



**Environmental Management and
Monitoring Programme
Surface Water Management Plan
Hendy Quarry Landfill
Permit Reference BT1088ID**

**Plan Reference: HNDY/SWMP
October 2008
Version 2.0**

Report prepared for:

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1 SURFACE WATER MANAGEMENT PLAN

1.1 Introduction

1.1.1 Report Context

The following Surface Water Management Plan (SWMP) provides a framework for the management of surface water at the Hendy Quarry landfill Site, Miskin, Pontyclun, National Grid Reference ST052810. The SWMP forms part of the Environmental Management and Monitoring Program for the site that covers all the different monitoring regimes at the installation.

This SWMP complies with the requirements of the Environmental Permitting regime and regulatory guidance note LFTGN02 'Guidance on Monitoring Landfill Leachate, Groundwater and Surface Water' issued by the Environment Agency and forms part of the Environmental Permit (EP) for the site, reference BT1088ID.

1.1.2 Objectives

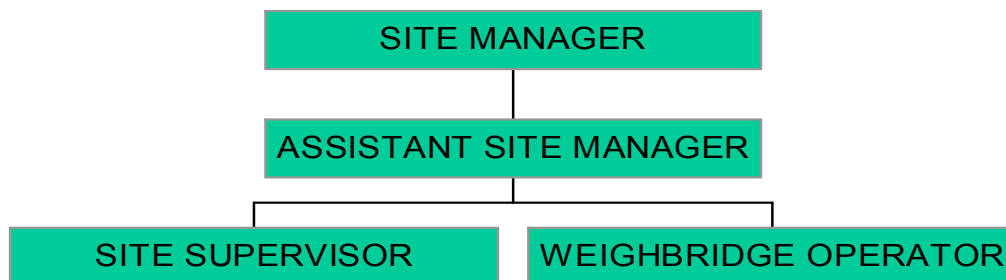
The objectives of this SWMP are to provide a summary of the methods, procedures and actions to be implemented at the landfill site for the duration of the EP and up to the point of surrender.

The SWMP will be reviewed and updated on a regular basis as the site develops to ensure adequate controls are in place to meet the identified standards and objectives. Any changes will be agreed with the Environment Agency.

1.2 Management Structure and Technical Competence

The Landfill Site Manager, who is supported by the Assistant Site Manager undertakes overall management and supervision of the site.

The management structure relating to Hendy Quarry Landfill is as follows:



Suitably qualified technicians who are experienced and trained in the use of monitoring and sampling equipment and interpretation of the data obtained will carry out all water monitoring at the installation. Details and qualifications of the staff employed to undertake monitoring at the site will be submitted to the Environment Agency (EA), and any permanent changes notified within 7 days of the change. All training records of monitoring personnel will be made available to the Environment Agency on request.

1.3 Summary of Conceptual Hydrogeological Model

The conceptual hydrogeological model for the site is summarised as detailed below.

The area of investigation is situated upon an area of Lower Carboniferous Limestone Series Strata, which outcrop in the area. The quarry has been excavated at the summit of an area of low hills. To the south and west of the site the land steeply slopes to the river valley of the Ely, approximately 300m from the boundary of the site.

The site lies within the catchment of the River Ely, with the river flowing towards the south east. At its closest reach the river passes some 300m from the site. Tributaries of the River Ely drain the hilly area the quarry is located within. The River Ely is the principal watercourse in the vicinity.

An un-named stream arises 550m east of the quarry boundary (in the vicinity of Croffta Farm) and flows south westwards towards the River Ely. At its closest approach it passes some 250m south of the site. A second un-named stream passes 200m to the north east of the site. It arises at Brofiscin Farm, some 1.5km to the east of the site and flows westward towards the site then northwards to its confluence with Afon Clun, some 1.1km to the north of the site. Ultimately the stream discharges into the River Ely.

On a regional scale, the Carboniferous Limestone is classified as a Major Aquifer. The Carboniferous Limestone is overlain by Coal Measures, which form a multi-layered Minor Aquifer System. The Lower Limestone Shale represents a non-aquifer and underlies the Carboniferous Limestone.

A detailed summary of the hydrogeological regime local to the site is referenced in the report entitled 'Hydrological and Hydrogeological Assessment to Support Planning Application for Restoration of Quarry by Infill with Inert Materials' produced by BCL Consultant Hydrogeologists Ltd in August 2000.

1.4 Monitoring Specification

The implementation of an appropriate monitoring schedule at Hendy Quarry Landfill is in accordance with the requirements identified in Schedule 4, Table S4.1 of the EP: -

Surface water monitoring is currently undertaken at the point where the water is discharged to soakaway at NGR ST 0538 8136, see drawing number HNDY/SWMP/01.

As detailed above, there are no surface water courses within the immediate vicinity of the site and therefore surface water monitoring currently taken at the installation is considered to meet with the requirements of the Landfill Directive based on the nature of the water environment at the site.

The following table details the emission limits and monitoring requirements of the point source emission to water.

Emission Point Ref. & Location	Parameter	Limit (including unit)	Monitoring Frequency
Discharge to soakaway at NGR ST 0538 8136	Volume	750m ³ /day	Daily
	Rate of Discharge	25 litres/sec	Weekly
	Suspended Solids	100mg/l	Monthly
	Mineral Oil	5mg/l	Monthly
	pH	6-9	Monthly

Table HNDY/SWMP/T1:- Point Source Emissions to Surface Water

1.4.1 Observational and Physical Measurements

The following table HNDY/SWMP/T2 shows the observational measurements that will be monitored for at the Hendy Quarry landfill facility: -

Measurement	Specification
Observation of airborne dust	Logged daily Sensitive receptors observed and any dust suppression requirements logged
Observation of other contaminant sources	Logged daily Observation of leakage arising from fuel and oil bunds on site.

Table HNDY/SWMP/T2: Observational Measurements

The environmental monitoring logbook is included as part of the Sites Environmental Management System.

1.4.2 Measurement Techniques and Monitoring Strategy

All water monitoring at the installation will be carried out by suitably qualified technicians who are knowledgeable and experienced in the use of equipment when taking field measurements and interpretation of the data obtained. Details of the staff employed and their qualifications to undertake water monitoring will be advised to the Environment Agency (EA), and any permanent changes notified within 7 days of the change.

Any field measurements, if necessary, will be monitored utilising a hand held portable meter which will be regularly tested and calibrated and maintained to the manufacturer's guidance.

The flow meter on site will be regularly inspected and maintained to the manufacturer's specifications.

1.5 Assessment Criteria and Contingency Actions

1.5.1 Compliance and Assessment

Control limits are specific assessment criteria relating to surface water that are used to determine whether a landfill is performing as designed by highlighting any adverse trends in monitoring data.

It is proposed that the limits will be reviewed as required and as a minimum after 4 years when further monitoring data will be available.

Control limits will be deemed to have been breached if the three point rolling average, relative to a particular limit demonstrates a rising trend.

1.5.2 Contingency Actions

If a limit is breached the following action will be taken: -

Contingency action	Following a limit breach	Timescales
Advise site management	√	Immediately
Advise Environment Agency	√	By the end of the working day
Confirm by repeat sampling and analysis	√	Within 14 days
Review existing monitoring information	√	Within 14 days
Review Environmental Management System and sites operations and implement actions to prevent future failure	√	Within one month
Determine degree of risk presented by breach	√	Within one month
Review HRA trigger levels	√	Within one month
Agree any corrective / remedial action with Environment Agency	√	Within one month

Table HNDY/SWMP/T3: Contingency actions following breach in Limits

The contingency actions detailed above will be carried out as soon as possible following a breach in a limit at the site, and no later than 14 days from when the breach was detected. In the event of a breach, where the risk is proved to be small, assessment criteria will be re-evaluated in consultation between the site manager and the Environment Agency. Any revisions will be incorporated into the HRA and this SWMP.

1.5.3 Emergency Action

Emergency contingency measures will be employed at the site in the event of a fuel spillage from a storage tank as a result of a leak or from poor re-fuelling or filling procedures. The procedure is included as part of the Sites Environmental Management System.

1.6 Monitoring Protocols

A monitoring protocol needs to take into account all the tasks necessary to plan, implement and complete a procedure in a consistent and reproducible manner. The water monitoring protocol to be implemented at the site is detailed below: -

The monitoring technician will ensure that sampling being carried out is done so following the protocol set out below: -

Samples shall not be collected from the water surface, except where a 'floating product' layer needs to be sampled separately.

Sample containers or transfer containers shall be submerged below the water surface to avoid collecting floating debris or other products. If not possible, solid materials should be removed from the transfer vessels before pouring into a sample container.

Where information is required on floating products present on the water surface (e.g. oil or foam) it will be necessary to collect two samples – one representative of the floating product layer and one of the sub-surface body of water.

When collecting from ponds, lakes or wetlands, avoid collecting samples too close to the banks - a sample should be taken as far into the pond as is safe to collect, using an extension rod if necessary.

When collecting from flowing watercourses water upstream of the sample location shall not be disturbed. A downstream position of the sample point shall be taken to collect water into sample containers in the flow of water. Sampling directly into sample bottles shall ensure the avoidance of cross contamination from sampling containers. Samples shall be taken from the fastest flowing part of the watercourse, avoiding stagnant parts of the watercourse.

If determination of suspended solids in a stream is critical, it may be necessary to sample using a 'flow-through' sampling device.

The site staff shall ensure that the following is maintained to ensure quality monitoring is performed each monitoring occasion:-

- The monitoring points are easily accessible and the locations clearly identified on plans.
- The use of protective equipment is utilised where necessary including safety boots and high visibility clothing.
- The correct number and type of sampling containers and transfer vessels are available from the laboratory.
- Filtration and preservation equipment is available and the use of cool boxes for transferring samples to the laboratory.
- The use of appropriate field documentation including field notebooks, laboratory submission forms, chain of custody forms and courier manifests etc.
- Calibration and standard solutions are in date for use during the sampling occasion.
- The site equipment is clean.
- The correct sample identification information is put onto sample bottle labels (if pre-printed labels are supplied by the laboratory the information is checked).
- All labels are placed on the container body and not the lid.

During the sampling the following will be carried out: -

- The date, monitoring location and reference, weather conditions including temperature and atmospheric pressure, ground conditions and person carrying out the sampling will be recorded prior to monitoring being carried out.
- The probes of the above equipment are rinsed with de-ionised water following sampling.
- The sample container is rinsed with the sample water and filled to the top leaving no airspace.
- The sample label is checked and any additional information added where necessary.
- For samples requiring preservation, the sample bottle is not rinsed before adding the sample and only filled to the level on the bottle as instructed by the laboratory.

Once the sample has been taken the following will be carried out: -

- The outer surface of the sampling containers is cleaned using deionised water and paper towels where necessary.
- The sample bottles are sealed using PVC tape around the lid.
- The samples are placed in storage containers or cool boxes where necessary.

- The necessary paperwork is placed within the containers and the containers are sealed with tape.
- The containers are transported to the laboratory on the same day as the samples are taken or if not possible within 24 hours of sampling.
- The samples are sent to a laboratory with UKAS accredited tests and comply with the EAs Monitoring Certification Scheme (MCERTS) where possible.

The following procedure for handling and preparing samples has been agreed in writing with the laboratory: -

- All samples delivered during working hours to the laboratory are unpacked and sent for analysis and / or preservation on the day of delivery.
- The samples are stored in cool dark place for a period of one month following sub sampling and analysis.
- A specification of analytical methods is available.
- A breakdown of the reporting requirements including specification of the information required in reports, reporting times and format of digital and tabulated data is agreed.
- Details on the laboratories Quality Control information.

1.7 Data Management and Reporting

1.7.1 Data Storage, Retrieval and Presentation

All surface water monitoring results will be logged in the installations environmental file of the Environmental Management System. Results and analysis of data are also included within an annual environmental monitoring report, which will be maintained at the site office.

All surface water monitoring data will be supplied to the EA on the form provided on a quarterly basis and a full review on an annual basis to be submitted by the end of January.

The review will include a summary of the monitoring data, which will be compared to the specified control levels detailed in Table HNDY/SWMP/T1 above and any deviations will be highlighted.

Should any deviations become apparent at the site during routine monitoring, the EA will be informed and the remedial action detailed below followed.

1.7.2 Data Analysis, Reporting and Communication

All surface water monitoring data will be supplied to the EA on the form provided and submitted on an annual basis by the end of January.

Should any deviations become apparent at the site during routine monitoring, the EA will be informed and the contingency action detailed above followed.

DRAWINGS

HNDY/SWMP/01	Surface Water Monitoring Location Points	1:2,000
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