

Wexford Creamery

Environmental Liabilities Risk Assessment

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May 2010
Wexford Creamery



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Rocklands, Wexford, Co. Wexford

Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
A	May 2010	A. Lambe	FMcG	FMcG	Initial Issue

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1. Introduction

The facility's requirement for Environmental Liability Risk Assessment is contained within Condition 12.2.2 as follows:

"The licensee shall arrange for the completion, by an independent and appropriately qualified consultant, of a comprehensive and fully costed Environmental Liabilities Risk Assessment (ELRA), which addresses the liabilities from past and present activities. The assessment shall include those liabilities and costs identified in Condition 10 for execution of the Decommissioning Plan. A report on this assessment shall be submitted to the Agency for agreement within twelve months of date of grant of this licence. The ELRA shall be reviewed as necessary to reflect any significant change on site, and in any case every three years following initial agreement: review results are to be notified as part of the AER."

This report is intended to comply with the requirements outlined in Environmental Liability Risk Assessment guidance.

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2. Risk Identification

2.1 Introduction

Wexford Creamery Ltd. was established in 1963. It is located approximately one mile south of Wexford town off the Wexford-Rosslare Road (R730) and overlooks the Slaney Estuary to the east. There are residential areas to the south, north and west of the site. The Wexford Creamery site is approximately 5.6 Hectares, comprises of process areas, cold storage and miscellaneous storage areas, administrative, maintenance areas, and car parking areas.

The site is shared with Nutrica Manufacturing Ltd (now Danone). Process effluent is treated at a waste water treatment facility (shared with Nutrica) located outside the south-east boundary of the site. The waste water treatment plant is licensed by Wexford County Council under SSW/182/05 and discharges to the Slaney Estuary. Sludge is removed from the waste water treatment facility by a licensed contractor and landspread subject to an annual Nutrient Management Plan. The waste water treatment plant is not included under the IPPC licence and therefore is outside the scope of this report.

The main activities on the Wexford Creamery Ltd. site include liquid milk processing, cheddar cheese manufacture and whey concentration. Approximately 8 million litres of milk is processed per annum. Annual cheddar cheese production is in the order of 14,000 tonnes. Approximately 6,000 tonnes of whey concentrate is produced as a by-product of cheese production.

The primary material for production at the site is raw milk. Other raw materials in the liquid milk process include starter culture and vitamins. Packaging includes Tetra cartons, plastic bottles and plastic tubs. Following collection from local farms and delivery by road tanker milk is cooled, tested and pumped to the onsite storage silos. The milk is pasteurised, separated and homogenised and packed into cartons or polybottles. Product range includes Full Fat Milk, Low Fat Milk, Skim Milk, Nutrimilk, Cream and Buttermilk. Cold storage is provided.

Following reception, pasteurisation and testing of raw milk at the site (as outlined above), milk is transferred to the cheese vats, where bulk starter and rennet is added and the ripening and coagulation commences. After 2 hours, the clot is cut and curds and whey are formed. After separation on the draining belt, whey is transferred to the evaporator plant where it concentrated to 25-30% Total Solids by Reverse Osmosis/ Evaporation. The curd is further drained and then blown to top of cheddar tower where it compresses into cheddar. The compressed cheddar is milled, salted and formed into 20kg blocks. The blocks are sealed, weighed and boxed. Cheese is rapidly cooled and palletised. It is stored and graded after 10 weeks.

Most of the vats, vessels, pipelines and other plant equipment are cleaned in place (CIP) which is automated. Cleaning solutions are usually dilute solutions of acid and caustic. Bundled chemical storage of the concentrated nitric (50%) and caustic (30%) and concentrated lactol (50%).

2.2 Identification of Environmental Receptors

The site is licensed under the activity class "Food and Drink 7.2.1 the treatment and processing of milk the quantity of milk received being greater than 200 tonnes per day (average value on a yearly basis)". The complexity band for this activity is G3, based on the Office of Environmental Enforcement (OEE) proposed banding (with G1 least complex to G5 most complex).

The Environmental Sensitivity of the Site is set out in Table 2.5.1. There are residential areas to the south, north and west of the site.

There are three designated areas adjacent to the site, namely the Wexford Slobs and Harbour NHA, Slaney River Valley SAC and Wexford Harbour and Slobs SPA. A southern section of the site is contained within the Wexford Slobs and Harbour NHA and Slaney River SAC.

Wexford Harbour is the receiving waters and is classified as Moderate Status (Class B) (www.wfdireland.ie). Wexford Harbour is designated under First Schedule, Part 3 of the Urban Wastewater Treatment (Amendment) Regulations 2010 S.I. No 48 of 2010.

The aquifer is classified as poor (www.gsi.ie), the draft groundwater vulnerability map for the area (from GSI) indicated a site of low vulnerability.

There are no emissions to air of any environmental significance from Wexford Creamery Ltd. site.

The Total Environmental Attribute Score is 11; therefore the site is classified as Moderate with an Environmental Sensitivity Classification of 2.

There is no history of non-compliance or any activities which have resulted in contamination or pollution. The monitoring results of the discharge to the WWTP are compliant with the standards in the licence.

Table 2.5.1 sets out the Step 1 Operation Risk Assessment for the Site.

Based on the use of the Initial Screening Risk Assessment (Step 1 of EPA Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision) the site is considered Category 2.

Table 2.5.1 Step 1 Operation Risk Assessment

Complexity	Complexity Band	Score
Licensed Activity Class:		
7.2.1 The treatment and processing of milk, the quantity of milk received being greater than 200 tonnes per day (average value on a yearly basis).	G3	3
Environmental Sensitivity	Sub Matrix Score	Score
Human Occupation - Located <50m from Site	5	
Groundwater Protection - Aquifer - Vulnerability	0	Poor Aquifer (www.gsi.ie) Low - DRAFT groundwater vulnerability map (correspondence with GSI)
Sensitivity of Receiving Waters - Class - Designated Coastal and Estuarine Waters	2	Moderate (Class B) (www.wfdireland.ie) Wexford Harbour (First Schedule, Part 3) URBAN WASTE WATER TREATMENT (AMENDMENT) REGULATIONS 2010 S.I. No. 48 of 2010
Protected Ecological Sites and Species - Located <1km from Site	2	Wexford Slobs and Harbour NHA, Stanley River Valley SAC, Wexford Harbour and Slobs SPA
Air Quality and Topography	0	No air emissions
Sensitive Agricultural Receptors - Fruit, vegetable or dairy farming >150m from activity footprint	0	
Total Environmental Sensitivity	11	2
Compliance Record	Score	
No history of non-compliance or any activities which have resulted in contamination or pollution	1	
OVERALL RISK SCORE / RISK CATEGORY		
OVERALL RISK SCORE	3 x 2 x 1	6
Complexity x Environmental Sensitivity x Compliance Record		
RISK CATEGORY	Category 2	

2.3 Identification of Risks from Processes on Site

The risks identified at the site are set out in Table 3.3.

3. Risk Assessment

The Risk Classification Tables 3.1 and 3.2 have been designed to reflect the critical levels of risk appropriate to the site. The cost of remediation reflects cost of remediation associated with the sensitive nature of the receiving waters and the proximity of designated areas.

Table 3.1 Risk Classification Table - Occurrence

Rating	Category	Description	Likelihood of Occurrence (%)
1	Negligible	Very low chance (0-5%) of hazard occurring during operating period	0 - 5
2	Low	Low chance (5-10%) of hazard occurring during operating period	5 - 10
3	Medium	Medium chance (10-20%) of hazard occurring during operating period	10 - 20
4	High	High chance (20-50%) of hazard occurring during operating period	20 - 50
5	Very High	Greater than 50% chance of hazard occurring during operating period	>50

Table 3.2 Risk Classification Table - Severity

Rating	Category	Description	Cost of Remediation
1	Trivial	No damage or negligible change to the environment	€0 - 1,000
2	Minor	Minor impact/ localised or nuisance	€1,000 - 5,000
3	Moderate	Moderate damage to environment	€5,000 - 25,000
4	Major	Severe damage to local environment	€25,000 - 50,000
5	Massive	Massive damage to a large area, irreversible in medium term	€50,000 - 100,000

Table 3.3 sets out the Risk Assessment and the overall Risk Score for each risk identified. The basis for the severity and occurrence rating is given in the table.





Table 3.3 Risk Assessment Form

Risk ID	Process	Potential Hazards	Environmental Effect	Severity Rating	Basis of Severity	Occurrence Rating	Basis of Occurrence	Risk Score (Severity x Occurrence)
1	Milk Intake	Spillages from Tanker	overloading of WWTP, high BOD load to receiving waters, potential for fish kill	2	Would be noticed. Duration of event would be very short.	3	experienced personnel, regular inspection and maintenance of equipment	6
2	Milk Processing/ Storage	Leak from Silo	overloading of WWTP, high BOD load to receiving waters, potential for fish kill	2	Would be noticed. Duration of event would be very short.	3	experienced personnel, regular inspection and maintenance of equipment	6
3	Milk Processing/ Storage	collapse/ damage silo	groundwater contamination, overloading of WWTP, high BOD load to receiving waters, potential for fish kill	4	High BOD load	2	experienced personnel, site maintained and operated safely, regular inspection and maintenance	8
4	Chemical Storage	Leak from Bund	groundwater contamination, impact on surface waters with potential for fish kill	3	Potential for pH disturbance in receiving waters	3	Regular inspection and maintenance of bunded areas	9
5	Diesel Bunding	Leak from Bund	groundwater contamination, impact on surface waters with potential for fish kill	3	oil interceptor chamber will mitigate but close proximity to protected areas	3	Regular inspection and maintenance of bunded areas	9

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Table 3.4 Risk Matrix – Current Risk Status

Occurrence	V. High	5				
	High	4				
	Medium	3		1,2	4,5	
	Low	2				3
	V. Low	1				
				Trivial	Minor	Moderate
			1	2	3	4
						Massive
						5
						Severity

-  These are considered to be high-level risks requiring priority attention. These risks have the potential to be catastrophic and as such should be addressed quickly.
-  These are medium-level risks requiring action, but are not as critical as a red coded risk.
-  Green (light and dark green) – These are lowest-level risks and indicate a need for continuing awareness and monitoring on a regular basis.
-  Whilst they are currently low or minor risks, some have the potential to increase to medium or even high-level risks and must therefore be regularly monitored

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4. Identification and Assessment of Risk Mitigation

Table 4.1 Risk Assessment Mitigation Form

Risk ID	Process	Potential Hazards	Risk Manager	Time to Complete Mitigation Measures	Revised Severity Rating	Revised Occurrence Rating	Revised Risk Score (Severity x Occurrence)
1	Milk Intake	Spillages from Tanker	Quality/ Technical Manager	On-going	2	2	4
2	Milk Processing/ Storage	Leak from Silo	Quality/ Technical Manager	On-going	2	2	4
3	Milk Processing/ Storage	collapse/ damage silo	Quality/ Technical Manager	On-going	4	2	8
4	Chemical Storage	Leak from Bund	Quality/ Technical Manager	Within 3 months	3	2	6
5	Diesel Bunding	Leak from Bund	Quality/ Technical Manager	Within 3 months	3	2	6

5. Assessment of Environmental Liabilities

The 'unknown' environmental liabilities are associated with the environmental risks at the site which may or may not occur.

The worst, mostly likely and best case scenarios were calculated are presented in Tables 5.1 to 5.3 below.

(Risk as per Table 3.3) Table 5.1 Lowest Cost Scenario

Risk	Occurrence rating	Likelihood of Occurrence range	Severity rating	Cost range	Low Probability	Low Severity	Lowest Cost Scenario
1	3	10-20%	2	€1,000-5,000	10.00%	€1,000	€100
2	3	10-20%	2	€1,000-5,000	10.00%	€1,000	€100
3	2	5-10%	4	€25,000-50,000	5.00%	€25,000	€1,250
4	3	10-20%	3	€5,000-25,000	10.00%	€5,000	€500
5	3	10-20%	3	€5,000-25,000	10.00%	€5,000	€500

Table 5.2 Most Likely Scenario

Risk	Occurrence rating	Likelihood of Occurrence range	Severity rating	Cost range	Median Probability	Median Severity	Most Likely Scenario Cost
1	3	10-20%	2	€1,000-5,000	15.00%	€3,000	€450
2	3	10-20%	2	€1,000-5,000	15.00%	€3,000	€450
3	2	5-10%	4	€25,000-50,000	7.50%	€37,500	€2,812.5
4	3	10-20%	3	€5,000-25,000	15.00%	€15,000	€2,250
5	3	10-20%	3	€5,000-25,000	15.00%	€15,000	€2,250

Table 5.3 Highest cost Scenario

Risk	Occurrence rating	Likelihood of Occurrence range	Severity rating	Cost range	Worst Case Probability	Worst Case Severity	Worst Cost Scenario
1	3	10-20%	2	€1,000-5,000	20.00%	€5,000	€1,000
2	3	10-20%	2	€1,000-5,000	20.00%	€5,000	€1,000
3	2	5-10%	4	€25,000-50,000	10.00%	€50,000	€5,000
4	3	10-20%	3	€5,000-25,000	20.00%	€25,000	€5,000
5	3	10-20%	3	€5,000-25,000	20.00%	€25,000	€5,000

Table 5.4 Summary of Potential "Unknown" Liabilities

Description	Estimate of "Unknown" Environmental Liabilities	Assumptions
Highest Cost Scenario	€17,000	Assumes all risks occur at their maximum cost
Lowest Cost Scenario	€2,450	Assumes risks occur at lowest cost
Most Likely Scenario	€8,212.5	Based on median probability and severity for each risk.

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Wexford Creamery

Residuals Management Plan

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Residuals Management Plan

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A	May 2010	A. Lambe	FMcG	FMcG	Initial Issue

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1. Introduction

Condition 10 (Decommissioning and Closure) of the company's IPPC Licence states that:

"10.1 Following termination, or planned cessation for a period greater than six months, of use or involvement of all or part of the site in the licensed activity, the licensee shall, to the satisfaction of the Agency, decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.

10.2 Residuals Management Plan

10.2.1 The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for the decommissioning or closure of the site or part thereof. This plan shall be submitted to the Agency for agreement within six months of the date of grant of this licence.

10.2.2 The plan shall be reviewed annually and proposed amendments thereto notified to the Agency for agreement as part of the AER. No amendments may be implemented without the agreement of the Agency.

10.2.3 The licensee shall have regard to the Environmental Protection Agency Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision when implementing Conditions 10.2.1 and 10.2.2 above.

10.3 The Residuals Management Plan shall include, as a minimum, the following:

- i. A scope statement for the plan.*
- ii. The criteria that define the successful decommissioning of the activity or part thereof, which ensures minimum impact on the environment.*
- iii. A programme to achieve the stated criteria.*
- iv. Where relevant, a test programme to demonstrate the successful implementation of the decommissioning plan.*
- v. Details of the costings for the plan and the financial provisions to underwrite those costs.*

10.4 A final validation report to include a certificate of completion for the residuals management plan, for all or part of the site as necessary, shall be submitted to the Agency within three months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment."

This report is intended to comply with the requirements outlined in Residual Management Plan guidance.

2. Site Evaluation

2.1 Description of Site

Wexford Creamery Ltd. was established in 1963. It is located approximately one mile south of Wexford town off the Wexford-Rosslare Road (R730) and overlooks the Slaney Estuary to the east. There are residential areas to the south, north and west of the site. The Wexford Creamery site is approximately 5.6 Hectares, comprises of process areas, cold storage and miscellaneous storage areas, administrative, maintenance areas, and car parking areas.

The site is shared with Nutrica Manufacturing Ltd (now Danone). Process effluent is treated at a waste water treatment facility (shared with Nutrica) located outside the south-east boundary of the site. The waste water treatment plant is licensed by Wexford County Council under SS/W182/05 and discharges to the Slaney Estuary. Sludge is removed from the waste water treatment facility by a licensed contractor and landspread subject to an annual Nutrient Management Plan. The waste water treatment plant is not included under the IPPC licence and therefore is outside the scope of this report.

The main activities on the Wexford Creamery Ltd. site include liquid milk processing, cheddar cheese manufacture and whey concentration. Approximately 8 million litres of milk is processed per annum. Annual cheddar cheese production is in the order of 14,000 tonnes. Approximately 6,000 tonnes of whey concentrate is produced as a by-product of cheese production.

The primary material for production at the site is raw milk. Other raw materials in the liquid milk process include starter culture and vitamins. Packaging includes Tetra cartons, plastic bottles and plastic tubs. Following collection from local farms and delivery by road tanker milk is cooled, tested and pumped to the onsite storage silos. The milk is pasteurised, separated and homogenised and packed into cartons or polybottles. Product range includes Full Fat Milk, Low Fat Milk, Skim Milk, Nutrimilk, Cream and Buttermilk. Cold storage is provided.

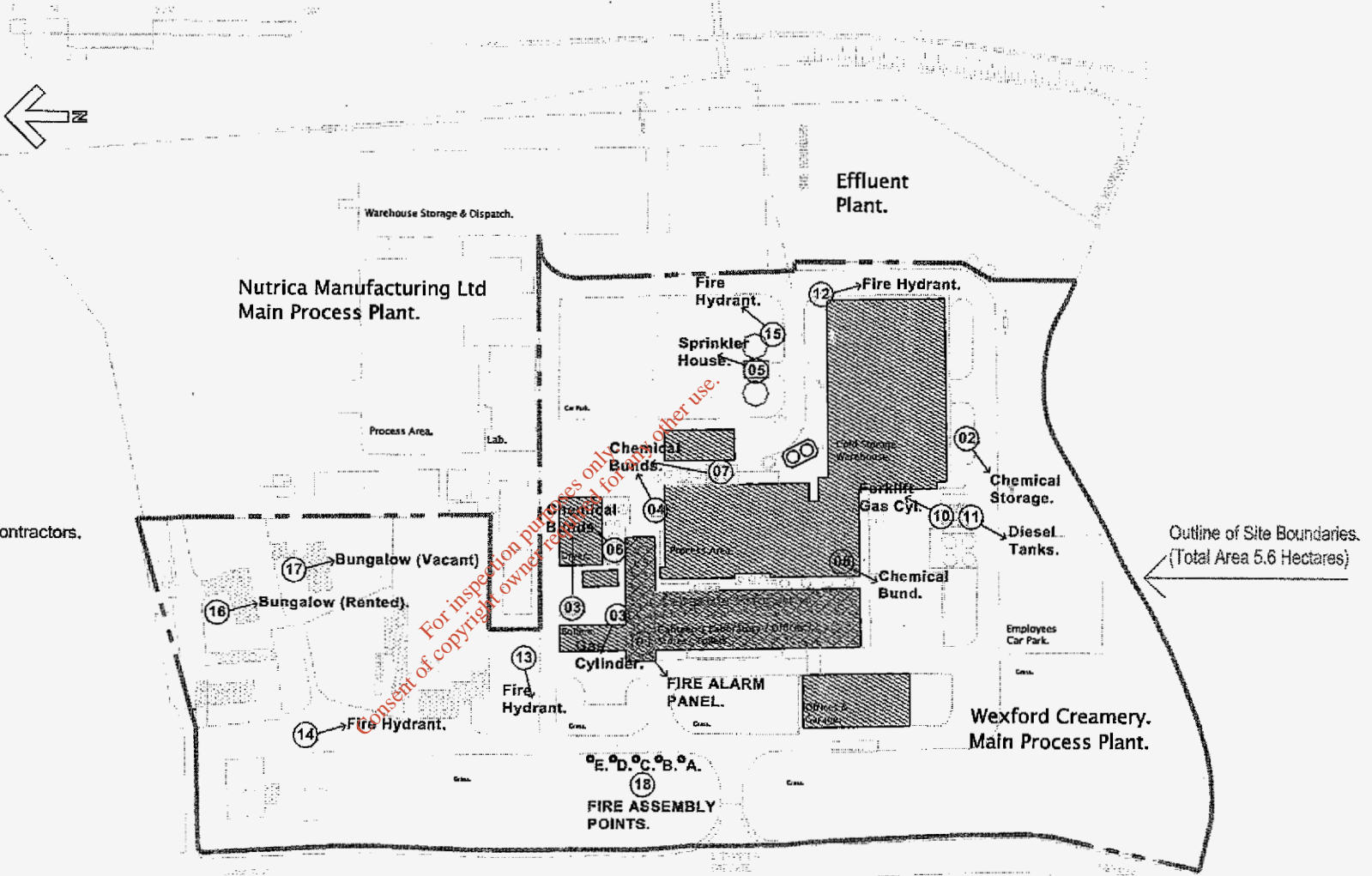
Following reception, pasteurisation and testing of raw milk at the site (as outlined above), milk is transferred to the cheese vats, where bulk starter and rennet is added and the ripening and coagulation commences. After 2 hours, the clot is cut and curds and whey are formed. After separation on the draining belt, whey is transferred to the evaporator plant where it concentrated to 25-30% Total Solids by Reverse Osmosis/ Evaporation. The curd is further drained and then blown to top of cheddar tower where it compresses into cheddar. The compressed cheddar is milled, salted and formed into 20kg blocks. The blocks are sealed, weighed and boxed. Cheese is rapidly cooled and palletised. It is stored and graded after 10 weeks.

Most of the vats, vessels, pipelines and other plant equipment are cleaned in place (CIP) which is automated. Cleaning solutions are usually dilute solutions of acid and caustic. Bunded chemical storage of the concentrated nitric (50%) and caustic (30%) are located at 03, with concentrated lactol (50%) at 04 (please refer to legend on attached drawing for location reference).

Bunded hypochlorite for water treatment is stored at reservoirs. Other chemicals for water treatment are stored at 06 and at bunded chemical storage area 02 (please refer to legend on attached drawing for location reference).

LEGEND.

- 01 - Fire Alarm Panel.
- 02 - Chemical Storage.
- 03 - Chemical Bund.
- 04 - Chemical Bund.
- 05 - Sprinkler House.
- 06 - Chemical Bund.
- 07 - Chemical Bund.
- 08 - Chemical Bund.
- 09 - Gas Cylinder.
- 10 - Forklift Gas Cylinder.
- 11 - Diesel Tanks.
- 12 - Fire Hydrant.
- 13 - Fire Hydrant.
- 14 - Fire Hydrant.
- 15 - Fire Hydrant.
- 16 - Bungalow (Rented)
- 17 - Bungalow (Vacant)
- 18 - Fire Assembly Points
- A. - Laboratory / Stores.
- B. - Office/Canteen/Visitors.
- C. - Cheese/Packing Room.
- D. - Evaporator Plant / Maintenance / Contractors.
- E. - Liquid Milk / Lorry Drivers.



Scale: 1:1500

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		P1	30.01.09	BD	ISSUED FOR INFORMATION	BD		GENERAL ARRANGMENT OVERALL SITE LAYOUT	Checked	BD
								Site Safety Legend.	Approved	BD
								Scale at A3 1:1500		
								Drawing No. 231787IP01-A001-B.	Rev	Status
									PI	Pre.

2.3 Inventory of Site Plant and Raw Materials

An inventory of Site Plant and Raw Materials include:

1. Buildings and Infrastructure
 - a. Process Buildings
 - b. Cold Storage Warehouse
 - c. Canteen /Laboratory / Office
 - d. Offices and Garage
 - e. 2 Nr. bungalows and Rockland House (vacant)
 - f. Bunded areas
 - g. Chemical Storage Tanks
 - h. Raw Milk Silos
 - i. Water Reservoirs and Sprinkler House
2. Plant
 - a. Laboratory Equipment
 - b. Pasteuriser
 - c. Separator
 - d. Homogeniser
 - e. Cheddar master Draining and Conveyor, Tower and Mill and Salting Conveyor
 - f. Packing Plant
 - g. Condensers
 - h. Heat Exchangers
 - i. Compressors
 - j. Chiller and Refrigeration Units
 - k. Water Softener Plant

- l. Air conditioning
- m. CIP system
- n. Various tanks, pumps, valves etc.
- o. Electrical control panels

3. Raw Materials

- a. The primary raw material is raw milk.
- b. Other raw materials include starter culture, rennet, salt, colouring, vitamins.
- c. Packaging
- d. Main energy sources include electricity and steam (purchased from adjoining facility)

4. Chemicals and Fuel

The chemicals utilised in process areas/ activity is contained in Table 2.3.1. The capacity of each chemical stored onsite is provided where available.

Table 2.3.1 Inventory of Chemicals

Chemical	Activity/ Area
Ammonia	Refrigeration
Acetylene	Maintenance
Argon	Maintenance
Activ 8	Cooling Towers
Activox 20	Cooling Towers
Bromguard	Cooling Towers
Freon 22	Refrigeration
Nitrogen	Refrigeration
Oxygen	Maintenance
Memalk	Evaporator
Memacid	Evaporator
Memsan L	Evaporator
Memzyme	Evaporator
Lactol	Production
Peracetic Acid	Production
Caustic Soda	Production
Nitric Acid	Production
Sodium Hypochloride	Production

The main diesel storage area is located on the southern side of the site, with smaller diesel storage located in the sprinkler house and at the bungalows (for central heating). The main diesel storage area can accommodate 75.8 m³ (37.9 m³ x 2).

Caustic and nitric storage tanks have capacity of 27.28 m³ each. Bulk Lactol tank has capacity for 27.88 m³.

2.4 Details of Site Wastes and Decontamination Requirements

Table 2.4.1 Site Wastes for 2009

Waste	Tonnes
Mixed waste	67.56
Timber	5.84
Kitchen/canteen waste	3.34
Recyclables	23.22
Liquid Milk	21.03
Metal	6.36
Plastic	1.3
Waste Oils	0

The tonnages of wastes presented in Table 2.4.1 are those for the whole of 2009. It is anticipated that waste removal from the site will continue as at present, and waste shipments undertaken as part of the closure of the site will be undertaken in line with current practices onsite.

Asbestos

A Type 2 asbestos survey of the Service Ducts was undertaken in 2009. The roof over the Amenity Block consists of a corrugated asbestos roof. The asbestos containing materials will be removed and disposed by a licensed waste contractor in accordance with best practice and in compliance with S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos Regulations, 2006). Prior to the demolition and removal of the Amenity Building (or part thereof) an Asbestos Survey (in accordance with the Health and Safety Executive's (UK) guidance document MDHS100 and HSG 227) will be undertaken by a specialist contractor.

2.5 Initial Screening and Operational Risk Assessment

The site is licensed under the activity class "Food and Drink 7.2.1 the treatment and processing of milk the quantity of milk received being greater than 200 tonnes per day (average value on a yearly basis)". The complexity band for this activity is G3, based on the Office of Environmental Enforcement (OEE) proposed banding (with G1 least complex to G5 most complex).

The Environmental Sensitivity of the Site is set out in Table 2.5.1. There are residential areas to the south, north and west of the site.

There are three designated areas adjacent to the site, namely the Wexford Slobs and Harbour NHA, Slaney River Valley SAC and Wexford Harbour and Slobs SPA. A southern section of the site is contained within the Wexford Slobs and Harbour NHA and Slaney River SAC.

Wexford Harbour is the receiving waters and is classified as Moderate Status (Class B) (www.wfdireland.ie). Wexford Harbour is designated under First Schedule, Part 3 of the Urban Wastewater Treatment (Amendment) Regulations 2010 S.I. No 48 of 2010.

The aquifer is classified as poor (www.gsi.ie), the draft groundwater vulnerability map for the area (from GSI) indicated a site of low vulnerability.

There are no emissions to air of any environmental significance from Wexford Creamery Ltd. site.

The Total Environmental Attribute Score is 11; therefore the site is classified as Moderate with an Environmental Sensitivity Classification of 2.

There is no history of non-compliance or any activities which have resulted in contamination or pollution. The monitoring results of the discharge to the WWTP are compliant with the standards in the licence.

Table 2.5.1 sets out the Step 1 Operation Risk Assessment for the Site.

Based on the use of the Initial Screening Risk Assessment (Step 1 of EPA Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision) the site is considered Category 2.

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Table 2.5.1 Step 1 Operation Risk Assessment

Complexity	Complexity Band	Score	
Licensed Activity Class:			
7.2.1 The treatment and processing of milk, the quantity of milk received being greater than 200 tonnes per day (average value on a yearly basis).	G3	3	
Environmental Sensitivity	Sub Matrix Score	Score	
Human Occupation - Located <50m from Site	5		
Groundwater Protection - Aquifer - Vulnerability	0 0		Poor Aquifer (www.gsi.ie) Low - DRAFT groundwater vulnerability map (correspondence with GSI)
Sensitivity of Receiving Waters - Class - Designated Coastal and Estuarine Waters	2 2		Moderate (Class B) (www.wfdireland.ie) Wexford Harbour (First Schedule, Part 3) URBAN WASTE WATER TREATMENT (AMENDMENT) REGULATIONS 2010 S.I. No. 48 of 2010
Protected Ecological Sites and Species - Located <1km from Site	2		Wexford Slobbs and Harbour NHA, Slaney River Valley SAC, Wexford Harbour and Slobbs SPA
Air Quality and Topography	0		No air emissions
Sensitive Agricultural Receptors - Fruit, vegetable or dairy farming >150m from activity footprint	0		
Total Environmental Sensitivity	11	2	
Compliance Record		Score	
No history of non-compliance or any activities which have resulted in contamination or pollution		1	
OVERALL RISK SCORE / RISK CATEGORY			
OVERALL RISK SCORE Complexity x Environmental Sensitivity x Compliance Record	3 x 2 x 1	6	
RISK CATEGORY		Category 2	

3. Residual Management Plan Scope and Criteria

3.1 Introduction and Scope of Plan

"10.1 Following termination, or planned cessation for a period greater than six months, of use or involvement of all or part of the site in the licensed activity, the licensee shall, to the satisfaction of the Agency, decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution."

The scope of this plan addresses the key issues, which would occur in an orderly shutdown of the activity or part thereof over the closure period of 5 months (for a full closure). Refer to Table 3.1.1 for closure programme. The closure programme details the cessation of processing activities and makes an allowance for the shutting down of processing activities and for the removal of the final product from site. This time period may be reduced depending on production.

The scope does not include costs associated with reinstating all grounds for a specified use or returning the site to greenfield status.

The scope of the plan includes the following major activities:

1. Setting up a management structure to oversee the Residuals Management Plan.
2. Cessation of all production activities
3. Removal of all remaining raw materials and final products from the site
4. Cleaning and decontamination of all equipment and buildings
5. Demolition of Buildings (if required)
6. Groundwater monitoring.

A residual includes any potentially contaminating material and includes chemicals, wastes, buildings and equipment. In general, specialist equipment will be sold or distributed to other plants in the event of a shut down. It is not intended to remove all structures from the site.

It is envisaged that suitably qualified employees at Wexford Creamery will manage and oversee the Residuals Management Plan. Outside contractors required for cleaning, recycling activities or waste disposal would be licensed and approved.

This section details the plant, buildings, equipment and other materials, which require consideration as part of the closure process. The closure is detailed with regard to the closure of process areas/ activities, with further details regarding the overall residuals present onsite. Details of residuals which require decontamination and the proposed method of decontamination are provided.

It is expected that clean closure will be achieved; a benchmark set of criteria for clean closure for Wexford Creamery Ltd. is set out in Section 3.2.



Table 3.1.1 Programme

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20
Cessation of receipt of Raw Milk	x																			
Cessation of Milk Processing	x																			
Removal of Milk Product		x	x																	
Cessation of Cheese Processing Activities											x									
Removal of Cheese Product												x	x							
Closure of Cold Store																				
Laboratory, Maintenance other ops. cessation														x						
Milk Silos cleaning			x																	
Chemicals and fuel removal															x					
Plant inventory															x	x				
Plant decontamination, decommissioning and removal																x	x	x	x	
Removal of Silos																	x			
Removal of General Wastes																	x		x	
Building decontamination, inspection																	x			
Removal of Hazardous Building materials (demolition)																		x	x	
Groundwater Monitoring	x																			x

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Milk Intake, Liquid Milk Processing and Cheese Processing Plant

Upon implementation of the Residuals Management Plan, the transfer of Raw Milk to the site will cease. Once the intake of milk has discontinued, all milk in storage will be processed. Then the intake bays and storage silos will be cleaned using cleaning in place (CIP). The washings from this area will be treated in the effluent treatment plant.

Once the final raw milk has been processed and packaged, the processing and packing plants would be cleaned using cleaning in place. The washings will be treated in the effluent treatment plant.

Any raw materials which cannot be returned to the supplier whether due to minimal volume constraints or failure to find a suitable user for the material will be treated as a waste product and treated accordingly as outlined in the section of this plan detailing waste handling and disposal.

The processing plant will be isolated from the power source. The plant will then be drained of any oils/chemicals and taken offsite for reuse or sale. If this is not viable, the plant will be dismantled and sold as scrap metal.

The processed and packaged milk and final cheese product will be removed from the site over a number of weeks subject to the quantity of product onsite at the time of the plant shutdown. Once the final product is removed the refrigeration area will be decommissioned. The refrigeration and compressor units on site will be decommissioned using a specialist contractor. The ammonia, freon and nitrogen gases will be removed, analysed and if suitable re-used. If contamination has occurred the gases will be disposed of using a specialist waste contractor.

Once plant is removed the process building and refrigeration building will be washed. The washings will be treated in the effluent treatment plant.

Ancillary Services

Ancillary services areas such as Water Treatment, Laboratory, Offices, Garage and Canteen, will be decommissioned in a timely manner.

Water Treatment

Water is purchased from Wexford County Council and supplemented with on-site well water. All water is pumped to the site reservoir and chlorinated prior to use. IBC water treatment chemicals i.e. hypochlorite are stored at the reservoirs on the northern side of the site. It is anticipated that there will be minimal quantities of hypochlorite remaining onsite. Any hypochlorite remaining onsite which cannot be returned to the vendor will be disposed of with other waste chemicals.

The sprinkler house will be decommissioned, with plant not suitable for reuse or resale, sold as scrap metal or waste as appropriate.

Laboratory

All opened laboratory chemicals and reagents would be disposed of using a hazardous waste contractor. Unopened, in date stock would be returned to the vendor or reused in other sites. All services to the

laboratory would be disconnected. Laboratory equipment which is suitable for reuse will be sold or redistributed to another plant. Other equipment will be sold as scrap materials or as waste as appropriate.

Offices and Garage

Office and garage equipment will be isolated from electricity supply. Suitable office and garage equipment will be redistributed to another site, sold for reuse or recycled as scrap materials and disposed of by a licensed contractor.

Canteen

Canteen equipment and furniture will be sold for reuse or recycled as scrap materials and disposed of by a licensed contractor as appropriate.

Chemicals and Fuel

The quantities of bulk chemicals onsite will be monitored in accordance with the scheduled shut down of the site. Bulk chemicals will be returned to the vendor. The bulk chemical storage tanks will be decommissioned and will either be distributed to another site or sold as scrap metal, once they have been decontaminated.

It is anticipated that the quantities of dilute chemicals stored at the CIP centres will be minimal following final chemical cleaning of the silos and processing equipment. Any remaining CIP chemicals at these stations will be disposed of using a hazardous waste contractor.

The ordering and supply of diesel to the site will be inline with the planned cessation of activities onsite. Diesel residuals remaining onsite in the bunded storage area will be returned to the vendor or reused in other sites.

The underground oil interceptor chamber situated south-east of the diesel storage area will be jetted and cleaned by a specialist contract. The washings will be removed from site and treated by a licensed contractor. It is not proposed to demolish the underground tank.

Buildings and Infrastructure

The decommissioning of activities in the respective buildings (process) is discussed above. Once the final product, plant, chemicals, raw materials are removed and the buildings are washed, a final walkthrough inspection of the buildings will be undertaken.

The Amenity Building which houses the canteen, laboratory, offices, stores and toilets has a lean-to roof consisting of corrugated asbestos sheeting, there is also asbestos in the Service Ducts. It is considered due to the materials present, that the building should be demolished and the materials disposed of by a specialist waste contractor. A specialist Asbestos Survey (in accordance with the health and Safety Executive's (UK) guidance document MDHS 100 and HSG 227) of the building, including materials testing should be undertaken prior to any decommissioning. The surveys, demolition and removal should be undertaken in accordance with best practice, and undertaken by suitably qualified personnel in compliance with S.I. No. 386 of 2006 Safety, Health and welfare at Work (Exposure to Asbestos) Regulations 2006.

It is proposed to demolish the Amenity Building. Following the Asbestos Survey, a demolition programme and a method statement is to be prepared and approved. The demolition of the building is to comply with best practice and demolition debris is to be segregated for efficient recycling and disposal.

Chemical Storage Tanks and Silos onsite will be decommissioned and removed from the site. Reuse of the storage tanks and silos should be considered where appropriate. Any storage tanks or silos not suitable for reuse will be dismantled and sold as scrap metals.

Waste

Existing environmental policies regarding recycling and waste disposal will continue to apply during plant decommissioning. The wastes generated onsite in 2009 are indicative of the wastes which will be present onsite should a plant shutdown occur. Existing Environmental practises regarding the disposal of waste will be implemented during plant shutdown.

Any plant which cannot be redistributed to another plant or sold for reuse will be sold as scrap metals (or materials). A contingency is allowed in the costing of the plan to allow for this occurrence where reuse or recycling.

Any chemicals or fuels which cannot be returned to the supplier whether due to minimal volume constraints or failure to find a suitable user will be treated as a waste product and treated accordingly. These chemicals will be disposed of utilising a hazardous waste contractor.

Chemical and fuel wastes outlined above include:

- General Laboratory Chemicals
- Water Treatment Chemicals
- Gases (if contaminated)

Groundwater Monitoring

Groundwater monitoring, will be undertaken in accordance with the licence requirements at the onset of the plant shut down, and again at the completion of the plant shutdown. No further monitoring is anticipated, unless requested by Wexford County Council or EPA.

3.2 Criteria for successful decommissioning

Clean Closure is envisaged for this site and the criteria for successful decommissioning are as follows:

1. All plant and buildings safely decontaminated using standard procedures and authorised contractors.
2. All Wastes handled, packaged, temporarily stored and disposed or recovered in a manner which complies the regulatory requirements:
 - a. All hazardous materials should be classified in accordance with European Communities (Classification, Packaging, Labelling and Notification of Dangerous Substances) Regulations, 1994.
 - b. Handling and transport of waste should be undertaken in accordance with the Waste Management Act 1996.
3. All relevant records relating to waste and materials movement and transfer or disposal were managed and retained throughout the closure process.
4. Remove all potential sources of effluent generation from the site and minimise water use and release quantities during decommissioning
5. There was no soil or groundwater contamination at the site. This was verified using monitoring data and a soil/groundwater assessment at the time of closure.

4. Residual Management Plan Costs

The Residual Management Plan Costs are set out in Table 4.1.1., expenditure includes man-hours, transport costs, disposal costs, specialist contractors and groundwater testing.

Table 4.1.1 Cost of Plan

Residual	Action/Disposal	Costs incurred	Cost
			Total
Waste	Implement existing operational practice. Reuse or recycle where possible. Utilise best practice and comply with regulatory requirements.	man-hours disposal costs	14,500
Raw Materials	Return to vendor where possible. Dispose of remainder as waste, utilising best practice and complying with regulatory requirements.	man-hours (waste included in Waste Costs)	2,600
Chemicals and Fuel	Return to vendor where possible. Dispose of remainder as waste, utilising best practice and complying with Regulatory Requirements.	man-hours disposal costs	1,600
	Decontaminate oil interceptor chamber by specialist contractor. Dispose and treat washings at a licensed facility.	specialist contractor disposal costs	1,450
Process Plant and Equipment	Follow decommissioning programme as set out in Section 3. Utilise specialist contractors for removal of gas/chemicals. Decontaminate plant and sell to another site or sell remainder as scrap.	man-hours specialist contractor assume gas requires disposal	33,500
	Office Equipment	man-hours disposal costs	1,800
	Laboratory Equipment	man-hours disposal costs	1,800
	Garage/Maintenance	man-hours disposal costs	1,800
Buildings and Infrastructure	Decontaminate buildings. Amenity Building, requires specialist surveys for asbestos. Removal of hazardous materials by specialist contractor utilising best practise. Disposal of material in compliance with Regulatory Requirements.	man-hours specialist contractor demolition costs disposal costs	274,000
	Decontaminate silos and chemical storage areas. Dismantle silos and storage tanks and reuse at another site or sell as scrap metal.	man-hours disposal costs	8,200
Groundwater	groundwater monitoring	x2	11,400
TOTAL			357,200

5. Residuals Management Plan Update & Review

The Residuals Management Plan shall be reviewed annually as part of the Annual Environmental Report submission to the EPA.

The updated and reviewed residuals Management Plan will take account of any site or process changes, technology changes and costing changes.

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ATTACHMENT F

ENVIRONMENTAL LIABILITIES

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