

Kilshannig House

Cratloe Wood

Cratloe

Co. Clare



Ms Ann Marie Donlon

Inspector,

Environmental Protection Agency

P.O Box 3000

Johnstown Castle Estate

Co. Wexford

4 December 2012

Ref: H2 Hazardous Waste Unlined Pit located in a Seveso Protected Zone

Dear Ms Donlon,

Please find enclosed information requested by the Agency in your letter of the 27 November 2012 .

I enclose copy of letter to one Caoimhin Nolan from RPS of the 20 July 2009 identifying an additional 600sq metres of waste in the H2 hazardous waste unlined pit and including RPS Drawing No. MGE0122/DG0024-01. The building in close proximity is identified from the drawing as the "Contractors Canteen".

As inspector to the licence review, you have already been made aware of the following :

Roche Ireland Ltd own consultants RPS on Closure Options H2 area

Document Control Sheet- Document No. MDE0451_Rp0002 ,Rev F02, 30 November 2005

"The Closure Options in the URS report (page 65) of "do nothing" and "capping" are not appropriate since the hazardous H2 area will still form an unacceptable risk post closure and neither option would prevent leachate overtopping and leachate discharge of the landfills into the River Fergus".

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Roche Ireland Ltd own consultants RPS on H2 area landfill

"In summary waste was initially landfilled into the H2 area between 1977 and 1980 with no control on filling processes, no lining and no leachate control mechanisms. Waste disposal took place across a relatively wide area in numerous dispersed pits, including on land close to the artificially constructed Nature Area ponds".

"Overall the H2 area is a historic hazardous waste cell, is unlined and is causing localised groundwater pollution on the Roche facility. URS estimate up to 90,000 tonnes or 60,275m3 of hazardous wastes lie in the H2 area. The H2 area constitutes a significant environmental liability for Roche".

Roche Ireland Ltd own consultants URS on H2 area landfill

"The waste in the H2 area was deposited in unlined pits (up to 3.4m deep), with no facilities for leachate interception and collection. In some areas the wastes are emplaced below the water table (the water table was 0.85 to 2.59m below the well casing in surrounding monitoring wells in October 2004)."

Roche Ireland Ltd own consultants URS on Monitored Natural Attenuation of H2 Area

"The aim of MNA would be to document stable or improving groundwater quality around the H2 area (as was the case up to 2001) to the satisfaction of the regulators, as an alternative to active intervention. However contaminant concentrations in leachate samples taken from the 2005 trial pits continue to show elevated concentrations of volatile organics (solvents), semi-volatile organics (phenolics) and heavy metals 25 years after the cessation of landfilling in the H2 area, despite extraction of contaminated groundwater from this area for several years. It is therefore likely that MNA would have to be continued for decades in order to meet regulatory requirements, with no reduction of the risk of an unforeseen future incident, such as the drum rupture which occurred near well 216 in 2001, which could lead to future regulatory enforcement. "

Roche Ireland Ltd own consultants URS on Capping of H2 area

"Capping of the H2 area to reduce rainfall infiltration is considered to be of limited benefit, as the chemical/process waste in some areas is emplaced below the water table and there is through flow of shallow groundwater through the waste, driven by natural gradients due to the hillside to the west of the H2 area. Capping would require considerable engineering works to profile the H2 area to promote runoff and manage the drainage, but would not eliminate the release of leachate to groundwater. In addition the presence of a landfill cap would restrict the future use of the H2 area

and, despite the capital investment, would not provide Roche with a reduction of liability in the event of an unforeseen future incident”.

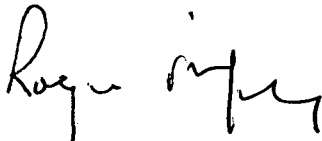
Roche Ireland Ltd own consultants URS recommendation on H2

URS (Job No. 45078361, 14 October 2005, Section 11.3.2)

“In terms of reducing or eliminating the long term environmental liability associated with material deposited in the unengineered H2 area, excavation and removal of the chemical/process wastes involving segregation and re-use of uncontaminated fill material overlying the chemical/process waste) is proposed as it :

- Removes the source of leachate generation and groundwater contamination of the H2 area:
- Does not require indefinite operation, maintenance and monitoring:
- Eliminates uncertainty relating to impacts of possible future incidents , or changes in regulatory approach, which affect options where the waste mass remains in-situ:
- Facilitates re-use of the H2 area for other purposes such as expansion of the plant”.

Yours sincerely



Roger O'Mahony

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Mr. Caoimhín Nolan,
Inspector,
EPA Regional Inspectorate,
Inniscarra,
Co. Cork.

20th July 2009

Our Ref: MGE0122LT0024GAL
File Ref: 330

ENVIRONMENTAL PROTECTION
AGENCY

- 6 DEC 2012

The Environmental Protection
Agency

22 JUL 2009

CORK

Re: Roche Ireland H2 Cell Remediation Works – Extent of Final Capping

Dear Mr. Nolan,

We refer to the above and to your telephone conversation with Willie Madden, RPS of the 14th July 2009 in relation to the extent of the H2 final capping.

As part the preliminary site works being carried out under the capping contract a series of 38 no. slit trenches were excavated around the waste body to verify the extent of the waste that had been estimated from the previous site investigations and the conceptual model prepared by RPS and outlined in our Engineering Report (June 2008)

The findings of the slit trenching indicate that:

1. The extent of the H2 waste is generally in accordance with the previous findings with the exception that;
2. There is an area of waste on the western side of the H2 where waste exists in shallow trenches and as a result we propose to extend the capping by approx 600m² to cover this area of waste.

We now attach drawing DG0024-01 D01 which details the proposed capping area of the H2 area based on the initial investigations and the final capping design after the slit trenching was carried out.

We trust this is in order but please do not hesitate to contact the undersigned if you have any queries with regard to the above.

Yours sincerely,

**David Cronin,
Senior Engineer
For RPS Consulting Engineers**

dc/wm

c.c: Shane O' Grady, Roche Ireland, Clarecastle, Co. Clare



PROPOSED CAPPING FOOTPRINT - 8357m²
(RPS ENGINEERING REPORT, JUNE 2008)
SCALE AS SHOWN

NOTES

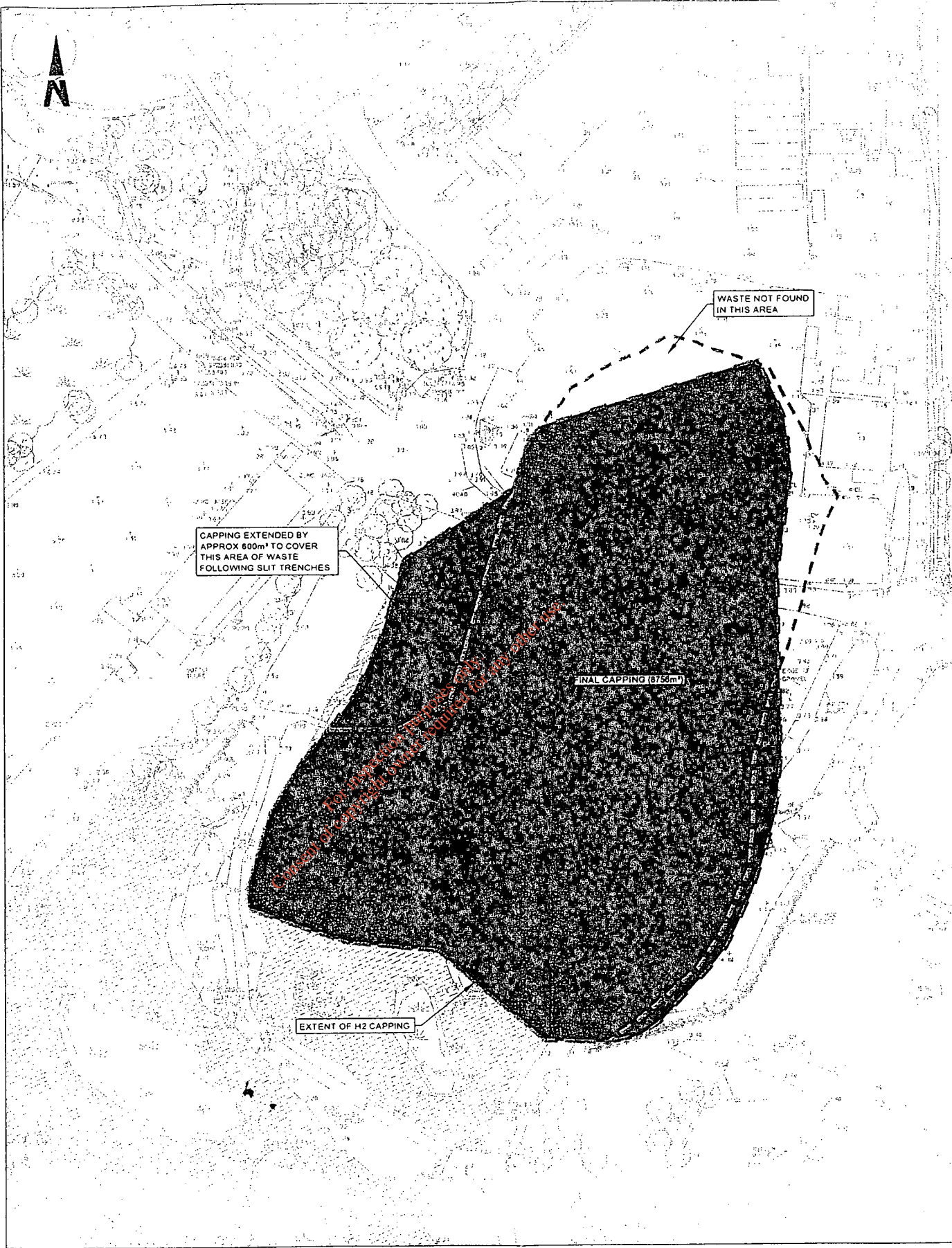
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2. **Existing Dimensions**
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3. **Existing Services**
 Any information concerning the location of existing services included on this drawing is intended for general guidance only. It shall be the responsibility of the contractor to determine and verify the exact horizontal and vertical alignment of all cables, pipes, and other underground and overhead before work commences.

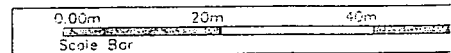
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5. **Datum** - British Ordnance Survey Datum Mean Sea



FINAL CAPPING FOOTPRINT - 8756m² (JULY 2009)
SCALE AS SHOWN

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				Client				 Lynn Building IDA Business A Technology Park Morrissey, Galway			+353 91 409200 F +353 91 409200 W www.rpsgroup.com/ireland E ireland@rps-group.com		Drawing Number										
				 Roche Ireland Ltd. Clarecastle, Co. Clare. Tel: (065)6867200 Fax: (065)6867490									MGE0122/DG00:										
								Project			ROCHE IRELAND H2 CELL REMEDIATION		Title										
													PROPOSED & FINAL CAPPING AREAS										
D01 15/07/99 P.C. DC ISSUE FOR INFORMATION WM				Drawn By				Checked By		Approved By		Date		Drawing Status		Sheet Size		Scale					
No				Date				On				App				INFORMATION		A1		1:500			
				Amendment Issue				P.C.				D.C.				W.M.				JULY '99			