emissions to air which must be included in any fit-for-purpose permit. The dust emission must be controlled at the point source using a BAT-AEL of (at most) 5 mg/m<sup>3</sup> in accordance with BAT 25. The asbestos emission must also be controlled.

I am not minded to accept that the mechanical screening of soils impacted with asbestos cement will not emit asbestos fibres – their testing using mobile plant did not use an enclosed screener and the results of ambient air monitoring is not as rigorous as that from a point source. It is not clear how impacted the soils tested were with pieces of cement sheet, nor that this represents the worst case.

The purpose of the soil screening is to remove over-sized material from the soil to make picking of asbestos cement easier. The mechanical treatment to separate out over-sized material presents a risk of asbestos fibre release from the asbestos cement pieces that are present in the matrix.

In order for you to use the screener in the way that you have indicated, that is an unenclosed screener used in an enclosed building, you will have to apply to vary the existing permit. There is no alternative mechanism for you to proceed with screening using the existing permit.

I am not persuaded that the risk of asbestos fibre release is entirely mitigated especially with the presence of over-size materials in the soil.

In conclusion I am not satisfied that pre-operational condition 1 has been complied with and confirm that no mechanical screening of asbestos contaminated material should take place, including the use of mobile plant.

### Section 3- Enforcement Response

Only one of the boxes below should be ticked

You must take immediate action to rectify any non-compliance and prevent repetition.

Non-compliance with your permit conditions constitutes an offence\* and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

*\*Non-compliance with MSA, MSB & TCM do not constitute an offence but can result in the service of a compliance, suspension and/or revocation notice.*

Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.	
--	--

In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.	
--	--

We will now consider what enforcement action is appropriate and notify you, referencing this form.	
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### Section 4- Action(s)

Where non-compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.

Criteria Ref.	CCS Category	Action Required / Advised	Due Date
---------------	--------------	---------------------------	----------

See Section 1 above			

## Section 5 - Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- advise on corrective actions verbally or in writing
- require you to take specific actions in writing
- issue a notice
- require you to review your procedures or management system
- change some of the conditions of your permit
- decide to undertake a full review of your permit

Any breach of a permit condition is an offence\* and we may take legal action against you.

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and or suspension or revocation of the permit.
- A civil sanction Enforcement Undertaking (EU) offer may also be available to you as an alternative enforcement response for this/these offence(s).

### See our Enforcement and Civil Sanctions guidance for further information

\*A breach of permit condition **MSA, MSB & TCM** is not an offence but may result in the service of a notice requiring compliance and/or suspension or revocation of the permit.

This report does not relieve the site operator of the responsibility to

- ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- ensure you comply with other legislative provisions which may apply.

### Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance which could have a <b>major</b> environmental effect	60
C2	A non-compliance which could have a <b>significant</b> environmental effect	31
C3	A non-compliance which could have a <b>minor</b> environmental effect	4
C4	A non-compliance which has <b>no</b> potential environmental effect	0.1

**Operational Risk Appraisal (Opra)** - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

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CD9/1/C

Email 13

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## Tom Roberts

---

**From:** Price, Russell <russell.price@environment-agency.gov.uk>  
**Sent:** 04 January 2023 15:55  
**To:** Nicholson, Matthew  
**Cc:** Storer, Iain  
**Subject:** RE: ERQ STC Pre-op condition 1

Mat,

Thank you for your comments, received by e-mail on 21 December 2022, in response to our review of your submission in respect of Pre-Operational Condition 1.

I have discussed the points you make with both our National and Area hazardous waste treatment sector leads and our position remains as follows:

The permit clearly states the requirement for enclosure of the treatment plant.

The Decision Document to the permit says:

*The purpose of this pre-operational condition is to set appropriate controls to ensure any potential asbestos fibre release will not cause pollution or harm to human health and appropriate monitoring, maintenance and management procedures will be set.*

*The comments reference above state: 'The screener at WRG is not enclosed or abated (other than using a water spray) therefore it does not meet the appropriate measures (BAT). If they can enclose and abate the screener this may allow the treatment to meet this criteria'*

You agreed with the requirements laid out in the permit when you accepted it's issue. The period available to you to Appeal the permit has passed. You have the option to seek to vary the permit if you wish, but we are likely to continue to advocate for enclosure of the equipment because you are dealing with waste impacted by asbestos and we want any emissions to be controlled.

If you were to seek variation you would have to tell us how you intend to meet appropriate measures for [treatment](#) of chemical wastes where the screener is not enclosed (for example, point 10. *Where an emission is expected, all treatment or reactor vessels must be enclosed. Only vent them to the atmosphere via an appropriate scrubbing and abatement system (subject to explosion relief).* We would also need to know how you intend to meet the BAT-AEL for dust and the ELV for asbestos from the treatment. You might seek to propose alternative measures for the treatment (that is not using enclosed equipment), including performing the treatment in an enclosed and abated building. We could consider this where the data is available to show that the dust and asbestos emissions would be adequately managed within the building.

In the meantime if you cannot source the equipment necessary to be able to carry out the activity in accordance with the existing permit requirements, then unfortunately you cannot carry out the activity.

Kind Regards

**Russell Price**

**EPR Installations  
West Midlands Area**

**Environment Agency** | Sentinel House, Wellington Crescent, Fradley park, Lichfield, WS13 8RR



Incident Hotline: 0800 80 70 60 Customer Enquiries: 03708 506 506

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**From:** Nicholson, Matthew <Mat.Nicholson@fccenvironment.co.uk>  
**Sent:** 21 December 2022 16:07  
**To:** Price, Russell <russell.price@environment-agency.gov.uk>  
**Cc:** Cheetham, Mark <Mark.Cheetham@fccenvironment.co.uk>; Smith, Mark <MarkA.Smith@fccenvironment.co.uk>; Duley, Surjit <surjit.duley@fccenvironment.co.uk>; Jon Owens <Jon.Owens@provectusgroup.com>; Storer, Iain <iain.storer@environment-agency.gov.uk>  
**Subject:** RE: ERQ STC Pre-op condition 1

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Noting the above contrary position created by the condition wording we consider that the EA could agree the principles of what is proposed subject to the proposals, emissions points and limits being incorporated via a permit variation, and that whilst that variation was being determined to allow the activity to operate in accordance with the ‘agreed in principle’ measures under a local enforcement position. This would seem a pragmatic solution to dealing with the contradictions caused by EA’s permit condition wording.



*There are no criteria in Table S3.1 for dust or asbestos emissions point source emissions to air which must be included in any fit-for-purpose permit. The dust emission must be controlled at the point source using a BAT-AEL of (at most) 5 mg/m<sup>3</sup> in accordance with BAT 25. The asbestos emission must also be controlled.*

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Please do not hesitate to contact me if you wish to discuss further and/or set up a meeting.

Kind regards

Mat

**Mat Nicholson – Planning and Permitting Manager (South)**

Head Office: 01302 303030 | Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)

FCC Environment, 3 Sidings Court, White Rose Way, Doncaster. DN4 5NU | <http://www.fccenvironment.co.uk/>



---

**From:** Price, Russell <[russell.price@environment-agency.gov.uk](mailto:russell.price@environment-agency.gov.uk)>

**Sent:** 16 December 2022 15:25

**To:** Nicholson, Matthew <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>

**Cc:** Cheetham, Mark <[Mark.Cheetham@fccenvironment.co.uk](mailto:Mark.Cheetham@fccenvironment.co.uk)>; Smith, Mark <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>; Duley, Surjit <[surjit.duley@fccenvironment.co.uk](mailto:surjit.duley@fccenvironment.co.uk)>; Jon Owens <[Jon.Owens@provectusgroup.com](mailto:Jon.Owens@provectusgroup.com)>; Storer, Iain <[iain.storer@environment-agency.gov.uk](mailto:iain.storer@environment-agency.gov.uk)>

**Subject:** RE: ERQ STC Pre-op condition 1

Good Afternoon Matthew

Please see attached response around pre-op condition 1 of permit HP3632RP for the soils treatment centre at Edwin Richards Quarry.

Kind Regards

**Russell Price**

**EPR Installations  
West Midlands Area**

**Environment Agency** | Sentinel House, Wellington Crescent, Fradley park, Lichfield, WS13 8RR



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**From:** Nicholson, Matthew <[Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)>  
**Sent:** 11 November 2022 17:37  
**To:** Storer, Iain <[iain.storer@environment-agency.gov.uk](mailto:iain.storer@environment-agency.gov.uk)>  
**Cc:** Price, Russell <[russell.price@environment-agency.gov.uk](mailto:russell.price@environment-agency.gov.uk)>; Cheetham, Mark <[Mark.Cheetham@fccenvironment.co.uk](mailto:Mark.Cheetham@fccenvironment.co.uk)>; Smith, Mark <[MarkA.Smith@fccenvironment.co.uk](mailto:MarkA.Smith@fccenvironment.co.uk)>; Duley, Surjit <[surjit.duley@fccenvironment.co.uk](mailto:surjit.duley@fccenvironment.co.uk)>; Jon Owens <[Jon.Owens@provectusgroup.com](mailto:Jon.Owens@provectusgroup.com)>  
**Subject:** ERQ STC Pre-op condition 1

Some people who received this message don't often get email from [mat.nicholson@fccenvironment.co.uk](mailto:mat.nicholson@fccenvironment.co.uk). [Learn why this is important](#)

Please see attached a revised submission to discharge pre-operational condition 1 of permit HP3632RP for the soils treatment centre at Edwin Richards Quarry.

If you have any queries regarding the attached please do not hesitate to contact me.

Kind regards

Mat

**Mat Nicholson – Planning and Permitting Manager (South)**

Head Office: 01302 303030 | Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)  
FCC Environment, 3 Sidings Court, White Rose Way, Doncaster. DN4 5NU | <http://www.fccenvironment.co.uk/>



from waste to resource



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CD9/1/C

Email 14b

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## Tom Roberts

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**From:** Storer, Iain <iain.storer@environment-agency.gov.uk>  
**Sent:** 05 July 2023 13:18  
**To:** Nicholson, Matthew  
**Cc:** Price, Russell; Cheetham, Mark; Jon Owens; Smith, Mark; Duley, Surjit  
**Subject:** RE: ERQ STC Pre-op condition 1 - Request for Local Enforcement Position

Hello Mat,

Thank you for your note.

LEP requests are considered by a panel known as our Area Governance Group, which is convened routinely once per month. I will make the necessary arrangements to have your request tabled at a future AGG meeting but can offer no guarantees regarding approval.

I will update you once I know more – can you let me know which permitting officer is determining your Variation application?

PS – Russell has returned to his substantive role having completed his assignment within Installations, so there is no need to include him in any future correspondence regarding the site.

I am continuing to regulate both the landfill and soil treatment facility as cover for Clive Wall, whilst he is on assignment focussing on another landfill site – this is likely to continue to next spring at least.

Iain

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**From:** Nicholson, Matthew <Mat.Nicholson@fccenvironment.co.uk>  
**Sent:** 05 July 2023 12:53  
**To:** Storer, Iain <iain.storer@environment-agency.gov.uk>  
**Cc:** Price, Russell <russell.price@environment-agency.gov.uk>; Cheetham, Mark <Mark.Cheetham@fccenvironment.co.uk>; Jon Owens <Jon.Owens@provectusgroup.com>; Smith, Mark <MarkA.Smith@fccenvironment.co.uk>; Duley, Surjit <surjit.duley@fccenvironment.co.uk>  
**Subject:** ERQ STC Pre-op condition 1 - Request for Local Enforcement Position

Good afternoon Iain

Further to our meeting on 24<sup>th</sup> January 2023 at which we discussed the difficulties we have encountered in trying to discharge pre-operational condition 1 on the Edwin Richards Soils treatment Facility Permit (HP3632RP) and the possibility of undertaking a trial of the pre-screening activity under a Local Enforcement Position (LEP), please see attached our request for an LEP to allow the trial to take place so we can gather monitoring data to confirm what emissions may or may not be generated by the pre-screening activity.

Given the issues in discharging pre-operational condition 1 on the current permit due to its wording which requires 'full enclosure' we consider that undertaking the trial provides an opportunity to gather data to confirm what the actual emissions are from the process and if they exceed permit limits. This would then create a better knowledge base from which to determine which controls or abatement are appropriate or necessary.

This requested approach would help to progress the impasse we have reached on pre-operational condition 1 and would then be beneficial for the EA in determining the permit variation which was submitted in December 2022 requesting the pre-operational condition 1 is removed as its current wording is not possible to comply with.

If you have any queries regarding the above please do not hesitate to contact me.

Kind regards

Mat

**Mat Nicholson – Planning and Permitting Manager (South)**

Head Office: 01302 303030 | Mobile: 07920823792 | Email: [Mat.Nicholson@fccenvironment.co.uk](mailto:Mat.Nicholson@fccenvironment.co.uk)

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CD9/1/C

Email 15

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## Tom Roberts

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**From:** Storer, Iain <iain.storer@environment-agency.gov.uk>  
**Sent:** 17 August 2023 14:01  
**To:** Nicholson, Matthew  
**Subject:** LEP decision

Mat,

By way of update I can confirm that your LEP proposal for Edwin Richards Quarry was rejected by the Enforcement Governance Group.

You will receive a formal response letter soon explaining why that decision was reached.

Iain

### **Iain Storer BSc Hons CEnv MIEMA PEA**

Installations Technical Leader | West Midlands

*Area Lead – Hazardous Waste Treatment & Transfer*

**Environment Agency** | Mance House, Arthur Drive, Hoo Farm Ind Est, Kidderminster DY11 7RA

**Contact** | **Ext:** 020 847 45068 | **Int:** 45068 | [www.gov.uk/environment-agency](http://www.gov.uk/environment-agency) [gov.uk]

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