Knockharley Landfill Limited
Company No. 529325

Knockharley Landfill
Kentstown
Navan
County Meath

Licencing Unit
EPA Headquarters
Johnstown Caste Estate
County Wexford

4th December 2014

Re: Knockharley Landfill Ltd, IE Licence No.: W0146-02
Request for Technical Amendment

Dear Sir, Madam,

Following advice from the Office of Environmental Enforcement (OEE), we are seeking a technical amendment to Industrial Emissions Licence No. W0146-02.

A proposal to accept construction materials containing asbestos (CMCA) in a dedicated disposal cell within the existing landfill constructed at Knockharley Landfill was recently submitted to the OEE and was rejected on the grounds that this activity is not provided for in the existing licence. Condition 1.5 of the current licence states that "no hazardous wastes or liquid wastes shall be disposed of at the facility".

We would propose to accept c.5000tpa of CMCA wastes which are currently exported. It is proposed to use part of the existing constructed Cell 11 as a designated CMCA disposal cell. The cell will be subdivided using an inter-cell bund to make a suitably sized disposal area. Cell 11 is already constructed and the CQA report has been Agency approved.

The OEE have advised that a technical amendment or licence review is required to consider this proposal. We would greatly appreciate if this application could be considered as a technical amendment.

Please find enclosed a copy of the OEE letter detailing their response to our initial request and a copy of the proposal for acceptance of CMCA wastes at Knockharley Landfill.

Should you require further information please do not hesitate to contact the undersigned on 086-0481621.

Yours sincerely,

Heather Lamont.

Heather Lamont
EHS Officer
For and behalf of Knockharley Landfill Ltd.

Enclosure.

Licensing Notice Details

Subject
LS Rejection - Notice - Refusal of C1.2-TA-Review

Created Date
07/11/2014

Dear Ms. Lamont,

I refer to your submission LR012947, "Acceptance of construction materials containing asbestos" in relation to Knockharley Landfill. The approval is sought under Condition 3.2 and *Schedule B* of the Waste Licence Reg. No. W0146-02 for an alteration to your facility that would represent a change in the types of waste which may be accepted at the facility.

Condition 1.5 states that:

"No hazardous wastes or liquid wastes shall be disposed of at the facility."

I am therefore to advise you that the requested change cannot be approved by the OEE. A Technical Amendment (Section 42(B) (1) of the Waste Management Acts (WMA)) or a Review of your licence (Section 46(8) of the WMA) will be required to provide for the proposed changes.

To determine if the proposed change can be accommodated by Technical Amendment, you should submit the following information to the Agency's Environmental Licensing Programme (ELP), EPA, P.O. Box 3000, Johnstown Castle Estate, Co. Wexford:

- Details of the requested change(s)
- Reasons for the change(s) requested
- Details of any increase or changes in emissions resulting from the change(s)
- An assessment of the likely impacts of any increase/changes in emissions

If the alteration is considered to be a significant change and cannot be accommodated by a Technical Amendment, the ELP will notify you of the process for applying for a Review.

Yours sincerely,

Maeve O'Reilly

Office of Environmental Enforcement, Dublin

Tel: 01-2680100

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Request for Licence Technical Amendment

Construction Material Containing Asbestos (CMCA) Cell

Knockharley Landfill

Kentstown

Navan

Co. Meath

Submitted to:

ENVIRONMENTAL PROTECTION AGENCY

December 2014

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LW14-821-09-001B

1.0 INTRODUCTION

Industrial Emissions Licence No. W0146-02 is for the operation and development of the landfill at Knockharley, Co. Meath. The waste disposal consists of residual and non-hazardous household, commercial and industrial waste. The licensee is Knockharley Landfill Ltd, Kentstown, Navan, County Meath.

This document is a request for a technical amendment to Licence W0146-02 to allow acceptance of construction materials containing asbestos (CMCA) (EWC 17 06 05*) at Knockharley Landfill.

Condition 1.5 of the existing licence states "No hazardous waste or liquid waste shall be disposed of at the facility". We would seek to have this condition altered to remove the restriction on acceptance of asbestos based hazardous wastes.

Construction of the facility commenced in February 2004. Phase 1 comprising the construction of Cells 1 to 4 was completed in October 2004. The site accepted its first consignment of waste in December 2004. Cells 5 and 6 were constructed and put into use in September 2006. Phase 3 works included development of Cells 7 to 10 and were completed in October 2007. These cells were put into use in February 2008. Phase 4 works included development of Cells 9, 10, 11 and 12 and partial final capping of Cells 1 to 4. Cells 9 and 10 were put into use in April 2009. Final capping was extended to include the remainder of Cells 1 to 4 and Cells 5 and 6 in 2013/14. Waste placement commenced in Cell 12 in 2012. Cell 11 remains constructed but unfilled.

Knockharley Landfill Ltd proposes to commence the acceptance of Construction Material Containing Asbestos (CMCA) at its facility in Knockharley in a dedicated disposal cell. To enable Knockharley Landfill to complete this objective and comply with Directives, Regulations and licence conditions regarding the landfilling of asbestos waste, it is proposed to make modifications to an existing constructed cell (Cell 11) and this will become the dedicated CMCA disposal call for the receipt of this material. Cell 11 has been constructed in accordance with a previously Agency approved SEW and a full and independent CQA report was made available for Agency approval.

This document presents a proposal for the modification of Cell 11 and has been prepared by Knockharley Landfill Ltd with design drawings and technical input supplied by Fehily Timoney & Company Ltd.

2.0 ASBESTOS

Asbestos is a term used to describe a number of naturally occurring fibrous silicate minerals. The three main types of asbestos are chrysolite (white asbestos), amosite (brown asbestos) and crocidolite (blue asbestos). Asbestos is known for its unique properties of being resistant to abrasion, inert to extremes of pH and stable at high temperatures and because of these desirable properties it was widely used in the construction industry. Common applications include thermal lagging on pipes and boilers, sprayed asbestos for fire protection, insulation and cement bonded asbestos used for roofing and gutters.

The percentage of asbestos in CMCA is variable. From a public health viewpoint, asbestos cement is considered low risk as it contains a relatively small proportion of asbestos (10-15%) that is firmly bound in place by cement which makes the sheets strong enough to withstand any relatively rough treatment that might release the asbestos fibres.

3.0 EPA TECHNICAL GUIDANCE – LANDFILLING OF ASBESTOS WASTE

EPA Technical Guidance document 'The Landfilling of Asbestos Waste' states that as there is no approved hazardous waste landfill in the State, there is provision for disposal of certain hazardous waste (stable non-reactive hazardous waste) in non-hazardous landfills.
Article 6 (c) (iii) of Council Directive 1999/31/EC on the landfill of waste specifies those wastes which may be accepted in a non-hazardous landfill:

> *(c) [a] landfill for non-hazardous waste may be used for:*
> *(i) municipal waste;*
> *(ii) non-hazardous waste of any other origin, which fulfill the criteria for the acceptance of waste at landfill for non hazardous waste set out in accordance with Annex II;*
> *(iii) stable, non-reactive hazardous wastes (e.g. solidified, vitrified), with leaching behaviour equivalent to those of the non-hazardous wastes referred to in point (ii), which fulfil the relevant acceptance criteria set out in accordance with Annex II. These hazardous wastes shall not be deposited in cells destined for biodegradable non-hazardous waste,*

CMCA can be determined to meet the definition and criteria of stable non-reactive hazardous waste suitable for disposal in a non-hazardous landfill provided it is landfilled in accordance with the requirements of Section 2.3.3 of the Annex to the Council Decision, 2003/33/EC, on the criteria and procedures for the acceptance of waste at landfills.

> *2.3.3 Asbestos waste*
> *Construction materials containing asbestos and other suitable asbestos waste may be landfilled at landfills for non-hazardous waste in accordance with Article 6(c)(iii) of the Landfill Directive without testing. For landfills receiving construction materials containing asbestos and other suitable asbestos waste the following requirements must be fulfilled:*

- *the waste contains no other hazardous substances than bound asbestos, including fibers bound by a binding agent or packed in plastic,*
- *the landfill accepts only construction material containing asbestos and other suitable asbestos waste. These wastes may also be landfilled in a separate cell of a landfill for non-hazardous waste, if the cell is sufficiently self-contained,*
- *in order to avoid dispersion of fibres, the zone of deposit is covered daily and before each compacting operation with appropriate material and, if the waste is not packed, it is regularly sprinkled,*
- *a final top cover is put on the landfill/cell in order to avoid the dispersion of fibres,*
- *no works are carried out on the landfill/cell that could lead to a release of fibres (e.g. drilling of holes),*
- *after closure a plan is kept of the location of the landfill/cell indicating that asbestos wastes have been deposited,*
- *appropriate measures are taken to limit the possible uses of the land after closure of the landfill in order to avoid human contact with the waste.*

For landfills receiving only construction material containing asbestos, the requirements set out in Annex I, point 3.2 and 3.3 of the Landfill Directive can be reduced, if the above requirements are fulfilled.

The EPA technical guidance also states there will be a need for sustained institutional control to ensure the deposited waste remains undisturbed and that the site must consider a costing structure for aftercare. Knockharley Landfill is currently filled to only one third of the licensed capacity and has a long term strategic plan including an Agency approved restoration and aftercare plan, therefore, these factors will be carefully considered and catered for. The CRAMP for Knockharley is fully funded.

4.0 ASBESTOS CELL AT KNOCKHARLEY LANDFILL

4.1 Need for asbestos landfill capacity

The EPA National Hazardous Waste Management Plan 2014-2020 states that in the absence of a dedicated national facility for disposal of hazardous waste and considering the prohibitive export costs for asbestos wastes, capacity should be provided in specialist cells in a limited number of existing non-hazardous landfills.

4.2 Cell Location

It is proposed to use part of the existing constructed Cell 11 as a designated CMCA disposal cell. The cell will be subdivided using an inter-cell bund to make a suitably sized disposal area (Drawing No. LW14-821-09-001B). The cell will be capable of holding in the region of 100,000m3 of CMCA.

4.3 Cell Modification

The cell was constructed in accordance with SEW No.10 (Feb 2009) and the EPA Landfill Design Manual. The cell is underlain by 1m of compacted clay with a maximum permeability of 1 x 10^{-9} m/s, a 2mm high density polyethylene geomembrane (HDPE), protective geotextile and 0.5m of stone drainage layer. The cell floor falls to a low point in the south western corner where the leachate extraction pump is located. CQA reports were made available to the Agency and Agency approval to use Cell 11 for waste disposal was granted in 2012.

The cell will be divided by an inter-cell bund using a 2mm LLDPE flap to prevent rainwater/leachate migration between the two areas of the cell. The liner will be extrusion welded to the existing basal HDPE liner (Drawing No. LW14-821-09-001). A pipe will be installed in the drainage stone of non CMCA area of the cell to allow clean rainwater to be extracted while this area is empty of waste. When the time comes for waste to be deposited in the non CMCA area of Cell 11, the LLDPE flap will be cut to allow leachate to flow through the drainage stone to the leachate sump and extraction riser in the south-western corner of the cell.

5.0 OPERATIONAL PROCEDURES AND CONTROLS

5.1 CMCA acceptance and handling

Specific procedures for the receipt and handling of CMCA materials in to Cell 11 will be developed and approved by the Agency prior to acceptance. Waste acceptance procedures will include for waste characterisation, weighbridge process, documentation including Waste Transfer Form's (formerly C1 form) and recording of CMCA waste location.

All CMCA will arrive at site wrapped and sealed in heavy gauge polythene bags and will be clearly labelled.

Hours of acceptance of CMCA will be limited to 08.00 – 13.00. This will allow sufficient time for placement and cover of all CMCA materials by the end of the working day. Suitable Agency approved cover materials will be used for daily cover which will be a minimum of 250mm in depth when placed. When placement of CMCA wastes is complete, a minimum of 2 metres of soil cover will be placed on top of the filled materials.

5.2 Leachate management

Due to the nature of CMCA it is not anticipated that leachate will be generated from the material itself. With the use of daily cover and capping of the cell once filled, the CMCA disposal cell will essentially be a dry cell. However, rainfall will contribute a certain amount of water to the cell, therefore, the existing leachate drainage sump and extraction riser will be used to remove excess water and transport it to the onsite leachate storage lagoon.

In accordance with existing licence conditions, the leachate levels in the cell will not exceed a level of 1.0m over the top of the liner at the base of the landfill and the level of leachate in the sump will be continuously monitored to ensure compliance.

Rainwater ingress to the designated CMCA will be limited through the use of cover materials in filled areas and tarpaulins on non-filled areas, where appropriate.

5.3 Gas management

Due to the nature of the CMCA material, no landfill gas will be generated. Knockharley Landfill has an extensive gas management extraction and control system which will not be impacted by the development of the new CMCA disposal cell. Cell 9 located adjacent to Cell 11 has a system of vertical and horizontal extraction LFG wells which are independent of Cell 11. Cell 9 also has a temporary LLPE cover on the flanked edge which meets Cell 11.

5.4 CMCA cell integrity

The area of the designated CMCA disposal cell will be surveyed and clearly highlighted on all relevant landfill drawings. No vertical well drilling will take place in the CMCA cell and only horizontal LFG extraction wells will be used within 20m of the CMCA cell in both adjacent cells (Cell's 9 and 11).

6.0 EMISSIONS

6.1 Landfill gas

Due to the stable nature of the CMCA material, no landfill gas will be generated. There will be no change to the existing landfill gas emissions and requirements of the licence.

6.2 Emissions to surface water

No leachate associated with the CMCA cell or otherwise, will be discharged to surface waters on or surrounding the site. There will be no change to existing surface water emissions and requirements of the existing licence.

6.3 Emissions to groundwater

There will be no direct emissions to groundwater. There will be no change to groundwater emissions requirements of the existing licence.

6.4 Disposal of leachate

Leachate from the CMCA cell will be treated in the same way as all other leachate removed from the site. Leachate will be removed from the CMCA cell using the existing sump pump

in Cell 11 and transferred to the covered leachate storage lagoon. Agreements are in place with Agency approved wastewater treatment plants for the acceptance of landfill leachate.

6.5 Noise

It is anticipated that the maximum annual intake of CMCA will be c. 5000tpa. At this intake, no additional plant or machinery will be required on site, therefore, noise emissions will not change from present levels.

Noise emissions at Knockharley Landfill are compliant with no exceedances of daytime noise limits recorded during the past 4 years.

6.6 Dust, particulates and asbestos fibres

All CMCA wastes will arrive at site wrapped and sealed in heavy gauge polythene. The wrapped wastes will be placed in the designated cell and covered with 250mm of suitable Agency approved cover materials on a daily basis. These measures will ensure minimal disturbance of the CMCA waste and restrict the possibility for airborne dusts, particulates and fibres.

The existing monitoring schedule for Knockharley Landfill includes 8 no. dust monitoring locations which are sampled monthly. Existing monitoring location D5 is located immediately west of the proposed CMCA cell 11.

Dust and PM10 emissions at Knockharley Landfill are compliant with no exceedance deposition levels recorded during the past 4 years.

It is proposed that asbestos fibre monitoring be added to the monitoring schedule for Knockharley Landfill. Assuming a monitoring regime based on KTK Landfill (W0081-04), monitoring locations would be located at the point of tipping and 10m downwind of tipping and sampling undertaken annually.

6.7 Odour and nuisance

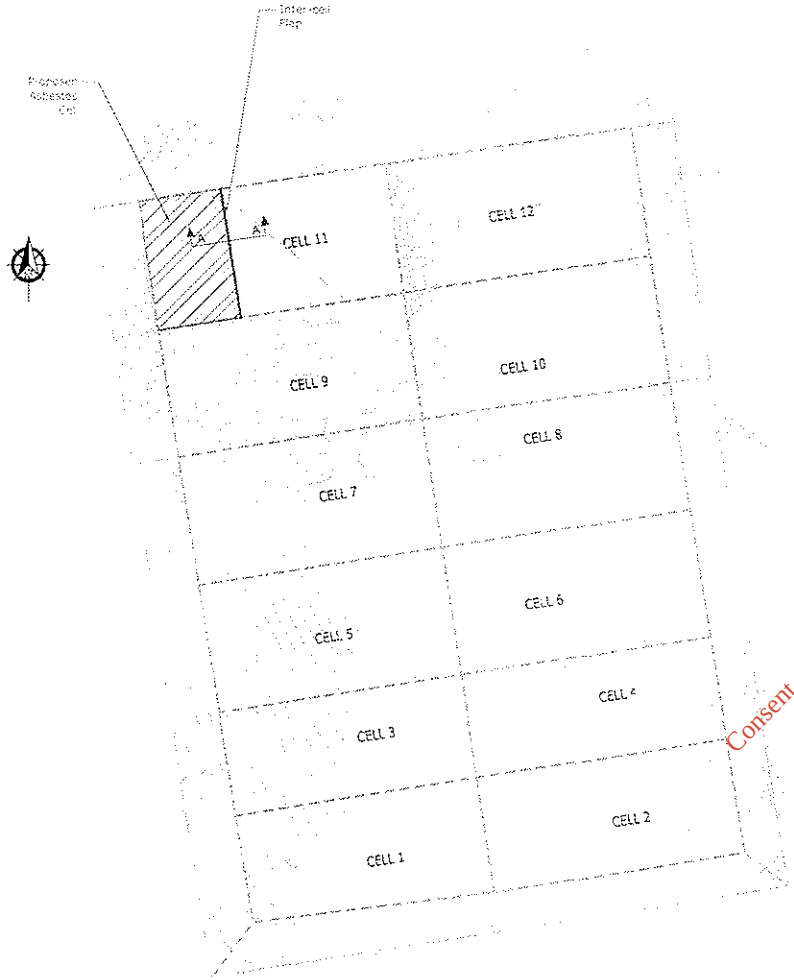
CMCA waste is stable non-reactive waste primarily comprised of pipes, tiles, panels, etc. This waste has no odour generating capabilities. The waste will arrive at the landfill wrapped in heavy gauge plastic and will be placed in a designated cell with no other waste types, therefore, municipal waste related nuisances such as litter, flies and vermin will not apply.

7.0 CONCLUSION

This proposal sets out a solution for the disposal of CMCA wastes in Ireland. Knockharley Landfill is a fully engineered modern landfill with all required infrastructure. The proposed CMCA disposal cell, cell 11, is already constructed and lined and will require only a small

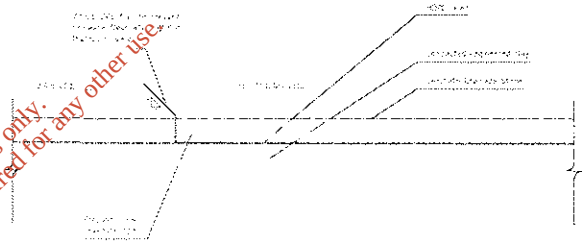
Appendix 1

Drawings



PROPOSED CELL LAYOUT

Scale 1:1250



SECTION A-A
INTER-CELL FLAP DETAIL

1:50

NOT FOR CONSTRUCTION UNLESS SPECIFICALLY STATED OTHERWISE

Rev.	Drawn	Chkd	Appd	Date	Description
B	KIC	NVA	DOS	05.11.14	ISSUE FOR CLIENT REVIEW

Name of Client

KNOCKHARLEY LANDFILL LIMITED

Name of Job

KNOCKHARLEY LANDFILL SITE

Title of Drawing

SPECIFIED ENGINEERING WORK
PROPOSED NEW ASBESTOS CELL

Scales Used: As Shown

Dwg. No.: LW14-821-09-001

Rev.: B

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