Submission No 1.

Intrinsic Developments Ltd

Kilshannig House

Cratloe Wood

Cratloe

Co. Clare

5 September 2011

Environmental Licence and Control Division

Environmental Protection Agency

Johnstown Castle Estate

Wexford.

By Registered Post

Dear Sirs,

I wish to present my findings stated below, to the IPPC Licence Review (P0012-05) by the Agency of my neighbour Roche Ireland Ltd, Clarehill, Clarecastle Co. Clare, a subsidiary of Hoffman la Roche of Basel, Switzerland

My findings are based on factual evidence of HAZARDOUS WASTE buried in unlined pits named the H2 area, has been discovered.

According to Roche own consultants URS "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".

Roche consultants URS estimate up to 90,000 tonnes of HAZARDOUS WASTE lie in the H2 area.

These findings are directly contrary to Roche public declarations made into the state of its landfill as part of its application for an incinerator and for which a public oral hearing was held in Ennis Co. Clare. These findings are also directly contrary to Roche public declarations into the state of its landfill in its Annual Environmental Report.

Roche Ireland Ltd has no IPPC licence to allow buried HAZARDOUS WASTE to exist in unlined pits beneath the water table of the River Fergus (condition 3.16.2 of its licence refers to a non hazardous landfill only).

The contents of the Agency Memorandum to "Each Director" of the 4 November 1996 gives me specific cause for concern as to the procedures adopted by the Agency relating to enforcement of a Roche Ireland Ltd IPPC licence and the duty of care bestowed on the Agency on behalf of the State to the protection of the Environment and the health of its citizens.

Please instruct Roche Ireland Ltd to remove the 90,000 tonnes of HAZARDOUS WASTE from the unlined pits named H2 as part of the Agency review of the licence.

Sincerely

Roger O'Mahony

Managing Director

Encl:

1: Copy of EPA Memorandum to Each Director 4 November 1996.

2: Copy of Request for Formal Review of Roche IPPC Licence by Roger O'Mahony - 30 May 2011

3: Copy of Roche public declaration regarding its landfill as part of its incinerator application.

4: Copy of Roche public declaration regarding its landfill in its Annual Environmental Report.

5: Copy of Roche Consultants URS, Figure 4 Schematic H2 and River Fergus.

6: Copy of Roche Consultants RPS, H2 Area Landfill

Memorandum

To: Each Director
From: Licensing & Control
Subject: Roche Ireland Ltd. (Syntex)
Date: 04/11/96

In accordance with a previous decision by the Board, the company has been served with a summons for several breaches (nine in all) of their existing IPC licence.

Following the serving of this summons the company has put forward the following proposal:

-they will plead guilty to two breaches of the IPC licence. They will agree to the Agency selecting the relevant breaches. In this regard the Agency would select two significant breaches i.e that of 17 Dec.,and either that of March or July. As far as the Agency is concerned these are the most significant breaches.
The company have confirmed on 4th November 1996 via our legal advisor by fax that they agree to proceedings on December and July breaches.

-the Agency acknowledge in court that the measures put in place by the company will ensure that they will not happen again. The Agency cannot go so far as to say that they will not happen again, but we could say that provided the measures are properly managed and maintained, the liklihood of a reoccurrance is greatly reduced and that the Agency is satisfied that they will improve the overall environmental performance of the plant.

- that the Agency drop the remaining seven incidents in the summons.

Having considered the matter within the Division, it is considered that it would be reasonable for the Agency to accept the offer made by the company. In the first instance it provides the Agency with a guarantee that the Agency will have a successful prosecution. The incidents have been selected by the Agency and not the company. Given the existing pressures on the Agency's limited resources it would be a very practical option as it would avoid the need for the Agency to have key personnel attend the court etc.

Recommended that the Board agree to the proposal by the company. The Agency will claim all costs associated with the case.

P. Nolan

Kilshannig House

Cratloe Wood

Cratloe

Co. Clare

30 May 2011

Dr Mary Kelly

Director General

Environmental Protection Agency

Johnstown Castle Estate

Wexford.

By Registered Post

Copy: Mr Tom Coughlan – Clare County Manager

Dear Dr Kelly,

I wish a formal review of the Roche Ireland Ltd IPPC Licence P0012-04 to be conducted.

The Roche Ireland Ltd landfill is a HAZARDOUS landfill .

Condition 3.16.2 of the Roche Ireland Ltd IPPC Licence P0012-04 describes the landfill as non-hazardous. This is not true.

The Roche Ireland Ltd HAZARDOUS WASTE is located within the same Seveso protected zone as my development site and is located in pits H2,1,2,3A,3B,4,5,6,and 7. This information was not provided to the public oral hearing into the application for an incinerator at Roche Ireland Ltd, nor was it provided to Justice Kelly of the High Court in its Judicial Review (Ni Eili v Environmental Protection Agency (1997) IEHC 79 (1997) 2 ILRM 458 (6 May 1997), nor to Justice Lavan of the High Court in its Judicial Review (Ni Eili v Environmental Protection Agency (1998) IEHC 188 (20 February 1998), nor to Justice Francis D Murphy of the Supreme Court in its Judicial Review (Ni Eili v Environmental Protection Agency (1999) IESC 64 (30 July 1999)

I will remind the Agency of the Judgment of Mr Justice Francis D Murphy of the Supreme Court of Ireland (Ni Eili v Environmental Protection Agency (1999) IESC 64 (30 July , 1999) in which Justice Murphy states "Finally it may be helpful to remind the Appellant and others similarly placed that the grant of a licence under the 1992 Act does not confer on the licensee the permission to cause injury to health or damage to the environment or any immunity from any other illegal process. It merely permits an activity to be carried on which would be otherwise illegal. If the conduct of the licensee in any case were to cause injury or damage or otherwise constitute a public nuisance, the persons affected would continue to have available to them a well stocked arsenal of legal and equitable remedies although one would hope that the conduct of the licensee and the supervision of the Agency would render it unnecessary to have recourse to any such remedies"

Stated Roche Ireland Ltd Public Declarations

"The objectors appear to have misunderstood the design of the existing landfill which is on the planning files of Clare County Council. It does not have a concrete base. The site is laid on an alluvial clay base of low permeability covered by a layer of sand, followed by a HDPE liner, a further layer of sand and yet another HDPE liner and a third layer of sand. There is leachate collection underneath the bottom HDPE liner and between the two liners to check for liner leakage of either liner in either direction."

Ref: Roche Ireland Ltd written public submission into its application for an incinerator at Clarecastle.

" The landfill cells currently in operation are designed to collect all leachate generated within the cells.

Ref: Roche Ireland Ltd written public submission into its application for an incinerator at Clarecastle.

"No hazardous waste is landfilled on site at Clarecastle"

Ref: Roche Ireland Ltd Annual Environmental Report

True state of Roche Ireland Ltd landfill

Roche Consultants URS Report Summary of Roche Ireland Ltd landfill.

"The wastes in the Roche landfill cells meet the criteria for consideration as hazardous wastes on the basis that they are capable of yielding substances with hazardous properties after being disposed of, such as leaching of hazardous materials and decomposition to form highly flammable gaseous substances (methane) or irritants (ammonia)"

Roche Consultants RPS Report Summary of H2 Area Landfill.

"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 c90,000 tonnes or 60,275m3 of hazardous wastes lie in the H2 area. The H2 area constitutes a significant environmental liability for Roche"

Roche Consultants URS in relation to the H2 Area

"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."

Roche Consultants URS in relation to Capping 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 Consultants URS in relation to removal of H2 Area waste

"Only removal and treatment or off-site disposal/destruction of the contaminated waste materials eliminates the potential future environmental liability associated with the buried drummed material etc"

Roche Consultants RPS in relation to excavating the Hazardous Waste in Roche Ireland Ltd

"the excavation of hazardous waste has health and safety, potential environmental pollution, odour, nuisance and public relations/community implications and may not be environmentally sustainable."

Full support documentation to the above is in my possession and a fee of €126 is enclosed.

Yours sincerely

Roger O'Mahony

6. LEACHATES

The objectors appear to have misunderstood the origin of filter aid cakes and spent carbon. The spent carbon referred to Schedule 3(ii) is not fly ash or slag and is not connected with the incinerator.

Powdered activated carbon is utilised in the manufacturing process to decolorise final products before they are isolated dried and packaged for sale. After it is used, the "spent" carbon is filtered from the solution of product in which it has been utilised and is deposited in the landfill. There is no question of it's being contaminated with PIC's.

The filter cake referred to in Schedule 3(ii) is produced during the manufacture of an intermediate, I-06-DLA. During the synthesis of this intermediate, a stable, inert dimeric by-product is produced. This material is 6-6-dimethoxy-2-2-binaphthalene. It's CAS No. is 29619-45-2. This material is filtered off in an admixture with filter aid and is deposited in the landfill. This material has nothing to do with the incinerator. It does not contain PIC's and there is no particular reason why it should contain dioxins.

If tests required by the EPA under Condition 7.2.4 and Schedule 3(ii) of the draft licence show that any material is unsuitable for disposal by landfill, it will not be buried in the landfill.

The objectors appear to have misunderstood the design of the existing landfill which is on the planning files of Clare County Council. It does not have a concrete base. The site is laid on an alluvial clay base of low permeability covered by a layer of sand, followed by a HDPE liner, a further layer of sand and yet another HDPE liner and a third layer of sand. There is leachate collection underneath the bottom HDPE liner and between the two liners to check for liner leakage of either liner in either direction.

9.2 On-Site Waste Disposal Report

Licence condition Condition 7.2 and Schedule 6(i)

No hazardous waste is land filled on site at Clarecastle. The land fill site is used primarily for the burial of domestic type refuse, builders' rubble, packaging etc. The site is also used for disposal of stabilised sludge from the wastewater treatment plant.

Table 9: Non-Hazardous Waste Disposal for 1999 on-site

Waste Material	EWC code	Source	Further treatment	Dry Weight (Tonnes)	Deposit location	Contractor
Waste packaging	07-05-99	Chemicals	Residue removed	79	Site landfill	Self
WWTP Sludge	07-05-02	WWTP processing	N/A	46	Site landfill	Self

Licence Condition Condition 7.1 and Schedule 6(i)

All hazardous liquid waste was either sent off site for incineration or was incinerated on site. All solid hazardous waste was incinerated off site.

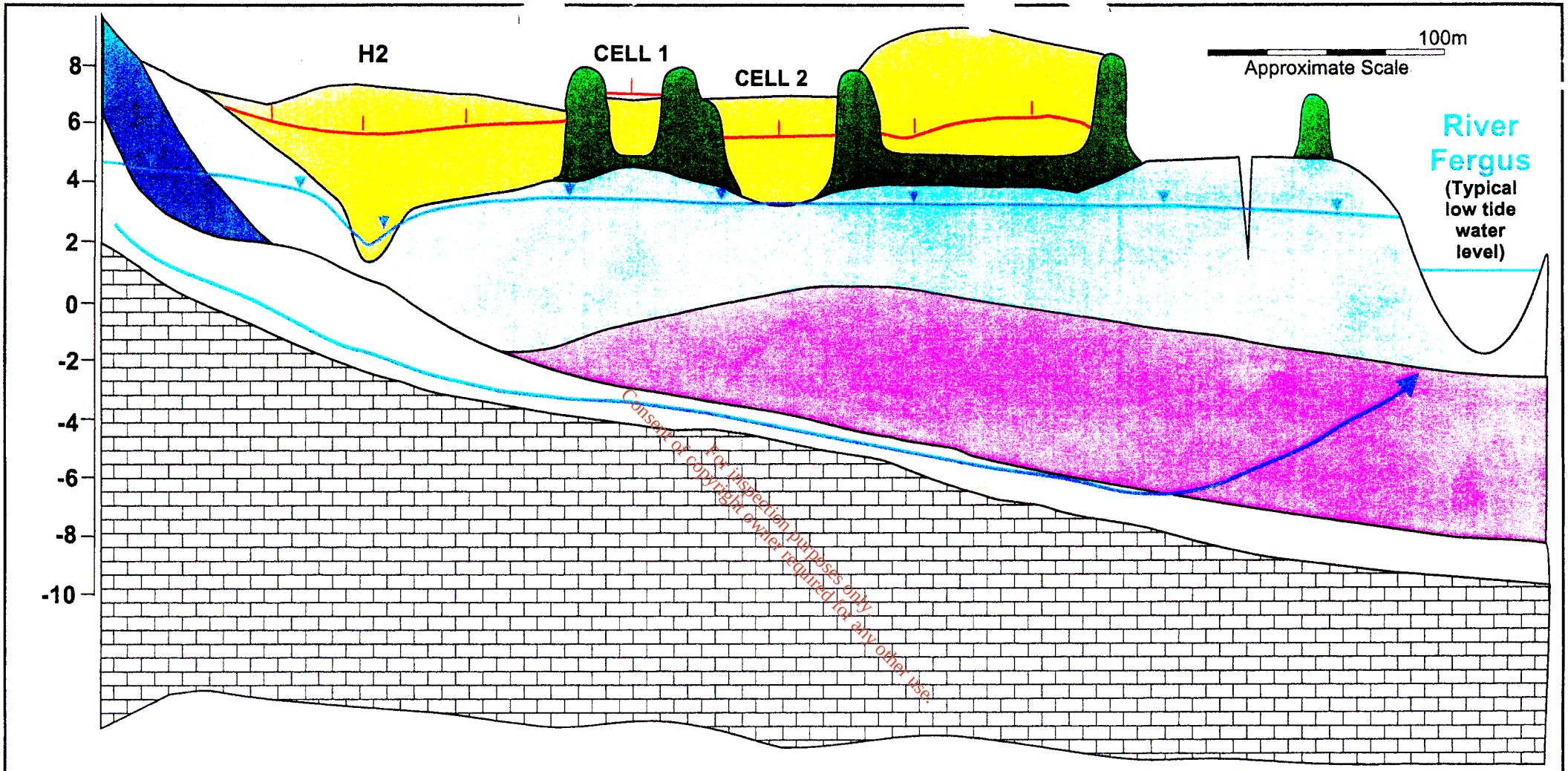
Incineration of liquid waste on-site began in on the 1st of October, 1998.

Total amount incinerated using the Roche Ireland incinerator: 2434 tonnes. The average composition of this waste is given in Table 10.

Table 10: On Site Liquid Hazardous Waste Disposal for 1999 Summary only.

Component	Methanol	Acetone	EtOAc	DCM	EtOH	Toluene	THF	Hexane	IPA	Other
Weight (Tonnes)	380.33	182.4	319.6	113.7	0	223.0	143.1	945	0	127

Total Solvent incinerated on site: 2434 tonnes



Title	SCHEMATIC HYDROGEOLOGICAL CROSS SECTION THROUGH LANDFILL CELLS H2, 1, 3 &4
Location	CLARECASTLE, CO CLARE
Client	ROCHE IRELAND

App'd	Reference	Date
	EO'H/COR	AUG 2004
TI App'd	Job No.	Scale
	33748-024-447	AS SHOWN

URS

FIGURE 4

Key

- Landfill Material
- Made Ground
- Soft-firm grey blue silty Clay
- Loose grey brown silty Sand
- Stiff brown gravelly Clay (Boulder Clay)
- Very dense Gravel (Broken Rock)
- Hard, grey black, fine grained fossiliferous Limestone Bedrock
- Groundwater level in Landfill Waste
- Groundwater level in shallow aquifer
- Generalised direction of groundwater flow in shallow aquifer

NW-SE Location of cross section as identified in Figure 2

2 H2 AREA LANDFILL

The URS Risk Assessment Report (Environmental Risk Assessment of *Roche* Landfill Area [Revision 1] Oct 2005) discusses the landfill and waste properties of the H2 area in detail.

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. There was also a deep (5m deep, 750m^3 capacity) trench through the centre of the area, close to well H2, in which some drummed wastes were disposed of. The H2 area is underlain by soft silty clay, underlain by peat in places, overlying rock (weathered limestone) which is considered a shallow aquifer. URS determine that the clay layer is between 0.6 and 3.0 m thick in the H2 landfill area.

Wastes disposed of in the H2 landfill included metal and plastic drums of mauser, dimer, magnesium, suspected hydrochloric acid and spent carbon, undrummed carbon waste, rubber hoses, rubble, wire, polythene sacks (formerly containing potassium hydride and dimer), undrummed white powders/pastes, cement bags, plastic sheeting, wooden pallets, timber, gloves, pipes, cables, paint tins, woven sacks, construction wastes, mesh/netting, centrifuge core mesh, aluminium cladding, fibre drums, glass sample bottles and secondary sludge. All of this waste would be collectively considered to be hazardous waste as defined by the EPA, based on the European Waste Catalogue System (EWC) of waste classification.

Leachate in the H2 cell is actively gassing (bubbling) in places (Dames & Moore 1997, URS, 2005). Trial pit grab samples of leachate/shallow groundwater in 2005 detected VOC compounds in the leachate of dichloromethane (DCM) (0.01- 110 mg/L), chloroform (0.012-5.4 mg/L) and toluene (0.098-857 mg/L). Leachate was extracted from two pumping wells within the H2 cell for several years in the 1990s, but this has now ceased.To the south of the H2 area, well 216 has historically shown elevated toluene (up to 38 mg/l in 1996) and THF (up to 84 mg/l in 1997). Drummed wastes were reported intersected during drilling of well 216 in 1996, which is screened in the shallow aquifer between 4.6 and 5.6 metres below ground.

Drilling of well 702 at the southern end of the H2 area in 2001 led to significant rises in concentration of toluene, DCM and THF in nearby wells 21 and 216, which was inferred to be due to disturbance of drummed wastes. A rise in THF concentrations has been noted in wells 514, 517 and 702 close to or downgradient of wells 21, 216 and 702 in 2003 and 2004 following this incident in 2001. The nature of construction of well 702 appears to provide a contamination pathway.

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 c.90,000 tonnes or 60,275m^3 of hazardous wastes lie in the H2 area. The H2 area constitutes a significant environmental liability for *Roche*. Hence a review of the risk assessment and a determination on remediation strategy and options is required.