

SITE APPRAISAL

The distribution of the Company's resources throughout a regional network of offices enables Fugro Engineering Services to provide a rapid response to our customers' needs for assessment of contaminated land. Our professional team of geoenvironmental engineers, geotechnical engineers, geologists, hydrogeologists and chemists, supported by our own analytical laboratory, provides a comprehensive assessment service to determine the factors affecting development in terms of site history, chemical contamination and physical geological constraints. We recommend a phased approach to the investigation of contaminated land.



Trial pitting in potentially contaminated soil

This can avoid unnecessary expenditure on site investigation by enabling the client to review the project on completion of each phase and, if necessary, curtail the works. The main stages of an appraisal are:

- Phase One** Desk Studies and Site Reconnaissance
- Phase Two** Exploratory Investigations
- Phase Three** Detailed Investigations.

DESK STUDIES AND SITE RECONNAISSANCE

We consider a desk study to be an essential ingredient of a well-performed appraisal. This provides information on the history of the site, in particular any records of industrial processes or other activities which may have led to contamination, degradation or damage to the land. Geological and hydrogeological records, including NRA Groundwater Vulnerability Maps, are consulted and, where appropriate, site searches using commercially available databases are commissioned. The desk study provides data on potential sources of contamination and enables us to identify present and future potential targets.

When we supplement the desk study with a visit to the site and the neighbouring land to look for any evidence of contamination or other hazards which may affect personnel during investigation and construction and the proposed site use.

Where possible, we then develop hypotheses regarding the presence and distribution of contaminants, which are presented in a desk study report, together with initial recommendations regarding future site development. If appropriate, this includes proposals for exploratory and detailed site investigations.

EXPLORATORY INVESTIGATIONS

Phase Two investigations are designed to confirm or otherwise any hypotheses developed during the desk study. They are limited in scope and are structured as far as possible so as to be incorporated into the site investigation as a whole. Subject to the results of the desk study, sampling may be on a random basis, or targeted at specific features and may comprise surface sampling of soils or waters, or sampling from a small number of exploratory holes. The data from this phase can be used to refine the design of the detailed investigation and to evaluate the safety measures needed during the main phase. The results may be presented as a separate report or incorporated into the detailed site investigation report.

DETAILED INVESTIGATIONS

The information provided by a detailed contaminated land appraisal should be sufficient to:

- assess health and environmental hazards and risks
- evaluate financial and technical options for the subsequent development
- select and plan any remedial work
- design the works
- ensure safe working for personnel on site
- assess requirements for both long-term and short-term monitoring

Our geoenvironmental staff design and supervise the investigation to meet these objectives.

Techniques which may be used on site included:

- excavation of trial pits
- cable percussion boring or rotary drilling for construction of boreholes
- window sampling
- installation of groundwater monitoring and sampling standpipes
- installation of gas monitoring standpipes
- in-situ testing of soils waters and gases and sampling for subsequent laboratory analysis



Construction of a borehole for the installation of groundwater monitoring and sampling standpipes



Monitoring of VOCs in buried storage tank

The detail of both the site and laboratory work must inevitably be site specific, but follows the requirements of current good practice. Our laboratory is UKAS accredited for a range of tests. It is equipped to analyse soils and waters for the suite of determinands identified by the Interdepartmental Committee on the Reclamation of Contaminated Land, for a range of other organic and inorganic contaminants and for the analysis of gas samples for methane and other hazardous gases.

Our final report presents the results of the detailed investigation, evaluation of the data, hazard assessment, estimation and evaluation of the risks attached to such hazards and recommendations with regard to site development. These may include an evaluation of suitable remedial measures and advice on the selection of the most appropriate form of treatment. Our staff are also available to provide monitoring services and professional advice during the subsequent development stages of the project.

The Fugro Group is an international organisation with around seven thousand staff in over fifty countries. Our major disciplines are Geotechnics, Environmental Services and Survey.

Details of services and specifications may change without notice.

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