



R&A Bailey
IPPC Licence No. P0807-01

Annual Environmental Report
2011



Contents

1	INTRODUCTION	4
1.1	Description of Site Activities	4
1.2	R&A Bailey Site Environmental Policy	5
1.3	R&A Bailey Organisational Chart for Compliance	6
2	EMISSIONS FROM INSTALLATION	7
2.1	Water Emissions Monitoring Data	7
2.2	Air Emissions Monitoring	10
3	WASTE DATA	12
4	ENERGY & WATER CONSUMPTION	13
5	ENVIRONMENTAL COMPLAINTS & INCIDENTS	14
5.1	Complaints	14
5.2	Incidents	14
6	ENVIRONMENTAL MANAGEMENT PROGRAMME	17
6.1	2011 – Review of Objectives and Targets	17
6.2	2012 – Proposal for 2012 Objectives and Targets	21
7	POLLUTANT RELEASE AND TRANSFER REGISTER	24
8	NOISE SURVEY	24
8.1	Summary of Results	24
9	AMBIENT MONITORING	25
10	TANK & PIPELINE TESTING AND INSPECTION REPORT	25
11	ENERGY EFFICIENCY AUDIT	25
12	EFFICIENCY OF USE OF RAW MATERIALS	25
13	WATER DEMAND AND EFFLUENT MINIMISATION	26
14	CRAMP & ELRA	26
	APPENDIX A	27
	Pollutant Release & Transfer Register (PRTR)	27
	ATTACHMENT 1	29



2011 Boiler Combustion Testing Report	29
ATTACHMENT 2	30
2011 Noise Report	30
ATTACHMENT 3	31
Bund Integrity Assessment Report 2011	31



1 INTRODUCTION

R&A Bailey & Company, Nangor House, Nangor Road, Western Industrial Estate, Dublin 12 was granted an IPPC Licence by the EPA on the 11th of May 2007 – Licence No. P0807-01. In accordance with Condition 11.8 of the licence R&A Bailey is required to submit an Annual Environmental Report by the 31st March each year detailing environmental performance of the site for the previous year. This document is R&A Bailey's second AER and relates to the environmental performance of the site from 31st December 2010 to the licence to 31st December 2011. This report is based on the AER requirements set out in Schedule D of the licence and EPA *Guidance Note for: Annual Environmental Report*.

1.1 Description of Site Activities

R&A Bailey & Company is a cream liqueur manufacturing plant, located on an approximately 9.3 hectare site at Nangor Road, Dublin 12. The facility produces Baileys cream liqueur, in addition to Sheridan's (a coffee layered liqueur) and Smirnoff Vodka. Over 200 people are employed.

The site operations are broken down into the following sections:

1. Cream blend Plant (includes Sheridan's White)
2. Maltodextrin
3. Sugar Syrup
4. Baileys Production (Plant 1, Plant 2)
5. Sheridan's Black
6. Smirnoff Vodka
7. Bottling
8. Warehouse and Dispatch
9. Environmental Systems
10. Utilities
11. Laboratory and Office Activities

The site's IPPC Licence has been granted under the following activity class:

Treatments or processes for the production of food products from animal raw materials (other than milk) with a finished product production capacity greater than 75 tonnes per day



1.2 R&A Bailey Site Environmental Policy



DBGS Dublin Energy & Environment Policy



Diageo Baileys Global Supply is committed to operating in a manner, which sustains or improves the environment and the biodiversity of the community in which we work and live. We will strive become a truly sustainable organisation, by reducing our carbon footprint and contribute zero harm to the environment.

By application of our Environmental & Energy Management System (ISO 50001) we will:

Comply with all applicable international, national and local environmental and energy related legislation and adhere to the conditions of the Integrated Pollution Prevention and Control (IPPC) licence as issued by the Environmental Protection Agency (EPA). Our energy management system will encompass gas and electricity use on site.

We will set objectives and targets and deliver ongoing improvements with respect to:

- Energy use, consumption and greenhouse gas (GHG) generation
- Water use & efficiency
- Waste and effluent generation

Monitor and report on these to ensure continual environmental and energy performance improvement through our Environmental & Energy Management System.

Drive continuous improvement through monitored and auditable compliance with the DIAGEO Global Environmental Policy and DIAGEO Global Risk Management Standards (GRMS) requirements.

Engage our employees to act in an 'energy & environmentally responsible' manner, in addition to promoting programs to ensure that there is continuing awareness of non-renewable energy use and conservation. Support the purchase of energy-efficient products and services, and design for energy performance improvement.

Share best practice across the business and communicate energy issues and performance internally and externally.

Manage any risk to environmental receptors arising from our process (e.g. ground/groundwater, the River Camac, atmosphere, etc) and be aware of the potential impact of generating greenhouse gases

Foster openness and transparency on environmental & energy matters and support our stakeholders' interest in protecting the environment.

This policy will be communicated to all persons working on or behalf of Diageo Baileys Global Supply Dublin and is available to the public on request and is clearly available in reception.

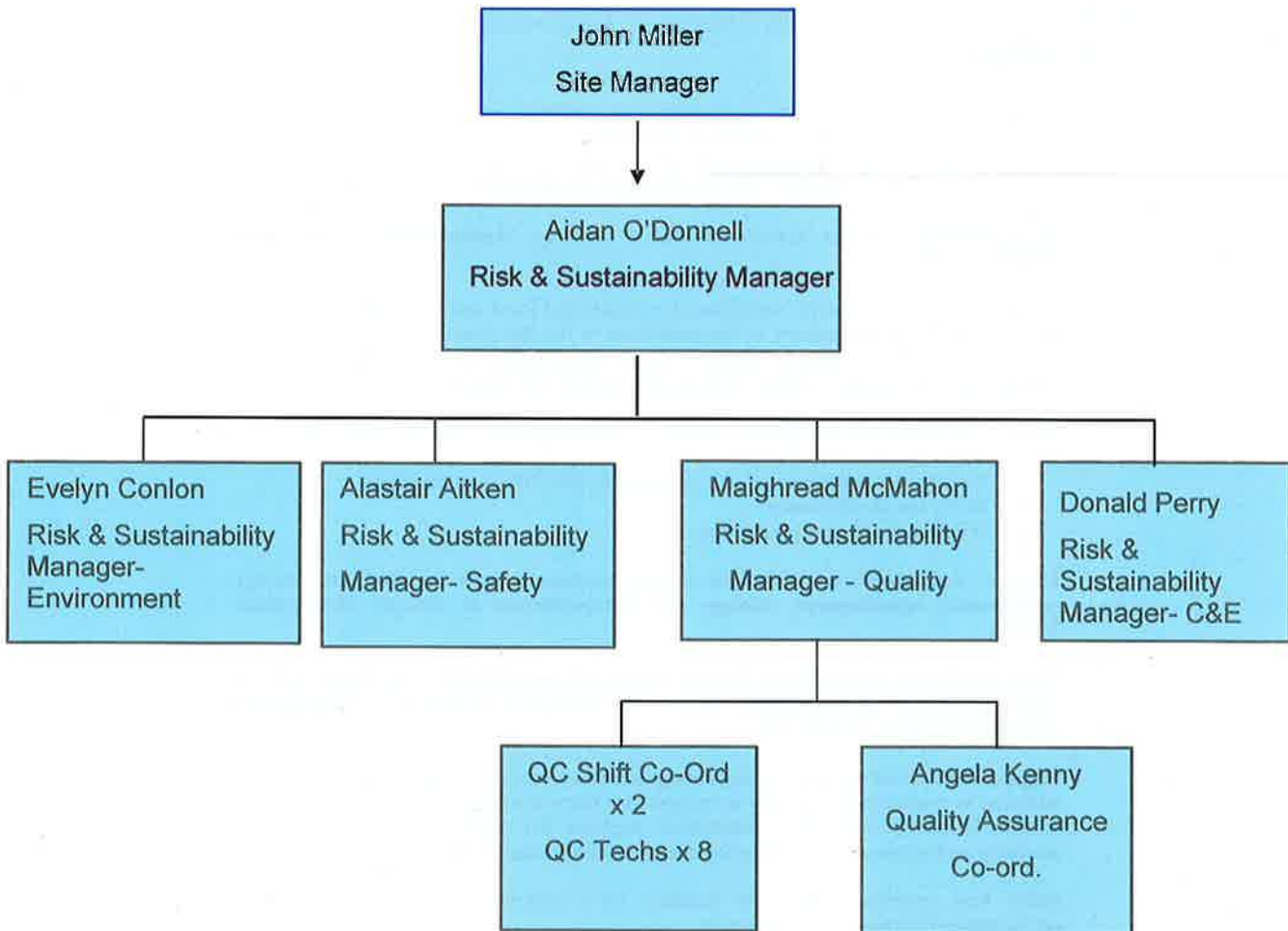
Signed: 

Date: 3/10/11

Mike Elliott, Head of Manufacturing



1.3 R&A Bailey Organisational Chart for Compliance





2 EMISSIONS FROM INSTALLATION

2.1 Water Emissions Monitoring Data

There are no Emissions to Water of environmental significance.

2.1.1 Emissions to Storm Water (SW1, SW2, SW3 & SW4)

There are four storm water emission points to the Camac River from the R&A Baileys site – SW1, SW2, SW3 and SW4. During 2011 surface water emission points were monitored on a weekly basis. The average measurements are presented in Table 2.1.1.

Table 2.1.1: Storm Water Emissions to the Camac River Jan-Dec 2011

Parameters Measurements	Average	Unit
	pH	8
COD	15	(mg/l)
Conductivity	563	(μ S/cm)

2.1.2 Emissions to Sewer (SE1)

There is one emission point to sewer from the site's Effluent Treatment Plant. At the treatment plant the site's effluent is pH-neutralised using acid and caustic dosing and then released to the sewer system. The monitoring results for 2011 are presented in Table 2.1.2.

The temperature and pH of the sewer emissions are monitored continuously online. The maximum temperature monitored is recorded in Table 2.1.2. The online pH measurement is linked to an automatic control system, which diverts the effluent back into the balancing tank if the pH is outside specification thus avoiding pH exceedances.

The external Laboratory used to sample the sites effluent composite sample changed from TMS Environment Ltd to Eurofins Lancaster Laboratories in August 2011. This decision was made in order to better improve our analysis and reporting turnaround times. It allows for a faster detection of any potential emission exceedances at SE1.

Note: BOD is tested once a week. To determine the mean weekly, monthly and annual loads (see Table 2.1.2) this data was supplemented with daily calculation of BOD based on the daily COD measured values ($BOD=0.5COD$) as per Note 3 of Schedule C.3.2 of the site's IPPC Licence.



Table 2.1.2: Sewer Water Emissions (SE1) Jan-Dec 2011

Parameters	Measurement	Limit
	SE1	
Volume Daily Max. (m ³)	517	600
Volume Annual Daily Mean (m ³)	138	540
Temp (C)	<32	42
pH	5.3-10.9*	6-10
COD Daily Load Max (kg/day)	7105	8000
COD Mean Weekly Load Max (kg/day)	2958	6000
COD Mean Monthly Load Max (kg/day)	2064	5700
COD Mean Annual Load (kg/day)	1428	5400
BOD Daily Load Max (kg/day)	4024**	4000
BOD Mean Weekly Load Max (kg/day)	1496	3000
BOD Mean Monthly Load Max (kg/day)	1045	2850
BOD Mean Annual Load (kg/day)	729	2700
SS Daily Load Max (kg/day)	3593***	2000
SS Mean Weekly Load Max (kg/day)	707	1500
SS Mean Monthly Load Max (kg/day)	346	1250
SS Mean Annual Load (kg/day)	256	1000
Sulphates Conc. Max (mg/l)	639****	600
Sulphates Daily Load Max (kg/day)	295	360
Phosphates Conc. Max (mg/l)	6.9	100
Phosphates Daily Load Max (kg/day)	2.9	60
Detergents as MBAS Conc. Max (mg/l)	10.5	100
Detergents as MBAS Daily Load Max (kg/day)	2.7	60
OFG Daily Load Max (kg/day)	416	600
OFG Mean Annual Load (kg/day)	92	400

* These exceedances arose in April and August 2011 and are summarised under Section 2.1.2 below.

**This is a one-off result that is less than 1.2 the limit value. Therefore in accordance with Condition 4.1.2 of the IPPC licence was not reportable



*** This exceedance occurred in April 2011 and is summarised under Section 2.1.2 below.

****This result is less than 1.2 times the limit value. Therefore in accordance with Condition 4.1.2 of the IPPC licence was not reportable

Exceedences

pH, COD & BOD, Suspended Solids, Sulphates, Phosphates, Detergents, Oils, Fats & Greases:

There were three IPPC licence exceedances in 2011. One TSS occurred on the 12th of April and two pH exceedances occurred on 20th of April and the 17th of August 2011. The details of each exceedance are summarised below with full details available in reports submitted to the EPA.

TSS 12th of April 2011

The TSS concentration of the composite sample representing the effluent emitted from Effluent Emission point SE-1 on 12.04.2011 was 8165mg/L. As the volume of effluent discharged on the day was 440m³, the resulting load TSS load for the day was 3592kg which exceeds the sites daily limit. This exceedance was reported to the EPA on the 16th of May.

A full review of process discharges was undertaken for the period. Discharges of maltodextrin and cream were recorded in the days following the 12.04.2011 but prior to that no discharges were recorded since 23.03.2011.

The external laboratory was contacted to confirm the accuracy of the TSS concentration result for 12.04.2011 and the date label on the sample. The laboratory confirmed that the sample result was accurate and the sample date label was as per the label on the sample provided.

A likely explanation for the exceedance is the process discharge on the 13.04.2011 and that the sample taken was labelled incorrectly.

The preventative actions taken for this exceedance are summarised below:

- Contract in place with new laboratory (Eurofins) that can guarantee return of sample results within an appropriate timeframe
- All process releases to drain will managed by putting the plant immediately into recirculation coupled with close monitoring of the plant
- Exceptional releases will be reviewed by the Process Plant Manager and the Environmental Manager prior to release
- Labelling of containers - outlined in ETP procedure DEBP0040

pH 20th of April 2011

A pH exceedance occurred on the 20.04.2011 and was notified to the EPA on 21.04.2011. The pH of the composite sample representing the effluent emitting from Effluent Emission point SE-1 on 20.04.2011 was 10.9 which exceeded the site limit of 9.



On the afternoon of the 20.04.11 the process plant released approximately 2m³ of out of specification product to the process drain. As the effluent balance tank level was reasonably low, the release was allowed and recorded. It was assumed that the automated features of the effluent plant would manage the release i.e. that the automatic pH neutralisation would continue as usual and that the Biotector (in line TOC meter) would monitor the TOC level and cause the plant to re-circulate if the TOC levels rose significantly.

The composite sample for the day's effluent outflow gave a pH 10.9. The plant pH probes and tanks were checked and it was discovered that the inline probes were covered in a creamy substance with the tanks also showing evidence of this substance. The inline pH readings for the 20.04.11 were checked on the logger and found to have remained below 10 during that day and so did not cause the plant to re-circulate. It was therefore concluded that the inline pH probes were giving false low readings due to the fact that they were coated with creamy product.

The main preventative actions taken for this exceedance are summarised below:

- Hot wash installed on pH probes for automatic hot wash of probes at regular intervals
- Management of the ETP during process discharges is outlined in procedure DEBP0040

pH 17th of August 2011

The pH exceedance occurred on the 17.08.2011 and was notified to the EPA on 19.08.2011. The pH of the composite sample representing the effluent emitting from Effluent Emission point SE-1 on Wednesday 17.8.2011 was 5.3.

It was determined from the investigation that the exceedance was due to the failure of the outflow pH probe.

The housing which protects the pH outflow probe was damaged which led to an ingress of water. This water resulted in inaccurate readings being obtained from the outflow pH probe which in turn resulted in the plant not re-circulating.

The main preventative action taken for this exceedance was to replace the pH probes and the pH probes housing.

The EPA was also notified of three occasions when the pH results of composite samples dropped over a period of time. This resulted in pH results which were not representative of the effluent outflow. During each of these incidents it was confirmed through continuous monitoring that only effluent within the IPPC licence parameters (pH range of 6-10) was discharged. It was therefore concluded with the EPA that these occurrences were not classified as exceedances.

2.2 Air Emissions Monitoring

There are no air emissions of significance from the site however in line with the IPPC licence requirements the combustion efficiencies of the site boilers (emissions points A1.1 & A1.2) are tested annually. The test results from August 2011 are shown in Attachment 1.



During 2011 approval was sought to install a Gas fired 1.16MW Thermal Output Medium Pressure High Temperature Boiler under Condition 1.4(i) of the site IPPC licence.

Permission was granted by the EPA on the 9/12/2011 to install a Gas fired 1.16MW Thermal Output Medium Pressure High Temperature Boiler onsite. The purpose of this boiler is to supply hot water at 80°C to the Bottling Hall filler CIPs as well as hot water at 60°C to the Bottling Hall wash down points and hand basins. This will result in a reduction of gas consumption and subsequently a reduction of air emissions onsite. The new emission point was labelled minor emission point "A3-4".

One of the conditions set for the new emission point was annual combustion efficiency testing. This combustion efficiency testing will be carried out in 2012 in accordance with the EPA's Emissions Monitoring Guidance Note (AG2).

For full details on the new minor emission point please refer to the application submitted to the EPA.

2.2.3 Summary of 2011 Results

The full 2011 Boiler Combustion Testing Report is included as Attachment 1 of this report. The following summarises the main observations from the report.

The air/fuel combustion ratios for the boilers are considered acceptable with little CO produced. Carbon Dioxide is within the 'Typical' maximum limits with Efficiencies above the levels expected by the Manufacturer. O2 figures are slightly higher than 'Typical' levels. This is due to a precautionary concession arising from a previous incident of 'flame drop' into the Burner Airbox which occurred over a decade ago.

The Boilers were deemed to be efficient and safe. They are deemed to operating within the limits of risks to the environment as typical for Boiler plant of this type and size. Boiler No. 1 and No. 2 referenced in the report relate to site emission points A1.2 and A1.1 respectively.



3 WASTE DATA

Annual waste data for 2011 is detailed in the Pollutant Release & Transfer Register (PRTR) in Appendix A. Records for hazardous waste shipments sent off-site are held on site and are available for viewing.

On 22nd December 2008, R & A Bailey Ltd. became registered as a manufacture of feed with the Department of Agriculture (Registration Number IED236586). This allows for the option of sending aged & out of spec product for agricultural feed purposes in the future.



4 ENERGY & WATER CONSUMPTION

The annual energy and water consumption are summarised in Tables 4.1 and 4.2 respectively.

Table 4.1: Energy Consumption Jan - Dec 2011

Item	Quantity
Electricity	5,230,006 (kWh)
Natural Gas	10,178,548 (kWh)
Diesel	2,902 (litres)
Liquid Petroleum Gas (LPG)	8,901 (kg)

Table 4.2: Mains Water Consumption Jan - Dec 2011

Month	Mains Water (m ³)
Jan	16,220
Feb	9,185
Mar	7,131
April	8,266
May	6,360
June	6,026
July	11,346
August	14,210
September	13,334
October	10,299
November	10,137
December	4,287
Total	116,801

Note: Site water usage is sourced exclusively from the mains water supply. There is no on-site surface or ground water abstraction.



5 ENVIRONMENTAL COMPLAINTS & INCIDENTS

5.1 Complaints

There were no environmental complaints made to the R&A Bailey site in 2011

5.2 Incidences

There were three reportable incidents and one non conformance during 2011. These three incidents and non conformance are summarised below.

Release to Surface Water – 15.06.11

At approximately 16.15 on 15.06.11 contractor released approximately 15-20L of water rinse from a boiler clean-down into a surface water drain. The water was contaminated with a calcium/iron-containing residue which had a purple hue.

The slam shut valve on SW-1 was closed following inspection of the river and the noting of a slight pink hue visible in the river approximately 10cm around the outlet point. It was estimated that a very small quantity of the contaminated sludge had reached the river, based on the lightness of the colour and limited extent of the pink hue in the river. Horizon Environmental Ltd. was called to clean the remaining residue out of the drainage system.

No chemicals were used during the cleaning process. Sampling of the boiler residue indicated that the boiler sludge consisted mainly of iron (49%), copper (3%), calcium (0.9%) and zinc (0.1%).

The root cause of the release was contractor error.

A full review of induction material was undertaken to ensure adequacy of contractor training.

Flooding of site – 24.10.11

At 19:00 on the 24th October following a spell of prolonged rainfall the Camac River which bounds the Nangor Road site broke its banks at two locations. Water flooded the entire ground floor area of each building at the Baileys Nangor Road site. Water levels rose to approximately 300mm in areas before subsiding naturally the following day. Following a review of the site after the incident it was determined that there was no release of Hazardous substances from the site to the environment.

Following this incident production was ceased for one week during cleanup operations. Due to the volume cleaning required Diageo Baileys obtained permission from the EPA allowing for an alteration to the facilities operation which may result in an increase in emission values at sewer discharge point SE-1. Although this allowance was obtained no emission values were exceeded during the cleanup operations. However the detergents used in the cleanup operations did result in foaming at the Effluent treatment plant. This is discussed in greater detail below.

A flood risk assessment is currently being carried out on the Camac river. Recommendations from this risk assessment will be implemented to prevent a reoccurrence of the flood.



Effluent Treatment Plant Foaming– 14.11.11 – 18.11.11

Foam was observed over flowing from the ETP sump and an effluent manhole on the 14/11/2011. All foam was contained with no releases to the environment. The ETP was put into re-circ once foaming was observed with releases to drain only occurring when foam was not over flowing. A Defoamer agent (Componenta FG) was added on Wednesday 16/11/2011 to combat the foam. Foam was observed in the System until the end of Friday 18/11/2011. The EPA was notified of the incident on the 21st of November.

In order to determine the root cause Eco Labs were asked to assist in the investigation. Based on this investigation it was determined that the emission exceedance arose for the following reasons –

- Following the flooding of the site the site had to be thoroughly cleaned for hygienic/quality requirements. The detergents used in the cleaning were based upon Chlorinated Caustic Foam, Caustic Foam and Peracetic acid based sterilant foam products. The net result was significantly increased cleaning and resultant volumes of foam effluent sent to the drain. These foam products are based upon Caustic, Chlorine and complexed with Surfactants and Sequestrants. They are designed to produce foam when mixed with air and water. Although the majority of the cleanup operation had been carried out some areas were still been cleaned resulting in detergent being present at the ETP
- It was found that slight foaming was present in CIP 2 caustic tank also. Samples were taken and the caustic solution was found to be cloudy and contaminated with small amounts of product (assumed Casein). This mixture of fat/protein and caustic generated caustic foam. It was determined that foaming in the tank was a result of damage to conductivity controllers on CIP 2.1 & 2.2 which may have resulted in caustic being sent to drain (ETP) rather than recovered to CIP tank 2. Conductivity controllers on CIP 2.1 & 2.2 were immediately repaired

Based on the findings of the investigation and the professional opinion of ECO LAB's it was determined that the combination of the above resulted in foaming at the ETP.

The preventative actions taken for this incident are summarised bellow

- A flood risk assessment is currently being carried out on the Camac river. Recommendations from this risk assessment will be implemented to prevent a reoccurrence of the flood.
- CIP 2 program will be monitored closely to ensure full recovery following the flood



Non-conformance

Following a site visit from the EPA on the 30th of November 2011 a non-conformance to condition 6.8 was identified. The untreated effluent sump and firewater retention tank integrity reports were not available for review. Following this non-conformance an integrity assessment of the Effluent Sump and fire water retention tank were conducted. The reports are still out-standing but shall be submitted to the EPA within 10 days of retrieval.



6 ENVIRONMENTAL MANAGEMENT PROGRAMME

The follow tables summaries the sites Environmental Management Programme. The annual year of analysis for the sites EMS mirrors the financial year (i.e. F11 refers to the period inclusive of July '10 to June '11).

6.1 2011 – Review of Objectives and Targets

Table 6.1.1: 2011 Objective 1 – Reduction of Effluent Load to Sewer

Action No.	Annual Actions	Review summary
1.1	Target zero effluent-related non-compliance with IPPC licence. Determine feasibility of diverting out of spec BOD/COD effluent to prevent BOD/COD non-compliances.	3 effluent exceedances recorded for 2011 (see section 2.1.2).A feasibility study for the removal of out spec discharges at source and/or prior to public sewer discharge was not realised in 2011.
1.3	Implement detailed effluent plant procedure on TOC/effluent plant management	Effluent plant procedure implemented
1.4	Review main constituents of product sent to effluent plant to better understand impact of ingredient releases to drain and to assist in root causing issues in the effluent plant.	Initial results obtained. The study is currently suspended due to Lancaster Labs reluctance to continue TOC analysis on ingredient samples. This is due to the composition/nature of the ingredients being tested having an adverse effect on Lancaster labs TOC equipment. Lancaster Labs is current seeking a 3 rd party laboratory to continue TOC analysis.



Table 6.1.2: 2011 Objective 2 – Reduction of Energy Use

Action No.	Annual Actions	Review summary
2.1	Continue to manage energy on site through the EN16001 energy management plan. This involves monitoring of site EPI's, monthly management meetings etc.	Site now accredited to ISO 50001.
2.2	Implement Energy Management Plan Projects	All projects complete with the exception of two which have been carried forward to F12.
2.3	Achieve a 3% reduction in energy usage on site	Energy increased by 2% for F11. This is attributed to a very cold winter in 2010/2011.



Table 6.1.3: 2011 Objective 3 – Reduction of Waste to Landfill

Action No.	Annual Actions	Review summary
3.1	Achieve 'zero waste to landfill status in 2011	Zero waste to landfill almost achieved in F11. General waste is processed into a fuel substitute. As part of this process Solid Recovered Fuel (SRF) fines are produced. SRF fines have be directed to landfill until an approved method of disposal is found.
3.2	Review Haz waste (storage) risk assessment to ensure ongoing compliance and responsible storage of waste on site.	Completed in 2011. All areas of waste storage assessed and improvements made where necessary.

Table 6.1.4: 2011 Objective 4 – Minimise risk associated with the Storage and Handling of Chemicals

Action No.	Annual Actions	Review summary
4.1	Complete Containment and bunding survey of site and implement action plan on the basis of the survey report.	Bund survey complete and action plan currently being implemented.

Table 6.1.5: 2011 Objective 5 – IPPC Licence Compliance

Action No.	Annual Actions	Review summary
5.1	Carry out refresher ERP training with relevant site personnel	Refresher training carried out as part of site safety day
5.6	Review site environmental training requirements for 2011 and provide appropriate training in the areas of environmental policy, waste and energy.	Review conducted and training plan implemented



Table 6.1.6: 2011 Objective 6 – Water Minimisation

Action No.	Annual Actions	Review summary
6.1	Achieve F11 water targets for site by continued implementation of CIP improvements and other water projects outlined in the water reduction plan.	The F11 water target was not achieved. CIP improvement project not realised on account of software and validation restrictions
6.2	Review site water balance weekly and monitoring data to ensure comprehensive understanding of site water usage is available.	Water balance reviewed. Limits now set on water balance to serve as early warning detection of increased water usage
6.3	Install new mains water meter to ensure accurate and reliable water figures are available on a monthly basis.	Mains water meter property of SDCC. Calibration cert obtained from SDCC



6.2 2012 – Proposal for 2012 Objectives and Targets

Table 6.2.1: 2012 Objective 1 – Reduction of Effluent Load to Sewer

Action No.	Annual Actions	Target for Completion	Responsible Person
1.1	Target zero effluent-related non-compliance with IPPC licence. Determine feasibility of diverting out of spec BOD/COD effluent to prevent BOD/COD non-compliances.	31.7.2011	Environment Manager
1.2	Investigate use of microbes to help degrade COD/BOD loading prior to discharge	31.10.2012	Facilities Manager
1.3	Implementation of the process plant re-automation project. The goal of this project is to improve controls in the process plant providing an early warning detection system of possible production deviations through the use of alarms. This will mean greater accuracy during production which will reduce the risk of products and ingredients becoming 'out of spec'. The re-automation project will also include new and improved control measures helping to minimize the risk of accidental release occurring	31.12.2012	Project/Capex Manager

Table 6.2.2: 2012 Objective 2 – Reduction of Energy Use

Action No.	Annual Actions	Target for Completion	Responsible Person
2.1	Continue to manage energy on site through the ISO 50001 energy management plan. This involves monitoring of site EPI's, monthly management meetings etc.	31.12.11	Environment Manager



Action No.	Annual Actions	Target for Completion	Responsible Person
2.2	Implement Energy Management Plan Projects	30.06.2012	Project/Capex Manager
2.3	Achieve a 5% reduction in energy usage on site to make up for F11 poor performance	30.06.2012	Environment Management Team

Table 6.2.3: 2012 Objective 3 –Waste Management

Action No.	Annual Actions	Target for Completion	Responsible Person
3.1	Investigate alternatively approved method of recycling for SRF fins in order to Achieve zero waste to landfill status for F12	30/6/2012	Environment Manager
3.2	Audit of Hazardous waste contractors	05/06/2012	Environment Manager
3.3	Carry out refresher training on segregation and waste disposal	30/6/2012	Environment Manager

Table 6.2.4: 2012 Objective 4 – Minimise risk associated with the Storage and Handling of Chemicals

Action No.	Annual Actions	Target for Completion	Responsible Person
4.1	Complete site integrity drain survey and implement action plan on the basis of the survey report.	30/08/2011	Environment Manager



Table 6.2.5: 2012 Objective 5 – IPPC Licence Compliance

Action No.	Annual Actions	Target for Completion	Responsible Person
5.1	Carry out refresher ERP training with relevant site personnel	30/06/2012	Environmental Manager/H&S Manager
5.2	Creation of a site spill response team	30/12/2012	Environmental Manager/H&S Manager

Table 6.2.6: 2012 Objective 6 – Water Minimisation

Action No.	Annual Actions	Target for Completion	Responsible Person
6.1	Achieve F12 water targets for site by continued implementation of CIP improvements and other water projects outlined in the water reduction plan.	30/06/2012	Environmental Manager
6.2	Investigate possibility of acquiring a new water online metering system for improved data retrieval	30/09/2012	Site facilities team



7 POLLUTANT RELEASE AND TRANSFER REGISTER

This will be submitted online as per EPA instructions and guidelines. A copy of the PRTR is also included in Appendix A.

8 NOISE SURVEY

An environmental noise survey was carried out by PM Group on behalf of R&A Bailey & Company in July 2011. The survey was carried out in order to determine noise levels at the site boundaries and nearest noise sensitive location. The full report is included as Attachment 2 of this report.

8.1 Summary of Results

The findings of the noise monitoring at the Baileys site, indicate that noise levels have decreased slightly at most boundary monitoring points since the last IPPC Noise report with the exception of AN4 and AN5 during the day time monitoring period, and AN3 during the night time monitoring period. Ambient monitored LAeq noise levels are dominated by significant traffic on the Nangor Road and surrounding road network due to the industrial nature of the area and its proximity to the M50.

No complaints in relation to noise emissions have been received by Baileys during the past year.

Baileys IPPC licence requires that activities on-site shall not give rise to noise levels at the boundary of the installation or at noise sensitive locations, which exceed limits of LAeq of 55dB(A) during the day and 45dB(A) at night. The licence also states that "There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise sensitive location" Although LAeq noise levels at most of the site boundary points and the nearest NSL are in excess of these IPPC licence limits, based on the observations made during the monitoring survey it is concluded that monitored noise levels are predominantly due to off-site activities. In particular at the noise sensitive location AN6 it was observed that the Crescent Apartments water feature and traffic along the Park West Road, Park West Avenue, Yeates Way and M50 were the dominant noise sources at this monitoring location. The Baileys facility was not audible or visible from this noise monitoring location.

The tonal analysis results indicate that tonal noise was detected during the day time noise survey at AN5 and at AN3 during the night time survey. Tonal noise at AN5 can be attributed to offsite activity at the Toyota facility. The origin of the tonal noise at frequencies of 31.5Hz and 1.25kHz during the night time monitoring period at AN3 is unknown but it is likely that the constant hum emanating from an offsite unknown source along Hume Avenue is a contributing factor. It should also be noted that the detected tonal noises at AN3 and AN5 do not result from on-site equipment that was assessed for tonal noise in 2010.

No tonal noise was detected at the nearest NSL and no impulsive noise from the Baileys facility was audible at this location. It can therefore be concluded that the Baileys facility is not generating any tonal or impulsive component at the nearest NSL and is in compliance with its IPPC licence.



9 AMBIENT MONITORING

As per Schedule C.6 of the R&A Bailey IPPC License no ambient monitoring is required at the site.

10 TANK & PIPELINE TESTING AND INSPECTION REPORT

A full site bund survey was conducted in 2011. An implementation programme is currently underway to action findings from this survey. The full bund survey report is included in Attachment 3 of this report.

The ETP sump and Fire water retention tank were integrity tested in January 2012. The report is still outstanding but shall be submitted to the EPA within ten working days of being received.

A full site integrity drain survey is scheduled for 2012.

11 ENERGY EFFICIENCY AUDIT

Sustainable Energy Ireland (SEI) carried out an initial IS393 Gap Analysis Audit for R&A Baileys in February 2007. A copy of the audit was provided in the 2007 AER. Since this gap analysis EN16001 energy management system was implemented on site and Baileys Nangor Road became certified in October 2009. In October 2011, the site was successful in achieving certification to ISO 50001 following a transitional audit from EN16001.

Baileys will continue to improve its energy efficiency through the management of ISO 50001 in 2012.

12 EFFICIENCY OF USE OF RAW MATERIALS

The 2011 efficiency of use of raw materials assessment has been based on alcohol usage, Cream, Malto and Sugar as summarised in Table 12.1. The alcohol, cream, malto and sugar calculation was based on incoming alcohol raw material vs alcohol out in product.

Table 12.1: Raw Material Efficiency Use

Parameter	% Loss
Alcohol	1.27
Cream	1.85
Malto	3.8
Sugar	2.13



13 WATER DEMAND AND EFFLUENT MINIMISATION

Diageo Baileys Global Supply Dublin continues to implement water reduction projects but was unable to reach its target for F11 (July 2010- June 2011). Leaking during the cold winter of 2010/2011 and CIP improvement projects not being realised on account of software and validation restrictions, impeded water savings onsite.

Water is monitored on a weekly basis. Limits have been applied to ensure any leaks are flagged and promptly repaired.

The site water reduction team meet on a monthly basis to review the previous month's water usage and to discuss ongoing water projects along with any other opportunities for improvement.

A Site wide water audit was conducted in F11. An Investigation into projects identified is scheduled for F12 with any projects deemed feasible implemented in F13.

The feasibility of moving to air only bottle rinsing is an ongoing investigation. A conclusion is expected in May 2012.

The process plant is currently undergoing a hazard and operability study (HAZOP) covering health and safety, environment and quality aspects of the production process. This HAZOP will feed into the process plant re-automation project which is due for completion in F13. The goal of this project is to improve controls in the process plant providing an early warning detection system of possible production deviations through the use of alarms. This will mean greater accuracy during production which will reduce the risk of products and ingredients becoming 'out of spec'. The re-automation project will also include new and improved control measures helping to minimize the risk of accidental releases occurring.

14 CRAMP & ELRA

R&A Bailey completed a Closure Restoration & Aftercare Management Plan (CRAMP) report in January 2009 in accordance with the EPA *Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision, 2006* document. This report has been reviewed and due to no significant changes being made to the site, this report is deemed as applicable in 2011.

As part of the CRAMP report and initial screening and operational risk assessment for the facility was undertaken and the facility was thereby classified as a Category 1 (Low Risk) site. As such in accordance with the guidance document an Environmental Liabilities Risk Assessment is not required.

The Closure Restoration & Aftercare Management Plan report was submitted as part of 2010 AER.



APPENDIX A

POLLUTANT RELEASE & TRANSFER REGISTER (PRTR)



There no releases of significance from the facility to air, waters or land. Therefore only the following PRTR sheets are included in this Appendix:

- Releases to Wastewater/Sewer
- Treatment & Transfer of Waste

4.3 RELEASES TO WASTEWATER OR SEWER

[Link to previous years emissions data](#)

| PRTR# : P0807 | Facility Name : R & A Balsey & Company | Filename : P0807_2011-12 | Return Year :

27/03/2012 14:43

SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
12	Total nitrogen	M	CRM	Dr Lange Photometric Method (methods are approved for use by the German Accreditation council REG No. DAP-P-01.013-00-90-01) American Public Health Association (APHA) Method (4500-P B)	2890.0	2890.0	0.0	0.0
13	Total phosphorus	M	CRM	Dr Lange Photometric Method (methods are approved for use by the German Accreditation council REG No. DAP-P-01.013-00-90-01) American Public Health Association (APHA) Method (4500-P B)	213.6	213.6	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
303	BOD	M	ALT	ISO 5815-1	266221.0	266221.0	0.0	0.0
306	GOD	M	CRM	Dr Lange Photometric Method (methods are approved for use by the German Accreditation council REG No. DAP-P-01.013-00-90-01) American Public Health Association (APHA) Method (2540 D)	521168.0	521168.0	0.0	0.0
240	Suspended Solids	M	CRM	American Public Health Association (APHA) Method (5540 C)	93590.0	93590.0	0.0	0.0
308	Detergents (as MBAS)	M	CRM	Method (5540 C)	146.0	146.0	0.0	0.0
314	Fats, Oils and Greases	M	ALT	ISO 11349	33586.0	33586.0	0.0	0.0
332	Ortho-phosphate (as PO4)	M	CRM	Aquachem Photometric method (Reference : Methods for the Examination of Water and Associated Materials Phosphorus in Waters, Sewage and Effluents 1981 : ISBN 011751582.5 and EPA Method 365.1 Phosphorus, All Forms, Colorimetric, Automated, Ascorbic Acid (Approved at 40 CFR Part 136))	44.5	44.5	0.0	0.0
343	Sulphate	M	CRM	Aquachem Photometric method (Reference : Methods for the Examination of Water Sulphate in Waters, Effluents and Solids 1985(second Edn) 0117522496 and EPA Method 375.4 Sulfate.)	6270.0	6270.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

[PXRFR: P0307 | Facility Name: R & A Bulky @ Company | Filename: P0307_2011.xls | Return Year: 2011]

27/03/2012 15:54

Please enter all quantities on this sheet in Tonnes

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Licence/Permit No of Next Destination Facility Non-Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non-Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination (i.e. Final Recovery / Disposal Site) (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	20 01 08	No	28.57	biodegradable kitchen and canteen waste	R13	M	Weighed	Offsite in Ireland	Greyhound Recycling,WCP-DC-08-1154-01/W0205-01	Crag Avenue ,Clondalkin Industrial Estate,Dublin 22,,Ireland		
Within the Country	15 01 07	No	353.2	glass packaging	R13	M	Weighed	Offsite in Ireland	Greyhound Recycling,WCP-DC-08-1154-01/W0205-01	Crag Avenue ,Clondalkin Industrial Estate,Dublin 22,,Ireland		
Within the Country	20 03 01	No	68.28	mixed municipal waste	R3	M	Weighed	Offsite in Ireland	Greyhound Recycling,WCP-DC-08-1154-01/W0205-01	Crag Avenue ,Clondalkin Industrial Estate,Dublin 22,,Ireland		
Within the Country	20 03 01	No	159.6	mixed dry recycling	R13	M	Weighed	Offsite in Ireland	Greyhound Recycling,WCP-DC-08-1154-01/W0205-01	Crag Avenue ,Clondalkin Industrial Estate,Dublin 22,,Ireland		
Within the Country	15 01 01	No	85.6	cardboard packaging	R13	M	Weighed	Offsite in Ireland	Greyhound Recycling,WCP-DC-08-1154-01/W0205-01	Crag Avenue ,Clondalkin Industrial Estate,Dublin 22,,Ireland		
Within the Country	15 01 02	No	65.65	plastic packaging	R13	M	Weighed	Offsite in Ireland	Greyhound Recycling,WCP-DC-08-1154-01/W0205-01	Crag Avenue ,Clondalkin Industrial Estate,Dublin 22,,Ireland		
Within the Country	20 01 39	No	4.37	plastics	R13	M	Weighed	Offsite in Ireland	Greyhound Recycling,WCP-DC-08-1154-01/W0205-01	Crag Avenue ,Clondalkin Industrial Estate,Dublin 22,,Ireland		
Within the Country	20 01 40	No	14.58	metals	R13	M	Weighed	Offsite in Ireland	Greyhound Recycling,WCP-DC-08-1154-01/W0205-01	Crag Avenue ,Clondalkin Industrial Estate,Dublin 22,,Ireland		
Within the Country	15 01 03	No	4.5	wooden packaging grease and oil mixture from oil/water separation containing only edible oil and	R13	M	Weighed	Offsite in Ireland	Greyhound Recycling,WCP-DC-08-1154-01/W0205-01	Crag Avenue ,Clondalkin Industrial Estate,Dublin 22,,Ireland		
Within the Country	19 08 09	No	0.3	fats materials unsuitable for consumption or	D9	M	Weighed	Offsite in Ireland	Premier Proteins,P0045-05	Poolboy,Ballinasloe,Co. Galway,,Ireland		
Within the Country	02 07 04	No	164.95	processing materials unsuitable for consumption or	D9	M	Weighed	Offsite in Ireland	College Proteins,P0037-03	College Road,Nobber,Co. Meath,,Ireland		
Within the Country	02 07 04	No	20.64	processing materials unsuitable for consumption or	D9	M	Weighed	Offsite in Ireland	Leixlip Waste Water Treatment Plant,D0004-01	Leixlip Waste Water Treatment Plant,Leixlip,Co Kildare,,Ireland		
Within the Country	02 07 04	No	12.76	processing materials unsuitable for consumption or	R3	M	Weighed	Offsite in Ireland	Acorn Recycling,W0249-01	Ballybeg Composting Facility,Littleton,Co Tipperary,,Ireland		
Within the Country	02 02 03	No	0.2	processing materials unsuitable for consumption or	D9	M	Weighed	Offsite in Ireland	College Proteins,P0037-03	College Road,Nobber,Co. Meath,,Ireland		
Within the Country	15 01 07	No	17.84	glass packaging	R12	M	Weighed	Offsite in Ireland	Oxygen Commercial Ltd,WCP/DC/08/1106-02 WO 144-01	Coes Road,Dundalk,Co. Louth,,Ireland		
Within the Country	15 01 01	No	0.45	paper and cardboard packaging	R12	M	Weighed	Offsite in Ireland	Oxygen Commercial Ltd,WCP/DC/08/1106-02 WO 144-01	Coes Road,Dundalk,Co. Louth,,Ireland		
Within the Country	15 01 02	No	0.02	plastic packaging materials unsuitable for consumption or	R12	M	Weighed	Offsite in Ireland	Oxygen Commercial Ltd,WCP/DC/08/1106-02 WO 144-01	Coes Road,Dundalk,Co. Louth,,Ireland		
Within the Country	02 03 04	No	0.3	processing materials unsuitable for consumption or	D9	M	Weighed	Offsite in Ireland	Premier Proteins,P0045-05	Poolboy,Ballinasloe,Co. Galway,,Ireland		
Within the Country	20 01 01	No	1.788	paper and cardboard	R13	M	Weighed	Offsite in Ireland	M1 Document Solutions Ltd,MH/2008/03/B	Annalitten,Castleblayney,Co Monaghan,,Ireland		
Within the Country	18 01 03	Yes	0.005	wastes whose collection and disposal is subject to special requirements in order to prevent infection	R1	M	Weighed	Offsite in Ireland	SRCL Limited,W0055-02	430 Beech Road,Western Industrial Estate,Naas Road,Dublin 12,Ireland	Lagan Cement Limited,P0487-05,Killaskillen ,Kinnegad ,County Meath,,Ireland	Killaskillen ,Kinnegad ,County Meath,,Ireland

Within the Country	13 05 07	Yes	0.76 oily water from oil/water separators	D9	M	Weighed	Offsite in Ireland	Ritla Environmental Ltd,W0192-03	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland	Ritla Environmental Ltd,W0192-03,Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland
Within the Country	06 02 05	Yes	1.96 other bases (Cleaning of Chemical Bund)	D9	M	Weighed	Offsite in Ireland	Ritla Environmental Ltd,W0192-03	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland	Ritla Environmental Ltd,W0192-03,Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland
Within the Country	20 01 23	Yes	0.104 discarded equipment containing chlorofluorocarbons	R4	M	Weighed	Offsite in Ireland	Electrical Waste Management Ltd.,WFP-DS-09-0012-01	Block 648 Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,Co Dublin,Ireland	Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,Co Dublin,Ireland	Block 648 Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,Co Dublin,Ireland
Within the Country	20 01 35	Yes	0.82 discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	R4	M	Weighed	Offsite in Ireland	Electrical Waste Management Ltd.,WFP-DS-09-0012-01	Block 648 Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,Co Dublin,Ireland	Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,Co Dublin,Ireland	Block 648 Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,Co Dublin,Ireland
Within the Country	16 07 08	Yes	0.82 wastes containing oil	D9	M	Weighed	Offsite in Ireland	Ritla Environmental Ltd,W0192-03	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland	Ritla Environmental Ltd,W0192-03,Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland
Within the Country	10 01 22	Yes	0.1 aqueous sludges from boiler cleansing containing dangerous substances	D9	M	Weighed	Offsite in Ireland	Ritla Environmental Ltd,W0192-03	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland	Ritla Environmental Ltd,W0192-03,Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland
Within the Country	16 05 07	Yes	0.0274 discarded inorganic chemicals consisting of or containing dangerous substances	R1	M	Weighed	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland
Within the Country	16 05 06	Yes	0.0402 laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals	R1	M	Weighed	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland
Within the Country	16 03 03	Yes	0.008 inorganic wastes containing dangerous substances	R1	M	Weighed	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland
Within the Country	20 01 27	Yes	0.059 paint, inks, adhesives and resins containing dangerous substances	R1	M	Weighed	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland
Within the Country	14 06 01	Yes	0.027 chlorofluorocarbons, HCFC, HFC	R1	M	Weighed	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland

Within the Country	16 05 04	Yes	0.0066	gases in pressure containers (including halons) containing dangerous substances	R1	M	Weighted	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Eco-Safe Systems Ltd,W0054-02,Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland
Within the Country	15 02 02	Yes	0.0546	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	R1	M	Weighted	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland
Within the Country	20 01 33	Yes	0.158	batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these	R4	M	Weighted	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland
Within the Country	15 01 10	Yes	0.004	packaging containing residues of or contaminated by dangerous substances	R1	M	Weighted	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland
Within the Country	20 01 40	No	1.16	metals	R4	M	Weighted	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland
To Other Countries	16 02 09	Yes	0.042	transformers and capacitors containing PCBs	D10	M	Weighted	Abroad	Rilta Environmental Ltd,W0192-03	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland	ORION BV.,ORION BV,De Steven 25,Drachten,NL9206 AX,Netherlands	ORION BV,De Steven 25,Drachten,NL9206 AX,Netherlands
To Other Countries	06 03 12	Yes	0.1	waste ink containing dangerous substances	R1	M	Weighted	Abroad	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Recyfuel SA ,Industrial Zenong of Ehein,Engis,B-4480 ,Belgium	Recyfuel SA ,Industrial Zenong of Ehein,Engis,B-4480 ,Belgium
To Other Countries	16 05 06	Yes	0.00002	laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals	R4	M	Weighted	Abroad	Rilta Environmental Ltd,W0192-03	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,County Dublin,Ireland	ORION BV.,ORION BV,De Steven 25,Drachten,NL9206 AX,Netherlands	ORION BV,De Steven 25,Drachten,NL9206 AX,Netherlands
Within the Country	16 02 14	No	0.5005	discarded equipment other than those mentioned in 16 02 09 to 16 02 13	R4	M	Weighted	Offsite in Ireland	Eco-Safe Systems Ltd,W0054-02	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland	Unit 1 A Allied Industrial Estate,Kylemore Road,Ballyfermot,Dublin 10,Ireland

* Select a row by double-clicking the Description of Waste then click the delete button

[Link to previous years waste data](#)

[Link to previous years waste summary data & percentage change](#)



ATTACHMENT 1

2011 BOILER COMBUSTION TESTING REPORT

Newtown Technical and Combustion Services.

Report of Service Visit and Combustion Testing, Diageo Bailey site, 30 August 2011.

This report is to provide an indication of the combustion performance of the two Saacke CD70 Burners as mounted on the two Cochran Thermax Steam Boilers located in the central Boilerhouse at Diageo Bailey Global Supply site, Nangor Road, Dublin.

The intent is to provide an efficient usage of the fuel without creating hazards to the equipment or to the environment. The corrected figures within the Report indicate that this has been realised on this attendance.

The monitoring and recording were carried out in accordance with the EPA Air Emissions Monitoring Guidance Note #2, (AG2).

This Report is submitted to Diageo Bailey Global Supply on 06 March 2012 by

Jimmy Kelly, Service Manager / Partner,

Newtown Technical and Combustion Services,

(also as NTCS),

16 Newtown Park, Tallaght Village, Dublin 24.

Contents.

Page 1; Contents.

Page 2; Monitoring objective.

Page 3; Monitored results.

Page 4; Operating information.

Page 5; Conclusions.

Page 6; Appendix 1; Combustion Test results.

Page 7; Appendix 2; 'Typical Natural Gas readings for Saacke Rotary Cup Burner'.

Page 8; Appendix 3; Data sheet for Cochran Thermax II Steam Boiler.

Monitoring objective.

The intent is to provide an efficient usage of the fuel without creating hazards to the equipment or to the environment.

This was achieved by sampling and recording defined characteristics of the Flue Gas at specifically designated Test Points on the flue assembly located near to the exit from each Boiler Smokebox.

After initial testing the results were assessed and where considered necessary, by adjustment of the Air/Fuel ratio corrected to a standardised condition.

Monitored results.

The Boilers are rated at maximum 20.000 Lb/Hr Steam production.

Normal steam working pressure is 6 to 7 Bar.

They are normally site identified as 'No 1' (on Right Hand Side), and 'No. 2' (on LHS.)

The burners are 'Saacke CD70' Rotary Cup.

These tests were conducted on burning Natural Gas from Mains supply.

The results are determined by sampling the Flue Gases exiting the Boilers at designated Test Points on the Flues. (See Appendix 1).

The results show 'before' and 'after' figures, the latter as a result of corrections to provide an 'ideal or typical curve' for these machines.

(See Appendix 2, 'Typical Natural Gas readings for Saacke Rotary Cup Burner' from Training Manual TM6-2-4, issued by Saacke Ltd, UK.)

The samples are recorded from displays on industry approved flue gas analysers which are calibrated and certified by the Manufacturer or accredited supplier.

The analyser selected on the testing of 30 August 2011 was an Anton 'Sprint 1000VD', ID number; 1 BENOOA00920. (Calibration Date; 19 April 2011, Certificate No. 31984)

Operating information.

The testing was conducted while the factory was in 'normal' production schedule so as to give representative indications of typical emission outputs.

The Burners, which modulate in automatic operation, are sampled at proportional settings as referenced on the Secondary Air cam as 'High Fire, 7, 5, 3 and Low Fire'.

On this occasion the key test references were;

Oxygen, (O₂), as %.

Carbon Monoxide, (CO), as ppm.

Carbon Dioxide, (CO₂), as %

Back –end / flue temperature, (BET) in Degrees C.

and Efficiency (Eff.) as %

(For engineering purposes the Excess Air, (XS) and Gas Pressures at specific points were also recorded).

Efficiency is recorded by AG2 recommendation (Appendix 3, Page 88, 'Moisture and Oxygen corrections', calculation 7), (Dry gas v Wet gas), and expressed by industry convention for non-condensing boilers as 'Gross' rather than 'Net'.

Conclusions.

The results on the reports for both units are quite good.

The air / fuel combustion ratios are acceptable, as indicated by the O2 curve.

There is little CO produced, which is of benefit to both the Boiler and the environment.

The Carbon Dioxide is also within the 'Typical' maximum limits.

The Efficiencies are above the levels as expected in current literature issued by the Boiler manufacturer. (See Appendix 3.)

Flue temperatures are within safe range to avoid production of 'condensation' in the smoke box, or heat damage to the boiler tubes and structure.

(The slightly higher than 'Typical' O2 figures at Low Fire are a conscious precautionary concession arising from a previous incident of 'flame drop' into the Burner Airbox).(These were incidents which occurred over a decade ago and have not repeated since this compensation was adopted.)

In addition to the Combustion Testing, all 'boiler safety controls', flame failure, gas and air pressure and interlock limit switches were tested for function and were satisfactory in operation. (It should be noted that these Burners are normally tested to these procedures on a quarterly basis).

The Boilers were deemed to be efficient and safe to be in production and operating within the limits of risks to the environment as typical for Boiler plant of this type and size.

Signed; Jimmy Kelly.

For NTCS. (06 March 2012).

Appendix 1.

Newtown Technical and Combustion Services.

Combustion tests completed on 30 August 2011, Diageo Bailey site, Dublin.

Boiler		JTC Tx II		No 1		Burner		Saacke CD70	
Rate	O2	CO	CO2	XS	BET	Eff.	Inlet	Reg	Notes
HF	3.4	4	10.0	20	168	84.7	110	93.6	SR 1323 Figures before setting.
7	3.1	4	10.2	17	171	84.4	115	99.4	
5	4.5	1	9.3	27	158	84.0	118	104	
3	6.5	0	8.0	47	157	82.6	120	107.6	
LF	7.3	0	7.7	54	105	82.4	120	110.1	
HF	3.0	6	10.2	17	184	83.3	105	93.3	SR1324 Figures after set.
7	3.9	1	9.7	22	181	83.2	105	93.8	
5	5.0	2	9.0	31	177	82.9	100	100.3	
3	6.5	0	8.0	47	171	82.6	120	107.6	
LF	7.3	0	7.7	54	168	82.4	120	110.1	
Boiler		JTC Tx II		No 2		Burner		Saacke CD70	
Rate	O2	CO	CO2	XS	BET	Eff.	Inlet	Reg.	Notes
HF	3.1	3	10.1	18	180	83.3	120	100	SR 1325 Figures before setting.
7	4.5	0	9.3	29	185	82.5	120	105	
5	4.9	0	9.1	30	176	82.9	125	110	
3	6.0	0	8.5	40	175	82.6	125	115	
LF	8.2	0	7.2	65	175	81.4	125	115	
HF	3.1	3	10.1	18	180	83.3	120	100	SR 1325 Figures after set.
7	4.5	0	9.3	29	185	82.5	120	105	
5	4.9	0	9.1	30	175	82.9	125	110	
3	6.0	0	8.5	40	175	82.6	125	115	
LF	7.2	0	7.7	54	178	82.2	125	115	
Analyser;		Sprint 1000 VD				ID NO; 1BEN00A00920			
Calibration date 19 April 2011				Certified by Anton Industrial Services, Watford, UK					
Certificate No; 31984				NTCS Test engineer;			Colin Kelly.		

Appendix 2.

Extract from training Manual TM6-2-4 for Saacke Rotary Cup gas burners issued by Saacke Ltd, UK.

(Section on Commissioning and testing.)

Natural Gas Typical Readings.

LOW	8.5% CO2	6.5% O2	Max.	200 ppm CO
MID	9.0% CO2	5.0% O2	Max.	200 ppm CO
HIGH	9.8/10.2% CO2	2.5% Min./ 3.5% Max.		200 ppm CO

Appendix 3.

Extract from current Data Sheet from BIB Cochran for Thermax Package Steam Boiler, (REF NO. COC / 1211 / 004).

“Efficiencies;

Typical 88% Nett, (80%) Gross, gas firing.

Based on N.C.V of 34858 Kj/M3. “



ATTACHMENT 2

2011 NOISE REPORT



Client: Diageo Baileys Global Supply

Project: Noise & Bund Survey 2011

Project No.: IE0310556

ENVIRONMENTAL NOISE MONITORING REPORT

File No: IE0310556.22.140

Document Number: IE0310556-22-RP-0001

CURRENT ISSUE						
Issue No: A	Date: 15.09.2011	Reason for Issue: For IPPC compliance				Customer Approval (if required)
Sign-Off	Originator	Checker	Reviewer	Approver		
Print Name	Fergal O'Neill	Orla Duggan		Mags Dalton		
Signature						
Date	15/9/2011	15/9/2011		15/9/2011		

PREVIOUS ISSUES (Type Names)							
Issue No.	Date	Originator	Checker	Reviewer	Approver	Customer	Reason for Issue

www.pmggroup-global.com

Coversheet and Document Template

CONTENTS

1.	INTRODUCTION	3
1.1	Scope	3
2.	NOISE SURVEY	4
2.1	Noise Monitoring Locations	4
2.2	Noise Monitoring	4
2.3	Noise Guidance & Standards	4
2.4	Equipment	4
2.5	Weather Conditions	5
2.6	Measurement Parameters	5
3.	ENVIRONMENTAL NOISE MONITORING RESULTS	7
4.	DISCUSSION	12
4.1	Monitoring Location AN1	12
4.2	Monitoring Location AN2	12
4.3	Monitoring Location AN3	13
4.4	Monitoring location AN4	13
4.5	Monitoring location AN5	13
4.6	Monitoring location AN6 (NSL)	14
5.	TONAL ANALYSIS	14
6.	CONCLUSION	16
APPENDIX A		17
	1/3 Octave Spectrum Graph of Noise Sources for Identification of Tonal Qualities	17
APPENDIX B		19
	Diagram of Site Layout and Noise Monitoring Locations	19

1. INTRODUCTION

PM Group was requested by Diageo Baileys Global Supply (DGBS) to carry out an Environmental Noise Monitoring Survey at the Baileys production facility on Nangor Rd.

The noise survey was undertaken to assess the site compliance with Conditions 4.3 & 6.11 and Schedule B.4 of the IPPC licence Reg No. P0807-01.

Condition 4.3 & 6.11 and Schedule B.4 states:

4.3 Noise from the installation shall not give rise to sound pressure levels ($L_{eq,T}$) measured at the boundary of the installation which exceed the limit value(s).

6.11 Noise

6.11.1 The licensee shall carry out a noise survey of the site operations annually. The survey programme shall be undertaken in accordance with the methodology specified in the 'Environmental Noise Survey Guidance Document' as published by the Agency.

6.11.2 The licensee shall identify all sources of tonal and impulsive noise on-site and prepare a programme to undertake mitigation measures, as necessary. The licensee shall submit the programme to the Agency within twelve months of the date of grant of this licence. Any mitigation measures identified shall be implemented within three months from date of notification by the Agency.

B.4 Noise Emissions

Daytime dB(A) L_{Aeq} (30 minutes)	Night-time dB(A) L_{Aeq} (30 minutes)
55 ^{Note 1}	45 ^{Note 1}

Note 1: There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise sensitive location.

1.1 Scope

The scope of the work carried out is as follows:

- Daytime noise monitoring at 5 boundary locations and 1 sensitive location over a 30 minute period
- Night time noise monitoring at 5 boundary locations and 1 sensitive location over a 15 minute period

The noise survey was carried out on 13th July 2011 in accordance with EPA Environmental Noise Survey Guidance Document (2003). This report details the noise levels recorded during the survey. A drawing showing the location of monitoring locations is included in Appendix B.

It should be noted that the night time monitoring was monitored over a 15 minute period at the NSL. It is considered that a 15 minute period is sufficient to give an accurate representation of noise emissions from the Baileys facility.

2. NOISE SURVEY

2.1 Noise Monitoring Locations

The noise monitoring study was carried out by PM Group on the 13th July 2011.

Noise measurements were taken at 6 different locations as detailed in the following table. 'AN' denotes environmental noise monitoring locations.

See Table 2.1 below for noise monitoring location descriptions & Figure 1 in Appendix B. The monitoring locations were selected during the IPPC Licence Application.

Table 2.1: Description of Noise Monitoring Points

Noise Monitoring Points	Description
Site Boundaries & Noise Sensitive Location	
AN1	South West corner of site, at the corner of the Nangor Rd and Park West Avenue
AN2	West corner of the site, where Park West Avenue intersects with the Grand Canal
AN3	North corner of site across from the Loading Bay
AN4	Boundary fence between Baileys car park and the Toyota facility to the east of the site
AN5	At eastern entrance to Baileys facility near Cammock River
AN6	Nearest Noise Sensitive Location - outside Crescent Apts off Park West Avenue roundabout (National Grid Co-ordinates = E308281, N232357)

2.2 Noise Monitoring

The following parameters were recorded at each environmental noise monitoring location, along with details concerning the weather and noise sources identified:

- L_{Aeq}
- L_{AMax}
- L_{A10}
- L_{A90}

Refer to Section 2.6 for a description of the noise terminology used in this report.

2.3 Noise Guidance & Standards

The noise monitoring was conducted in accordance with the following guidance:

- EPA Environmental Noise Survey Guidance Document (2003)
- International Standard ISO 1996-1:2003 - Acoustics – Description and Measurement of Environmental Noise (2003)

2.4 Equipment

The following noise measurement equipment was used to conduct the noise monitoring:

- Bruel and Kjaer 2260 Sound Level Meter¹ c/w Bruel and Kjaer type 4189 Microphone
- Bruel and Kjaer Type 4231 Calibrator. The Sound Level Meter was calibrated before and after the survey using the calibrator.
- Tripod

The Sound Level Meter and calibrator were last calibrated by the manufacturers Brüel & Kjaer UK Ltd, on 13/08/2010 in accordance with procedure documented in BS7580:Part 1:1997.

2.5 Weather Conditions

Day time 13th July 2011: Sunny dry day, slight breeze with clear sky
Night time 13th July 2011: Dry night with clear sky
Wind speed: 3.2²m/s

2.6 Measurement Parameters

Noise is measured in terms of decibels (dB). The various measurement parameters and noise terminology are defined below.

- **Decibel (dB)**
Decibel (dB) is the standard unit for expressing the noise level (sound pressure level). It is calculated as a logarithm of the intensity of sound. It is derived from the logarithm of the ratio between the value of a quantity and a reference quantity. For sound pressure level the reference quantity is 20 μ Pa which is the threshold of normal hearing and equates to 0dB. At the upper end of the scale 140dB is the threshold of pain.
- **A-weighted Decibel (dBA)**
Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sound of different frequency (pitch) in a similar way to the human ear. This takes account of the fact that the human ear has different sensitivities to sound at different frequencies.
- **L_{eq}**
The equivalent continuous sound level – the sound pressure level of a steady sound having the same energy as a fluctuating sound over a specified measuring period. It can be considered similar to an average level. The L_{Aeq} value is the A-weighted L_{eq}.

¹ The Bruel and Kjaer 2260 Sound Level Meter is a Type 1 meter

² www.met.ie

- **L_{A90} and L_{A10} Values**

The L_{A90} and L_{A10} values represent the A-weighted sound pressure levels exceeded for a percentage of the instrument measuring time. The L_{A90} represents the sound pressure level exceeded for 90% of the monitoring period and is a good indicator of the background noise level excluding peak noise events. L_{A10} indicates the sound pressure level exceeded for 10% of the monitoring period and is a good parameter for expressing event noise such as passing traffic.

- **L_{Amax} (dBA)**

The maximum instantaneous value recorded over the monitoring period including A-weighting

- **Tonal Noise**

One-third octave band analysis involves the calculation of an averaged, unweighted noise level to represent the frequencies within each third of an octave. These noise levels are then compared with the noise levels calculated for the adjacent one-third octave bands. If a noise level is at least 5dB higher than the noise levels representing the adjacent bands then it is considered tonal, since it is significantly louder than noise levels at similar frequencies.

- **Impulsive Noise**

A noise that is of short duration (typically less than one second), the sound pressure level of which is significantly higher than the background. e.g. hammer blow to metal sheet.

3. ENVIRONMENTAL NOISE MONITORING RESULTS

During the survey, the noise levels were recorded over 30 minute measurement periods for daytime monitoring and 15 minute measurement periods for night time monitoring. The measurements were taken at least 3.5 m from reflecting surfaces and the measurement height was 1.2 m above ground level.

The results of the Environmental Noise Monitoring for the day time and night time periods are summarised in Tables 3.1 and 3.2 below. Appendix B includes a drawing illustrating the location of each monitoring point.

Table 3.1: Environmental Noise Monitoring Results – Day Time Monitoring

Noise Measurement	Description	Start Time	L _{Aeq} dB(A)	L _{AMAX} dB(A)	L _{A10} dB(A)	L _{A90} dB(A)	Audible sounds during measurement period
AN1	South West corner of site	07:50	57	71	59	55	<ul style="list-style-type: none"> • Traffic along Nangor Road and the M50 (dominant noise source) • Truck movement on site • Intermittent noise from on-site construction activities- use of angle grinder • Constant hum from refrigeration equipment at louvre • Rustle of leaves in breeze
AN2	West corner of the site	10:50	55	69	57	53	<ul style="list-style-type: none"> • Traffic from surrounding road network (dominant noise source) • Truck movements on site (beeping sounds from reversing) • Intermittent noise from on-site construction activities- use of angle grinder • Constant hum from refrigeration equipment at louvre • Rustle of leaves in breeze • Impact noise of glass bottle recycling activities on-site

Noise Measurement	Description	Start Time	L _{Aeq} dB(A)	L _{AMAX} dB(A)	L _{A10} dB(A)	L _{A90} dB(A)	Audible sounds during measurement period
AN3	North corner of site	10:20	53	74	53	46	<ul style="list-style-type: none"> Traffic along Nangor Road and surrounding road network (dominant noise source) Trucks idling and moving in loading bay on-site Trees rustling in breeze Birdsong Intermittent noise from adjacent Ready Mix industrial facility Overhead air traffic On-site noise from people walking and talking along pathway at back of site
AN4	Boundary fence between Baileys car park and the Toyota facility to the east of the site	09:45	64	95	62	51	<ul style="list-style-type: none"> Traffic along Nangor Road (dominant noise source) Intermittent onsite noise generated by trucks passing and idling near noise meter Activity in Toyota yard (cars being loaded onto trucks) Impact noise and high-pitch screeching sound when the on-site security gate is activated Faint Birdsong Distance hum offsite, source unknown
AN5	At eastern entrance to Baileys facility	09:13	62	87	63	56	<ul style="list-style-type: none"> Traffic along Nangor Road and surrounding road network (dominant noise source) Activity in Toyota yard (truck idling, cars being loaded onto trucks, car beeping sound) Intermittent onsite noise generated by trucks passing through Baileys eastern entrance (approximately 5 trucks entering/exiting site) Overhead air traffic Birdsong
AN6	Nearest Noise Sensitive Location - outside Crescent	12:29	61	71	62	58	<ul style="list-style-type: none"> Water feature at apartment complex (dominant noise source)

Noise Measurement	Description	Start Time	L _{Aeq} dB(A)	L _{AMAX} dB(A)	L _{A10} dB(A)	L _{A90} dB(A)	Audible sounds during measurement period
	Apts						<ul style="list-style-type: none"> • Traffic along Park West Road, Park West Avenue, Yeates Way and the M50 • Rustle of leaves in breeze • Impact noise from hammering sound across the road • People walk and talking close to noise meter • No noise audible from Baileys facility due to significant intervening distance

Table 3.2: Environmental Noise Monitoring Results – Night Time Monitoring

Noise Measurement	Description	Start Time	L _{Aeq} dB(A)	L _{AMAX} dB(A)	L _{A10} dB(A)	L _{A90} dB(A)	Audible sounds during measurement period
AN1	South West corner of site	23:46	53	64	56	49	<ul style="list-style-type: none"> Traffic along Nangor Road and surrounding road network (dominant noise source) Constant hum from on-site refrigeration equipment ex. louvre Constant hum from on-site pumps under sugar silos
AN2	West corner of the site	23:29	53	60	54	51	<ul style="list-style-type: none"> Traffic from surrounding road network Nangor Rd, Park West Avenue and the M50 (dominant noise source) Truck movements onsite (beeping sound from vehicle reversing) Faint flow of canal audible Constant hum from on-site refrigeration equipment ex. louvre Overhead air traffic Impact noise from on-site forklift Car alarm in distance offsite
AN3	North corner of site	23:07	60	80	56	44	<ul style="list-style-type: none"> Trucks idling and reversing (beeping sound) from facility loading area (Dominant noise). Beep from off-site vehicle in distance Constant hum from unknown source off site along Hume Avenue located to the north of the site along the canal Traffic along Nangor Road and surrounding road network Impact noise from loading of truck in on-site loading area
AN4	Boundary fence between Baileys car park and the	22:49	50	59	52	46	<ul style="list-style-type: none"> Traffic along Nangor Road (dominant noise source) Rush of water and high pitch whine from on-

Noise Measurement	Description	Start Time	L _{Aeq} dB(A)	L _{AMAX} dB(A)	L _{A10} dB(A)	L _{A90} dB(A)	Audible sounds during measurement period
	Toyota facility to the east of the site,						<ul style="list-style-type: none"> site wastewater treatment plant Alarm from within Baileys facility audible for approximately 20-30 seconds Activity in Toyota yard (truck idling, cars being loaded onto trucks, car beeping sound) Beeping sound from vehicle reversing onsite Buzzing noise from vehicles moving in on-site pallet area Car door banging and exiting on-site car park
AN5	At eastern entrance to Baileys facility	22:31	55	73	59	47	<ul style="list-style-type: none"> Traffic along Nangor Road and surrounding road network (dominant noise source) Activity in Toyota yard (truck idling, cars being loaded onto trucks, car beeping sound) Constant buzzing from on-site security light adjacent to noise meter (approx 5m away) Overhead air traffic Main facility very faintly audible (refrigeration equipment ex. louvre) Rush of water and high pitch whine from on-site wastewater treatment plant
AN6	Nearest Noise Sensitive Location - outside Crescent Apts	22:02	59	74	60	58	<ul style="list-style-type: none"> Water feature at apartment complex (dominant noise source) Traffic along Park West Road, Park West Avenue, Yeates Way and the M50 No noise audible from Baileys facility due to significant intervening distance

4. DISCUSSION

The environmental noise measurement results for the daytime and night-time noise monitoring periods at locations AN1 – AN6 are outlined in Table 3.1 and Table 3.2. The Baileys facility was visible at all monitoring locations except AN6.

4.1 Monitoring Location AN1

Monitoring location AN1 is located at the South West corner of site, at the corner of the Nangor Rd and Park West Avenue.

Day Time

During the day time monitoring period, traffic along Nangor Road and the surrounding road network (M50) was the dominant noise source. The $L_{Aeq,30\ min}$ for the day time monitoring period was 57 dB(A). The measurement L_{A90} obtained during the survey was 55 dB(A). As this represents 90% of the monitored sound pressure level it is a good indicator of the background noise level excluding peak noise events. Background noise at AN1 consists of noise from the Baileys facility, and the constant hum of traffic from the Nangor Road. The $L_{A,max}$ for the monitoring period was 71 dB(A) which was the result of a truck movement on site.

Night Time

The traffic along Nangor Road and the surrounding road network (M50 & Park West Avenue) was the main noise contributor during this monitoring period. Another predominant noise was the constant hum from pumps under the site's sugar silos. The $L_{Aeq,15\ min}$ for the night time monitoring period was 53 dB(A). The L_{A90} obtained at AN1 during the night time monitoring period was 49 dB(A). The $L_{A,max}$ for the monitoring period was 64 dB(A) which was the result of a truck travelling along Nangor Road.

4.2 Monitoring Location AN2

Monitoring location AN2 is located at the West corner of the site, where Park West Avenue intersects with the Grand Canal.

Day Time

During the day time monitoring period, traffic from the Park West Avenue and the surrounding road network was the dominant noise source. Another dominant noise was the constant hum from on-site refrigeration equipment emanating from the refrigeration building louvre. The $L_{Aeq,30\ min}$ for the day time monitoring period was 55 dB(A). The L_{A90} obtained during the survey was 53 dB (A). $L_{A,max}$ for the monitoring period was 69 dB(A) which was the result of truck movement on site.

Night Time

The traffic from the Park West Avenue and the surrounding road network was the main contributor during this monitoring period. Again another dominant noise was the constant hum from on-site refrigeration equipment emanating from the refrigeration building louvre. The $L_{Aeq,15\ min}$ for the night time monitoring period was 53 dB(A). The L_{A90} obtained at AN2 during the night time monitoring period was 51 dB(A). The $L_{A,max}$ for the monitoring period was 60 dB(A) which was the result of traffic on Park West Avenue. The Baileys facility was audible during this monitoring period

4.3 Monitoring Location AN3

Monitoring location AN3 is located at the Northern corner of site across from the Loading Bay.

Day Time

The dominant noise source during the day time monitoring period was traffic along the surrounding road network. Site noise such as trucks idling and unloading from the loading bay also intermittently contributed to noise levels at this location. An impact noise of glass bottle recycling activities was audible from the facility. The $L_{Aeq,30\text{ min}}$ for the day time monitoring period was 53 dB(A). The L_{A90} obtained during the survey was 46 dB(A). $L_{A,max}$ for the monitoring period was 74 dB(A) can be attributed to on site movements close to the noise meter.

Night Time

Trucks idling and reversing (beeping sound) from facility loading area was the main noise contributor during this monitoring period. Off site noise such traffic on the surrounding road network also contributed to noise levels at this location. The $L_{Aeq,15\text{ min}}$ for the night time monitoring period was 60 dB(A). The L_{A90} obtained at AN3 during the night time monitoring period was 44 dB(A). The $L_{A,max}$ for the monitoring period was 80 dB(A).

4.4 Monitoring location AN4

Monitoring location AN4 is located to the east of the site, at Boundary fence between Bailey's car park and the Toyota facility.

Day Time

During the day time monitoring period, traffic along Nangor Road was the dominant noise source. The $L_{Aeq,30\text{ min}}$ for the day time monitoring period was 64 dB(A). The L_{A90} obtained during the survey was 51 dB(A). $L_{A,max}$ for the monitoring period was 95 dB(A) which was the result of truck movements onsite passing close to the noise meter. The Baileys facility was faintly audible during the day time survey during low traffic periods.

Night Time

The traffic along Nangor Road was the main noise contributor during this monitoring period. Another dominant noise was the rush of water from the on-site wastewater treatment facility. The $L_{Aeq,15\text{ min}}$ for the night time monitoring period was 50 dB(A). The L_{A90} obtained at AN4 during the night time monitoring period was 46 dB(A). The $L_{A,max}$ for the monitoring period was 59 dB(A) which again was the result of truck movements in the adjacent Toyota yard.

4.5 Monitoring location AN5

Monitoring location AN5 is located at the eastern entrance to the Baileys facility near the Cammock River.

Day Time

The dominant noise source during the day time monitoring period was traffic along the Nangor Road. The $L_{Aeq,30\text{ min}}$ for the day time monitoring period was 62 dB(A). The L_{A90} obtained during the survey was 56 dB(A). $L_{A,max}$ for the monitoring period was 87 dB(A) which was the result of a truck movement exiting the site and passing close to the noise meter.

Night Time

Traffic along the Nangor Road was the main noise contributor during this monitoring period. Another contributor to noise levels at this location was the constant hum from an unknown source offsite along Hume Avenue, located to the north of the site along the canal.

The $L_{Aeq,15\ min}$ for the night time monitoring period was 55 dB(A). The L_{A90} obtained at AN5 during the night time monitoring period was 47 dB(A). The $L_{A,max}$ for the monitoring period was 73 dB(A) which was the result of a HGV passing along the Nangor Road.

4.6 Monitoring location AN6 (NSL)

Monitoring location AN5 is the Nearest Noise Sensitive Location and is located outside Crescent Apts off Park West Avenue roundabout (National Grid Coordinates = E308281, N232357). Crescent Apts are located approximately 500m to the north west of the Baileys facility. As a result the noise from the Baileys site is completely inaudible (the site is also blocked from view) at the apartment complex.

Day Time

The dominant noise sources during the day time monitoring period was noise from the Crescent Apartments water feature. Traffic along Park West Road, Park West Avenue, Yeates Way, M50 and on the park west roundabout also contributed heavily to the recorded noise levels. The $L_{Aeq,30\ min}$ for the day time monitoring period was 61 dB(A). The L_{A90} obtained during the survey was 58 dB(A). $L_{A,max}$ for the monitoring period was 71 dB(A) which was the result of music from a car passing along Park West Road.

Night Time

Noise from the Crescent Apartments water feature was the main noise contributor during this monitoring period with noise from the surrounding road network also the dominant noise source. The $L_{Aeq,15\ min}$ for the night time monitoring period was 59 dB(A). The L_{A90} obtained at AN6 during the night time monitoring period was 58 dB(A). The $L_{A,max}$ for the monitoring period was 74 dB(A) which was the result of traffic along the Park West Road.

5. TONAL ANALYSIS

Tonal analysis was carried out on the results of the noise survey for each monitoring period. This involved the analysis of the spectrum of noise levels recorded at each monitoring location with respect to the frequencies (Hz) at which they occurred.

One-third octave band tonal analysis was employed and involves the calculation of an unweighted averaged noise level to represent the frequencies within each third of an octave. These noise levels are then compared with the noise levels calculated for the adjacent one-third octave bands. If a noise level is at least 5dB higher than the noise levels representing the adjacent bands then it is considered tonal, since it is significantly louder than noise levels at similar frequencies.

Tonal analysis results are given in Table 5.1 and Table 5.2 for AN1-AN6 with noise level vs frequency spectrum graphs included in Appendix A. The aim of tonal analysis is to identify any tonal element to the noise emitted from the Baileys facility.

Table 5.1: Tonal Noise Results – Day time

Noise Measurement	Noise Level dB	Frequency (Hz)
AN1	Tonal Noise not detected	
AN2	Tonal Noise not detected	
AN3	Tonal Noise not detected	
AN4	Tonal Noise not detected	
AN5	74	40
AN6	Tonal Noise not detected	

The results in Table 5.1 indicate that tonal noise was present during the day time monitoring period at AN5. The origin of the tonal noise occurring at frequency of 40Hz can be attributed to trucks idling in the Toyota yard for the duration of the monitoring period.

Table 5.2: Tonal Noise Results –Night time

Noise Measurement	Noise Level dB	Frequency (Hz)
AN1	Tonal Noise not detected	
AN2	Tonal Noise not detected	
AN3	60	31.5
	58	1.25kHz
AN4	Tonal Noise not detected	
AN5	Tonal Noise not detected	
	Tonal Noise not detected	
AN6	Tonal Noise not detected	

The results in Table 5.2 indicate that tonal noise was present during the night time monitoring period at AN3. The origin of the tonal noise at frequencies of 31.5Hz and 1.25kHz during the night time monitoring period is unknown but it is likely that the constant hum emanating from an offsite unknown source along Hume Avenue is a contributing factor.

It should also be noted that a study of tonal noise from on-site equipment was carried out on site in December 2010 and documented under PM Group report no. IE0310295-22-RP-0001. The results of this study indicated that of the on-site equipment that was assessed, none emitted tonal noise at frequencies of 31.5, 40 or 1250 Hertz, and therefore would not be responsible for the tonal noise detected during the current environmental noise monitoring survey.

The results in Table 5.1, Table 5.2 indicate that although tonal noise was detected at AN3 and AN5 site boundary points, no tonal noise was detected at the nearest NSL (AN6).

6. CONCLUSION

The findings of the noise monitoring at the Baileys site, indicate that noise levels have decreased slightly at most boundary monitoring points since the last IPPC Noise report with the exception of AN4 and AN5 during the day time monitoring period, and AN3 during the night time monitoring period. Ambient monitored L_{Aeq} noise levels are dominated by significant traffic on the Nangor Road and surrounding road network due to the industrial nature of the area and its proximity to the M50.

No complaints in relation to noise emissions have been received by Baileys during the past year.

Baileys IPPC licence requires that activities on-site shall not give rise to noise levels at the boundary of the installation or at noise sensitive locations, which exceed limits of L_{Aeq} of 55dB(A) during the day and 45db(A) at night. The licence also states that

“There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise sensitive location”

Although L_{Aeq} noise levels at most of the site boundary points and the nearest NSL are in excess of these IPPC licence limits, based on the observations made during the monitoring survey it is concluded that monitored noise levels are predominantly due to off-site activities. In particular at the noise sensitive location AN6 it was observed that the Crescent Apartments water feature and traffic along the Park West Road, Park West Avenue, Yeates Way and M50 were the dominant noise sources at this monitoring location. The Baileys facility was not audible or visible from this noise monitoring location.

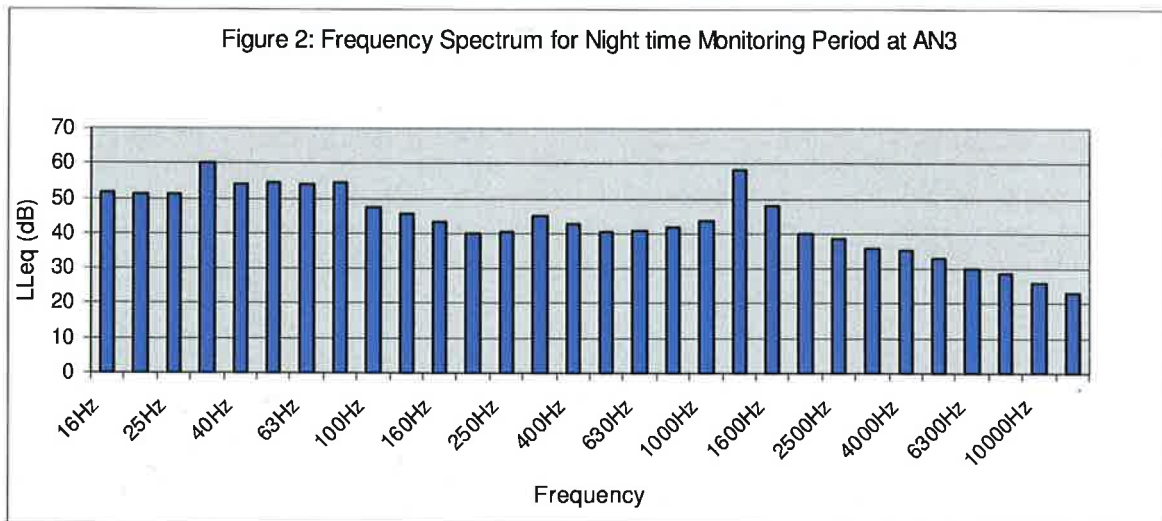
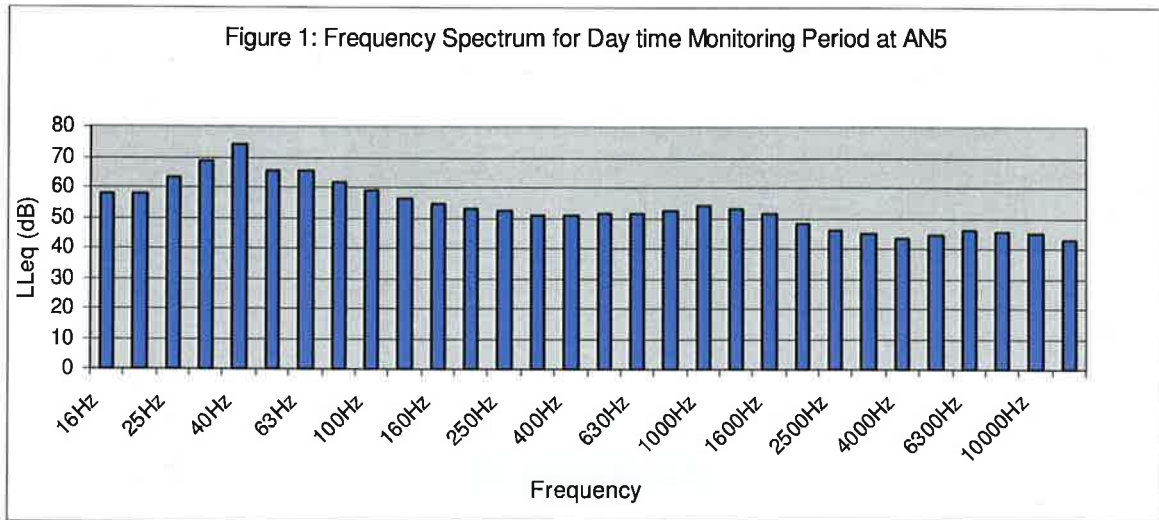
The tonal analysis results given in Table 5.1 and 5.2 indicate that tonal noise was detected during the day time noise survey at AN5 and at AN3 during the night time survey. Tonal noise at AN5 can be attributed to offsite activity at the Toyota facility. The origin of the tonal noise at frequencies of 31.5Hz and 1.25kHz during the night time monitoring period at AN3 is unknown but it is likely that the constant hum emanating from an offsite unknown source along Hume Avenue is a contributing factor. It should also be noted that the detected tonal noises at AN3 and AN5 do not result from on-site equipment that was assessed for tonal noise in 2010.

No tonal noise was detected at the nearest NSL and no impulsive noise from the Baileys facility was audible at this location. It can therefore be concluded that the Baileys facility is not generating any tonal or impulsive component at the nearest NSL and is in compliance with its IPPC licence.

Given the significant distance of the Baileys facility from AN6 (approximately 500m), the industrial nature of the area and the fact that the Baileys facility is not audible or visible from the nearest NSL (AN6), it can be concluded that noise emissions from the Baileys facility do not influence noise levels at the nearest NSL (AN6). Therefore it is considered that the Baileys facility is in compliance with the 55dB (A) day and 45dB (A) night limits with respect to the NSL.

APPENDIX A

1/3 OCTAVE SPECTRUM GRAPH OF NOISE SOURCES FOR IDENTIFICATION OF TONAL QUALITIES



APPENDIX B

DIAGRAM OF SITE LAYOUT AND NOISE MONITORING LOCATIONS

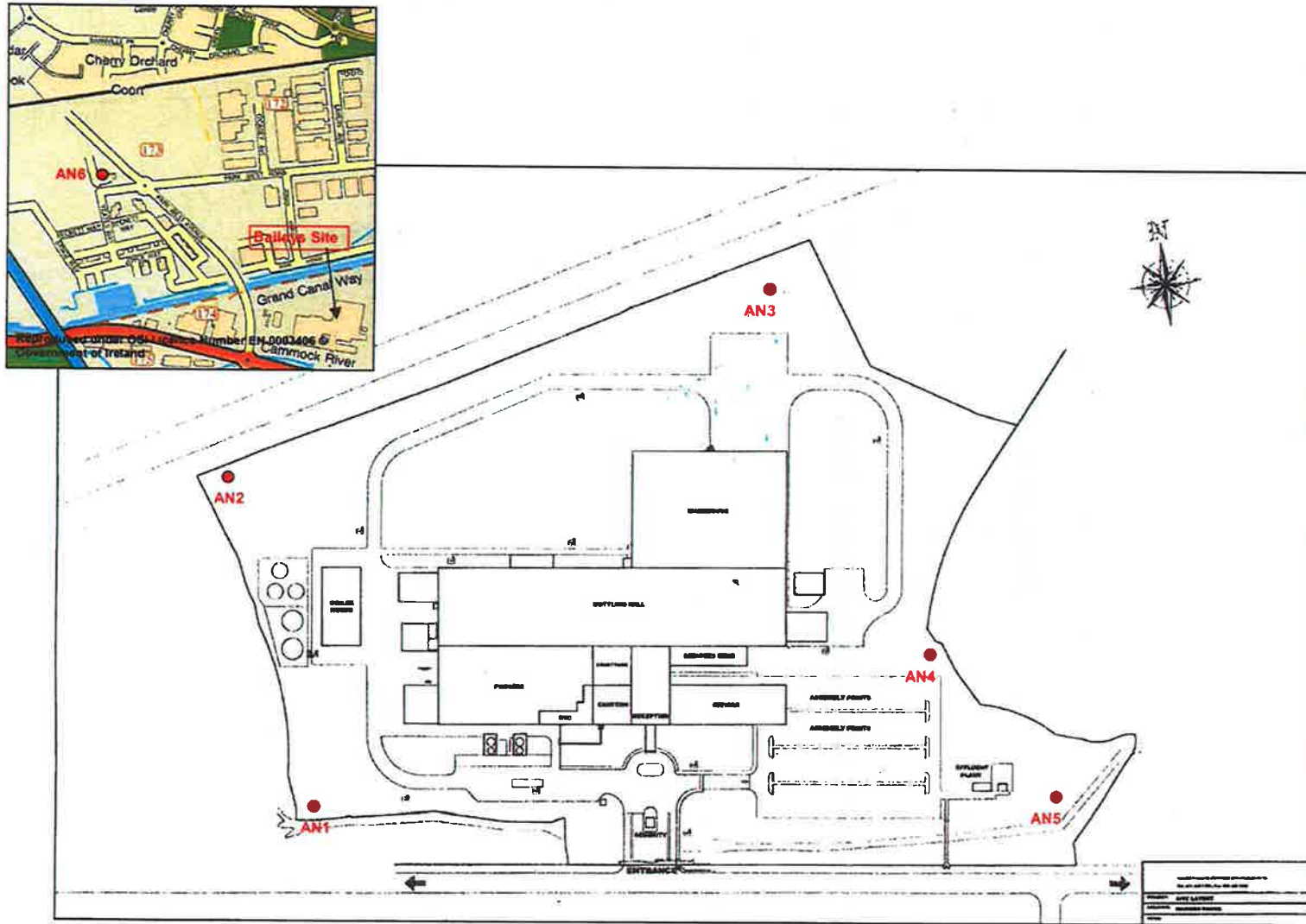


Figure 1 Site Layout and Noise Monitoring Locations



ATTACHMENT 3

BUND INTEGRITY ASSESSMENT REPORT 2011



Diageo Baileys Global Supply

**Noise & Bund Survey 2011
Project No.: IE0310556**

BUND INTEGRITY ASSESSMENT REPORT 2011

File No: IE0310556.22.150

Document Number: IE0310556-22-RP-0002

CURRENT ISSUE					
Issue No: A	Date: 18/01/2012	Reason for Issue: For Information			Customer Approval (if required)
Sign-Off	Originator	Checker	Reviewer	Approver	
Print Name	Rory O'Dwyer	Jen Loong Lee		Mags Dalton	
Signature	<i>Rory O'Dwyer</i>	<i>Jen Loong Lee</i>		<i>Mags Dalton</i>	
Date	<i>18/01/2012</i>	<i>18/01/2012</i>		<i>19/1/2012</i>	

PREVIOUS ISSUES (Type Names)							
Issue No.	Date	Originator	Checker	Reviewer	Approver	Customer	Reason for Issue

CONTENTS

1.	INTRODUCTION	3
2.	GUIDELINES	5
3.	DESCRIPTION OF ASSESSMENT	7
	3.1 Bund Locations	7
	3.2 Assessment Methodology	9
4.	ASSESSMENT RESULTS	11
	4.1 General Assessment Findings	11
	4.2 Particular Assessment Findings	13
	APPENDIX A	21
	Bund Data Sheets	21
	APPENDIX B	60
	Bund Photographs	60
	ATTACHMENT 1	109
	Bund Location Map (IE0310556-22-SK-0001 Issue A)	109

1. INTRODUCTION

PM Group has been appointed by Diageo Baileys Global Supply (DBGS) to undertake a storage and containment study with respect to its site at Nangor Road, Western Industrial Estate, Dublin 12. The study comprises a risk assessment of all fixed and mobile storage containers (including tanks, IBCs and drums) and associated bunding/secondary containment.

DBGS were issued with an IPPC Licence by the Environmental Protection Agency (EPA) on 11th May 2007. It is the purpose of the storage and containment inspection and assessment process to ensure that all bunding structures at the DBGS site are in compliance with the following conditions of the IPPC Licence (Reg. No. P0807-01) (Reference 1).

3.6 Tank, Container and Drum Storage Areas

- 3.6.1 *All tank, container and drum storage areas shall be rendered impervious to the materials stored therein. Bunds should be designed having regard to Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (2004).*
- 3.6.2 *All tank and drum storage areas shall within twelve months of the date of grant of licence, as a minimum, be bunded, either locally or remotely, to a volume not less than the greater of the following:-*
- (i) 110% of the capacity of the largest tank or drum within the bunded area; or*
 - (ii) 25% of the total volume of substance which could be stored within the bunded area.*
- 3.6.3 *All drainage from bunded areas shall be treated as hazardous waste unless it can be demonstrated to be otherwise. All drainage from bunded areas shall be diverted for collection and safe disposal.*
- 3.6.4 *All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.*
- 3.6.5 *All tanks, containers and drums shall be labelled to clearly indicate their contents.*
- 3.12 *All pump sumps, storage tanks or other treatment plant chambers from which spillage of environmentally significant materials might occur in such quantities as are likely to breach local or remote containment or separator, shall be fitted with high liquid level alarms (or oil detectors as appropriate) within three months from the date of grant of this licence.*
- 3.13 *The provision of a catchment system to collect any leaks from flanges and valves of all over ground pipes used to transport material other than water shall be examined. This shall be incorporated into a schedule of objectives and targets set out in Condition 2.2.2.2 of this licence for the reduction in fugitive emissions.*

6.8 *The integrity and water tightness of all underground pipes, tanks, bunding structures and containers and their resistance to penetration by water or other materials carried or stored therein shall be tested and demonstrated by the licensee within twelve months of date of grant of this licence. This testing shall be carried out by the licensee at least once every three years thereafter and reported to the Agency on each occasion. This testing shall be carried out in accordance with any guidance published by the Agency. A written record of all integrity tests and any maintenance or remedial work arising from them shall be maintained by the licensee.*

8.4 *The loading and unloading of materials shall be carried out in designated areas protected against spillage and leachate run – off.*

This current study is an update of the 2007 site storage and containment study which was also undertaken by PM Group under report no. 011557-22-RP-0001. The purpose of the update is to comply with Licence condition 6.8 which requires that the integrity and water tightness of bunding structures and containers is assessed every 3 years. This study is the initial phase of the assessment and the aims are as follows:

- to make an initial assessment of the integrity and water-tightness of the bunding/containment structures on site via visual inspection
- where a bunding/containment structure is visibly in disrepair, to make recommendations for repair
- to make an assessment based on the *EPA guidelines 'Storage and Transfer of Materials for Scheduled Activities' (2004)* on the necessity, safety and practicality of undertaking hydrostatic testing of each bunding/containment structure

Based on the results of this assessment Diageo Baileys can then undertake repair/improve works on the site's bunding/containment structures and subsequently undertake any required hydrostatic testing.

All bunds were visually inspected and photographed. A data sheet for each bund has been compiled and included in Attachment A of this report. Photographs of the bunds are to be found in Attachment B. Where the conditions of the bunds does not currently comply with the IPPC Licence conditions outlined above actions have been recommended in order to achieve compliance.

2. GUIDELINES

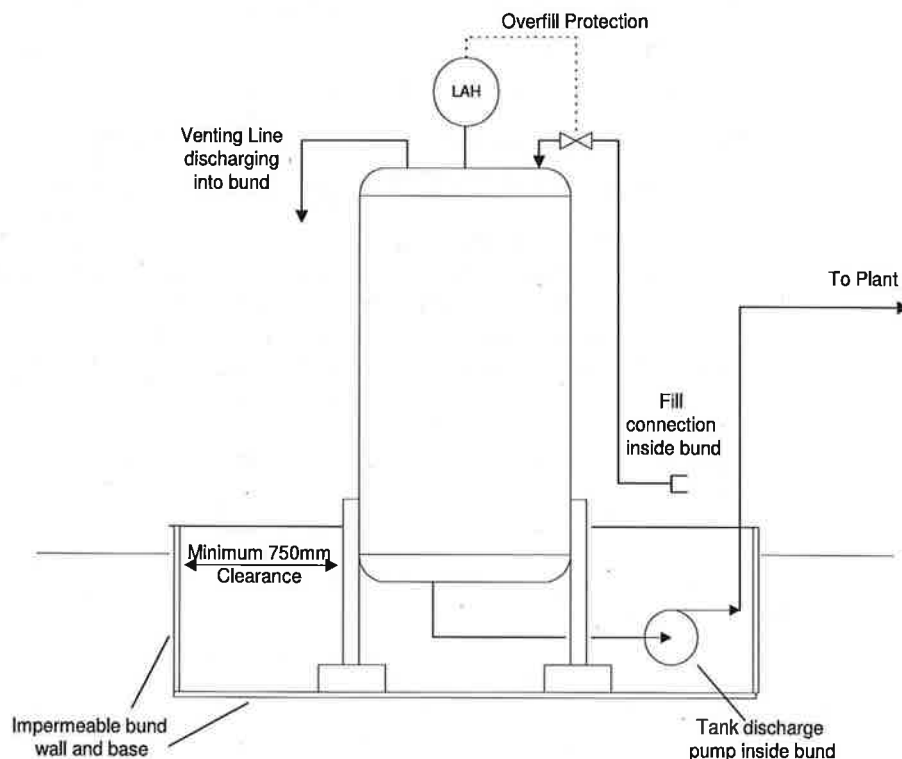
The Environmental Protection Agency (EPA) has issued an IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities (EPA, 2004) (Reference 2) which provides guidance for the inspection and testing of bund structures.

The main guidelines are:

- The sealed surface providing the retention must be impermeable to the liquid being retained. This applies also to any connecting elements, such as pipes, penetrating the structure, the sealing of which must provide the same level of retention as the bund itself.
- There must be no adverse chemical reaction that could occur between different liquids in a bund that would impact on the integrity of the bund or the safety of personnel in its vicinity.
- In general bund walls should not exceed 1.5 m in height and a minimum clearance of 0.75m around tanks so that:
 - Fire-fighting operations are not hindered
 - Egress from a bunded area in event of an emergency is relatively easy
 - Natural ventilation of the bunded area is encouraged.
- It is important that, where practicable, pumps, valves, couplings, delivery nozzles and other items associated with the operation of a tank are located inside the bund, although health and safety implications must be taken into account where pumps and other electrical equipment operate in bunds where flammable vapours may collect. Items not connected with the operation of the tanks should not be located within the bunded area.
- The vent from a storage tank being overfilled should be contained within the bund.
- It is strongly recommended that all pipework leading to or from tanks within a bund are routed over the top of the bund in order to avoid the need to breach the walls.
- Bunds may be filled with liquid in event of a spillage or may be deliberately filled with liquid during testing; electrical equipment should therefore ideally be placed above the maximum liquid height or designed for submersion.
- Bulk chemical storage bunds should be designed to contain 110% of the capacity of the largest storage vessel located within the bund
- Below ground tanks should be double-skinned with leak detection
- Valved drainage from bunds should be avoided
- Individual bunding is preferred to common bunding. Where more than one tank/container is located in a bund compatibility of the stored substances should be checked.

- Where two or more tanks are installed within the same bund, the recommended capacity of the bund is the greater of:
 - 110% of the capacity of the largest tank within the bund, or
 - 25% of the total capacity of all of the tanks within the bund, except where tanks are hydraulically linked in which case they should be treated as if they were a single tank.
- Tanks and vessels storing potentially polluting substances should only be filled with fixed piping connections and an overfill protection should be provided that independently shuts off the filling process prior to reaching the permissible fill level and activates an alarm. This does not apply to single overground tanks with a volume of not greater than 1,000 litres if they are filled with a self-closing dispensing valve or for the filling of mobile vessels in a filling facility.

Figure 2.1 Typical bund arrangements for a small tank



3. DESCRIPTION OF ASSESSMENT

3.1 Bund Locations

A description of the location of each bund is detailed in Table 3.1 below. These locations are also graphically represented in the site layout drawing in Attachment C.

Table 3.1 Locations of Bund Structures

PM Bund reference number	Description of bund location
Bund 01	Cream Blend Storage Tanks 1&2 at southwest end of site
Bund 02	Cream Blend Storage Tanks 3&4 at southwest end of site
Bund 03	Bunded Valve & Pump House, between Bunds 01 & 02, at southwest end of site
Bund 04	Flammable Flavours Store (Chemstore), in front of Bund 03, at southwest end of site
Bund 05	Brand Technical Centre Hazardous Waste Store (Chemstore), in front of Bund 01, at southwest end of site
Bund 06	Cream & Alcohol Bulk Intake Area, to west of site opposite the Boiler House
Bund 07	T1010 – Food Grade Bulk Caustic Tank, to north of Cream & Alcohol Bulk Intake Area
Bund 08	T1010 Pump, adjacent to Bund 07
Bund 09	Bulk CIP Tank T2004, to north of Cream & Alcohol Bulk Intake Area
Bund 10	Area A Bulk Ingredients Intake, to north of Cream & Alcohol Bulk Intake Area
Bund 11	Haagen Daz, Miscellaneous & Obsolete Flavours Chemstore container, to southside of Boiler House
Bund 12	Blue/Grey Chemstore container (untitled), to eastside of Boiler House
Bund 13	Brown Chemstore container – Caustic Store, to eastside of Boiler House
Bund 14	Emmet's Flavours Chemstore container, opposite Boiler House & Bunds 12 & 13
Bund 15	Sheridan's B&W Flavours Chemstore container, opposite Boiler House & Bunds 12 & 13
Bund 16	Brown Chemstore container – Caustic Store, opposite Boiler House to south of Area 4
Bund 17	Water/CIP Bund, to north of Area A Bulk Ingredients Intake (opposite sugar silos)

PM Bund reference number	Description of bund location
Bund 18 & 19	Cooling Towers dosing chemicals, in Area C – behind Refrigeration Building
Bund 20	Bund under Compressed air tank, in Area C – behind Refrigeration Building
Bund 21 & 22	Small Bucket Bunds in Refrigeration Building
Bund 23	Ethanol Intake Area, to north of site behind Bottling Hall
Bund 24	Effluent Mixing Tank, to east of site at Effluent Plant
Bund 25	Caustic Dosing Tank, to east of site at Effluent Plant
Bund 26	Acid Dosing Tank, to east of site at Effluent Plant
Bund 27, 35 & 36	Acid/Caustic Delivery Area, to east of site in Effluent Plant Yard and Chemstore bunds for acid/caustic spills within Bund 27
Bund 28	Diesel Tank Bund, at western end of site opposite Boiler House
Bund 29	Boiler Additives bund, in Boiler House
Bund 30	Sprinkler Pump Room, on western side of Boiler House
Bund 31	Diesel Tank for Shunter refuelling, to northwest of Boiler House
Bund 32	Process Tanks in Process Area
Bund 33	Blue/Grey Chemstore container – Coffee and Mint Flavours
Bund 34	Blue/Grey Chemstore container – Obsolete & Misc. Flavours
Bund 37	Effluent tank
Bund 38	Waste oil tank, in hazardous waste storage area
Bund 39	Diesel tank
Bund 40	Whiskey room bund
Bund 41	Glycol tank bund, within Refrigeration power room
Bund 42	Vodka storage area

3.2 Assessment Methodology

Each tank/bund arrangement has been assigned to Hazard Category A, B or C/D depending on the WGK in combination with the volume, or on the specific BOD loading of the substance. The category definitions have been taken from the EPA *IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities* and are outlined in the following tables.

Table 3.2: Hazard Category/WGK Table (table 5.2 from Reference 2)

Volume in m ³ or mass in t	Hazard Categorisation		
	WHC 1	WHC 2	WHC 3
≤ 0.1	Category A	Category A	Category A
> 0.1 ≤ 1	Category A	Category A	Category B
> 1 ≤ 10	Category A	Category B	Category C
> 10 ≤ 100	Category A	Category C	Category D
> 100 ≤ 1,000	Category B	Category D	Category D
> 1,000	Category C	Category D	Category D

Table 3.3: Hazard Category/BOD Loading Table (from Section 5.2.9 of Reference 2)

Hazard Category	BOD Load Values
A	< 5,000kg
B	5,000-20,000kg
C/D	> 20,000kg

The hazard category of the substances to be contained determines the class of containment required as follows:

Extract from Section 6.3.2 of Reference 2

- *Low site hazard (Category A) or low site risk – containment type Class 1, i.e. normal degree of integrity.*
- *Moderate site hazard (Category B) or moderate site risk – containment type Class 2, i.e. intermediate degree of integrity.*
- *High site hazard (Category C&D) or high site risk - containment type Class 3, i.e. highest degree of integrity.*

The design and construction requirements for containment types Classes 1-3 are provided in Section 6.3.2 of Reference 2.

A standard template was used throughout the storage and containment inspection programme to collate the following information, along with the relevant hazard category:

- Substance Risk Phrases
- Structural & lining (where relevant) integrity of bund

- Integrity of bunded container
- Labelling of bunded container
- Location of ancillary equipment e.g. pumps, vents, intake and discharge connections
- Method of bund drainage
- Practicability of performing a hydrostatic test

Findings of the bund survey have been compared with requirements set out in both the *IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities* and the site's IPPC Licence. Actions are recommended where existing conditions of the surveyed containments systems do not fully comply with these requirements.

4. ASSESSMENT RESULTS

42 No. bunds or banded areas were inspected. These are denoted by a unique bund number. The details of these bunds are recorded on data sheets in Attachment A. Supporting photographs and sketches are provided in Attachment B.

4.1 General Assessment Findings

This section details some general findings which are of particular note because they recurred frequently through the assessment and/or because they couldn't be fully elaborated on, on the individual bund datasheets.

4.1.1 Labelling of Bunded Tanks, Drums and Containers

The issue of poor container labelling particularly applies to the substances stored in the large Chemstore containers (Bunds 04, 05, 11-16, 33 and 34) but the requirement for good labelling is relevant to all stored substances. Many of the bunded tanks, drums and containers assessed are inadequately labelled. There is also a lack of available MSDS information for many of the substances. Clear descriptive labelling should be visible on each stored container. Also where possible, MSDS information relevant to handling and storage should be made available locally.

4.1.2 Remote Bunding

There are a number of remote bunds on site which consist of a local containment area around the storage tank which drains directly to the remote containment area. The 190m³ effluent plant underground tank acts as the remote containment for all the on-site remote bunding systems.

The requirements associated with a remote containment system, as outlined in Reference 2, are as follows:

- Drainage systems and paving in local containment areas must be impermeable
- Drainage system must be designed to cope with the rates of flow that would be associated with a sudden loss of primary containment (i.e. the storage tank or associated pipe work).
- Ensure that sufficient volume is present at the remote location for the necessary secondary containment function. This will need to be demonstrated to the EPA inspector on request by means of a suitable management system.
- If a wastewater treatment facility is used for the purpose of containment it is necessary to ensure that neither the parameters in the effluent discharge licence are exceeded or a transfer of the pollutants to another medium occurs.

The remote bunds on site are Bunds 01-03, 06 (cream intake section), 10, 17, 20, 24, 27 and potentially Bund 32. These bunds adhere as follows to the requirements above.

- For all of these bunds it has been determined that the paved area of the local containment areas are impermeable. The integrity of the related

drainage system did not form part of the scope of this assessment and therefore requires separate determination.

- The ability of the remote bunding systems to cope with flow rates associated with a sudden loss of primary containment also depends in part on the drainage system. A loss of primary containment is most likely to result from the breach of a connection point (e.g. a flange or valve on the associated piping) as opposed to the catastrophic rupture of a tank. Therefore rate of flow from the primary containment can be represented by the following equation:

$$Q_1 = A \times 0.6 \times (2 \times g \times h)^{1/2}$$

where Q_1 = rate of flow (m^3/s)

A_1 = surface area of the leak e.g. the open area of the leaking pipe (m^2)

0.6 = an upper estimation for fluids with a comparable viscosity and friction losses to water discharging through a sharp edged opening

g = acceleration due to gravity (m/s^2)

h_1 = maximum height of liquid column above the leak e.g. height of tank (m)

For example with respect to Bunds 01 & 02 where the tanks have a height of approx. 6m and inlet and outlet pipes are approx. 15cm in diameter the maximum foreseeable flow rate from the tanks under spill conditions would be:

$$Q_1 = (\pi \times 0.075^2) \times 0.6 \times (2 \times 9.81 \times 6)^{1/2} = 0.115m^3/s \text{ or } 115 \text{ litre/s}$$

Following this it is necessary to determine if the drainage system can discharge this rate of flow to the effluent tank using the following equation:

$$Q_2 = A \times \left(\frac{h_2 \times d \times g}{2 \times L_{eT} \times f} \right)^{1/2}$$

where Q_2 = rate of flow through the drainage system (m^3/s)

A_2 = surface area of the drain (m^2)

g = acceleration due to gravity (m/s^2)

d = diameter of the drainage channel

h_2 = vertical height difference between the drainage opening and the outfall to the remote containment (effluent tank) (m)

L_{eT} = length of the drain from the drain opening to the outfall at the effluent tank, plus the equivalent lengths which represent the features of the drain e.g. bends, sudden expansions etc.

f = the friction factor which is a function of the properties of the fluid and the drainage channel material.

As can be seen from the above equation this calculation requires significant data and information regarding the drainage channel between the local and remote sections of the remote bunding drainage systems. This data has not been compiled as part of the current assessment. If it is intended to retain any of the remote bunds at the site as they currently operate it is recommended that this calculation be completed.

It should be noted that this calculation is not required for Bund 17 as there is sufficient retention capacity and impermeability in the local bund to retain a full spill until the drainage system conveys it to the effluent plant. It is also not required for Bund 20 as the tanks within this bund contained compressed air only.

There is currently no system in place to ensure a specific capacity in the underground effluent tank. If it is intended to retain any of the remote bunds at the site as they currently operate it will be necessary to adopt a management system for the effluent plant which ensures a constant capacity of 110% of the largest tank in a remote bund, in the effluent tank.

Similarly there is currently no system in place to ensure that the spill is not transferred on from the effluent plant to the municipal WWTP and or that the IPPC Licence discharge limits are not exceeded under these conditions. Therefore under current operating conditions it would be necessary to employ automatically controlled valve on the effluent outlet which would automatically recycle any effluent that exceeded licence discharge limits.

4.1.3 Underground Tanks and Pipework

The integrity of underground tanks and pipework did not form part of this assessment however it is recommended that the assessment of these elements of site containment be undertaken, specifically in relation to the following:

- Effluent drainage system
- Underground effluent tank
- Underground ethanol sump (Bund 23)
- Underground alcohol sump (part of Bund 06)
- Pipe work from the Boiler Diesel Tank (in Bund 28)

4.2 Particular Assessment Findings

The results for each bund are detailed in full on the datasheets in Attachment B and are also summarised in Table 4.1 below.

The actions that have been identified for the bunded areas can be divided into 'Priority' actions and 'Other' actions. Priority actions are those which are required to mitigate a high risk of substance release. These actions are designated on the datasheets in Attachment B and in Table 4.1 by '(P)'.

Table 4.1: Storage and Containment Assessment Results

PM Bund ref. number	Location	Housekeeping Recommendations	Action Required
Bund 01	For Cream Blend Storage Tanks 1&2 at southwest end of site	The drains require regular cleaning/clearance of debris. Vegetation should be cut back to boundary of bund to prevent unnecessary build up of leaves in bund	<ul style="list-style-type: none"> • See requirements outlined in Section 4.1.2. • If converting to local bunding see requirements on relevant datasheet • Seal connection between electric cabling and tanks
Bund 02	For Cream Blend Storage Tanks 3&4 at southwest end of site	Remove pillars from current storage location within the bund	<ul style="list-style-type: none"> • See requirements outlined in Section 4.1.2. • If converting to local bunding see requirements on relevant datasheet • Seal connection between electric cabling and tanks. • Repair cracks in bund wall • Ensure drains are clear
Bund 03	Bunded Valve & Pump House, between Bunds 01 & 02, at southwest end of site	Oil residue present under pump needs to be cleaned and pump repaired as necessary (P1036)	<ul style="list-style-type: none"> • Repair cracks in wall
Bund 04	Flammable Flavours Store (Chemstore), in front of Bund 03, at southwest end of site	Some boxes are over filled with bottles. Storage arrangements within the bunded container should be reorganised. Debris in base of bund. These should be removed	<ul style="list-style-type: none"> • All vessels and boxes should be clearly labelled with contents. • Bund should be hydrostatically tested every three years.
Bund 05	Brand Technical Centre Hazardous Waste Store (Chemstore), in front of Bund 01, at southwest end of site	Storage arrangement on bund is generally haphazard. Storage arrangements within the bunded container should be reorganised.	<ul style="list-style-type: none"> • Ensure all containers are clearly labelled. • The bund retention volume is currently likely to be less than 25% of total stored volume. The stored volume needs to be actively managed to ensure that the retention volume is always greater than 25% of it. • Bund should be hydrostatically tested every three years.

PM Bund ref. number	Location	Housekeeping Recommendations	Action Required
Bund 06	Cream & Alcohol Bulk Intake Area, to west of site opposite the Boiler House	None	<ul style="list-style-type: none"> • Cream intake section should be measured to determine if it can hold 110% of a tanker compartment or alternatively (as it is a remote bund) the calculation outlined in Section 4.1.2 of main report should be carried out. • Alcohol intake section including underground sump should be measured to ensure it can hold 110% of a tanker compartment.
Bund 07	For T1010 – Food Grade Bulk Caustic Tank, to north of Cream & Alcohol Bulk Intake Area	None	<ul style="list-style-type: none"> • Bund should be emptied and cleaned. • The manufacturer should be consulted with respect to hydrostatic testing.
Bund 08	For T1010 Pump, adjacent to Bund 07	None	None
Bund 09	For Bulk CIP Tank T2004, to north of Cream & Alcohol Bulk Intake Area	None	<ul style="list-style-type: none"> • Outlet valve from bund should be removed and outlet blanked off. • The manufacturer should be consulted with respect to hydrostatic testing.
Bund 10	Area A Bulk Ingredients Intake, to north of Cream & Alcohol Bulk Intake Area	None	<ul style="list-style-type: none"> • The ramp to the west of the area should be upgraded and the containment gaps in the SW corner should be closed off to improve containment of this area. • Investigate whether or not hole in SE corner is closed off – if not close off
Bund 11	Haagen Daz, Miscellaneous & Obsolete Flavours Chemstore container, to southside of Boiler House	None	<ul style="list-style-type: none"> • Hydrostatic testing required (P). • All containers should be labelled with full description of contents

PM Bund ref. number	Location	Housekeeping Recommendations	Action Required
Bund 12	Blue/Grey Chemstore container (untitled), to eastside of Boiler House	Debris in base of bund. This should be removed.	<ul style="list-style-type: none"> Bund should be hydrostatically tested every 3 years. All containers should be labelled with full description of contents.
Bund 13	Brown Chemstore container – Caustic Store, to eastside of Boiler House	Liquid in bund.	<ul style="list-style-type: none"> Hydrostatic testing required every 3 years. Ensure all drums are adequately labelled
Bund 14	Emmet's Flavours Chemstore container, opposite Boiler House & Bunds 12 & 13	Some debris in bund. This should be removed.	<ul style="list-style-type: none"> Hydrostatic testing required (P). Unlabelled drums should be clearly identified. Continuous monitoring of rusting to ensure no integrity failure
Bund 15	Sheridan's B&W Flavours Chemstore container, opposite Boiler House & Bunds 12 & 13	Liquid and debris in base of bund. This needs to be removed and bund cleaned.	<ul style="list-style-type: none"> Hydrostatic testing required (P).
Bund 16	Brown Chemstore container – Caustic Store, opposite Boiler House to south of Area 4	Rubbish in bund should be removed	<ul style="list-style-type: none"> Hydrostatic testing required every 3 years. Rusted drums should be removed if possible or least monitored for further deterioration.

PM Bund ref. number	Location	Housekeeping Recommendations	Action Required
Bund 17	Water/CIP Bund, to north of Area A Bulk Ingredients Intake (opposite sugar silos)	Disconnected piping and debris in bund. These should be removed.	<ul style="list-style-type: none"> Investigate source of spill at detergent tank.
Bund 18&19	For Cooling Towers dosing chemicals, in Area C – behind Refrigeration Building	Debris in Bund 18 should be removed.	<ul style="list-style-type: none"> Bunds require regular emptying to ensure required storage capacity for spills/leaks. Bottom outlet valves on each bund should be locked to minimise risk of valves being left open (P). Hydrostatic testing required every 3 years.
Bund 20	Bund under Compressed air tank, in Area C – behind Refrigeration Building	None	<ul style="list-style-type: none"> Piping and tanks in bund should be labelled. Investigate integrity of bund wall.
Bund 21&22	Small Bucket Bunds in Refrigeration Building	None	<ul style="list-style-type: none"> Hydrostatic testing required every 3 years. Bund 21 should not be double stacked and cardboard removed
Bund 23	Ethanol Intake Area, to north of site behind Bottling Hall	None	<ul style="list-style-type: none"> Investigate integrity of bund and Hydrostatic test. (P) Move inlet connection point so it is positioned over bunded area, or kerb area around connection point so any spills from it are directed to the underground sump (P). The local sump should be hydrostatically tested every 3 years. A regular emptying procedure for the sump should be in place to ensure retained rainwater does not reduce the retention capacity below 22m³. Potential issue of sprinkler water escaping catchment should be addressed in a Fire Water Run-off Risk Assessment.

PM Bund ref. number	Location	Housekeeping Recommendations	Action Required
Bund 24	For Effluent Mixing Tank, to east of site at Effluent Plant	Hosing and water sampling bottles within bund should be tidied up or removed	<ul style="list-style-type: none"> Consideration should be given to upgrading tank and containment area given accessibility issues. (It is noted that this tank is due for removal)
Bund 25	For Caustic Dosing Tank, to east of site at Effluent Plant	None	<ul style="list-style-type: none"> Investigate source of leak into bund and repair if necessary. Hydrostatic testing required. Bottom outlet valve from bund should be locked. Consideration should be given to installing a high level alarm on tank with automatic shut-off to prevent overfilling. Retention volume of bund is less than the tank volume therefore procedure should ensure that 2.2m³ or less is stored in tank.
Bund 26	For Acid Dosing Tank, to east of site at Effluent Plant	None	<ul style="list-style-type: none"> Investigate source of leak into bund and repair if necessary. Bund should be emptied of line wash water immediately after each delivery to maintain full retention capacity of the bund. Hydrostatic testing required. Bottom outlet valve from bund should be locked. Consideration should be given to installing a high level alarm on tank with automatic shut-off to prevent overfilling. Retention volume of bund is less than the tank volume therefore procedure should ensure that 2.2m³ or less is stored in tank. Replace label for tank.
Bund 27, 35 and 36	Acid/Caustic Delivery Area, to east of site in Effluent Plant Yard	Eco drains currently blocked with organic debris. Eco drain in the area should be checked as clear and in good condition before each acid/caustic delivery.	<ul style="list-style-type: none"> Chemstore containers should be modified and made fit for purpose in order to contain any spills from the inlet piping/flanges. Need to confirm maximum acid/caustic delivery quantity and ensure that ramp and sides of the containment area provide sufficient retention. Bunds 35 and 36 should be emptied of contents. Bund 27 – Investigation should be carried out as to where the Eco drains drain to. Bund 27 – Repair cracks and gaps between kerbs in bund

PM Bund ref. number	Location	Housekeeping Recommendations	Action Required
Bund 28	Diesel Tank Bund, at western end of site opposite Boiler House	None	<ul style="list-style-type: none"> Retained liquid should be tested and disposed of appropriately if not rainwater. Electrical cabling should be removed if not in use or tidied and made safe. If the 3.6m³ plastic diesel tank is put back into use local containment should be provided for it, as integrity of bund is not confirmed. If tank is double skinned containment is sufficient but interstitial space must be checked regularly for leak of primary containment. Piping to and from tank should be assessed in accordance with Section 7.7 of Reference 2 due to poor condition (rusting/corrosion). If large diesel tanks are put back into use the bund should be cleared, hydrostatically tested and drainage system reviewed/checked. Tanks would also need to be cleaned and re-inspected for integrity, and piping replaced. Breach around electrical cable should be sealed.
Bund 29	Boiler Additives bund, in Boiler House	Debris in bund. This should be removed.	<ul style="list-style-type: none"> Bund requires hydrostatic testing. Dosing lines leading from bunds to boilers should be periodically checked for integrity.
Bund 30	Sprinkler Pump Room, on western side of Boiler House	None	<ul style="list-style-type: none"> Contents of room require bunding especially due to the proximity of the surface waters drain in the yard outside. Entrance to ductway should be kerbed to prevent diesel ingress to ductway in the event of a spill.
Bund 31	Diesel Tank for Shunter refuelling, to northwest of Boiler House	None	<ul style="list-style-type: none"> Monitoring for leaks in interstitial space should be carried out regularly. Rusting at join of legs to tank should be monitored.
Bund 32	For Process Tanks in Process Area	None	<ul style="list-style-type: none"> Procedures should be implemented/tightened that would ensure that in the event of a significant spill in the process area the surface water slam shut valves are activated immediately and spill kit materials are deployed at the exit points and covering the local surface water drains.
Bund 33	Blue/Grey Chemstore container – Coffe and Mint Flavours	None	<ul style="list-style-type: none"> Liquid should be removed from base of bund Hydrostatic testing required

PM Bund ref. number	Location	Housekeeping Recommendations	Action Required
Bund 34	Blue/Grey Chemstore container – Obsolete & Misc. Flavours	Debris in base of bund. This should be removed.	<ul style="list-style-type: none"> Hydrostatic testing required All containers should be labelled with full description of contents.
Bund 37	Effluent Treatment Plant	Spare piping (piping off-cuts) in the base of bund.	<ul style="list-style-type: none"> Remove piping off-cuts from the base of bund
Bund 38	Waste Oil Tank	None	<ul style="list-style-type: none"> Hydrostatic testing required Adequate Protection to be provided around bund to prevent possible forklift impact. Implementation of drip tray to catch spill from bund when filling
Bund 39	Diesel tank	None	<ul style="list-style-type: none"> Tank should be labelled.
Bund 40	Whiskey room	None	<ul style="list-style-type: none"> Repair cracks to bund wall Investigate open pipe in bund floor and remove or cover as necessary Investigate integrity of bund. Concerns over integrity subsequent to recent flooding event.
Bund 41	Refrigeration power room	None	<ul style="list-style-type: none"> Hydrostatic testing required Investigate integrity of bund. Concerns over integrity subsequent to recent flooding event.
Bund 42	Vodka storage area	None	<ul style="list-style-type: none"> Hydrostatic testing required Investigate integrity of bund. Concerns over integrity subsequent to recent flooding event. Repair crack in bund structure Repair bund lining

APPENDIX A

BUND DATA SHEETS

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Southwest end of site	
PM Bund Ref. No.: Bund 01 For Cream Blend Storage Tanks 1&2		Photo: Fig. 1.1 - 1.3	
Bund Dimensions: 10m x 6.1m x 0.75m H		Vessel(s) – Materials of Construction: Steel, jacketed with glycol	
Bund Materials of Construction: Breeze block walls with concrete base		Vessel(s) – Total Storage Volume: 137m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 82.5m ³	
Bund Retention Volume: 43.4m ³ (measured)		Vessel(s) – 25% of Total Storage Volume: 32.5m ³	
Tank Contents:		WKG Class	Risk Phrases
Cream Blend (1 x 55m ³ , 1 x 75m ³)		-	-
Glycol (estimate 1 x 3m ³ , 1 x 4m ³)		1	R22
		BOD Load	Haz Category
		30,000kg (based on 100% of 1 tank vol)	C/D
		-	A
Compatibility of Chemicals in Bund: No compatibility issue.			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<p>Bund & Tank Integrity: The bund configuration is currently that of a remote bund. There are two drains local to the tanks which drain freely and directly to the site effluent plant. There are no gaps visible in wall of the local containment area except where bund breached by electrical cable in SW corner at 0.55m H (see Fig. 1.2). Otherwise the containment area is in good condition. There is a slight residue at the base of Tank 1 but there is no leaks visible from tanks/jackets. The base of the bund is mainly dry with a slight build up of rain water in parts. The quantity of rain water is not significant enough to jeopardise the capacity of the bund. The local containment area satisfies the requirement (see Section 6.3.3.3 of Reference 2) that drainage paving is impermeable (concrete). It is also required that the drainage system is designed to cope with rates of flow that would be associated with sudden loss of containment (see Section 4.1.2 of main report). Integrity of the drainage system was not covered as part of this assessment and should be reviewed separately. With respect to the remote section of the containment system the effluent tank (cap. 190m³) has sufficient capacity to contain a spill from the tanks (this capacity must be maintained) however there is currently no automatic shut-off system to prevent onwards flow of spill to municipal WWTP. Therefore if the provided containment is to remain as a remote system the integrity of the effluent tank should be reviewed and an automatic control system put in place for the outlet from the effluent tank.</p> <p>If however it is decided to change the containment system to a local bund arrangement it would be necessary modify the existing local containment area as the current size, and integrity of the walls (breeze block) are not sufficient. The bund would need to be designed in compliance with <i>BS 8007:1987 Code of practice for Design of concrete structures for retaining aqueous liquids</i> and sized for 110% of largest tank i.e. approx. 83m³. Due to the BOD load of the cream blend it requires Class 3 containment. Local bund should be hydrostatically tested after installation.</p> <p>Equipment in Bund: Inlet & outlet pipes to tanks, and glycol delivery pipes to tank jackets inside bund. All pipework in good condition with the exception of electrical piping. Appropriate sealing is required between electrical cables and tanks.</p> <p>Bund Drainage System: Remote bunding - Two drains in base of local containment area drain directly to underground Effluent Plant tank. There is a slight build-up of debris in the drains.</p> <p>General Observations: Access around tanks for inspection/maintenance is < 0.75m (0.68m between tanks and 0.4m between CBST1 and wall of area & piping) (Fig. 1.3). Tank bases bolted to base of area therefore no access for underneath inspection. Vegetation is beginning to infringe on the bund.</p> <p>High level alarms on both tanks to prevent overfilling.</p>			
Housekeeping Issues:			
The drains require regular cleaning/clearance of debris. Blockage of the drains could lead to overflow of the bund in the event of a significant tank leak.			
Vegetation should be cut back to boundary of bund to prevent unnecessary build up of leaves in bund			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons:			
Not practical to hydrostatically test as area is free-draining to Effluent Plant.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required:			
Seal connection between electric cabling and tanks. See recommendations outlined above.			
Signed: <i>Fergal O'Neill</i>	Title: Environmental Consultant	Date: 04/01/2012	
Signed: <i>Jen Loong Lee</i>	Title: Chartered Engineer	Date: 04/01/2012	

Company: Diageo Baileys Global Supply		Bund Location:		
Site: DBGS, Nangor Road		Southwest end of site		
PM Bund Ref. No.: Bund 02 For Cream Blend Storage Tanks 3&4		Photo: Figs. 2.1-2.5		
Bund Dimensions: 10m x 6.4m x 0.75m H		Vessel(s) – Materials of Construction: Steel, jacketed with glycol		
Bund Materials of Construction: Breeze block walls with concrete base		Vessel(s) – Total Storage Volume: 117m ³		
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 60.5m ³		
Bund Retention Volume: 45.6m ³ (measured)		Vessel(s) – 25% of Total Storage Volume: 29.3m ³		
Tank Contents: Cream Blend (2 x 55m ³) Glycol (estimate 1 x 3m ³ , 1 x 4m ³)	WKG Class	Risk Phrases	BOD Load	Haz Category
	-	-	30,000kg (based on 100% of 1 tank vol)	C/D
	1	R22	-	A
Compatibility of Chemicals in Bund: No compatibility issue.				
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011		
<p>Bund & Tank Integrity: The bund configuration is currently that of a remote bund. There are two drains local to the tanks which drain freely and directly to the site effluent plant. Cracks are visible in wall of the local containment area and between the floor and wall. No leaks visible from tanks/jackets and base of bund is slightly wet from an apparent washdown that day. Pillars from top of bund wall are stored in base of bund. They should be removed. The local containment area satisfies the requirement (see Section 6.3.3.3 of Reference 2) that drainage paving is impermeable (concrete). It is also required that the drainage system is designed to cope with rates of flow that would be associated with sudden loss of containment (see Section 4.1.2 of main report). Integrity of the drainage system was not covered as part of this assessment and should be reviewed separately. With respect to the remote section of the containment system the effluent tank (cap. 190m³) has sufficient capacity to contain a spill from the tanks (this capacity must be maintained) however there is currently no automatic shut-off system to prevent onwards flow of spill to municipal WWTP. Therefore if the provided containment is to remain as a remote system the integrity of the effluent tank should be reviewed and an automatic control system put in place for the outlet of the effluent tank.</p> <p>If however it is decided to change the containment system to a local bund arrangement it would be necessary modify the existing local containment area as the current size, and integrity of the walls (breeze block) are not sufficient. The bund would need to be designed in compliance with <i>BS 8007:1987 Code of practice for Design of concrete structures for retaining aqueous liquids</i> and sized for 110% of largest tank i.e. approx. 60.5m³. Due to the BOD load of the cream blend it requires Class 3 containment. Local bund should be hydrostatically tested after installation.</p> <p>Equipment in Bund: Inlet & outlet pipes to tanks, and glycol delivery pipes to tank jackets partially inside bund. All pipework in good condition with the exception of electrical piping. Appropriate sealing is required between electrical cables and tanks.</p> <p>Bund Drainage System: Remote bunding - Two drains in base of local containment area drain directly to underground Effluent Plant tank.</p> <p>General Observations: Piping to & from tanks pass over and into underground ductway which drains to the Effluent Plant.</p> <p>CBST No. 4 – outlet pipe from tank passes over ductway at top of steps (see Fig. 2.4) – consideration was given to potential for leak from this pipe flowing to SW drain in car park. However since piping is completely contained within thermal insulation, potential for leak is adequately mitigated.</p> <p>Access around tanks for inspection/maintenance is < 0.75m (0.7m between tanks and 0.48m between CBST4 and wall of bund). Tank bases bolted to containment area therefore no access for underneath inspection.</p> <p>High level alarms on both tanks to prevent overfilling.</p>				
Housekeeping Issues:				
Remove pillars from current storage location within the bund.				
Deemed necessary/practicable to conduct hydrostatic test? Yes / No				
If no, give reasons: Not practical to hydrostatically test as area is free-draining to Effluent Plant				
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A		
Action Required:				
Seal connection between electric cabling and tanks.				
Repair cracks in bund wall				
Ensure drains are clear				
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant		Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer		Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:			
Site: DBGS, Nangor Road		Between Bunds 01 & 02, at southwest end of site			
PM Bund Ref. No.: Bund 03 Bunded Valve & Pump House		Photo: Figs. 3.1 & 3.2			
Bund Dimensions: 7.2 x 4.5 x 0.16H		Vessel(s) – Materials of Construction: Steel pipework			
Bund Materials of Construction: Concrete block walls & concrete base		Vessel(s) – Total Storage Volume: Unknown			
Bund Lining Material: Concrete Layer		Vessel(s) – 110% of Volume of Largest Vessel: N/A			
Bund Retention Volume: 5.2m ³		Vessel(s) – 25% of Total Storage Volume: N/A			
Tank Contents:		WGK Class	Risk Phrases	BOD Load	Haz Category
CIP - 1% caustic		1 (100% NaOH)	R35	-	A
Cream blend		-	-	2,000kg (based on volume of 5m ³)	A
Compatibility of Chemicals in Bund: No compatibility issue.					
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011			
<p>Bund & Tank Integrity: The bund configuration is currently that of a remote bund. There are two drains in the area which drain freely and directly to the site effluent plant. Concrete lining of the containment area is in reasonable condition but with some corrosion near pumps. Cracks are present in the wall of the bund. Doorstep into area which forms part of containment is adequately sealed.</p> <p>The local containment area satisfies the requirement (see Section 6.3.3.3 of Reference 2) that drainage paving is impermeable (concrete). It is also required that the drainage system is designed to cope rates of flow that would be associated with sudden loss of containment (see Section 4.1.2 of main report). However integrity of the drainage system was not covered as part of this assessment and should be reviewed separately. With respect to the remote section of the containment system the effluent tank (cap. 190m³) has sufficient capacity to contain a spill from the pump house (this capacity must be maintained) however there is currently no automatic shut-off system to prevent onwards flow of spill to municipal WWTP. Therefore if the provided containment is to remain as a remote system the integrity of the effluent tank should be reviewed and an automatic control system put in place for the outlet of the effluent tank.</p> <p>Equipment in Bund: Containment area contains valve complex and pumps for CBSTs. Pipework is in generally good condition with the exception of oil residue present under pump.</p> <p>Bund Drainage System: Remote bunding - two drains in floor of area drain to Effluent Plant.</p> <p>General Observations:</p>					
Housekeeping Issues:					
Oil residue present under pump needs to be cleaned and pump repaired as necessary (P1036)					
Deemed necessary/practicable to conduct hydrostatic test? Yes / No					
If no, give reasons: Not practical to hydrostatically test as area is free-draining to Effluent Plant.					
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A			
Action Required:					
Repair cracks in wall					
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant		Date: 04/01/2012	
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer		Date: 04/01/2012	
Company: Diageo Baileys Global Supply		Bund Location:			
Site: DBGS, Nangor Road		In front of Bund 03, at southwest end of site			
PM Bund Ref. No.: Bund 04 Flammable Flavours Store (Chemstore)		Photo: Figs. 4.1 & 4.2			

Bund Dimensions: 5.5m x 1.4m x 0.3mH	Vessel(s) – Materials of Construction: Glass, plastic and steel		
Bund Materials of Construction: Galvanised Steel	Vessel(s) – Total Storage Volume: Approx 0.1m ³		
Bund Lining Material: N/A	Vessel(s) – 110% of Volume of Largest Vessel: 0.0022m ³		
Bund Retention Volume: 2.3m ³	Vessel(s) – 25% of Total Storage Volume: 0.03m ³		
Tank Contents: Approx 30 x 250cl Baileys liquor 5 x 2l plastic drums of Baileys Hazelnut Hatch 5 empty canisters of unknown material (Safer S.P.A N0862194) 3 closed boxes of unknown content (unlabelled)	WGK Class	Risk Phrases	Haz Category
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
Compatibility of Chemicals in Bund: No compatibility issue – containment has been classified for flammable flavours.			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<p>Bund & Tank Integrity: Bund & IBCs appear in good condition. Base of bund appears dry and ground underneath container is dry. Slight build up of debris in base of bund.</p> <p>Bund Drainage System: Local bunding - There is no drainage outlet on the bund – if necessary emptying would be carried out by pump-out.</p> <p>General Observations: The bund section of the container is divided into two separate compartments. Not all vessels are labelled appropriately. 4 x 1m³ IBCs of baileys raw flavour outside the bund.</p>			
Housekeeping Issues: Some boxes are over filled with bottles Debris in base of bund. These should be removed			
Deemed necessary/practicable to conduct hydrostatic test? <u>Yes</u> / No			
If no, give reasons:			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: All vessels and boxes should be clearly labelled with contents. Storage arrangements within the bunded container should be reorganised to reduce the risk of over filling boxes Bund should be hydrostatically tested every three years.			
Signed: <i>Fergal O'Neill</i>	Title: Environmental Consultant	Date: 04/01/2012	
Signed: <i>Jen Loong Lee</i>	Title: Chartered Engineer	Date: 04/01/2012	

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		In front of Bund 01, at southwest end of site	
PM Bund Ref. No.: Bund 05 Brand Technical Centre Hazardous Waste Store (Chemstore)		Photo: Figs. 5.1 - 5.4	
Bund Dimensions: 1.3m x 1.3m x 0.12mH		Vessel(s) – Materials of Construction: Mixture of Plastic and Glass containers	
Bund Materials of Construction: Galvanised Steel		Vessel(s) – Total Storage Volume: up to 912L	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 55L	
Bund Retention Volume: 200l		Vessel(s) – 25% of Total Storage Volume: up to 228L approx.	
Tank Contents: Approx. 40 x 50ml Various Flavours Approx. 40 x 1l Various Flavours Approx. 45 x 5l Various Flavours Approx. 70 x 50ml-3l Various Lab Chemicals 3 x 2.5l Acetonitrile & Sodium Methoxide 3 x 2.5l Dichloromethane 1 x 50l Urea (lab waste for disposal) 1 x 25l Cleaner (peroxyacetic acid) 4 x 25l drums of solvent 7 x 25l drums of Flavouring 2 x 25l Spartan P220 (degreaser) 1 x 5l Waste Cream 3 x 5l drums of unknown substance (unlabelled) + Miscellaneous	WGK Class	Risk Phrases	Haz Category
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	2	R11, R20/21/22, R36	A
	2	R40	
	1	R36/37/38, R60	
	2	R5, R23-25, R34	
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
Unknown	Unknown	Unknown	
Unknown	Unknown	Unknown	
Unknown	Unknown	Unknown	
Compatibility of Chemicals in Bund: Flammable liquids (alcohols) should be segregated from toxic and corrosive substances (peroxyacetic acid) by one gangway width i.e. on opposite sides of the bunded container			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
Bund & Tank Integrity: No liquid retention in base of bund. Not possible to fully inspect due to large volumes of materials stored. However no visible cracks or leaks in bund and ground underneath is dry.			
Bund Drainage System: Local bunding - There is a valved outlet from the bund.			
General Observations: Not all vessels are labelled appropriately			
Housekeeping Issues: Storage arrangement on bund is generally haphazard.			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons:			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Storage arrangements within the bunded container should be reorganised to reduce haphazard stacking and also to ensure segregation of toxic and corrosive substances from flammable ones. Ensure all containers are clearly labelled. The bund retention volume is currently likely to be less than 25% of total stored volume. The stored volume needs to be actively managed to ensure that the retention volume is always greater than 25% of it. Bund should be hydrostatically tested every three years.			
Signed: Fergal O'Neill		Title: Environmental Consultant	Date: 04/01/2012
Signed: Jen Loong Lee		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:			
Site: DBGS, Nangor Road		To west of site opposite the Boiler House			
PM Bund Ref. No.: Bund 06 Cream & Alcohol Bulk Intake Area (2 separate sections)		Photo: Fig. 6.1-6.2			
Bund Dimensions: See sketch Fig. 6.6 in Appendix 2		Vessel(s) – Materials of Construction: Steel			
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: 7m ³ (volume of one tanker compartment)			
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 7.7m ³			
Bund Retention Volume: Uncertain, vol of alcohol section estimated by DBGS at 9m ³		Vessel(s) – 25% of Total Storage Volume: N/A			
Tank Contents:		WGK Class	Risk Phrases	BOD Load	Haz Category
Cream (50% fat)		-	-	3,500kg (based on 100% of 1 compartment vol)	A
Alcohol (96%)		1	R11	-	A
Compatibility of Chemicals in Bund: No compatibility issue					
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011			
<p>Bund & Tank Integrity: Area which consists of two separate intake sections (for cream and alcohol) and third section at eastern end where pumps and flow plates are located. Bund area is in good condition.</p> <p>Equipment in Bund: Cream and alcohol intake manifolds & pumps and delivery tankers when present. Pipework in reasonable condition.</p> <p>Bund Drainage System: The cream intake section of the area is remotely banded as it drains freely to the effluent plant. The alcohol intake section is a combined system since a spill can be retained in an underground sump and subsequently drained via a manually valve to the effluent plant.</p> <p>General Observations: There are surface water drains in close proximity to the area to the west and south.</p>					
Housekeeping Issues:					
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>					
If no, give reasons:					
The cream intake section drains freely to effluent via Eco drains and therefore cannot be hydrostatically tested. The alcohol intake section including the underground sump should be hydrostatically tested.					
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A			
Action Required:					
Cream intake section should be measured to determine if it can hold 110% of a tanker compartment or alternatively (as it is a remote bund) the calculation outlined in Section 4.1.2 of main report should be carried out. Alcohol intake section including underground sump should be measured to ensure it can hold 110% of a tanker compartment.					
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant		Date: 04/01/2012	
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer		Date: 04/01/2012	

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Adjacent to Cream & Alcohol Bulk Intake Area	
PM Bund Ref. No.: Bund 07 T1010 – Food Grade Bulk Caustic		Photo: Fig. 7.1 & 7.2	
Bund Dimensions: Circum 8.8m x 1.05m H		Vessel(s) – Materials of Construction: High density plastic	
Bund Materials of Construction: High density plastic		Vessel(s) – Total Storage Volume: 8m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 8.8m ³	
Bund Retention Volume: 6.5m ³		Vessel(s) – 25% of Total Storage Volume: N/A	
Tank Contents: Food Grade Bulk Caustic		WGK Class	Risk Phrases
		1	R35
Haz Category A			
Compatibility of Chemicals in Bund: Only one chemical			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<p>Bund & Tank Integrity: Good external integrity, no signs of leakage outside bund. Good internal integrity, dry with staining of concrete showing signs of previous leaks.</p> <p>Equipment in Bund: Associated caustic pump is located in adjacent bund (Bund 08).</p> <p>Bund Drainage System: Local bunding - pipe outlet</p> <p>General Observations: Bund sides breached for outlet pipes/connections but all well sealed. All piping associated with the tank is contained within the larger containment area, Bund 10.</p> <p>Retention volume of bund is less than the tank volume however the bund and tank have been designed as a fully contained unit.</p> <p>High level alarm on tank.</p>			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: Bund and tank comprise a fully-enclosed unit. The manufacturer should be consulted with respect to testing requirement and recommended procedure.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Bund should be emptied and cleaned. The manufacturer should be consulted with respect to hydrostatic testing.			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Adjacent to Bund 07	
PM Bund Ref. No.: Bund 08 Bund for T1010 Pump		Photo: Fig. 8.1 & 8.2	
Bund Dimensions: 2.5m x 1.25m x 0.15mH		Vessel(s) – Materials of Construction: N/A	
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: N/A	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: N/A	
Bund Retention Volume: 460l		Vessel(s) – 25% of Total Storage Volume: N/A	
Tank Contents:		WGK Class	Risk Phrases
Pump for Caustic Tank T1010		1	R35
Haz Category A			
Compatibility of Chemicals in Bund: Only one chemical			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<p>Bund & Tank Integrity: Hole in bund in NW corner leading into Bund 10 area. Considering the contents are low hazard and additional bunding is provided by Bund 10 it is not considered necessary to stopper hole in NW corner of bund.</p> <p>Equipment in Bund: Dedicated bund for pump associated with Tank T1010.</p> <p>Bund Drainage System: Remote bunding - Bund is free draining due to hole in NW.</p> <p>General Observations: Piping ex pump runs outside bund over general area around sugar silos (within Bund 10).</p>			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons: Bund is free draining to Bund 10 due to hole in NW corner.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: None			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Adjacent to Cream & Alcohol Bulk Intake Area	
PM Bund Ref. No.: Bund 09 Bulk CIP Tank T2004		Photo: Fig. 9.1-9.3	
Bund Dimensions: Circum 10.2m x 1.2m H		Vessel(s) – Materials of Construction: High density plastic	
Bund Materials of Construction: High density plastic		Vessel(s) – Total Storage Volume: 8m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 8.8m ³	
Bund Retention Volume: 10m ³		Vessel(s) – 25% of Total Storage Volume: N/A	
Tank Contents: 45% Sodium Hydroxide		WKG Class	Risk Phrases
		1	R35
Haz Category A			
Compatibility of Chemicals in Bund: Only one chemical			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<p>Bund & Tank Integrity: Bund appears in good condition from exterior. Inside bund completely dry with no evidence of caustic leaks – therefore all external liquid appears to be from an external source. Bund wall breached for piping/manholes but all appear well-sealed. All piping associated with the tank is contained within the larger containment area, Bund 10.</p> <p>Bund Drainage System: Local bunding - with valved outlet drain.</p> <p>General Observations: High level alarm on tank.</p>			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: Bund and tank comprise a fully-enclosed unit. The manufacturer should be consulted with respect to testing requirement and recommended procedure.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Outlet valve from bund should be removed and outlet blanked off. The manufacturer should be consulted with respect to hydrostatic testing.			
Signed: Fergal O'Neill		Title: Environmental Consultant	Date: 04/01/2012
Signed: Jen Loong Lee		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:			
Site: DBGS, Nangor Road		Adjacent to Cream & Alcohol Bulk Intake Area			
PM Bund Ref. No.: Bund 10 Area A Bulk Ingredients Intake		Photo: Fig. 10.1 - 10.3			
Bund Dimensions: See sketch in Fig. 10.3		Vessel(s) – Materials of Construction: Cladded steel sugar/maltodextrin silos and high density plastic caustic/CIP tanks			
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: 350m ³ approx.			
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 132m ³ approx.			
Bund Retention Volume: Unknown		Vessel(s) – 25% of Total Storage Volume: 87.5m ³ approx.			
Tank Contents:		WGK Class	Risk Phrases	BOD Load	Hez Category
Sugar Silos - Tanks 99,1600, 26 330m ³		Unknown	-	Unknown	Unknown
2 Bunded Caustic/CIP tanks (Bunds 07 & 09) & associated pipework ~20m ³		1	R35	-	A
Compatibility of Chemicals in Bund: No compatibility issue					
Results of Visual Inspection			Date of Visual Inspection: 29/08/2011		
<p>Bund & Tank Integrity: This is a remote bunding system comprising local containment which drains freely to the effluent tank. The containment area comprises the total bulk ingredients intake area A (see sketch in Fig. 10.3) with sugar silos and caustic tanks. All associated piping is contained within containment area. The area slopes gently to west towards Eco drain. Ramp in place to west of Eco drain with surface water drain to west side of ramp. Ramp is very low. Containment does not seem to be complete at the SW corner (fig). Hole in ground located in SE corner blocked with debirs. Likelihood of sugar or caustic spill reaching SW drains in outer yard is low - sugar silos are cladded providing extra containment and caustic/CIP tanks are individually bunded. However it is recommended that the ramp to the west is upgraded.</p> <p>Bund Drainage System: Remote bunding - Eco drains in place, which drain freely to effluent plant.</p> <p>General Observations: High level alarms on sugar silos,</p>					
Housekeeping Issues:					
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>					
If no, give reasons: Not practical to hydrostatically test as area is free-draining to Effluent Plant					
Results of Hydrostatic Test: N/A			Date of Hydrostatic test: N/A		
Action Required: The ramp to the west of the area should be upgraded and the containment gaps in the SW corner should be closed off to improve containment of this area. Investigate whether or not hole in SE corner is closed off – if not close off					
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant		Date: 04/01/2012	
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer		Date: 04/01/2012	

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Southside of Boiler House	
PM Bund Ref. No.: Bund 11 Haagen Daz, Miscellaneous & Obsolete Flavours Blue/Grey Chemstore container		Photo: Fig. 11.1 & 11.2	
Bund Dimensions: 5.5m x 1.4m x 0.3mH		Vessel(s) – Materials of Construction: Plastic IBCs & drum	
Bund Materials of Construction: Galvanised Steel		Vessel(s) – Total Storage Volume: 6.65m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 1.1m ³	
Bund Retention Volume: 2.4m ³		Vessel(s) – 25% of Total Storage Volume: 1.66m ³	
Tank Contents: 2 x 1m ³ IBC Reject 2 x 1m ³ IBC Baileys Liquor F3 Reject 1 x 1m ³ IBC Extracts flavouring 1 x 1m ³ IBC Choco Colour 111561 2 x 200l drum Carmel Colorant 2 x 25l drum Carmel Colorant 15 x 25l drum of Extracts flavouring 1 x 25l drum of Raw Flavour Sheer Beer ABV (53%)	WGK Class	Risk Phrases	Haz Category
	1	R10	A
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	Unknown	Unknown see photo)	Unknown
Compatibility of Chemicals in Bund: No compatibility issue			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<u>Bund & Tank Integrity:</u> Bund (two compartments) & IBCs/drum appear in good condition. No evidence of leaks or cracks.			
<u>Bund Drainage System:</u> Local bunding - Two stoppered outlets with valves (one for each bund compartment).			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: Chemstore tagging indicates that unit was tested on 13/10/03. The bund should be hydrostatically tested every 3 years therefore this should be carried out as soon as possible.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Hydrostatic testing required (P). All containers should be labelled with full description of contents.			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Eastside of Boiler House	
PM Bund Ref. No.: Bund 12 – Reject and Recovery Blue/Grey Chemstore container		Photo: Fig. 12.1	
Bund Dimensions: 5.5m x 1.3m x 0.3mH		Vessel(s) – Materials of Construction: Plastic IBCs	
Bund Materials of Construction: Galvanised Steel		Vessel(s) – Total Storage Volume: 8m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 1.1m ³	
Bund Retention Volume: 2.4m ³		Vessel(s) – 25% of Total Storage Volume: 2m ³	
Tank Contents: 3 x 1m ³ Unknown Reject 1 x 1m ³ FH1 Reject 1 x 1m ³ FC5 Reject 3 x 1m ³ Unknown for Destruction	WGK Class	Risk Phrases	Haz Category
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
Compatibility of Chemicals in Bund: Not sufficient data on substances but are all food additives, therefore likely there is no compatibility issue.			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<u>Bund & Tank Integrity:</u> Bund (two compartments) & IBCs appear in good condition. No evidence of leaks or cracks.			
<u>Bund Drainage System:</u> Local bunding - No bottom outlet valves – pump out if necessary			
Housekeeping Issues: Debris in base of bund. This should be removed.			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: Chemstore tagging indicates that unit was tested on 08/08/04. The bund should be hydrostatically tested every 3 years therefore this is overdue.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Bund should be hydrostatically tested every 3 years. All containers should be labelled with full description of contents. Bund should be cleaned of debris.			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Eastside of Boiler House	
PM Bund Ref. No.: Bund 13 Brown Chemstore container – Caustic Store		Photo: Fig. 13.1 & 13.2	
Bund Dimensions: 5.5m x 1.4m x 0.18mH		Vessel(s) – Materials of Construction: Plastic drums	
Bund Materials of Construction: Galvanised Steel		Vessel(s) – Total Storage Volume: 1.075m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 220l	
Bund Retention Volume: 1.4m ³		Vessel(s) – 25% of Total Storage Volume: 268.8l	
Tank Contents: 4 x 20l Caustic Soda liquor 30% 7 x 20l Topmaxx 423 (Medium alkaline detergent) 1 x 30l Oxonia Active (Peracetic acid & hydrogen peroxide) 1 x 20l Sample of detergent (corrosive) 2 x 200l drum Unknown substance (unlabelled) 5 x 25l drum Horolithv 7x 20l drum Endurochlor VIS 3 x 5l P3 Strong Alkaline 5 x 25l Sodium Hydroxide P3	WGK Class	Risk Phrases	Haz Category
	1	R35	A
	1	R5,8, 20/22,35	A
	1	R35	A
		R35	
	Unknown	Unknown	Unknown
	1	R22, R34, R41	-
	2	R31, R35, R50	-
	Unknown	Unknown	Unknown
1	R35	A	
Compatibility of Chemicals in Bund: No compatibility issue – corrosive detergents stored together			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<u>Bund & Tank Integrity:</u> Bund (two compartments) & drums appear in good condition. No evidence of leaks or cracks.			
<u>Bund Drainage System:</u> Local bunding - Two sealed outlets with valves (one for each bund compartment).			
<u>General Observations:</u> Some Drums not adequately labelled			
Housekeeping Issues: Liquid in bund.			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: No Chemstore tagging. The bund should be hydrostatically tested every 3 years.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Hydrostatic testing required every 3 years. Ensure all drums are adequately labelled			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Opposite Boiler House & Bunds 12 & 13	
PM Bund Ref. No.: Bund 14 Blue/Grey Chemstore container – Value Brands & Caramel Flavours & Emmet's Flavours		Photo: Fig. 14.1 & 14.2	
Bund Dimensions: 5.5m x 1.4m x 0.3mH		Vessel(s) – Materials of Construction: Plastic IBCs & drums	
Bund Materials of Construction: Galvanised Steel		Vessel(s) – Total Storage Volume: 4.8m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 1.1m ³	
Bund Retention Volume: 2.4m ³		Vessel(s) – 25% of Total Storage Volume: 1.2m ³	
Tank Contents: 6 x 200l Raw Flavour Hazelnut 1 x 1m ³ IBC UN1197 1 x 1m ³ IBC Raw Flavour Baileys F1 1 x 1m ³ IBC Vanilla 50101A 3 x 200l drum Caramel Flavour	WGK Class	Risk Phrases	Haz Category
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	2	R10	D
Compatibility of Chemicals in Bund: Lack of data on content of unlabelled drums			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
Bund & Tank Integrity: Bund (two compartments) appear in poor condition. No evidence of leaks or cracks. However, internal rusting present in base of bund (It was not possible to fully inspect container and bund section due to presence of IBCs.)			
Bund Drainage System: Local bunding - No bottom outlet valves – pump out if necessary			
General Observations:			
Housekeeping Issues: Some debris in bund. These should be removed.			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: Chemstore tagging indicates that unit was tested on 28/08/03. The bund should be hydrostatically tested every 3 years therefore this should be carried out as soon as possible.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Hydrostatic testing required (P). Unlabelled drums should be clearly identified. Continuous monitoring of rusting to ensure no integrity failure			
Signed: <i>Fergal O'Neill</i>	Title: Environmental Consultant	Date: 04/01/2012	
Signed: <i>Jen Loong Lee</i>	Title: Chartered Engineer	Date: 04/01/2012	

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Opposite Boiler House & Bunds 12 & 13	
PM Bund Ref. No.: Bund 15 Blue/Grey Chemstore container – Sheridan's B&W Flavours		Photo: Fig. 14.3	
Bund Dimensions: Approx 8.5m x 2.8m x 0.3mH		Vessel(s) – Materials of Construction: Plastic IBCs & drums	
Bund Materials of Construction: Galvanised Steel		Vessel(s) – Total Storage Volume: 17.4m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 1.1m ³	
Bund Retention Volume: 7.14m ³		Vessel(s) – 25% of Total Storage Volume: 4.35m ³	
Tank Contents: 9 x 1m ³ IBC Raw Flavour Hazelnut 12 x 200l drum Raw Flavour Hazelnut 6 x 1m ³ IBC Raw Flavour Baileys Hazelnut (26.5%)	WGK Class	Risk Phrases	Haz Category
	1	R10	A
	Unknown	Unknown	Unknown
	1	R10	A
Compatibility of Chemicals in Bund: No compatibility issue – flammable substances stored together			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
Bund & Tank Integrity: Bund & IBC/drums appear in good condition. (It was not possible to fully inspect container and bund section due to presence of IBCs.)			
Bund Drainage System: Local bunding - No bottom outlet valves – pump out if necessary			
Housekeeping Issues: Liquid and debris in base of bund. This needs to be removed and bund cleaned			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: Chemstore tagging indicates that unit was tested on 21/08/03. The bund should be hydrostatically tested every 3 years therefore this should be carried out as soon as possible.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Hydrostatic testing required (P).			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Opposite Boiler House to south of Area 4	
PM Bund Ref. No.: Bund 16 Brown Chemstore container – Caustic Store		Photo: Fig. 16.1	
Bund Dimensions: 1.2m x 1.2m x 0.35mH		Vessel(s) – Materials of Construction: Plastic drums	
Bund Materials of Construction: Plastic		Vessel(s) – Total Storage Volume: 1.46m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 0.220m ³	
Bund Retention Volume: 504l		Vessel(s) – 25% of Total Storage Volume: 0.365m ³	
Tank Contents: 3 x 200l Propylene glycol 1 x 20l Propylene glycol 4 x 200l Dowcal 20% EEC No. 200-338-0 2 x 20l Sabroe Synthetic Refrigeration Oil	WGK Class	Risk Phrases	Haz Category
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
Compatibility of Chemicals in Bund: Lack of data on container contents			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
Bund & Tank Integrity: Bund appears in reasonable condition. No evidence of leaks or cracks. Significant rusting of steel drums and two are dented.			
Bund Drainage System: Local bunding - Sealed outlet with valve			
Housekeeping Issues: Rubbish in bund			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: No Chemstore tagging. The bund should be hydrostatically tested every 3 years.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Hydrostatic testing required every 3 years. Rusted drums should be removed if possible or least monitored for further deterioration. Remove rubbish from bund.			
Signed: <i>Fergal O'Neill</i>	Title: Environmental Consultant	Date: 04/01/2012	
Signed: <i>Jen Loong Lee</i>	Title: Chartered Engineer	Date: 04/01/2012	

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Area A Bulk Ingredients Intake (opposite sugar silos)	
PM Bund Ref. No.: Bund 17 Water/CIP Bund		Photo: Fig. 17.1 & 17.2	
Bund Dimensions: 5.3m x 4.5m x 0.45mH		Vessel(s) – Materials of Construction: Galvaised Steel	
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: 24m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 8.8m ³	
Bund Retention Volume: 10.7m ³		Vessel(s) – 25% of Total Storage Volume: 6m ³	
Tank Contents:		WGK Class	Risk Phrases
T1001 Fresh Water		-	-
T1002 Water Recovery Tank		-	-
T1003 Detergent Tank – Labelling on wall		1 (100% NaOH)	R35
Compatibility of Chemicals in Bund: No compatibility issue – caustic CIP & water			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<u>Bund & Tank Integrity:</u> Bund in good condition however there is staining on detergent tank from spill.			
<u>Equipment in Bund:</u> No electrical equipment below bund level. All associated piping is contained within bund.			
<u>Bund Drainage System:</u> Remote bunding - three drains in base of bund draining to Effluent Plant.			
<u>General Observations:</u> High level alarms on all tanks.			
Housekeeping Issues: Disconnected piping and debris in bund. These should be removed.			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons: Bund is free-draining to effluent plant.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Investigate source of spill at detergent tank.			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Area C – behind Refrigeration Building	
PM Bund Ref. No.: Bund 18 & 19 Chemical Dosing for Cooling Towers		Photo: Fig. 18.1 – 18.3	
Bund Dimensions: 1.2m x 1.15m x 0.3mH each		Vessel(s) – Materials of Construction: Plastic	
Bund Materials of Construction: Plastic		Vessel(s) – Total Storage Volume: 400l on each bund	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 220l	
Bund Retention Volume: approx. 310l each		Vessel(s) – 25% of Total Storage Volume: 100l	
Tank Contents: (on each bund) 1 x 200l CB923 1 x 100l CB983 1 x 100l CS555	WGK Class	Risk Phrases	Haz Category
	Unknown	R22/41/43	Unknown
	Unknown	R36/38/43	Unknown
	Unknown	R34	Unknown
Compatibility of Chemicals in Bund: No compatibility issue			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<u>Bund & Tank Integrity:</u> Tanks & bunds appear in good condition. No evidence of cracks or leaks and ground around dry. Liquid retention in both bunds (probably rainwater) which is reducing retention capacity.			
<u>Bund Drainage System:</u> Local bunding - Bottom outlet valves on each bund.			
<u>General Observations:</u> Notice above tanks states that MSDS information is available on noticeboard in Fridge Plant.			
Housekeeping Issues: Debris in Bund 18			
Deemed necessary/practicable to conduct hydrostatic test? <u>Yes</u> / No			
If no, give reasons: Bunds should be hydrostatically tested every 3 years.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Bunds require regular emptying to ensure required storage capacity for spills/leaks. Bottom outlet valves on each bund should be locked to minimise risk of valves being left open (P). Hydrostatic testing required every 3 years. Any debris should be removed from bund			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Area C – behind Refrigeration Building	
PM Bund Ref. No.: Bund 20 Bund under Compressed air tank		Photo: Fig. 20.1 - 20.3	
Bund Dimensions: 3.7m x 1.95m x 0.25mH		Vessel(s) – Materials of Construction: Steel	
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: 4.27m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 4.64m ³	
Bund Retention Volume: 1.8m ³		Vessel(s) – 25% of Total Storage Volume: 1.07m ³	
Tank Contents: Compressed air tank (4.2m ³) + smaller tank (68l)		WGK Class	Risk Phrases
		-	-
			Haz Category
			-
Compatibility of Chemicals in Bund: Compressed air only			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<p>Bund & Tank Integrity: Tanks & bund appear in good condition. Electrical cable threaded through bund wall at two points but appears well-sealed. However, there is dampness evident at the outside of the bund wall which may indicate a potential breach in integrity.</p> <p>Bund Drainage System: Remote bunding - Drain in base of bund to Effluent Plant</p> <p>General Observations: Constant discharge of water into bund from Cooling Towers on roof. This pipe and compressed air tank not labelled. Bund is not sized to retain capacity of tanks, however this requirement is not applicable as only air is stored in the tanks and bunding system is remote.</p>			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons: Bund is free-draining to effluent plant.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Piping and tanks in bund should be labelled. Investigate integrity of bund wall.			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		In Refrigeration Building	
PM Bund Ref. No.: Bund 21 & 22 Small Bucket Bunds		Photo: Fig. 21.1 & 22.1	
Bund Dimensions: 0.92m x 0.48m x 0.12mH each		Vessel(s) – Materials of Construction: Mostly plastic + 1 metal bucket	
Bund Materials of Construction: Plastic		Vessel(s) – Total Storage Volume: Bund 21: 200l Bund 22: 120l	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 22l	
Bund Retention Volume: 53l each		Vessel(s) – 25% of Total Storage Volume: Bund 21: 50l Bund 22: 30l	
Tank Contents: Bund 21: 10 x 20l Sabroe Synthetic Refrigeration Oil Bund 22: 6 x 20l Sabroe Synthetic Refrigeration Oil	WGK Class	Risk Phrases	Haz Category
	2	R45	A
	2	R45	
Compatibility of Chemicals in Bund: No compatibility issue – refrigerants stored together			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
Bund & Tank Integrity: Bund 21 is dry but lip at front of bund is damaged/bulldges due to bund over filling. Bund 22 is in good condition and dry. No evidence of leaks or cracks.			
Bund Drainage System: Local bunding - Small bunds, decanting only required if spill occurs.			
General Observations: Each bund should contain a maximum of 6 x 20l drums. No containment for 4 extra drums stacked on Bund 21, which are liable to fall over and with cardboard underneath any flow will bypass bund.			
Housekeeping Issues: None			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: Bunds should be hydrostatically tested every 3 years.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Hydrostatic testing required every 3 years. Bund 21 should not be double stacked and cardboard removed			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		To north of site behind Bottling Hall	
PM Bund Ref. No.: Bund 23 Ethanol Intake Area		Photo: Fig. 23.1 – 23.3	
Bund Dimensions: 19.2m x 3.3m x 0.7mH		Vessel(s) – Materials of Construction: Metal tanker	
Bund Materials of Construction: Unknown, assumed concrete		Vessel(s) – Total Storage Volume: 20m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 22m ³	
Bund Retention Volume: Sump 45m ³		Vessel(s) – 25% of Total Storage Volume: 5m ³	
Tank Contents: Ethanol (50%)	WGK Class	Risk Phrases	Haz Category
	1	R11	A
Compatibility of Chemicals in Bund: Ethanol only			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<u>Bund & Tank Integrity:</u> Bund located underground – could not be fully inspected.			
<u>Bund Drainage System:</u> Combined bunding – local bunding is provided in the form of the 45m ³ sump. The sump drains via a manual valve to the effluent plant.			
<u>General Observations:</u> Approx. 10cm (6.5m ³) of liquid retention visible in bund. Intake connection point appears to be outside bunded area (see Fig. 23.2) – therefore leak in connection pipe could lead to discharge to SW. There is a sprinkler system around intake area for protection in the event of an ethanol fire. Potential issue of sprinkler water escaping catchment should be addressed in a Fire Water Run-off Risk Assessment. Drains appear to be blocked with a build up of silt. Doubt over integrity of bund raised by site Environmental Manger.			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: The local sump can be integrity tested.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Investigate integrity of bund and Hydrostatic test. (P) Move inlet connection point so it is positioned over bunded area, or kerb area around connection point so any spills from it are directed to the underground sump (P). The local sump should be hydrostatically tested every 3 years. A regular emptying procedure for the sump should be in place to ensure retained rainwater does not reduce the retention capacity below 22m ³ . Potential issue of sprinkler water escaping catchment should be addressed in a Fire Water Run-off Risk Assessment.			
Signed: <i>Fergal O'Neill</i>	Title: Environmental Consultant	Date: 04/01/2012	
Signed: <i>Jen Loong Lee</i>	Title: Chartered Engineer	Date: 04/01/2012	

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Effluent Plant	
PM Bund Ref. No.: Bund 24 Effluent Mixing Tank		Photo: Fig. 24.1 & 24.2	
Bund Dimensions: 3.7m x 1.6m x 0.3mH		Vessel(s) – Materials of Construction: Steel	
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: 3.9m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 4.3m ³	
Bund Retention Volume: 1.7m ³		Vessel(s) – 25% of Total Storage Volume: 1m ³	
Tank Contents: Process effluent (tank currently empty and due for removal)	WGK Class	Risk Phrases	Haz Category
	Unknown	Unknown	Unknown
Compatibility of Chemicals in Bund: Effluent only			
Results of Visual Inspection		Date of Visual Inspection: 12/10/2011	
<p>Bund & Tank Integrity: Difficult to fully inspect as no access to rear of tank and containment area – this does not comply with recommended minimum distance around tanks of 0.75m. The area drains freely to the underground effluent tank via a floor drain. There is also a hole in wall of area in SW corner leading to adjoining room where acid and caustic dosing tanks are located. This allows for spills in adjoining room to drain into the area around the mixing tank and drain to the effluent tank.</p> <p>Generally area and tank appear in good condition. Ground under tank is dry.</p> <p>Bund Drainage System: Remote bunding - Drain in floor of bund leading to underground effluent tank</p> <p>General Observations: No high level alarm on tank</p>			
Housekeeping Issues: Hosing and water sampling bottles within bund.			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons: Free draining to underground effluent tank			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
<p>Action Required: Consideration should be given to upgrading tank and containment area given accessibility issues. (It is noted that this tank is due for removal) Remove hosing, water sampling bottles etc from bund.</p>			
Signed: <i>Rory O'Dwyer</i>	Title: Environmental Consultant	Date: 04/01/2012	
Signed: <i>Jen Loong Lee</i>	Title: Chartered Engineer	Date: 04/01/2012	

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Effluent Plant	
PM Bund Ref. No.: Bund 25 Caustic Dosing Tank		Photo: Fig. 25.1 & 25.2	
Bund Dimensions: Circum 7.5m, 0.5mH		Vessel(s) – Materials of Construction: High Density Plastic	
Bund Materials of Construction: High Density Plastic		Vessel(s) – Total Storage Volume: 2.3m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 2.53m ³	
Bund Retention Volume: 2.2m ³		Vessel(s) – 25% of Total Storage Volume: 575l	
Tank Contents: 50% Caustic Soda	WGK Class	Risk Phrases	Haz Category
	1	R35	A
Compatibility of Chemicals in Bund: Caustic only			
Results of Visual Inspection		Date of Visual Inspection: 12/10/2011	
<p>Bund & Tank Integrity: Bund integrity appears good. No caustic outside bund. Significant layer of caustic powder previously in base of bund now removed. Tank appears intact. Bund wall breached for tank outlet but appears well-sealed.</p> <p>Bund Drainage System: Local – bottom outlet valve in side of bund wall which is closed.</p> <p>General Observations: No high level alarm. Caustic dosing in use and was in use at the time of the inspection. Retention volume of bund is less than the tank volume. There is a small amount of liquid in the bund. This appears to have come from the roof where a pipe penetrates the roof with a gap between the roof and the pipe.</p>			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: The bund should be hydrostatically tested every 3 years.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
<p>Action Required: Investigate source of leak into bund and repair if necessary. Hydrostatic testing required. Bottom outlet valve from bund should be locked. Consideration should be given to installing a high level alarm on tank with automatic shut-off to prevent overfilling. Retention volume of bund is less than the tank volume therefore procedure should ensure that 2.2m³ or less is stored in tank.</p>			
Signed: <i>Rory O'Dwyer</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Effluent Plant	
PM Bund Ref. No.: Bund 26 Acid Dosing Tank		Photo: Fig. 26.1 – 26.3	
Bund Dimensions: Circum 7.5m, 0.5mH		Vessel(s) – Materials of Construction: High Density Plastic	
Bund Materials of Construction: High Density Plastic		Vessel(s) – Total Storage Volume: 2.3m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 2.53m ³	
Bund Retention Volume: 2.2m ³		Vessel(s) – 25% of Total Storage Volume: 575l	
Tank Contents: 35% Sulphuric Acid	WGK Class	Risk Phrases	Haz Category
	1	R34	A
Compatibility of Chemicals in Bund: Acid only			
Results of Visual Inspection		Date of Visual Inspection: 12/10/2011	
<u>Bund & Tank Integrity:</u> Evidence of a leak around the bund. Tank appears intact.			
<u>Bund Drainage System:</u> Local bunding – bottom outlet valve in side of bund wall which is closed.			
<u>General Observations:</u> No high level alarm. Level in tank is determined by visual inspection.			
Retention volume of bund is less than the tank volume. There is a small amount of liquid in the bund. This appears to have come from the roof where a pipe penetrates the roof. Label missing from tank.			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons:			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Investigate source of leak into bund and repair if necessary. Bund should be emptied of line washwater immediately after each delivery to maintain full retention capacity of the bund. Hydrostatic testing required. Bottom outlet valve from bund should be locked. Consideration should be given to installing a high level alarm on tank with automatic shut-off to prevent overfilling. Retention volume of bund is less than the tank volume therefore procedure should ensure that 2.2m ³ or less is stored in tank. Replace label for tank.			
Signed: <i>Rory O'Dwyer</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Effluent Plant Yard	
PM Bund Ref. No.: Bund 27, 35 and 36 Acid/Caustic Delivery Area		Photo: Fig. 27.1 – 27.4	
Bund Dimensions: Unknown		Vessel(s) – Materials of Construction: N/A	
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: N/A	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: N/A	
Bund Retention Volume: Unknown		Vessel(s) – 25% of Total Storage Volume: N/A	
Tank Contents:		WGK Class	Risk Phrases
Rain water + any caustic/acid spills from deliveries		1	R34/R35
Haz Category A			
Compatibility of Chemicals in Bund: N/A			
Results of Visual Inspection		Date of Visual Inspection: 12/10/2011	
<p>Bund & Tank Integrity: Containment area appears to be generally intact, however there are areas of cracks to kerbs and also there is a gap between the ramp and the kerb on one side of the ramp.</p> <p>Bund Drainage System: Remote bunding – Containment area is free draining to sewer via Eco drain to west of containment area. Suggest that this bund area should be directed to the ETP.</p> <p>General observations: Inlet pipes to acid and caustic tanks are accessed for delivery from this containment area. Two grey Chemstore containers (Bunds 35 (Acid) and 36 (Caustic)) are situated below the inlet connection points but the connection pipes do not extend over them.</p> <p>Need to confirm maximum acid/caustic delivery quantity (therefore maximum spill potential in this area) and ensure that ramp and sides of the containment area provide sufficient retention.</p> <p>Also the Eco drain in the area should be checked as clear and in good condition before each acid/caustic delivery.</p> <p>Bunds 35 and 36 are partly filled with liquid (rain water).</p>			
Housekeeping Issues: Eco drains currently blocked with organic debris			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons: Free draining to underground effluent tank			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required:			
Chemstore containers should be modified and made fit for purpose in order to contain any spills from the inlet piping/flanges.			
Need to confirm maximum acid/caustic delivery quantity and ensure that ramp and sides of the containment area provide sufficient retention.			
Eco drain in the area should be checked as clear and in good condition before each acid/caustic delivery. It is noted that the Eco drain, drains to sewer. It would be recommended that this be drained to the ETP.			
Bunds 35 and 36 should be emptied of contents.			
Bund 27 – Investigation should be carried out as to where the Eco drains drain to.			
Bund 27 – Repair cracks and gaps between kerbs in bund			
Signed: Rory O'Dwyer		Title: Environmental Consultant	Date: 04/01/2012
Signed: Jen Loong Lee		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Western end of site opposite Boiler House	
PM Bund Ref. No.: Bund 28 Diesel Tank Bund		Photo: Fig. 28.1 – 28.6	
Bund Dimensions: Approx. 25m x 15m x 2m		Vessel(s) – Materials of Construction: Mild Steel & Plastic	
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: currently 3.6m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 4m ³	
Bund Retention Volume: Approx. 750m ³		Vessel(s) – 25% of Total Storage Volume: 0.9m ³	
Tank Contents:		WGK Class	Risk Phrases
2 x 445m ³ disused diesel storage tanks		-	-
1 x 3.6m ³ diesel tank		2	R40
Compatibility of Chemicals in Bund: Diesel only			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<p>Bund & Tank Integrity: Bund appears to be generally intact – no visible cracks or leaks internally. However significant mossy growth coverage on base of bund and tree/bush growth along SW boundary therefore could not fully inspect. There is slight damage to the bund externally on the east side. Large clad diesel tanks are empty of diesel but appear rusty internally – these appear intact but would require cleaning and re-inspection before re-use.</p> <p>Small 3.6m³ plastic diesel tank in NE corner – appears in good condition – no sign of leaks or damage. However piping to and from tank which leads underground to the boiler house is badly rusted. This tank is no longer in use. Uncertain if tank is double or single skinned.</p> <p>Pipework to large tanks in poor condition – insulation falling off and pipework rusted.</p> <p>Bund Drainage System: Combined bunding – There is a drainage channel in bund leading to sump with manual valve, which leads to effluent tank. Sump area has significant liquid retention (most likely rainwater) and drainage channel is filled with leaves and plant growth.</p> <p>General observations: Electrical cabling has fallen off the cable tray on the east bund wall of bund. One cable has fallen into the water in sump area.</p> <p>There is an unsealed breach in bund wall in SE corner for cable which reduces the retention capacity of the bund.</p>			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons:			
If diesel tanks are put back into use bund should be hydrostatically tested.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required:			
Retained liquid should be tested and disposed of appropriately if not rainwater.			
Electrical cabling should be removed if not in use or tidied and made safe.			
If the 3.6m ³ plastic diesel tank is put back into use local containment should be provided for it, as integrity of bund is not confirmed. If tank is double skinned containment is sufficient but interstitial space must be checked regularly for leak of primary containment. Piping to and from tank should be assessed in accordance with Section 7.7 of Reference 2 due to poor condition (rusting/corrosion).			
If large diesel tanks are put back into use the bund should be cleared, hydrostatically tested and drainage system reviewed/checked. Tanks would also need to be cleaned and re-inspected for integrity, and piping replaced. Breach around electrical cable should be sealed.			
Signed: Fergal O'Neill		Title: Environmental Consultant	Date: 04/01/2012
Signed: Jen Loong Lee		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Boiler House	
PM Bund Ref. No.: Bund 29 Boiler Additives Bund		Photo: Fig. 29.1 & 29.2	
Bund Dimensions: Approx. 2.8m x 0.9m x 0.5m		Vessel(s) – Materials of Construction: Plastic	
Bund Materials of Construction: Plastic		Vessel(s) – Total Storage Volume: 1.1m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 550l	
Bund Retention Volume: 1.33m ³		Vessel(s) – 25% of Total Storage Volume: 275l	
Tank Contents: Boiler Additives SF122 0.5m ³ SM306 0.3m ³ SM783 0.3m ³ (5-75% NaOH)	WGK Class	Risk Phrases	Haz Category
	Non-hazardous	-	-
	Not provided on MSDS	R36/37/38	A
	1	R35	A
Compatibility of Chemicals in Bund: No compatibility issue			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
Bund & Tank Integrity: Bund and tanks appear in good condition – no visible cracks or leaks and bund dry inside and out.			
Bund Drainage System: Local – There is no visible drainage point from bund. In the event of a spill bund would be pumped out.			
General Observations: MSDS information for tank contents available at bund. Dosing lines for tanks to boilers are not fully banded.			
Housekeeping Issues: Debris in bund. This should be removed.			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons: The bund should be hydrostatically tested every 3 years.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Bund requires hydrostatic testing. Dosing lines leading from bunds to boilers should be periodically checked for integrity.			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Western side of Boiler House	
PM Bund Ref. No.: Bund 30 Sprinkler Pump Room		Photo: Fig. 30.1 – 30.5	
Bund Dimensions: N/A		Vessel(s) – Materials of Construction: Stainless Steel	
Bund Materials of Construction: N/A		Vessel(s) – Total Storage Volume: 350l	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 385l	
Bund Retention Volume: N/A		Vessel(s) – 25% of Total Storage Volume: 87.5l	
Tank Contents: Diesel Tank 350l	WGK Class	Risk Phrases	Haz Category
	2	R40	A
Compatibility of Chemicals in Bund: Diesel only			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<p>Bund & Tank Integrity: Tank is in good condition – no visible cracks or leaks and ground around tank dry. Pump house also contains a diesel pump and electric pump. Residue of diesel/oil around pump.</p> <p>Bund Drainage System: No bunding around diesel tank or pump – in the event of a leak from tank or pump the diesel would flow under gap in Pump House door and into surface drainage in yard. Electrical cabling pass through wall at ground level in Northern corner of room.</p> <p>General Observations: Underground ductway for fire water pipes is covered but not sealed - in the event of a leak from tank or pump it is likely that diesel would flow into this ductway.</p> <p>Miscellaneous oil drums stored in the Pump House.</p> <p>Effluent drain for test water in NW corner of pump house.</p>			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons: No bund in place.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Contents of room require bunding especially due to the proximity of the surface waters drain in the yard outside. Entrance to ductway should be kerbed to prevent diesel ingress to ductway in the event of a spill.			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		To northwest of Boiler House	
PM Bund Ref. No.: Bund 31 Diesel Tank for Shunter refuelling		Photo: Fig. 31.1 & 31.2	
Bund Dimensions: Double-skinned tank		Vessel(s) – Materials of Construction: Steel	
Bund Materials of Construction: N/A		Vessel(s) – Total Storage Volume: 5m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 5.5m ³	
Bund Retention Volume: N/A		Vessel(s) – 25% of Total Storage Volume: 1.25m ³	
Tank Contents: Diesel Tank 5m ³		WGK Class	Risk Phrases
		2	R40
Haz Category B			
Compatibility of Chemicals in Bund: Diesel only			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
Bund & Tank Integrity: Tank is in good condition – no visible cracks or leaks and ground around tank dry. Slight rusting at join of legs to tank.			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons: Double-skinned tank			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Monitoring for leaks in interstitial space should be carried out regularly. Rusting at join of legs to tank should be monitored.			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:			
Site: DBGS, Nangor Road		Process Area			
PM Bund Ref. No.: Bund 32 Process Tanks in Process Area		Photo: Fig. 32.1 – 32.4			
Bund Dimensions: N/A		Vessel(s) – Materials of Construction: Stainless Steel			
Bund Materials of Construction: N/A		Vessel(s) – Total Storage Volume: Approx. 800m ³			
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 77m ³			
Bund Retention Volume: N/A		Vessel(s) – 25% of Total Storage Volume: 200m ³			
Tank Contents:		WGK Class	Risk Phrases	BOD Load	Haz Category
Various Process Tanks (approx. 800m ³)		Unknown	Unknown	Unknown	Unknown
Compatibility of Chemicals in Bund: General Foodstuffs – no compatibility issue					
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011			
<p>Bund & Tank Integrity: Tanks are generally in good condition. There are several effluent drains in the process area but no real containment in the event of a significant spill leak. There are three exits points from the area for spilled liquids – a roller door on the south side, a concertina door on the southside and a roller door on the west side of the building. The roller door on the west side leads to the outside area beside the sugar silos – this area is surrounded by Aco drains that lead to the effluent plant and there is a containment ramp also in this area protecting the nearest surface water drains. The concertina door on the southside has been modified since the last bund survey so that there is now an Aco drain across part of it and the rest of the doorway has been kerbed to direct any runoff into this drain. The roller door on the south side has an Aco across its full width.</p> <p>General Observations: There is a drain immediately outside the concertina door which drains to effluent.</p>					
Housekeeping Issues:					
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>					
If no, give reasons: No bund in place.					
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A			
Action Required: Procedures should be implemented/tightened that would ensure that in the event of a significant spill in the process area the surface water slam shut valves are activated immediately and spill kit materials are deployed at the exit points and covering the local surface water drains.					
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant		Date: 04/01/2012	
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer		Date: 04/01/2012	

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Eastside of Boiler House	
PM Bund Ref. No.: Bund 33 Blue/Grey Chemstore container – Coffe and Mint Flavours		Photo: Fig. 33.1 & 33.2	
Bund Dimensions: Approx 8.5m x 2.8m x 0.3mH		Vessel(s) – Materials of Construction: Plastic and steel	
Bund Materials of Construction: Galvanised Steel		Vessel(s) – Total Storage Volume: 9.025m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 1.1m ³	
Bund Retention Volume: 4m ³ (from bund label)		Vessel(s) – 25% of Total Storage Volume: 2.25m ³	
Tank Contents: 3 x 1m ³ IBC Cola flavour 1 x 1m ³ IBC Flavour Baileys F1 35% 1 x 1m ³ IBC Chocolate Flavour 10 x 200l drum Coffee Flavour 1 x 25l drum Coffee Flavour 2 x 1m ³ IBC Whisky Flavour	WGK Class	Risk Phrases	Haz Category
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
	1	R10	B
	Unknown	Unknown	Unknown
Compatibility of Chemicals in Bund: Not sufficient data on substances but are all food additives, therefore likely there is no compatibility issue.			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
Bund & Tank Integrity: Bund in good condition. No evidence of leaks or cracks. Base of bund mainly dry with liquid present (probable rain water) in parts. (It was not possible to fully inspect container and bund section due to presence of IBCs.)			
Bund Drainage System: Local bunding - No bottom outlet valves – pump out if necessary			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons:			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Liquid should be removed from base of bund Hydrostatic testing required			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location: Eastside of Boiler House	
Site: DBGS, Nangor Road			
PM Bund Ref. No.: Bund 34 Blue/Grey Chemstore container – Obsolete & Misc. Flavours		Photo: Fig. 34.1	
Bund Dimensions: Approx 5.7m x 1.5m x 0.3mH		Vessel(s) – Materials of Construction: Plastic and steel	
Bund Materials of Construction: Galvanised Steel		Vessel(s) – Total Storage Volume: 8m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 1.1m ³	
Bund Retention Volume: 2.4m ³ (from tagging)		Vessel(s) – 25% of Total Storage Volume: 2m ³	
Tank Contents: 7 x 1m ³ IBC Reject F111B0267D 1 x 1m ³ IBC Reject TP11015D	WKG Class	Risk Phrases	Haz Category
	Unknown	Unknown	Unknown
	Unknown	Unknown	Unknown
Compatibility of Chemicals in Bund: Not sufficient data on substances but are all food additives, therefore likely there is no compatibility issue.			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
Bund & Tank Integrity: Bund in good condition. No evidence of leaks or cracks. Base of bund dry (It was not possible to fully inspect container and bund section due to presence of IBCs.)			
Bund Drainage System: Local bunding - No bottom outlet valves – pump out if necessary			
Housekeeping Issues: Debris in base of bund. This should be removed.			
Deemed necessary/practicable to conduct hydrostatic test? <u>Yes</u> / No			
If no, give reasons: Tagging indicates that unit was tested on 20/08/08. The bund should be hydrostatically tested every 3 years therefore this should be carried out as soon as possible.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Hydrostatic testing required All containers should be labelled with full description of contents.			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Effluent Plant	
PM Bund Ref. No.: Bund 37 Effluent Treatment Plant		Photo: Fig. 37.1 & 37.2	
Bund Dimensions: 11.6m x 11.85m x 2.45mH		Vessel(s) – Materials of Construction: Steel	
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: 335m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 363m ³	
Bund Retention Volume: 337m ³		Vessel(s) – 25% of Total Storage Volume: 83.8m ³	
Tank Contents: Process effluent (approx 330m ³) Acid/Caustic Tank (approx 5m ³)	WKG Class	Risk Phrases	Haz Category
	Unknown	Unknown	Unknown
Compatibility of Chemicals in Bund: Effluent only			
Results of Visual Inspection		Date of Visual Inspection: 12/10/2011	
<p>Bund & Tank Integrity: Tank and bund in very good condition. There is no evidence of any cracking or structural damage on the walls or the floor of the bund and there does not appear to be any leaks into the bund from vessels contained within.</p> <p>Bund Drainage System: No drainage from bund to outside of bund.</p> <p>General Observations: Small build up of rain water and organic debris on the floor of the bund</p>			
Housekeeping Issues: Spare piping (piping off-cuts) in the base of bund			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons: Testing would require a very large amount of water for testing.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Remove piping off-cuts from the base of bund			
Signed: <i>Rory O'Dwyer</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Hazardous storage area	
PM Bund Ref. No.: Bund 38 Waste Oil Tank		Photo: Fig. 38.1 – 38.3	
Bund Dimensions: Approx 1.7m x 1.6m x 0.7mH		Vessel(s) – Materials of Construction: Plastic	
Bund Materials of Construction: Galvanised Steel		Vessel(s) – Total Storage Volume: 1.2m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 1.32m ³	
Bund Retention Volume: 1.9m ³		Vessel(s) – 25% of Total Storage Volume: 0.3m ³	
Tank Contents:		WGK Class	Risk Phrases
Waste Oil (1.2m ³)		Unknown	Unknown
Compatibility of Chemicals in Bund: N/A		Haz Category	
		Unknown	
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<p>Bund & Tank Integrity: Bund in good condition. No evidence of leaks or cracks. Presence of oil residue from filling of tank. Drip tray should be installed to contain spill during filling.</p> <p>Bund Drainage System: Local bunding - No bottom outlet valves – pump out if necessary</p> <p>General Observations: Spill kit on wall beside bund. Potential risk of bund being impacted by forklift. Forklifts in operation in the area with markings on concrete from forklift close to bund</p>			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons:			
Double Skinned tank			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required:			
Hydrostatic testing required			
Adequate Protection to be provided around bund to prevent possible forklift impact.			
Implementation of drip tray to catch spill from bund when filling			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Westside of Boiler House	
PM Bund Ref. No.: Bund 39 Diesel Tank		Photo: Fig. 39.1 & 39.2	
Bund Dimensions: Approx 5.7m x 1.5m x 0.3mH		Vessel(s) – Materials of Construction: Plastic and steel	
Bund Materials of Construction: Galvanised Steel		Vessel(s) – Total Storage Volume: 4m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 4.4m ³	
Bund Retention Volume: 2.6m ³		Vessel(s) – 25% of Total Storage Volume: 1m ³	
Tank Contents: Diesel (approx 4m ³)	WGK Class	Risk Phrases	Haz Category
	2	R40	B
Compatibility of Chemicals in Bund: N/A			
Results of Visual Inspection		Date of Visual Inspection: 29/08/2011	
<u>Bund & Tank Integrity:</u> Bund in good condition. No evidence of leaks or cracks.			
<u>Bund Drainage System:</u> Local bunding– Outlet at base of tank for decanting			
<u>General Observations:</u> Double Skinned tank- tank not labelled			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons: Double Skinned tank			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Tank should be labelled.			
Signed: <i>Fergal O'Neill</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Whiskey room	
PM Bund Ref. No.: Bund 40		Photo: N/A (due to ATEX restrictions)	
Bund Dimensions: Approx (7.5m x 8m) + (9m x 11m) + (4m x 7.5m) x 0.4mH		Vessel(s) – Materials of Construction: Plastic and steel	
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: 294m ³	
Bund Lining Material: Tiles		Vessel(s) – 110% of Volume of Largest Vessel: 61.6m ³	
Bund Retention Volume: 75.6m ³		Vessel(s) – 25% of Total Storage Volume: 73.5m ³	
Tank Contents: Spirits and Whiskey (6 No. tanks – 4 No. Spirits and 2 No. Whiskey) Tank 16 and 17 – 45500L each (Whiskey) Tank 21 and 22 – 45500L each (Spirit) Tank 23 and 24 – 56000L each (Spirit)	WGK Class	Risk Phrases	Haz Category
	1	R11	C
Compatibility of Chemicals in Bund: N/A			
Results of Visual Inspection		Date of Visual Inspection: 05/12/2011	
<p>Bund & Tank Integrity: Bund in good condition on the whole. Bund was dry on inspection. The concrete bund wall in front of the large shutter door has recently been repaired, however there are unrepaired cracks evident. There is an open pipe in the bund floor left of the emergency exit door in the whiskey room. This pipe should be investigated and blocked or removed if necessary.</p> <p>Bund Drainage System: Local bunding. Pump out if necessary</p> <p>General Observations: Wall penetrations due to electrical cables and piping have been sealed and seals appear in good condition.</p>			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / <u>No</u>			
If no, give reasons: Testing would require a very large amount of water for testing.			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Repair cracks to bund wall Investigate open pipe in bund floor and remove or cover as necessary Investigate integrity of bund. Concerns over integrity subsequent to recent flooding event.			
Signed: <i>Rory O'Dwyer</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Refrigeration power room	
PM Bund Ref. No.: Bund 41		Photo: Fig. 41.1 & 41.2	
Bund Dimensions: Approx 3m x 7.8m x 0.4mH		Vessel(s) – Materials of Construction: Steel	
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: 20m ³	
Bund Lining Material: N/A		Vessel(s) – 110% of Volume of Largest Vessel: 22m ³	
Bund Retention Volume: 29.5m ³		Vessel(s) – 25% of Total Storage Volume: 5m ³	
Tank Contents:		WGK Class	Risk Phrases
Glycol (20,000L tank)		1	R22
Compatibility of Chemicals in Bund: N/A		Haz Category	C
Results of Visual Inspection		Date of Visual Inspection: 05/12/2011	
<u>Bund & Tank Integrity:</u> Bund in good condition. Bund was dry on inspection. There are no evidence of cracks in the bund walls and floor.			
<u>Bund Drainage System:</u> Local bunding. Pump out if necessary			
<u>General Observations:</u> There is a question over the integrity of the bund structure after a recent flooding event.			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons:			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Hydrostatic testing required Investigate integrity of bund. Concerns over integrity subsequent to recent flooding event.			
Signed: <i>Rory O'Dwyer</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

Company: Diageo Baileys Global Supply		Bund Location:	
Site: DBGS, Nangor Road		Vodka storage area	
PM Bund Ref. No.: Bund 42		Photo: N/A (due to ATEX restrictions)	
Bund Dimensions: Approx 4.5m x 19.5m x 0.6mH		Vessel(s) – Materials of Construction: Steel	
Bund Materials of Construction: Concrete		Vessel(s) – Total Storage Volume: 246m ³	
Bund Lining Material: Yes (details unknown)		Vessel(s) – 110% of Volume of Largest Vessel: 61.6m ³	
Bund Retention Volume: 52.7m ³		Vessel(s) – 25% of Total Storage Volume: 61.5m ³	
Tank Contents: Alcohol (90-96%) (5 No. tanks) Initial Blend Vodka Tanks 9 and 10 = 39000L each Vodka Bottling Tanks 11, 12 and 13 = 56000L each	WGK Class	Risk Phrases	Haz Category
	1	R11	C
Compatibility of Chemicals in Bund: N/A			
Results of Visual Inspection		Date of Visual Inspection: 05/12/2011	
<p>Bund & Tank Integrity: Bund was dry on inspection. Floor lining extensively damaged and removed from bund. Floor and wall joints in poor condition with evidence of cracking in bund walls.</p> <p>Bund retention volume appears to be less than the required volume. Should be ensured that volume being held in tanks for both acceptable criteria, is less than the bund retention volume.</p> <p>Bund Drainage System: Local bunding. Pump out if necessary</p> <p>General Observations: Bund retention volume appears to be less than the required volume. Should be ensured that volume being held in tanks for both acceptable criteria, is less than the bund retention volume.</p>			
Housekeeping Issues:			
Deemed necessary/practicable to conduct hydrostatic test? Yes / No			
If no, give reasons:			
Results of Hydrostatic Test: N/A		Date of Hydrostatic test: N/A	
Action Required: Hydrostatic testing required Investigate integrity of bund. Concerns over integrity subsequent to recent flooding event. Repair crack in bund structure Repair bund lining			
Signed: <i>Rory O'Dwyer</i>		Title: Environmental Consultant	Date: 04/01/2012
Signed: <i>Jen Loong Lee</i>		Title: Chartered Engineer	Date: 04/01/2012

APPENDIX B

BUND PHOTOGRAPHS

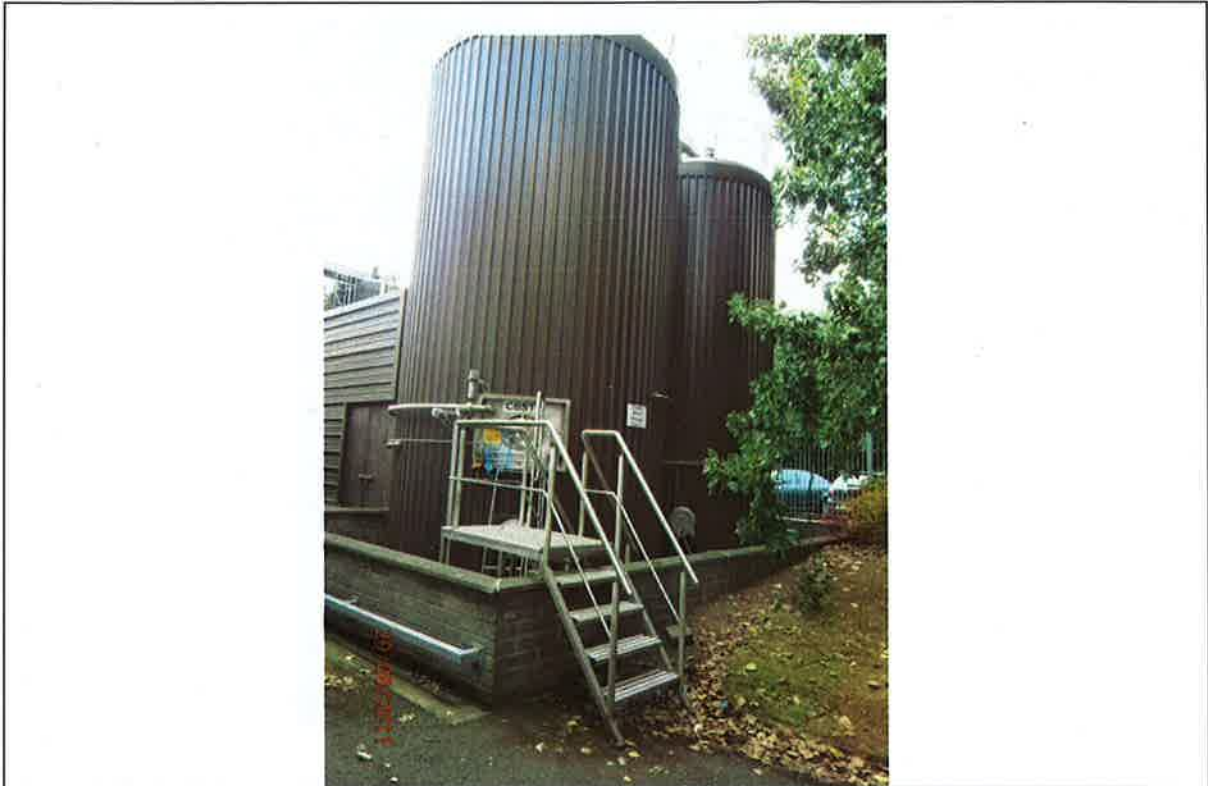


Figure 1.1: Bund 01

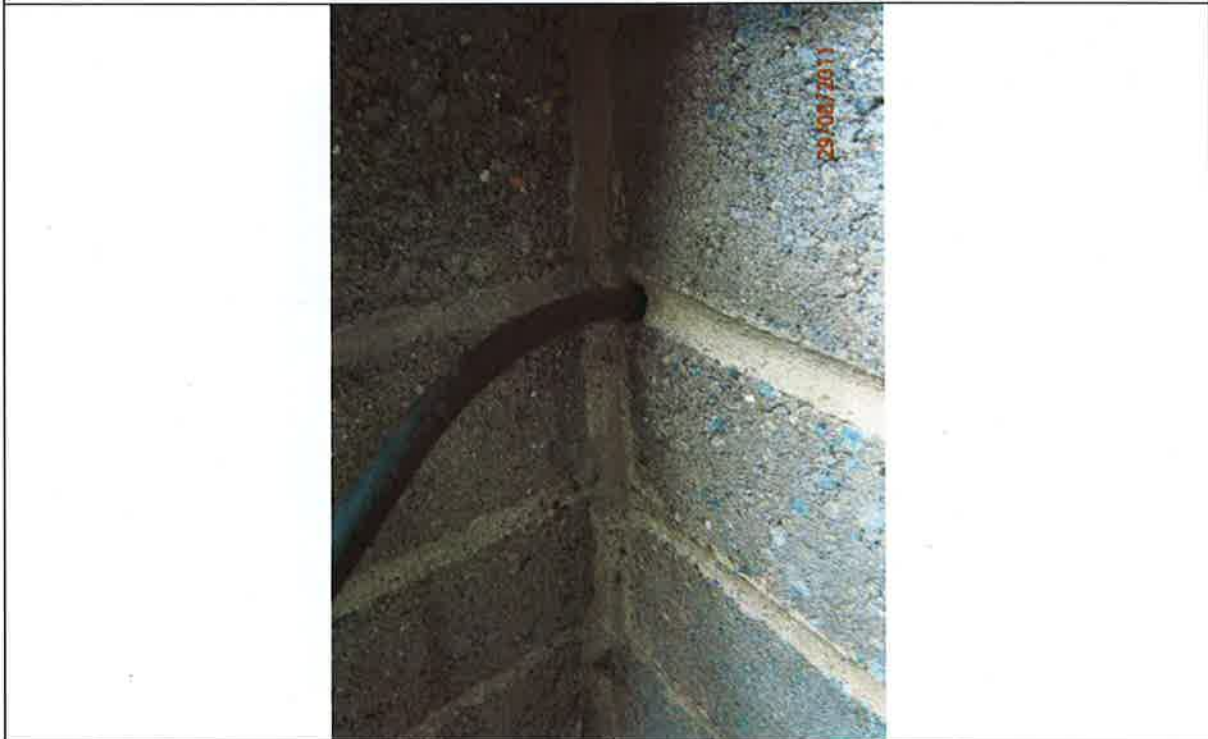


Figure 1.2: Bund 01 – Breach of bund wall by electrical cable



Figure 1.3: Bund 01 – Proximity of CBST1 to east side of bund, limited of access space around tank



Figure 2.1: Bund 02



Figure 2.2: Bund 02 – Base of bund wet



Figure 2.3: Bund 02 – Pillars stored in bund



Figure 2.4: Bund 02 – Outlet pipe from CBST 4 running over stairs of ductway



Figure 2.5: Bund 02 – View of underground piping ductway to the west of Bund 02



Figure 3.1: Bund 03 – Pump and Valve House on south side of site



Figure 3.2: Bund 03 – Drain and piping between Bund 03 and ductway



Figure 4.1: Bund 04



Figure 4.2: Housekeeping – Open boxes overfilled with bottles



Figure 5.1: Bund 05



Figure 5.2: Bund 05 – Interior of bunded container



Figure 5.3: Bund 05 – Bund outlet, now with valve



Figure 5.4: Bund 05 – Evidence of haphazard storage in bund container



Fig. 6.1: Bund 06



Fig. 6.2 Bund 06 – Surface water drains close to bund



Fig. 7.1: Bund 07



Fig. 7.2: Bund 07 – Liquid caustic retention



Fig. 8.1: Bund 08 - Bund for pump exiting Bund 07



Fig. 8.2: Bund 08 - Hole on NE corner of bund



Fig. 9.1: Bund 09



Fig. 9.2: Bund 09 – Bottom Outlet Valve of bund



Figure 10.1: Bund 10



Figure 10.2: Bund 10 – Containment gaps in SW corner



Figure 11.1: Bund 11



Figure 11.2: Bund 11 – Bottom Outlet Valve of Bund 11



Figure 12.1: Bund 12



Figure 13.1: Bund 13



Figure 13.2: Bund 13 – Bottom Outlet Valve: stoppered + with valve



Fig. 14.1: Bund 14



Fig. 14.2: Rusting at base of Bund 14



Fig 14.3: Bund 15



Figure 16.1: Bund 16



Figure 17.1: Bund 17



Fig. 17.2: Spill around detergent tank



Fig. 18.1: Bunds 18 (on left) & 19 (on right)



Figure 18.2: Bottom Outlet Valve of Bund 18



Fig. 18.3: Liquid within Bund 18 reducing bund capacity (same applies to Bund 19)



Fig. 20.1: Bund 20 (Note dampness on outside of bund wall)



Fig. 20.2: Water draining into Bund 20 from Cooling Towers



Fig. 20.3: Bund 20 – Cable breach of bund wall



Fig. 21.1: Bund 21



Fig. 22.1: Bund 22



Fig. 23.1: Bund 23



Fig. 23.2: Bund 23 – connection point for delivery, not within containment area



Fig. 23.3: Bund 23 – uncontained area between bund and delivery connection point



Fig. 24.1: Bund 24 – Mixing tank in bunded area (Tank empty and due for removal)



Fig. 24.2: Bund 24 – Hole in SW corner of bund



Fig. 25.1: Bund 25



Fig. 25.2: Bund 25 – Liquid retention in bund



Fig. 26.1: Bund 26

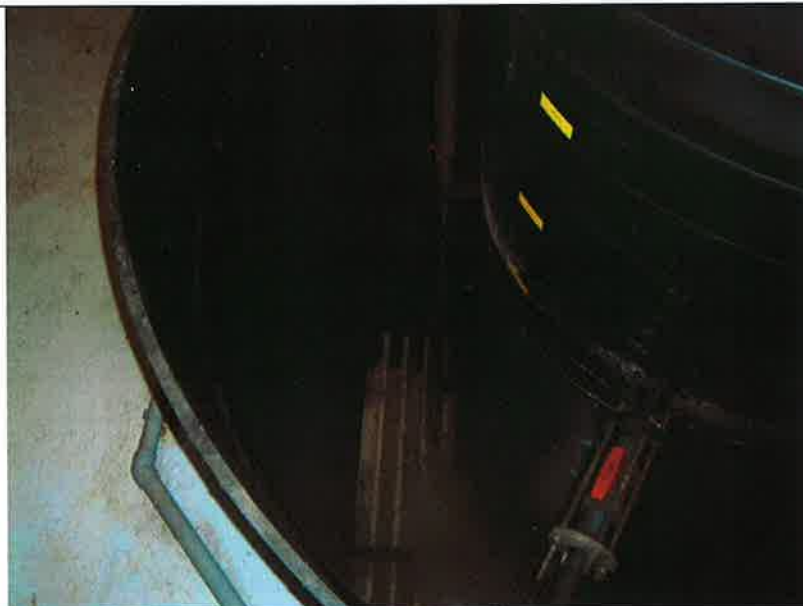


Fig. 26.2: Bund 26 – Liquid retention in bund



Fig. 26.3: Evidence of leak around the bund



Fig. 27.1: Bund 27



Fig. 27.2: Bund 27 – connection point for acid delivery does not extend over grey Chemstore container



Fig. 27.3: Bund 35 (Acid)



Fig. 27.4: Bund 36 (Caustic)



Fig 28.1: Bund 28



Fig 28.2: Bund 28 – Significant mossy growth and foliage coverage in bund (drainage channel filled with plant growth)



Fig 28.3: Bund 28 – Poor condition of pipework within bund



Fig 28.4: Bund 28 – Cabling off cable tray and within sump in bund. Poor condition of pipework also.



Fig 28.5: Bund 28 – Poor condition of piping associated with the disused diesel bunds; Diesel tank use for periodic testing of boilers



Fig 28.6: Bund 28 – Minor damage to exterior of bund wall on east side



Fig 29.1: Bund 29 - Chemical Additives for Boilers



Fig 29.2: Bund 29 - Debris in base of bund



Fig 30.1: Bund 30 - Gaps under door of Sprinkler Pump House



Fig 30.2: Bund 30 – Diesel tank and pump in Sprinkler Pump House



Fig 30.3: Bund 30 – Electric pump at south end of Sprinkler Pump House



Fig 30.4: Bund 30 – Cover on underground ductway for fire water pipes



Fig 30.5: Bund 30 – Drain to effluent for water used in sprinkler pump test



Fig 31.1: Bund 31 - Double-skinned diesel tank refuelling shunters



Fig 31.2: Bund 31 - Minor rusting where support welded to tank



Fig. 32.1: Bund 32 - Slope from Process area to roller door out to yard on south side of site



Fig. 32.2: Bund 32 – Kerbing and provision of Aco drains at concertina door



Fig. 32.3: Bund 32 – Effluent drain outside process area on south side

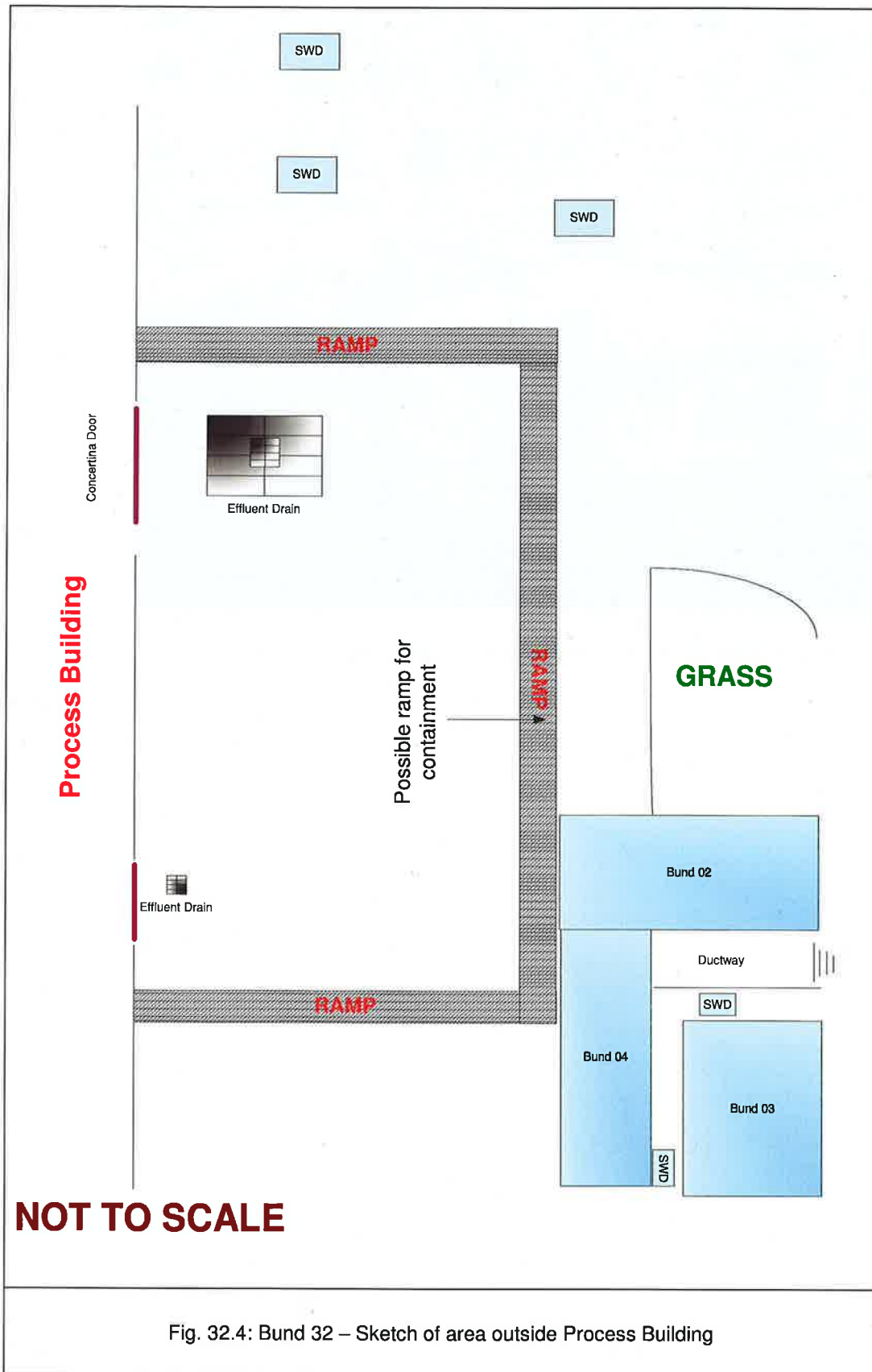


Fig. 32.4: Bund 32 – Sketch of area outside Process Building



Fig. 33.1: Bund 33



Fig. 33.2: Liquid present in base of bund



Fig. 34.1: Bund 34



Fig. 37.1: Bund 37



Fig. 37.2: Piping off-cuts in base of bund



Fig. 38.1: Bund 38



Fig. 38.2: Oil residue from filling (Drip tray required)



Fig. 38.3: Markings on ground from forklift activity in vicinity of bund



Fig. 39.1: Bund 39



Fig. 39.2: Bund outlet at base for decanting



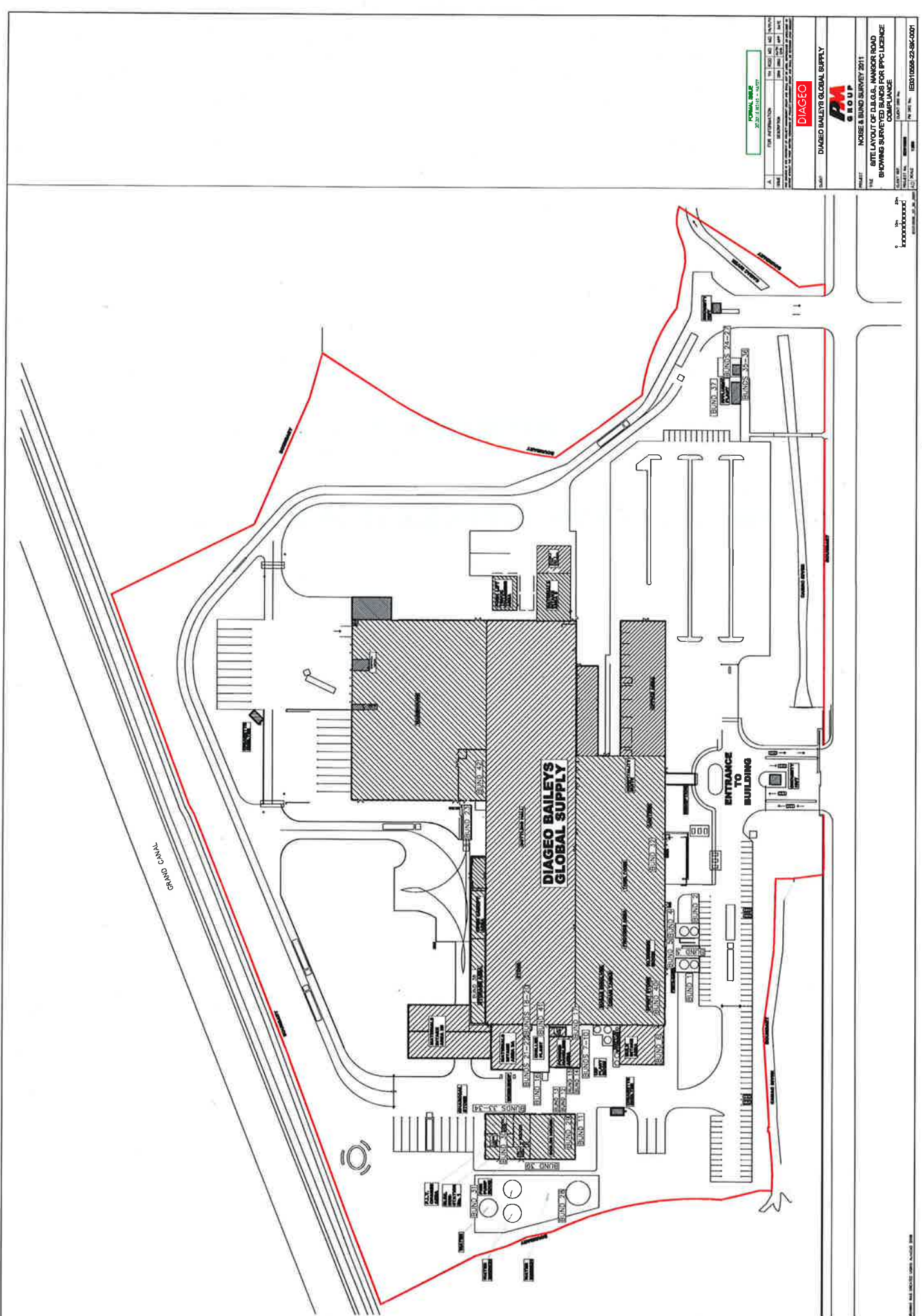
Fig. 41.1: Tank within Bund 41



Fig. 41.2: Condition of bund wall

ATTACHMENT 1

BUND LOCATION MAP (IE0310556-22-SK-0001 ISSUE A)



FORMAL NAME
2015/01/01/0001

A	DATE	DESCRIPTION	BY	CHKD	APPD

DIAGEO
DIAGEO BAILEYS GLOBAL SUPPLY

PM GROUP

NOBLE & BOND SURVEY 2011
SITE LAYOUT OF D.I.G.O. BAILEYS ROAD
BROWNS SURVEYORS FOR PPC LICENCE
COMPLIANCE

CLIENT: DIAGEO
PROJECT: DIAGEO BAILEYS GLOBAL SUPPLY
SCALE: AS SHOWN
DATE: 15/01/2015
DRAWN: J. SMITH
CHECKED: M. JONES
APPROVED: P. SMITH
PROJECT NO: 1501150001-25-001

