Attachment H.1.1 – Bund Integrity Assessment

Abbott Ireland - Cootehill
IPPC Licence Compliance

Project No.: 011783

Bund Integrity Assessment

File No. 011783.22.040 **Document No: 011783-22-RP-0002**

CURRENT ISSUE					
Issue No: B	Date: 02/12/2008	Reason for Issue: For IPPC Licence Compliance			Customer Approval (if required)
Sign-Off	Originator	Checker	Reviewer	Approver	
Print Name	Orla Duggan	Mags Dalton		Niall O'Loughlin	
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Date	02/12/2008	02/12/2008		02/12/2008	

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

PM Group (PM) was appointed by Abbott Ireland, Cootehill to survey, inspect and risk assess all bunding structures at the Abbott Ireland Cootehill plant in compliance with Conditions 9.5.1 and 9.5.2 of its IPPC Licence (Reg. No. P0687-01).

1.1 IPPC Licence Conditions relating to Site Bunding

This report addresses Condition 9.5.1 and 9.5.2 of the licence, which states that:

"All tank and drum storage areas shall be rendered impervious to the materials stored therein. In addition, tank and drum storage areas shall within three months of 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

(ii) 25% of the total volume of substance which could be stored within the bunded area.

Drainage from bunded areas shall be diverted for collection and safe disposal. All bunds shall be tested at least once every three years. A report on such tests shall be included in the AER.

The integrity and water tightness of all the bunding structures and underground storage tanks and their resistance to penetration by water or other materials stored therein shall be tested and demonstrated by the licensee to the satisfaction of the Agency and shall be reported to the Agency within three months from the date of grant of this licence".

1.2 Assessment Format

All bunds were visually inspected, photographs taken and bund data sheets created (see Appendix A and B).

The completed data sheets include tank content details along with the WGK Class and Risk Phrases (R phrases), in accordance with EPA Guidance Note on Storage and Transfer of Materials for Schedules Activities. WGK is a German classification system for defining the hazard nature of materials to aquatic systems. This information is provided to determine the level of risk associated with the tank contents.

Based on identification of the risks associated with the stored materials, and a visual inspection and assessment of the condition of each bund, a determination is made as to the requirement for hydrostatic testing.

2. GUIDELINES

The Environmental Protection Agency (EPA) has issued guidelines 'The Storage and Transfer of Materials for Scheduled Activities' (2004) which provides guidance for the inspection and testing of bund structures.

The main guidelines are:

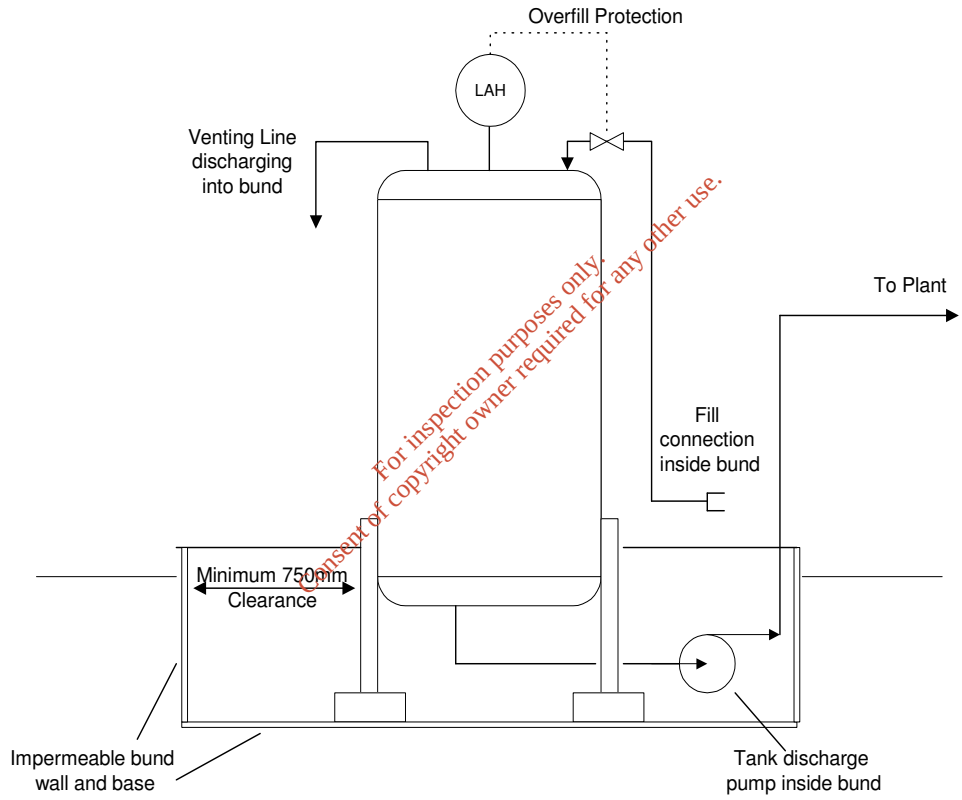
- The sealed surface providing the retention must be impermeable to the liquid being retained. This applies also to any connecting elements, such as pipes, penetrating the structure, the sealing of which must provide the same level of retention as the bund itself;
- There must be no adverse chemical 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 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 overflow vent from a storage tank being overfilled should be contained within the bund;
- It is strongly recommended that all pipe work leading to or from tanks within a bund is 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;
- Bund design should take into account the capture of spigot flow from ruptured tanks;
- Valved drainage from bunds should be avoided;
- Individual bunding is preferred to common bunding;

- 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.

Figure 2.1: Typical bund arrangement for a small tank



3. SURVEY METHODOLOGY

3.1 Bund Inspection Procedure

A standard template was used throughout the bund inspection programme to collate the following information:

- Classification of contents i.e. WGK classification and Risk Phrase
  - Low Risk – WGK 0 or 1
  - High Risk – WGK 2 or 3, R45, R46, 50, R51, R52, R53, R54, R55, R56, R58, R61 and R63
- Structural integrity
- Bund lining integrity (where relevant)
- Tank integrity
- Labelling
- Intake and overflow points
- Drainage
- Practicability of performing a hydrostatic test

The above information was then used to determine the risk associated with the individual bunded structures, as follows:

Table 3.1 Risk Matrix

Tank Contents	Bund Condition	Action Required
Low Risk	Good	None
High Risk	Good	None
Low Risk	Poor	Remedial action plus re-inspection
High Risk	Poor	Remedial action plus hydrostatic testing (where possible)

4. SURVEY/TESTING RESULTS

4.1 Scope of the Survey

22 No. bunds or bunded areas were inspected. A number of other storage areas at the site were not included in the assessment as they have open drains i.e. remote bunding to the effluent treatment plant. These include the vanilla store sump, milk and vegetable intake area, the CIP area and the area around the base of the bulk milk and oil storage silos. If the wastewater is in excess of the influent specification parameters, the inline COD analyser automatically diverts the out of specification wastewater to an inlet dump tank, otherwise known as a "calamity tank". In addition, the first stage of balancing in the WWTP has 24 hour buffering volume.

4.2 Visual Inspection Findings

A summary of the priority assessment findings for the 22 No. bunds included in the assessment is provided below in Table 4.1. The full assessment results, including photographs are detailed in Appendices A, B & C at the end of this report. The locations of each outdoor bund are identified on the site layout drawing in Appendix D (Bunds 21 & 22 are located in the Evaporator Area of the process plant and could not be accurately positioned on the site layout drawing).

Table 4.1 Priority Actions

Bund No.	Priority Action
Bund 01	Ensure containment for ring main diesel pump day tank in River Pump House (Fig. 1.8) with respect to potential egress from Pump House door in event of loss of tank integrity. Bund oils stored inside door of Pump House (Fig. 1.9)
Bund 02	Determine purpose & endpoint of pipe in bund (Fig. 2.6).
Bund 03 & 04	Check exact drainage route of ground area around bunds. If area drains to effluent plant the bunding is not critical and no further action is required. If area drains to surface water the bunding is critical and requires cleaning and re-inspection.
Bund 07	Pump out standing water from old tank outlet points & re-inspect this area of the bund. Concreting in these areas may need improvement. Address all potential cracks/joints in bund wall.
Bund 11 & 12	Clean out Bund 11 and re-inspect. If condition is not satisfactory take remedial action and then hydrostatically test. Ensure cable points are sealed as soon as possible. Provide drain blocker in diesel tanker unloading area.
Bund 13	Clean out bund & hydrostatically test when it is next emptied.
Bund 14 & 15	Label appropriately the contents of tank on Bund 15. IBC on ground between these bunds – partially filled with brown liquid (Fig. 14.2). Requires bunding or disposal.
Bund 16 & 17	Clean out bunds and re-inspect. If condition is not satisfactory take remedial action and then hydrostatically test.
Bund 20	Provide sump pallets for remaining chemicals not already stored in Chemstores. This eliminates the need for this concrete area to be maintained as a bund.

APPENDIX A

BUND DATASHEETS

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 01 Sprinkler Diesel Storage & Pump System **Bund Location:** Inside & outside River Pump house	**Photo/sketch** Figures 1.1-1.9
Bund Dimensions: L = 5 m; W = 2.5 m; H = 0.3 m	**Vessel(s) – Materials of Construction:** 2 No. cylindrical mild steel tanks
Bund Materials of Construction: Reinforced Concrete	**Vessel(s) – Total Storage Volume:** 3.3 m^3 (2 x 1.65m^3)
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 1.8 m^3
Bund Retention Volume: 3.7 m^3 >750 mm clearance between tank & bund wall	**Vessel(s) – 25% of Total Storage Volume:** 0.8 m^3
Tank Contents: Diesel	**WGK Class (R Phrase):** WGK Class: 2 Risk Phrases: R40, R65, R66, R51/53

Deemed practicable/safe to conduct hydrostatic test? Yes / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- Tanks & pipes in bund are in good condition, however oily sheen around pipes (Fig. 1.3)
- Bund in good condition but containing 1-2cm of water observed in bund, again with oily sheen on top (Fig. 1.2)
- Lines leading from the tanks to the pumps inside the River Pump House are double skinned.
- The sprinkler pumps & ring main diesel pumps are equipped with a drip tray (Fig. 1.5 &1.7)
- The area around the sprinkler pumps is contained – has been sealed since last assessment (Fig. 1.6)
-

Bund Contents: High Risk	**Bund Condition:** Good	**Action:** Carry out action items

Action Required:

- Ensure containment for ring main diesel pump day tank in River Pump House (Fig. 1.8) with respect to potential egress from Pump House door in event of loss of tank integrity.
- Bund oils stored inside door of Pump House (Fig. 1.9)

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 02 ETP Sulphuric Acid Storage **Bund Location:** Beside ETP	**Photo/sketch** Figures 2.1-2.7
Bund Dimensions: L = 3.8 m; W = 3.8 m; H = 1.6 m	**Vessel(s) – Materials of Construction:** 1 No. cylindrical stainless steel tank
Bund Materials of Construction: Stainless Steel	**Vessel(s) – Total Storage Volume:** 15 m^3
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 16.5 m^3
Bund Retention Volume: 23 m^3 >750 mm clearance between tank & bund wall	**Vessel(s) – 25% of Total Storage Volume:** Not Applicable
Tank Contents: Sulphuric Acid	**WGK Class (R Phrase):** WGK Class: 2 Risk Phrases: R35

Deemed practicable/safe to conduct hydrostatic test? Yes / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- Visual inspection reveals no signs of breaches or leaks
- Approx. 10-15cm of water in bund. A green algae-like sludge growing on bottom of bund (Fig. 2.2)
- The concrete underneath the transfer pump, drip tray and outlet valves is corroded, needs to be monitored (Fig. 2.3-2.5).
- Some valves and connections located outside bund and drip trays (Fig. 2.4&2.5)
- Pipework inside bund sealed at top & directed into bund (Fig. 2.6)

Bund Contents: High Risk	**Bund Condition:** Good	**Action:** Carry out action items

Action Required:

- Determine purpose & endpoint of pipe in bund (Fig. 2.6)

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
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DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 03 & 04 ETP Nutrient & Molasses Storage **Bund Location:** Beside ETP	**Photo/sketch** Figure 3.1-3.5
Bund Dimensions: (2 bunds – Same dimensions) L = 1.9 m; W = 1.9 m; H = 0.6 m	**Vessel(s) – Materials of Construction:** IBC - plastic with steel frame
Bund Materials of Construction: Plastic	**Vessel(s) – Total Storage Volume:** 1 m^3 in each bund
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 1.1 m^3
Bund Retention Volume: 1.5 m^3 (Bund = 2.1 m^3, Support = 0.6 m^3) <750 mm clearance between tank & bund wall (350mm)	**Vessel(s) – 25% of Total Storage Volume:** Not Applicable
Tank Contents: Nutrient (containing phosphoric acid) Molasses (CAS 68476-78-8)	**WGK Class (R Phrase):** WGK Class: Unclassified Risk Phrases: Unclassified

Deemed practicable/safe to conduct hydrostatic test? **Yes** / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- Not possible to fully inspect bunds due to liquid retention but no evidence of leaks. Ground area outside bunds thought to drain to underground sump, the contents of which are pumped to the effluent plant, therefore bunding containment is not critical
- The bunds were at least 50% full on day of inspection (Fig. 3.2&3.3)
- Outlet valves from both drip trays left open (Fig. 3.4)
- Discharge points from IBCs within bunds. Drip trays in place for connections outside bunds (Fig. 3.5)

Bund Contents: Assumed High Risk	**Bund Condition:** Re-inspection required	**Action:** Carry out action items

Action Required:

- Check exact drainage route of ground area around bunds. If area drains to effluent plant the bunding is not critical and no further action is required. If area drains to surface water the bunding is critical and requires cleaning and re-inspection.

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 05 ETP Caustic Storage **Bund Location:** Beside ETP	**Photo/sketch** Figure 5.1-5.5
Bund Dimensions: (Cylindrical Bund) L = 1.4 m R = 1.9 m (16 m^3)	**Vessel(s) – Materials of Construction:** Plastic
Bund Materials of Construction: Plastic (Niplast Thermoplastic Engineering)	**Vessel(s) – Total Storage Volume:** 10 m^3
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 11 m^3
Bund Retention Volume: 16 m^3 <750 mm clearance between tank & bund wall (550mm)	**Vessel(s) – 25% of Total Storage Volume:** Not Applicable
Tank Contents: Caustic (Sodium Hydroxide)	**WGK Class (R Phrase):** WGK Class: 1 Risk Phrases: 34

Deemed practicable/safe to conduct hydrostatic test? Yes / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- The bund and tank appear in good condition – no evidence of leaks
- The bund contained 30-40cm of water on day of inspection (Fig. 5.5).
- Fill point is inside bund
- Drip tray in place for caustic pumps with corrosion on ground underneath. Corrosion requires monitoring (Fig. 5.2&5.3)
- Dried caustic on outside of some pipework (Fig. 5.4)

Bund Contents: Low Risk	**Bund Condition:** Good	**Action:** None

Action Required:

- None

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
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DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 06 ETP Ferric Sulphate **Bund Location:** Beside ETP	**Photo/sketch** Figure 6.1-6.6
Bund Dimensions: (Cylindrical Bund) L = 1.4 m R = 1.9 m (16 m^3)	**Vessel(s) – Materials of Construction:** Plastic
Bund Materials of Construction: Plastic (Niplast Thermoplastic Engineering)	**Vessel(s) – Total Storage Volume:** 10 m^3
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 11 m^3
Bund Retention Volume: 16 m^3 <750 mm clearance between tank & bund wall (550mm)	**Vessel(s) – 25% of Total Storage Volume:** Not Applicable
Tank Contents: Ferric Sulphate	**WGK Class (R Phrase):** WGK Class: 1 Risk Phrases: 22, 36/37/38

Deemed practicable/safe to conduct hydrostatic test? **Yes** / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- The bund and tank appear to be in good condition
- The bund contained 30-40cm of water on day of inspection (Fig. 6.2).
- Fill point is inside bund
- Evidence of ferric sulphate in rust staining in area around tank & on gravel and in drip tray.

Bund Contents: Low Risk	**Bund Condition:** Good	**Action:** None

Action Required:

- None

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 07 Gas Oil Bund **Bund Location:** Beside Boiler house	**Photo/sketch** Figure 7.1-7.5
Bund Dimensions: L = 16.5 m; W = 16 m; H = 1.25 m	**Vessel(s) – Materials of Construction:** Steel
Bund Materials of Construction: Block wall lined with concrete	**Vessel(s) – Total Storage Volume:** 150 m^3 (x 2 tanks)
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 165 m^3
Bund Retention Volume: 330 m^3 >750 mm clearance between tank & bund wall	**Vessel(s) – 25% of Total Storage Volume:** 75 m^3
Tank Contents: Gas Oil	**WGK Class (R Phrase):** WGK Class: 2 Risk Phrases: R40, R65, R66, R51/53

Deemed practicable/safe to conduct hydrostatic test? Yes / **No**

If no, give reasons:
Low level pumps & equipment would make hydrostatic testing difficult

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- The bund wall has been lined and the adequate containment for the fill point has been provided since the last assessment (Fig. 7.2). However it would appear that the new concrete lining could contain cracks/joints vertically in the bund wall and horizontally between the bund wall and floor (Fig. 7.3)
- Integrity of bund floor under old tank outlet points could not be confirmed due to standing water – need to pump out & re-inspect (Fig. 7.4&7.5)
- Some rainwater was present in the bund.

Bund Contents: High Risk	**Bund Condition:** Poor/ Re-inspection required	**Action:** Remedial Action

Action Required:

- Pump out standing water from old tank outlet points & re-inspect this area of the bund. Concreting in these areas may need improvement
- Address all potential cracks/joints in bund wall

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 08 Aluminium Chloride Bund (formally Aluminium Sulphate) **Bund Location:** Within Gas Oil Bund	**Photo/sketch** Figure 8.1-8.3
Bund Dimensions: Diam. = 3.2m; H = 1.2m	**Vessel(s) – Materials of Construction:** Plastic
Bund Materials of Construction: Plastic (Niplast Thermoplastic Engineering)	**Vessel(s) – Total Storage Volume:** 10.6 m^3
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 11.7 m^3
Bund Retention Volume: 9.6 m^3 <750 mm clearance between tank & bund wall	**Vessel(s) – 25% of Total Storage Volume:** Not applicable
Tank Contents: Aluminium Chloride	**WGK Class (R Phrase):** WGK Class: 1 Risk Phrases: 36/38

Deemed practicable/safe to conduct hydrostatic test? **Yes** / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- The bund & tank appear in good condition.
- The size of the bund is not completely adequate for a release of 110 % volume of tank stored within. However, it is within Bund 07 which will contain any excess.
- Fill point is outside the bund but within Bund 07 (Fig. 8.3).
- There was approx. 5cm of rainwater in the bund on the day of inspection (Fig. 8.2).

Bund Contents: Low Risk	**Bund Condition:** Good	**Action:** None

Action Required:

- None

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 09 & 10 Nitric Acid & Caustic Storage **Bund Location:** Within Gas Oil Bund	**Photo/sketch** Figure 9.1-9.8
Bund Dimensions: Rectangular bunds L = 4.8 m; W = 3.8 m; H = 1.3 m each	**Vessel(s) – Materials of Construction:** Circular tanks - Stainless Steel
Bund Materials of Construction: Stainless Steel	**Vessel(s) – Total Storage Volume:** 20 m^3 Nitric Acid 20 m^3 Sodium Hydroxide
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 22 m^3
Bund Retention Volume: 22 m^3 each (2 separate bunds) <750 mm clearance between tank & bund wall (550mm)	**Vessel(s) – 25% of Total Storage Volume:** 5 m^3 each
Tank Contents: Nitric Acid Sodium Hydroxide	**WGK Class (R Phrase):** Caustic WGK Class: 1 Risk Phrases: 34 Nitric Acid WGK Class: 1 Risk Phrases: 35

Deemed practicable/safe to conduct hydrostatic test? Yes / **No**

If no, give reasons:
The bunds are free-draining (Fig. 9.4&9.5) to pipework in the Gas Oil Bund which leads to the effluent plant.

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- The bunds & tanks appear in good condition, no evidence of leaks
- There was a small volume of rainwater & sludge in the bunds on the day of inspection (Fig. 9.3).
- A fill point has been set up outside the bund. A spill tray has been placed under this (Fig. 9.6). This spill tray free-drains to pipework from large blue tank nearby (Fig. 9.7&9.8) which in turn drains to the effluent plant.

Bund Contents: Low Risk	**Bund Condition:** Good	**Action:** None

Action Required:
- None

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland	**Photo/sketch** Figures 11.1-11.9
Site: Cootehill, Co. Cavan	
Bund Ref. No.: Bund 11 & 12a&b Emergency Generator Diesel Tank Bund (Bund 11) & Emergency Generator Bunds (Bunds 12a&b)	
Bund Location: To back of site , near ETP	
Bund Dimensions: Rectangular bunds, each approx.: L = 18.5 m; W = 7.3 m; H = 1.0 m	**Vessel(s) – Materials of Construction:** Diesel Tank: Steel
Bund Materials of Construction: Reinforced Concrete	**Vessel(s) – Total Storage Volume:** Diesel Tank: 95 m^3
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** Diesel Tank: 105 m^3
Bund Retention Volume: Approx. 135 m^3 >750 mm clearance between tank & bund wall	**Vessel(s) – 25% of Total Storage Volume:** N/A
Tank Contents: Diesel	**WGK Class (R Phrase):** WGK Class: 2 Risk Phrases: R40, R65, R66, R51/53

Deemed practicable/safe to conduct hydrostatic test? Yes / No

If no, give reasons:

Hydrostatic testing would be possible in Bund 11 but not Bunds 12a&b due to breaches in floor of these bunds.

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- Bund 11 appears generally in good condition however it was not possible to fully inspect due to retention of 5-10cm of rainwater in the bund on the day of inspection. As a result the diesel pipes were also submerged (Fig. 11.1&11.4).
- The fill point for the diesel tank in Bund 11 is located inside the bund (Fig. 11.5)
- Diesel tanker unload point has been concreted and dished to drain to the surface water (Fig. 11.6)
- Bunds 12a&b appear generally in good condition. Planks are laid over an opening which leads to a duct containing electrical cabling. This duct in turn leads to the transformer bunds (Fig. 11.2&11.3). There are also cavities under the doors of the generator containers (Fig. 11.8&11.9). However the ducting pathways and cavities consist of intact concrete and as such should not pose a risk to ground or surface water.
- Electrical cables protrude the bund in the left-hand corner of Bund 12a (Fig. 11.7).

Bund Contents: High Risk	**Bund Condition:** Bund 11- Re-inspection Required	**Action:** Carry out action items

Action Required:

- Clean out Bund 11 and re-inspect. If condition is not satisfactory take remedial action and then hydrostatically test.
- Ensure cable points are sealed as soon as possible.
- Provide drain blocker in diesel tanker unloading area.

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 13 (AIC ref. JCHEM005) **Bund Location:** Beside main building near visitor carpark	**Photo/sketch** Figures 13.1-13.3
Bund Dimensions: Rectangular bund L = 2.7 m; W = 1.5 m; H = 0.25 m	**Vessel(s) – Materials of Construction:** Painted Steel
Bund Materials of Construction: Steel	**Vessel(s) – Total Storage Volume:** 0.6 m^3
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 0.028 m^3
Bund Retention Volume: 1 m^3	**Vessel(s) – 25% of Total Storage Volume:** 0.15 m^3
Tank Contents: Mercury/Silver Nitrate/Caustic& Acid waste 10 x 25l Organic Waste 8 x 25l Waste Oil 2 x 25l Paint Tins 3 x 2.5l Corrosive CIP Detergent 2 x 25l Paint 1 x 10l Salt 5 x 25kg + Miscellaneous	**WGK Class (R Phrase):** Miscellaneous (assumed High Risk)

Deemed practicable/safe to conduct hydrostatic test? **Yes** / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- The bund appears to be generally intact but dirty. Difficult to fully inspect due to contents but no evidence of leaks (Fig. 13.2)
- Crud & dried chemicals on base of bund (Fig. 13.3)

Bund Contents: High Risk	**Bund Condition:** Re-inspection Required	**Action:** Carry out action items

Action Required:

- Clean out bund & hydrostatically test when it is next emptied.

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 14 & 15 **Bund Location:** At Effluent Plant beside Bunds 03&04	**Photo/sketch** Figures 14.1&14.2
Bund Dimensions: Each Bund: L = 1.3 m; W = 1.3 m; H = 0.65 m	**Vessel(s) – Materials of Construction:** Plastic IBC
Bund Materials of Construction: HDPE	**Vessel(s) – Total Storage Volume:** 1 m^3 on each bund
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 1.1 m^3
Bund Retention Volume: 1.1 m^3	**Vessel(s) – 25% of Total Storage Volume:** N/A
Tank Contents: Bund 14: Chemfloc 103 Bund 15: Unknown (unlabelled except for 'Corrosive')	**WGK Class (R Phrase):** Unknown – assumed High Risk

Deemed practicable/safe to conduct hydrostatic test? **Yes** / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- Bunds appear to be in good condition. No evidence of leaks.
- Approx. 10-15cm of liquid retention in each bund

Bund Contents: High Risk	**Bund Condition:** Good	**Action:** Carry out action items

Action Required:

- Label appropriately the contents of tank on Bund 15
- IBC on ground between these bunds – partially filled with brown liquid (Fig. 14.2). Requires bunding or disposal

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 16 & 17 **Bund Location:** Near Effluent Plant	**Photo/sketch** Figures 16.1-16.9
Bund Dimensions: Each Bund: L = 3.5 m; W = 3.5 m; H = 1.0 m	**Vessel(s) – Materials of Construction:** Steel Transformer Casing
Bund Materials of Construction: Concrete	**Vessel(s) – Total Storage Volume:** Unknown
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** Unknown
Bund Retention Volume: 9.65 m^3	**Vessel(s) – 25% of Total Storage Volume:** N/A
Tank Contents: Transformer Oil	**WGK Class (R Phrase):** WGK Class: 2 Risk Phrases: R45

Deemed practicable/safe to conduct hydrostatic test? Yes / **No**

If no, give reasons:
Feasibility of testing is unclear given breach in base of bunds due to ducting

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- Bund 16 (on left) – some evidence of disturbance & modification for access platform (Fig. 16.4&16.5). Could not fully inspect due to water retention and sludge layer on base of bund (Fig. 16.2). Electrical pipework leading underground into base of bund – potential for seepage of any retained liquid if not sealed properly (Fig. 16.4&16.5). Approx. 15cm of rainwater retention. Also some deterioration of bund wall noticed (Fig. 16.3).
- Bund 17 (on right) – disturbance at back of bund where modifications made for access platform (Fig. 16.8). Could not fully inspect due to water retention and sludge on base of bund (Fig. 16.7). Electrical pipework leading underground into base of bund – potential for seepage of any retained liquid if not sealed properly (Fig. 16.8&16.9). Approx. 45cm of rainwater retention.

Bund Contents: High Risk	**Bund Condition:** Re-inspection Required	**Action:** Carry out action items

Action Required:

- Clean out bunds and re-inspect. If condition is not satisfactory take remedial action and then hydrostatically test.

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 18 **Bund Location:** Beside Gas Oil Bund	**Photo/sketch** Figures 18.1&18.2
Bund Dimensions: L = 1.3 m; W = 0.75 m; H = 0.25 m	**Vessel(s) – Materials of Construction:** Plastic Drums
Bund Materials of Construction: Painted Steel	**Vessel(s) – Total Storage Volume:** 0.225 m^3
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** N/A – covered bund
Bund Retention Volume: 0.24 m^3	**Vessel(s) – 25% of Total Storage Volume:** 56 litres
Tank Contents: HCl 28%: 5 x 25l Sodium Hypochlorite 15%: 4 x 25l	**WGK Class (R Phrase):** WGK Class: 2 Risk Phrases: R31-37

Deemed practicable/safe to conduct hydrostatic test? Yes / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**
Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- The bund appears in good condition. There is little or no retention. The bund is dry underneath and there is no evidence of leaks.
- There are extra spill trays within the bund.

Bund Contents: High Risk	**Bund Condition:** Good	**Action:** None

Action Required:

- None

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 19 (AIC ref. Traffo 7) **Bund Location:** Beside Gas Oil Bund	**Photo/sketch** Figures 19.1-19.3
Bund Dimensions: Each Bund: L = 3.25 m; W = 2.65 m; H = 0.55 m	**Vessel(s) – Materials of Construction:** Steel Transformer Casing
Bund Materials of Construction: Concrete	**Vessel(s) – Total Storage Volume:** Unknown
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** Unknown
Bund Retention Volume: Approx. 3.16 m^3	**Vessel(s) – 25% of Total Storage Volume:** N/A
Tank Contents: Transformer Oil	**WGK Class (R Phrase):** WGK Class: 2 Risk Phrases: R45

Deemed practicable/safe to conduct hydrostatic test? Yes / **No**

If no, give reasons:
Electrical cables in base of bund (Fig. 19.3)

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- The bund appears in good condition. There is a small amount of rainwater retention (Fig. 19.2).

Bund Contents: High Risk	**Bund Condition:** Good	**Action:** None

Action Required:
- None

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 20 Waste Oil Storage Bund **Bund Location:** Behind main site building	**Photo/sketch** Figures 20.1-20.3
Bund Dimensions: Each Bund: L = 7.5 m; W = 6.5 m; H = 0.25 m	**Vessel(s) – Materials of Construction:** Various – Plastic & Steel
Bund Materials of Construction: Concrete	**Vessel(s) – Total Storage Volume:** Miscellaneous
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** 220 litres
Bund Retention Volume: 12.2 m^3	**Vessel(s) – 25% of Total Storage Volume:** 800 litres approx.
Tank Contents: Waste Oil in 4 Chemstores + 3 empty IBCs	**WGK Class (R Phrase):** Miscellaneous – assumed High Risk

Deemed practicable/safe to conduct hydrostatic test? **Yes** / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:**

Description and Results of Visual Inspection:	**Date of Visual Inspection:** 29/07/2008

- The bund appears in reasonably good condition and intact. Floor area of bund is covered in a solid residue – origin unknown (Fig. 20.3).
- Most of the oil in this area is double contained i.e. contained in Chemstores which are themselves within Bund 20 (Fig. 20.2). Therefore more than adequate containment space provided.

Bund Contents: High Risk	**Bund Condition:** Good	**Action:** Carry out action items

Action Required:

- Provide sump pallets for remaining chemicals not already stored in Chemstores. This eliminates the need for this concrete area to be maintained as a bund.

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

DATA SHEET: BUNDING STRUCTURES

Company: Abbott Ireland **Site:** Cootehill, Co. Cavan **Bund Ref. No.:** Bund 21 & 22 Chemstore Bunds (Ref 9632 & 9633) **Bund Location:** Evaporator Area of Process	**Photo/sketch** No photographs
Bund Dimensions: Each Bund: L = 1.37 m; W = 1.37m; H = 0.15 m	**Vessel(s) – Materials of Construction:** Unknown
Bund Materials of Construction: Plastic	**Vessel(s) – Total Storage Volume:** Unknown
Bund Lining Material: N/A	**Vessel(s) – 110% of Volume of Largest Vessel:** Unknown
Bund Retention Volume: 0.25 m^3	**Vessel(s) – 25% of Total Storage Volume:** Unknown
Tank Contents: Unknown	**WGK Class (R Phrase):** Unknown assumed High Risk

Deemed practicable/safe to conduct hydrostatic test? Yes / No

If no, give reasons:

Description and Results of Hydrostatic Test:	**Date of Hydrostatic test:** 27/11/2007
Test carried out by Chemstore, the bund supplier. Bunds passed test – certificates included in Appendix C of this report. Re-test due on 28/11/2010	
Description and Results of Visual Inspection:	**Date of Visual Inspection:**
• Bunds not visually inspected as their location in plant could not be determined on the day of the assessment. However bunds are brand new. Area around bunds drains internally to the effluent plant.	

Bund Contents: High Risk	**Bund Condition:** Good	**Action:** None

Action Required:

- None

Signed: *Orla Duggan*	**Title:** Environmental Consultant	**Date:** 22/10/2008
Signed: *Niall O'Loughlin*	**Title:** Chartered Engineer	**Date:** 22/10/2008

APPENDIX C

CHEMSTORE TEST SHEETS FOR BUNDS 21&22

CHEMSTORE ENVIRONMENTAL
Design and Manufacture of Environmental Safety Solutions

Clondrinagh Ind. Estate,
Ennis Road, Limerick
Republic of Ireland.
Tel: 061-327792
Fax: 061-327985
Web: www.chemstore.ie
Email: sales@chemstore.ie

Bund Test Certificate

Company:	Abbotts
Site:	Cootehill, Co. Cavan
Bund Reference No:	9632
Model Code:	4 Drum Polystore
Bund Dimensions:	1370L x 1370W x 150H mm
New Bund:	YES

Hydrostatic Test Results

Bunds Materials of Construction:	Plastic
Bund Lining:	N/A
Total Bund Volume:	250 L
Bund Capacity Tested:	250 L
110% of Vol. of Largest Vessel:	220 L
25% of Total Storage Volume:	N/A
Date of Test:	27/11/2007 **Pass:** YES
Re-Test Date:	28/11/2010
Comments/Recommendations:	

Readings	Time	Level (mm)
1.	8:35 AM	150
2.	15:45 PM	150

Signed: C. Griffin	**Date:** 28/11/2007

Company Signature:

In Accordance with Chapter 6 of Environmental Protection Agency IPPC Guidance Note, June 2004

Please Store Bund Test Certificate in a Safe Place. Copies of the Certificates are charged at €45 each

CHEMSTORE ENVIRONMENTAL
Design and Manufacture of Environmental Safety Solutions

Clondrinagh Ind. Estate,
Ennis Road, Limerick
Republic of Ireland.
Tel: 061-327792
Fax: 061-327985
Web: www.chemstore.ie
Email: sales@chemstore.ie

Bund Test Certificate

Company: Abbotts

Site: Cootehill, Co. Cavan

Bund Reference No: 9633

Model Code: 4 Drum Polystore

Bund Dimensions: 1370L x 1370W x 150H mm

New Bund: YES

Hydrostatic Test Results

Bunds Materials of Construction: Plastic

Bund Lining: N/A

Total Bund Volume: 250 L

Bund Capacity Tested: 250 L

110% of Vol. of Largest Vessel: 220 L

25% of Total Storage Volume: N/A

Date of Test: 27/11/2007 **Pass:** YES

Re-Test Date: 28/11/2010

Comments/Recommendations: ______________________________

Readings	Time	Level (mm)
1.	8:35 AM	150
2.	15:45 PM	150

Signed: G. Griffin	Date: 28/11/2007

Company Signature: [signature]

In Accordance with Chapter 6 of Environmental Protection Agency IPPC Guidance Note, June 2004

Please Store Bund Test Certificate in a Safe Place. Copies of the Certificates are charged at €45 each

APPENDIX D

SITE LAYOUT

NOTES

LEGEND

BUND 01	SPRINKLER DIESEL STORAGE
BUND 02	ETP SULPHURIC ACID STORAGE
BUND 03	ETP NUTRIENT STORAGE
BUND 04	ETP MOLASSES STORAGE
BUND 05	ETP CAUSTIC STORAGE
BUND 06	ETP FERRIC SULPHATE STORAGE
BUND 07	GAS OIL STORAGE
BUND 08	ALUMINUM CHLORIDE STORAGE
BUND 09	CIP, NITRIC ACID AND CAUSTIC STORAGE
BUND 10	CIP, NITRIC ACID AND CAUSTIC STORAGE
BUND 11	EMERGENCY GENERATOR DIESEL STORAGE

A	PRELIMINARY				
ISSUE	DESCRIPTION	ISSUE	DRWD	AUTH CHK	DATE

CLIENT: ABBOTT IRELAND - COOTEHILL

PM GROUP

PROJECT: IPPC LICENCE COMPLIANCE

TITLE: BUND LOCATIONS

CLIENT REF.	CLIENT DRG No.
PROJECT No. 011783	PM DRG No. 011783-22-DR-0001
SCALE 1:500	AD

011783_22_DR_0001

THIS DRAWING WAS CREATED USING AUTOCAD 2002

Bund Management Programme 2009 - 2010

Source	Date	Details	Corrective Action to be taken	Corrective Action performed	Resp. Person	Complet-ion Date	Complete	Root Cause	Preventive action	Preventative action successful
December 2008 Bund Assessment	08/12/2008	Bund 01 Ensure containment for ring main diesel pump day tank in River Pump House (Fig. 1.8) with respect to potential egress from Pump House door in event of loss of tank integrity. Bund oils stored inside door of Pump House (Fig. 1.9)	Investigate and confirm bund 01 containment. Obtain sump pallets for chemicals stored in the pumphouse	Yes. Bund 01 reinspected - containment sufficient & sump pallet now in place.	Darryl Flint / Petrina Ashford	Oct-09	Yes	N/A		
December 2008 Bund Assessment	08/12/2008	Bund 02 Determine purpose & endpoint of pipe in bund (Fig. 2.6).	Determine and confirm.	Yes	Darryl Flint / Petrina Ashford	Oct-09	Yes	N/A		
December 2008 Bund Assessment	08/12/2008	Bund 03 & 04 Check exact drainage route of ground area around bunds. If area drains to effluent plant the bunding is not critical and no further action is required. If area drains to surface water the bunding is critical and requires cleaning and re-inspection.	Investigate and confirm.	Yes area drains to effluent plant therefore the bunding is not critical	Darryl Flint / Petrina Ashford	Oct-09	Yes	N/A		
December 2008 Bund Assessment	08/12/2008	Bund 07 Pump out standing water from old tank outlet points & re-inspect this area of the bund. Concreting in these areas may need improvement. Address all potential cracks/joints in bund wall.	Pump out and assess. Carry out identified maintenance.	Pumped out, No maintenance necessary	Darryl Flint / Petrina Ashford	Apr-10	Yes	N/A		

December 2008 Bund Assessment	08/12/2008	Bund 11 & 12 Clean out Bund 11 and re-inspect. If condition is not satisfactory take remedial action and then hydrostatically test. Ensure cable points are sealed as soon as possible. Provide drain blocker in diesel tanker unloading area.	Clean out Bund 11 and re-inspect, take remedial action and then hydrostatically test. Ensure cable points are sealed as soon as possible. Provide drain blocker in diesel tanker unloading area.	Yes bund 11 hydrostatically tested, sand blasted, lined and sealed. Drain blocker now inplace in the diesel tanker unloading area.	Darryl Flint / Petrina Ashford	Jan-10	Yes	Overlooked	Communication given	Yes
December 2008 Bund Assessment	08/12/2008	Bund 13 Clean out bund & hydrostatically test when it is next emptied.	Clean out & hydrostatically test.	tested - No maintenance necessary	Darryl Flint / Petrina Ashford	Apr-10	Yes	N/A		
December 2008 Bund Assessment	08/12/2008	Bund 14 & 15 Label appropriately the contents of tank on Bund 15. IBC on ground between these bunds – partially filled with brown liquid (Fig. 14.2). Requires bunding or disposal.	Label contents of tank on Bund 15. IBC on ground between these bunds – dispose of brown liquid	Yes Bund 15 labelled & IBC content disposed of.	Darryl Flint / Petrina Ashford	Oct-09	Yes	Overlooked	Communication given	Yes
December 2008 Bund Assessment	08/12/2008	Bund 16 & 17 Clean out bunds and re-inspect. If condition is not satisfactory take remedial action and then hydrostatically test.	Clean out bunds and re-inspect. If condition is not satisfactory take remedial action and then hydrostatically test.	Cleaned out and reinspected, condition is satisfactory	Darryl Flint / Petrina Ashford	Apr-10	Yes	N/A		

December 2008 Bund Assessment	08/12/2008	Bund 20 Provide sump pallets for remaining chemicals not already stored in Chemstores. This eliminates the need for this concrete area to be maintained as a bund.	Provide sump pallets for remaining chemicals not already stored in Chemstores.	Yes. Sump pallets provided and in place.	Darryl Flint / Petrina Ashford	Oct-09	Yes	Overlooked	Communication given	Yes

Attachment H.1.2 – Spills SOP

Document ID: EHS009
Document Type: Standard Operating Procedure
Title: Procedure to be followed in the Event of a Chemical Spillage Inside/Outside the Plant (Ref. ISO 14001)

Effective Date: 18-Jan-2007
Approved Date: 18-Jan-2007

ABBOTT IRELAND

Basic Operating Procedure

Procedure to be followed in the Event of a Chemical Spillage Inside/Outside the Plant (Ref. ISO 14001)

Role:	Signed by:	Date (GMT):	Reason for signing:
Admin. Secretary	Josephine M Connolly	07/11/2006 10:14:39	Initiating Route for Review
Operations Support Manager	Sean A Curtin	08/11/2006 16:03:27	Initiating Route for Review
Human Resources Manager	Seamus C Kennedy	09/11/2006 12:25:18	Initiating Route for Review
Label Copy & Reg. Co-ordinator	Kathleen P Bredican	15/11/2006 16:10:21	Reviewed No Changes Required
Q.A. Manager	Christina A Farnan	17/11/2006 09:50:25	Reviewed No Changes Required
Process Manager	Gus J Mac Entire	05/01/2007 09:10:07	Reviewed No Changes Required
Electrical Engineer	Brendan J Lynch	05/01/2007 09:45:00	Initiating Route for Review
Admin. Secretary	Josephine M Connolly	18/01/2007 15:45:57	Route for Review Completed

Subject: Procedure to be followed in the event of a Chemical Spillage Inside/Outside the Plant (Ref. ISO 14001)

1.0 PURPOSE:

The purpose of this procedure is to ensure that spills inside/outside of the plant are expediently and effectively dealt with so as to prevent any adverse impact to the environment. Also that people know the procedure should they be affected by a chemical spill from a Health and Safety point of view.

2.0 RESPONSIBILITY:

The responsibility to ensure that all drummed materials and waste are stored in a manner that minimises the risk, lies with the Manager of the area concerned.

3.0 PROCEDURE :

Chemical Spill - Inside the Plant.
The maximum size of a container with chemicals stored inside the Plant is 5 litre Winchester Bottles.

3.1 Upon the occurrence or discovery of a chemical spillage, the Laboratory Manager is to be informed immediately. The Manager will assess the situation and will decide on a course of action.

3.2 The Manager may delegate personnel from his/her department to deal with the spillage. For spillages involving materials hazardous to health or the environment, the Management Representative should be informed. The area should be isolated to keep out unauthorised personnel.

3.3 There should always be one individual observing the "Clean-Up" from a safe distance so that if any further complications arise he/she will be able to get help.

3.4 The spilled chemical is to be identified and its associated hazards established . This information should be available on the container. Consult the Material Safety Data Sheet for specific hazard and clean-up information and any particular precautions, such as personal protective equipment, that are required.

3.5 The extent of the incident is to be quickly assessed and the fire alarm sounded if deemed necessary.

3.6 Fire fighting equipment must be in standby especially if the spilled chemical is flammable.

3.7 Ventilate the building by opening doors.

3.8 Determine if the spillage can be washed into a process drain. If this is not possible or there is a risk of the spillage spreading and entering storm drains then it must be contained using absorbent material. All efforts must be made to prevent any spillage from entering a storm drain.

3.9 Using a shovel and a brush transfer the absorbed chemical into a lined drum or other suitable container and label correctly. This material is to be left in the compound store with other hazardous waste, prior to disposal by an approved hazardous waste contractor.

3.10 An EHS Incident/Release Investigation report should be prepared on the spillage by the supervisor and sent to the Environmental Representative.

3.11 Stocks of absorbent material must be replenished by the department in which they are used.

3.12 In the event of the chemical spillage in transit to the Laboratory, the department manager of the relevant area should be informed immediately and the same procedure followed as for the Laboratory.

4.0 CHEMICAL SPILL (OUTSIDE THE PLANT)

Chemical Spill - note:- the maximum size of container containing a chemical is 1,000 ltrs approx (IBC) to 20,000 ltrs (Bulk Road Tanker).

4.1 The process and/or the warehouse manager and the hazardous materials controller must be informed immediately, depending on the location of the IBC container/tanker.

4.2 Restrict all movement of traffic both entering or leaving the area.

4.3 Turn off all ignition sources immediately.

4.4 Ensure smoking is strictly prohibited.

4.5 Have the area completely evacuated. All personnel should be sent to a safe designated area. Inform the Safety Officer

4.0 PROCEDURE CHEMICAL SPILL (OUTSIDE THE PLANT) (contd)

4.6 Obtain the necessary safety equipment (Breathing Apparatus may be required) Safety Goggles, Respirator, Apron, Gloves and Safety Shoes.

4.7 Shut off any leaks if appropriate and place absorbent materials around the spill to soak up the chemical. Ensure Drain Covers are in place.

4.8 If the spillage emanated from a drum and if it is safe to do so, position it so that the ruptured section is uppermost thereby preventing further leakage.

4.9 There should always be one individual observing the procedure from a distance so that if any further complications arise he/she will be able to get help.

4.10 Do not use fork trucks to move the material as there is a risk of sparks.

4.11 Transfer all the absorbent material used in the clean-up into the Compound store and arrange disposal with an approved hazardous waste contractor.

4.12 After the area is completely free of absorbent material and chemical, wash with water and detergent.

4.13 The Supervisor of the area will inform all personnel when it is safe to resume normal work and free movement of vehicles can resume. It is also the Supervisor's responsibility to ensure an Incident/Release Investigation Sheet is completed and sent to the Environmental Representative.

4.14 If liquid chemical has entered the surface drains or sewers it may be necessary to inform the local Authorities, including the Fire Services if the chemical has flammable properties.

4.15 Procedures for handling other major spillages are provided in the Disaster Control Manual. Also refer to EN 58 for dealing with Minor Sulphuric Acid Spills.

5.0 SAFETY/HEALTH

5.1 If an employee is affected by a chemical spill go immediately to the First Aid Treatment Room, inform First Aid Person/Nurse through your Manager.

5.2 The material data sheet on the chemical will give the person the First Aid Treatment that should be addressed. If there are Health effects such as Breathing Apparatus the person should go the doctor. The data sheets for chemicals are kept in the Laboratory.

6.0 DOCUMENTS REFERENCED

Environmental Incident/Release Investigation Inspection Sheet No. EN 018
Disaster Control Manual
Dealing with Minor Sulphuric Acid Spillages - EN 58

7.0 REASON FOR ERVISION

7.1 Environmental Incident/Release Investigation Inspection Sheet revised and replaced with EHS 010 EHS Incident/Release Investigation Form.

7.2 BOP renumbered from HR to EHS and converted format to Microsoft Word.

7.3 Added to point 4.0 IBC to 20,000 lts.

7.4 Annual Review October 2005 – No Changes Made.

7.5 Annual Review October 2006 – No Changes Made.

Attachment H.1.3

SOPs for Transport

Document ID: MM076
Document Type: Standard Operating Procedure
Title: Transfer of Vitamins and Minerals from Warehouse to Vits. Room

Effective By Date: 30-Jun-2010
Approved Date: 28-Jun-2010

1.0 Purpose

The purpose of this SOP is to define the procedure for issuing vitamins and minerals to the Vits. Room so that Process and Q.A. personnel can weigh out these ingredients and add them to processed batches.

2.0 Safety

2.1. Forklift Drivers who are suitably trained by having attended and passed the Forklift Training Course, will perform forklift duties associated with issuing vitamins and minerals.

2.2. Safety shoes, Safety Glasses and full uniform will be worn by operators.

3.0 Procedure

3.1. The Warehouse day shift forklift operator will check the Vits. Room each morning at start of shift and after 1st tea break to see if there are any empty spaces or low stocks of vitamins and minerals in the racking. The evening shift forklift operator will check the Vits. Room at start of shift and after 1st tea break each evening.

3.2. The forklift operator will take a note of what vitamins and minerals are required and check the MCS system for the location and oldest lot number of the vitamins and minerals needed.

3.3. The forklift operator will take option 88090 and key in the part number e.g. 1201 Ascorbic Acid. The location inquiry screen will show the following details:

Location
Description
Lot Number
Quantity on hand
Quantity allocated

The Forklift Operator may also use the hand held scanner – refer to SOP MM012.

3.4. The forklift operator will key in 5 (display detail) and this will show the date of last receipt. The oldest lot will be issued first using F.I.F.O. system.

3.5. The forklift operator will check the label to ensure the part number and lot number are correct and that the ingredient is released by Q.A.

3.6. The forklift operator will physically move the pallet of vitamins and minerals from the warehouse racking to the Vits. Room and then transfer it on MCS using option 88026 stock to stock issue.

3.7. If the pallet already in the Vits. Room racking contains one row or less of boxes/bags, then the operator should remove these from the racking and stack them on top of the new pallet being issued from the Warehouse. However, if the pallet already in the racking contains more than one row of boxes/bags, then the operator should wait until more is used up before transferring the pallet. This information might have to be passed to the next crew coming on shift.

3.8. On occasions, such as weekends, it may be necessary to stack pallets of vitamins and minerals on the Vits. Room floor. This is to avoid the Vits. Room from running low in stock. However, it is better if possible to keep the floor clear.

3.9. If the Vits. Room runs out of stock during a period when no Warehouse personnel are on site, then the Process operator should transfer the vitamins and minerals.

4.0 Reason for Revision

Ref. CR 317.

Document ID: MM072
Document Type: Standard Operating Procedure
Title: Transfer of Vanilla from Bund Stoarage to the Process Vanilla Room

Effective By Date: 01-Jun-2007
Approved Date: 01-Jun-2007

1. **Purpose:**

1.1 To outline the procedures for handling, storage and transportation of Vanilla liquid from the Vanilla bunded room in the Warehouse to the Process Vanilla Station in as safe as is practical a manner taking into consideration the volatility of the material with a flash point of 29 degrees and under the category of Hazardous Flammable Liquids under the ADR Regulations and our Insurers requirements for the safest possible handling of such materials.

1.2 A detailed Route map will be provided (attached) indicating:

1.2.1 the approved route to follow,
1.2.2 the spill kit locations,
1.2.3 the fire alarm points,
1.2.4 First Aid stations,
1.2.5 Emergency Withdrawal Area outside.

2. **People, Truck and Uniform**:

2.1 The Operators and Forklift Driver will be dressed in clean closed uniform with complete hair covering. Safety helmet, safety shoes and safety glasses.

2.2 The Forklift Driver will be a full trained Driver for the truck he/she is using to move the materials.

2.3 The Driver will ensure that the truck has a valid functional foam fire extinguisher on board the truck to be used.

2.4 Vanilla will be bought and stored in Ecobulk SX IBC containers only.

2.5 Vanilla may be moved on a Forklift truck or by Hand Pallet truck.

3. **Procedure:**

3.1 The Operator will check that the 2 spill kit stations along the route (clearly marked) have clear access and have spill kits in them before any materials may move.

3.2 Process will request Vanilla to be issued on the morning of the day required on a Monday to Friday. Only in exceptional circumstances will Vanilla be moved to the Process after midnight or at weekends.

3.2 The Chargehand organizing the move will allocate 2 persons to perform this movement, 1 to drive the forklift truck or pallet truck and 1 to do a safety walk in front of the truck and to stop all other personnel and forklifts from entering the route while the transportation is in progress.

3.3 The Operator assisting the Driver will walk the proposed route and act as traffic guard for the entire route, stopping all persons or machines from entering onto the route while the Vanilla is moving.

3.4.1 The Operator will walk at least 20ft in front the forklift carrying the Vanilla, over the full delivery route and stop or advise Operator's approaching the route to wait until the forklift or pallet truck with the Vanilla has passed (the forklift must reverse with all full Vanilla IBC's).

3.4.2 The Forklift Driver will remove all empty IBC;s from the Process area only if they have been flushed with water and all labels removed.

3.4.3 Empty IBC's will be brought to the loading area for forwarding to our outside warehouse where they will be stored for recycling to an authorized recycler and documented.

3.4.4 The Driver will maintain vigilance for all hazards while driving and stop should a person or a truck or hazard appear from anywhere along the route.

4.0 Exceptional Circumstances:

4.1 Should production require an IBC from the bunded Vanilla store after Warehouse hours or at weekends, the Shift Manager will ensure that the Forklift Driver and Operator are familiar with this BOP and have signed off as being in full understanding of the requirements.

4.2 The movement should be performed by two Process Operators on duty on these occasions.

5.0 Incidents:

5.1 Should an incident occur whereby the IBC is punctured, the Operator and Driver will immediately use the spill kits to retain the spill from spreading.

5.2 The Driver will switch off his/her truck and make ready the foam fire extinguisher from his/her truck.

5.3 The Operator will then inform his/her immediate Chargehand or Manager of the incident and all available suitably trained Operators will then proceed to use the spill soakage kits to control the leakage.

5.4 Once controlled the forklift and vanilla will be taken out of the building to emergency withdrawal area of the yard where further spill kits will be applied and use the special spill retention pellets.

5.5 If a fire should take place, trained Operators should apply the foam fire extinguishers as trained and ask 1 person to raise the fire alarm by breaking the nearest fire alarm as indicated on the route map. If it is safe to do so the Vanilla and forklift will be taken out to the emergency withdrawal area.

6. Reason for Revision:

2006 Annual Review – no change to content.

Document ID: MM018
Document Type: Standard Operating Procedure
Title: Storage of Materials in Warehouse

Effective Date: 18-Dec-2008
Approved Date: 17-Dec-2008

1.0 Purpose

To establish procedures for the safe storage of materials in the Warehouse.

2.0 Procedure

2.1 The Warehouse consists of a series of distinct storage areas.

Areas are subdivided where appropriate into discrete locations. Each discrete location is uniquely numbered.

Finished Goods:	**Separate Roller Racking for Finished Goods when space allows it.**
General Free Standing:	**Open free stacking of cans, scoops, corrugates etc.**
Drive In Racking:	**Racking for the storage of Lactose, Skim Milk Powder, Sugar, Rework, Whey etc.**
General Racking:	**General racking for the storage of various materials including Rework.**
Reject Cage:	**Secure store for Reject items and items for Recycling.**
Hold Area:	**Segregated area for the storage of non-conforming materials.**
Label Area:	**Secure Label storage.**
Vanilla Store:	**Store for the storage of Vanilla, a Hazardous Materials items not allowed for storage in general Warehouse.**
Pallet Store:	**Separate storage area for pallets and returnable packaging.**

2.2 Materials are stored in accordance with it's special requirement e.g. hazardous and combustible materials such as Vanilla in the Vanilla Store.

2.3 If a material is to be stored in more than one special category e.g. Rejected Acid, the area for storage must meet all special requirements for that material (in this example, labelled Reject and stored on a spill tray).

2.4 Material not requiring special storage is stored in Racking or one of the general storage areas if space available is limited i.e. General Free Standing areas.

2.5 In some special instances Reject material and/or Hold material may be held outside the designated area e.g. Reject material for immediate return to a Vendor; e.g. Reject or Hold material that is too bulky to be fitted into the designated area. In all such circumstances, the material must be clearly labelled and actioned as a priority. MCS Inventory System will be updated to indicate the Q.A. status by Q.A.

2.6 Materials movements from one location to another must be recorded on MCS using the stock to stock option and scanning or keying this information at the time of movement.

3.0 Physical Security

3.1 All outside doors are to be kept closed when not in use.

3.2 Personnel having official business with Warehouse personnel should be referred to the Warehouse Manager or the Warehouse Chargehand e.g. Lorry Drivers/Operators.

3.3 Lorry Drivers, having handed in Delivery Dockets, are requested to wait in the truck, the waiting room or they may be directed, via the main entrance, to the Canteen.

3.4 Any strangers who might enter the Warehouse should be reported to the Warehouse Chargehand or the Warehouse Manager immediately on sight and Warehouse manger/Materials Manager will interview them to access security risk.

3.5 Abbott employees are only allowed through the Warehouse when wearing proper uniform or disposable uniforms and head protection.

3.6 No product/material is to be removed from the Warehouse without the proper authority i.e. Authorization, Pick-List, Loading Sheet or Export Documents.

3.7 Secure areas shall be kept locked except when in use e.g. Reject Cage, Label Area.

4.0 Structural Integrity

4.1 A regular check is made by the Manager of the Warehouse to determine if there are any repair or maintenance requirements – weekly.

4.2 Engineering Work Orders are prepared to address any problems found.

4.3 A Pallet Rack Inspection is completed twice each year.

5.0 Control over Birds, Rodents and Insect Pests

5.1 Food, Beverages (exception drinking water) are not permitted.

5.2 Bait boxes are placed in Warehouse locations as recommended by Q.A. and Pest Control and mapped accordingly.

5.3 The Warehouse may be fogged as recommended by Q.A. at intervals.

5.4 Outside doors are opened only when internal Rapid Doors are closed.

6.0 Personal Hygiene/Safety

6.1 All personnel wear the uniforms provided in the prescribed fashion.

6.2 Head protection, hair nets, fully covering hair must be worn.

6.3 Safety shoes must be worn and should be kept clean.

6.4 Hands should be washed after using the Washroom or Canteen and after accidental soiling.

6.5 Cuts on exposed wounds should be covered with permitted dressing. If an Operator is in any doubt, the Warehouse Manager should be consulted.

6.6 Gloves are recommended when handling pallets.

7.0 Physical Damage to Stored Material

7.1 No smoking is allowed in any area of the Plant except the Smoking Shed outside.

7.2 Damaged pallets should not be in use in the Warehouse. Damaged pallets identified are segregated and stored in the Pallet Store and disposed of via our pallet suppler or returned to the supplier.

7.3 Leaning, unstable stacks of palletized unit loads shall be reported, restacked and straightened upon detection.

7.4 The number of pallets vertically shall not exceed the number specified for each material type:

Finished Goods:		**1 or 2 Full Pallet High (Roller Racking) or 2 Free Standing**		
Scoops:		**Racked 3 (Pal Boxes)**		
Cans:	**Carnaud**	**4**	**Bagged Powder:**	**2**
	Impress	**4**	**Tonne Bags: (or Racked)**	**2**
Corrugates:		**3 or Racked**		
Overcaps		**2 or Racked**		

7.5 Traffic aisles are kept clear of obstructions.

7.6 Walking or climbing on materials or racking is not permitted.

7.7 Any damage to stored materials or to equipment should be reported, as soon as practical, to the Warehouse Manager.

7.8 Material that is damaged is segregated and put on Hold pending Q.A. evaluation and reported to the Warehouse Manager.

7.9 Equipment that is damaged is isolated and taken out of use pending Engineering evaluation and reported to the Warehouse Manager.

7.10 Racking/Fixed Assets that are damaged are removed from use pending Engineering evaluation. These are labelled by Engineering to prevent accidental usage.

7.11 All hazardous incidents must be treated with highest priority and reports completed in line with Safety S.O.P.'s

Reason for revision

September 2008: As per CR 416.

Document ID: MM040
Document Type: Standard Operating Procedure
Title: Segregation and Storage of Drummed Material Waste BS7750

Effective By Date: 01-Jun-2007
Approved Date: 01-Jun-2007

1.0 PURPOSE

To outline practices and procedures to be followed when storing hazardous material and waste in the Portable Compound Store/Laboratory Chemical Store.

2.0 RESPONSIBILITY

Responsibility for implementing this procedure in the Portable Compound Store is divided as follows:

Main bulk process storage area : Warehouse Manager
Laboratory chemicals store : Laboratory Manager

3.0 DEFINITIONS

Flammable : Liquid substances or preparation having a flash point equal to or greater than 21 o C and less than or equal to 55oC.

Corrosive : Substances or preparations which destroy living tissue on contact.

Toxic : Substances or preparations (including very toxic substances or preparations), which if they are inhaled or ingested or if the penetrate the skin, may involve serious, acute, chronic health risks and even death.

Irritant : Non corrosive substances or preparations which, through immediate. prolonged or repeated contact with the skin, can cause inflammation.

Cited : Appendix A Annex III of Council Directive 91/689/EEC.

4.0 PROCEDURE

4.1 Process raw materials stored in the Portable Compound Store and Laboratory Chemical Store are classed as irritant, flammable or corrosive, while laboratory waste is either flammable, corrosive or toxic. This classification is dictated by chemical properties of the material/waste. Each hazard class shall be separated using these designated areas.

4.2 The following are the key materials and wastes stored at the Compound/Laboratory Chemical Store together with hazard classification and volume at any one time.

Process Raw Materials

Material	Classification & Number	Volume
Sodium Hydroxide	Corrosive 8	5 tonnes
Sodium Chloride	n/a	5 tonnes
Sodium Hydroxide (Galtee Special)	Corrosive 8	250 KGs
Vanilla	Flammable 3	12 x 1000 litres
Steri Dri	Flammable 3	400 litres
Various print ink	Flammable 3	56 litres
Paint	Flammable 3	20 litres

Laboratory Waste

Waste Description	Classification	Volume
Inorganic COD vials	Toxic	50 litres
Organic waste: - Halogenated - Non-Halogenated	Flammable 3	 250 litres 150 litres
Caustic Waste	Corrosive and Toxic	400 litres

Material/Waste Storage

4.3 Designated areas are provided for process raw materials and waste based on their hazardous classification (refer to Appendix 1). No material/waste shall enter the storage areas unless the hazardous classification has been assigned and labelled accordingly.

4.4 **Laboratory Chemical Storage Areas**

Laboratory chemicals are classified as follows and stored accordingly:

Classification	Storage Requirement
Organic Solvents	Designated Flammable Cabinet
Caustic Corrosives	Designated Cabinet
Acid Corrosives	Designated Cabinet
Oxidising Agents	Designated Cabinet

4.5 MSDS's must be available in the stores for all process raw material and laboratory chemicals. In the event of a new chemical being introduced the internal database should be checked and/or the supplier consulted re storage requirements and MSDS.

4.6 The condition of all containers/drums should checked prior to entry in to the compound store and further checked on a monthly basis as per BOP MM042. Any containers/drums that have swelling, major indentations or severe rusting should be replaced and have their contents re-drummed.

4.7 All material/waste should be stored so that they are easily accessible, amount of handling required to remove them is minimised and if a leak occurs it should be easily identified and dealt with. No drums should be stored so as to prevent access to Containment drain. Drums should be stored at ground level.

4.8 Where appropriate, dangerous substances warning notices should be posted outside and inside the store. Fire fighting equipment should be readily available and no ignition source should be permitted within the building.

4.9 When the store is not in use it should be locked so as to prevent trespassing.

4.10 Only personnel trained in the handling and use of hazardous material and waste should be allowed handle same. Safety glasses, mask, Lab. coat and gloves must be worn when handling hazardous material or waste. Refer to relevant MSDS for more detail.

4.11 IBC's should be removed from the delivery lorry in a careful manner using the Outside Diesel Truck.

4.12 Only materials/waste of the same hazard class may be stored over each other. No container/drums should stored directly in contact with the ground i.e. pallets should be used where practicable.

4.13 In the event of a spillage the spill procedure posted on the walls should be followed. Refer to HR019. A spill kit is available. The capacity of the compound containment is 110 % of the largest volume container i.e. 1000 litres. For operation of sump refer to EN037. All spills must be reported and cleaned up immediately.

4.14 Laboratory waste should be handled, labelled and disposed of as per procedure. No drum/container should have contradictory labels on it. If drums are being reused old labels must be completed removed/obliterated. Only approved UN drums should be used e.g. corrosive material should only be stored in plastic UN approved drums.

5.0 References

Council Directive 91/689/EEC.
HR019 - Spill Procedure.
MM042 - Inspection of Compound and storage area.
QA024 - Transport and handling of Hazardous Waste.
EN037 - Bunds.

6.0 Appendix 1 - Compound Store Layout – TEMPORARY COMPOUND STORE IN USE.

7.0 Reason for revision

- 2006 Annual Review to include reference to Portable Compound Store in all sections.

Document ID: MM086
Document Type: Standard Operating Procedure
Title: Material Intake & Storage (Mc Ardles)

Effective Date: 26-Jan-2009
Approved Date: 23-Jan-2009

1.0 Purpose

To define the Procedure for accepting the delivery of materials from a Carrier and the storage of the material at McArdle's Warehouse.

2.0 Procedure

2.1 The Chargehand, Warehouse Manager or Planner agrees a delivery time and day with the suppliers for all major material deliveries that are on order.

2.2 The planned receipts are entered on the "Intake Schedule".

2.3 The items are entered at the approximate time of delivery.

2.4 On receipt of deliveries, the Warehouse Chargehand organises for the trailer to be correctly placed at an unloading bay and unloaded.

2.4.1 The Chargehand then checks the Purchase Order Inquiry screen Option 7250 on MCS and enters the Part Number. This shows the Purchase Order Number/Vendor etc.

Having sourced the Purchase Order Number from either the Delivery Docket or MCS, take Option 87016.

Select the next sequential Lot Number from the Lot Numbers used list. Press F3 and enter the Purchase Order Number and Part Number and then press Enter.

On the Receiver Add screen, key in the Lot Number, Quantity, Unit of Measure and Initials.

Press F3 to exit into the Print Pallet Label screen. Enter the Lot Number, Quantity per Label and number of Labels required and press Enter. MCS will then print the Bar-Coded Labels on the Printer.

2.4.2 The Chargehand counts all items received and inspects for leak damage, insect/rodent infestation and for any other physical damage.

2.4.3 Any suspicious packages, contraband or items not declared on the Delivery Dockets will be reported immediately to the Warehouse Manager or Materials Manager who in turn will notify Garda or Customs as appropriate. Such packages will be kept under constant supervision until picked up by the Authorities.

2.4.4 The Chargehand certifies that all quantities, types and pallet numbers listed on the Bill of Lading, Freight Bill or other carrier documentation are correct and in good condition before signing the documentation.

2.4.4.1 If any material is found to be damaged on arrival, the Chargehand will notify the Warehouse Manager and Q.A. who will inspect the goods and contact the Supplier. Any dirty packaging or shrouds should be removed at the Intake Bay prior to the goods entering the Plant.

2.4.4.2 If the supplier agrees disposition, then the Warehouse Manager or Materials Manager will give the Chargehand the instructions on whether to offload or return directly to the supplier.

2.4.4.3 If the decision is to off-load the materials, then the damaged material is placed in the Hold or Reject Area and labeled with Hold or Quarantine stickers until returned to the supplier as per SOP MM027. Q.A. will issue a Vendor Notification where appropriate (QA 026). In some special instances Reject material and/or Hold material may be held outside the designated area e.g. Reject material for immediate return to a Vendor; e.g. Reject or Hold material that is too bulky to be fitted into the designated area. In all such circumstances, the material must be clearly labeled and actioned as a priority. MCS Inventory System will be updated to indicate the Q.A. status by Q.A.

2.4.5 The Chargehand records any differences in quantity and any evidence of external damage on the carrier documentation.

2.4.6 The Chargehand enters by hand onto the Receiver Report the Location No. the goods are being stored in by the Forklift Driver.

2.4.7 The Chargehand signs the carrier's documentation as acknowledgement of receipt of the delivery and forwards the appropriate documentation (Bill of Lading, Packing Slip or appropriate dockets to the Q.A. Inspection with a copy of the Receiver Report generated).

2.5 Where applicable, Q.A. arrange an Incoming Material Inspector to take relevant samples in line with the Acceptance Programmes.

2.5.1 All raw material and packaging material samples required by Q.A. are set aside as outlined in the RMAP'S (Raw Material Acceptance Programmes).

2.6 The Warehouse Chargehand arranges for an identification label to be fixed to each pallet/container of goods.

2.6.1 This label is generated from the MCS System based on the receiver information inputted. The label will include 2 of Code 39 format Bar Codes in addition to the Date, Part No., Lot No., Quantity, Unit of Measure and Pallet Sequence Number - see 2.4.2.

2.6.2 The Lot Number is a nine digit numeric number which increments with each commodity received.

2.6.3 Each product type/design is assigned a separate unique Lot Number e.g. in the case of multiple can types on a single delivery. This is automatically given by the MCS System and is printed on the Receiver Report.

2.8 The MCS entry on Receipt automatically generates:

(1) A Receiver

(2) The Lot Number

(3) Reduces the Purchase Order

(4) A Label for each pallet/package

2.9 Materials from suppliers can if necessary be moved to McArdles Warehouse for storage, after it is labeled and entered on MCS at Abbott Cootehill.

2.10 On receipt of deliveries at McArdles the McArdles Chargehand organizes for the trailer to be correctly placed at the unloading bay and unloaded.

2.10.1 The Chargehand at McArdles counts all items received and inspects for leak damage, insect/rodent infestation and for any other physical damage.

2.10.2 If any material is found to be damaged on arrival, the Chargehand will notify Abbott Warehouse Manager and QA who will inspect the goods and agree disposition.

2.10.3 Materials are moved and stored in locations at McArdles until they are returned to Cootehill for usage.

Reference S.O.P.'s

MM044 Outside Warehouse GMP

MM050 Container loading from Outside Warehouse

Reason for Revision

As per CR 052.

Document ID: MM016
Document Type: Standard Operating Procedure
Title: Acid and Hazardous Chemicals Procedures
Effective By Date: 01-Jun-2007
Approved Date: 01-Jun-2007

1.0 Purpose

The purpose of this B.O.P. is to ensure that all Warehouse personnel are aware of the proper and safe procedures to be used when handling hazardous materials, whether for issue or receipt. It is in the interest of the employees own personal safety and the safety of others that this procedure should be strictly adhered to.

2.0 Definition

Hazardous Materials will include all Acids, Caustic Soda and Caustic based cleaning/testing materials and Vanilla Flavouring that present a corrosive, toxic or flammable risk or a mixture of same.

Hazardous materials, acids and vanilla are delivered in a range of packaging from 2.5 Ltr. Winchester, 25 Ltr. Carbouys, 45 Gallon Barrels and 500 or 1,000 Ltr. I.B.C.'s, 20 and 25 Kg. bags.

3.0 Procedure

3.1 When an employee is requested to issue or receive an Acid or other hazardous chemical they must seek the safety equipment from the Chargehand before entering the container to off load.

3.2 A safety visor/face mask must be worn by all handling the goods.

3.3 Rubber gloves (long) must be worn by Operators handling the goods.

3.4 A rubber apron must be worn if it is necessary to handle drums.

3.5 Drums must not be handled unless they are at ground level i.e. if drums are stacked 2 high, then the Forklift must be used to lower these to ground level before they are man-handled.

3.6 When moving drums of acid to an area where it is necessary to lift them over 4 ft. high, a special cage must be used with it's removable section securely attached.

3.7 No material must be carried on top of acid drums or bottles.

3.8 Sulphuric/Nitric Acid must never be carried or stored together. It is vital that they are stored apart as they are incompatible.

3.9 I.B.C. materials should be handled with care and only one I.B.C. should be carried at a time.

3.10 If you should have to handle Caustic or Acid while wearing gloves, ensure that you rinse these with cold water before you take them off.

3.11 All acids are very hazardous. Bear this in mind and treat it accordingly.

3.12 The bulk quantities of Hazardous chemicals/additives will be held outside the Process Area or stored in bulk tanks, but there may be occasional times we will need the materials by pallet.

3.13 Process will be supplied with smaller quantities of some of these materials which may be stored in the Process area for immediate use or Q.A. Chemical Store.

3.14 <u>The guidelines for W.I.P. quantities will be as follows</u>:

Caustic Soda	**-**	**Bulk Delivery or 15 X 25 Kg. Bags (Max.)**
Nitric Acid	**-**	**Bulk Delivery or 25 Litre Drmus**
Vanilla	**-**	**1000 Ltr. IBC (Max.)**
Lilly/Caustic Cleaner	**-**	**10 X 30 Kg. Bag or 25 Kg. Bags**

4.0 Safety

4.1 The Q.A. Chemical Store and Vanilla Store must be kept closed/secure when not in use.

4.2 All empty (Vanilla) Barrels and I.B.C.'s must be flushed when empty by Process personnel prior to returning to the Warehouse/Compound and all labels removed.

4.3 All carbouys/drums should have their top/lid/bung replaced securely by Process personnel prior to return to the Warehouse/Compound having been rinsed out.

4.4 In the event of spillages, bags of absorbent material are located in the Engineering Store and in the Vanilla Room and at marked locations within the Warehouse. Refer to spill procedure.

Reason for revision

2006 Annual Review – Small change to Section 3.14 ref. bulk delivery of Caustic and Section 4.4 Vanilla Room spill kit.

Document ID: EHS037
Document Type: Standard Operating Procedure
Title: Hazardous Materials Transportation Programme

Effective By Date: 07-Jun-2009
Approved Date: 08-May-2009

1.0 INTRODUCTION

1.1 The purpose of this document is to ensure written procedures are in place to minimize the risks and liabilities associated with the Abbott Ireland, Cootehill (AIC) dangerous goods/hazardous materials transportation program. There are also additional area-specific procedures that must also be followed.

1.2 Additionally, this procedure defines the minimum requirements for responding to transportation incidents involving dangerous goods/hazardous materials.

1.3 This SOP is also in compliance with Technical standard T03 on Dangerous Goods and Hazardous Material.

2.0 SCOPE

2.1 This procedure outlines minimum requirements applicable to AIC for the shipment or transport of dangerous goods/hazardous materials. These requirements are in addition to those contained in applicable laws and regulations.

3.0 DANGEROUS GOODS/HAZARDOUS MATERIALS TRANSPORTATION COORDINATOR (DGTC)/ DANGEROUS GOODS SAFETY ADVISOR (DGSA)

3.1 The designated Dangerous Goods / Hazardous Materials Transportation Coordinator (DGTC) or also known as Dangerous Goods Safety Advisor (DGSA) is Ciarán Sexton, as agreed upon by the Environmental and Operation Support Manager. The DGSA is responsible for distributing relevant dangerous goods/hazardous materials information that could impact the site programs.

4.0 DEFINITIONS & KEY TERMS

4.1 Dangerous Good/Hazardous Materials – means and includes “Hazardous Substances”, “Dangerous Goods”, “Hazardous Materials”, and “Hazardous Waste” as defined by any applicable law or regulation for the country of origin or destination. The terms “Dangerous Good” and “Hazardous Material” shall be synonymous. Dangerous Goods/Hazardous Materials may also include chemicals, intermediate goods, and finished products leaving Abbott sites (including Abbott to Abbott transportation).

4.2 Dangerous Goods Shipment and Transportation Regulations – means and includes regulations that govern the proper shipment and transportation of dangerous goods/hazardous materials via air, highway, rail, and water. Examples may include the International Civil Aviation Organization (ICAO), International Maritime Organization (IMO), and all applicable country-specific transportation regulations.

4.3 Dangerous Goods/Hazardous Materials Transportation Coordinator (DGTC) / Dangerous Goods Safety Advisor (DGSA) – means any person(s) who has knowledge of the applicable dangerous goods transportation regulations and has been designated as the coordinator for an organization or site. Within AIC, the DGSA is Ciarán Sexton unless otherwise delegated by the Environmental and Operation Support Manager.

4.4 Dangerous Goods/Hazmat Employee – means a person who during the course of employment:

5.4.1 loads, unloads, or handles hazardous materials as defined by the applicable transportation regulations;
5.4.2 manufacturers, tests, reconditions, repairs, modifies, marks or otherwise represents container, drums, or packaging as qualified for use in the transportation of hazardous materials;
5.4.3 prepares hazardous materials for transportation (e.g. employees responsible for packing hazardous materials or completing shipping papers);
5.4.4 is responsible for safety of transporting hazardous materials; or operates a vehicle used to transport hazardous materials (e.g. vehicle drivers).

4.5 International Civil Aviation Organization (ICAO) – means the committee that uses the United Nations recommendations to develop and regulate the safe transport of dangerous goods/hazardous materials by air. The ICAO code has been incorporated in the International Air Transport Association (IATA) and U.S. regulations by reference and direct adoption.

4.6 International Maritime Organization (IMO) – means the committee which publishes the International Maritime Dangerous Goods Code in accordance with Chapter VII of the International Convention for the Safety of Life at Sea. The IMO Code has been incorporated into the U.S. regulations by reference and direct adoption.

4.7 Shipment/Shipping Process – means the process of identifying, classifying, packaging, marking, labeling, documenting, loading, or otherwise preparing a hazardous material for transportation.

4.8 Transportation – means the conveyance or movement of materials on a transport vehicle by public highway, rail, air, or water.

4.9 Transportation Incident – with respect to dangerous goods/hazardous material means any event that occurs during the course of transportation and is classified as a significant Environmental, Health & Safety incident (as defined by Abbott Laboratories Global EHS Technical Standard T15) or any reportable release to the environment per applicable regulations.

4.10 Transportation Document – means shipping papers, bill of freight, hazardous waste manifests, Shipper's Declaration for Dangerous Goods, hazardous material move tickets and any other document required to be signed by a hazmat/dangerous goods employee that is used to communicate the basic description, quantity and packaging for a shipment of dangerous goods.

4.11 epartment of Enterprise, Trade and Employment – means the Government Agency specifically charged with regulating the shipment and transportation of dangerous goods/hazardous materials in Ireland.

5.0 POLICY & PROCEDURES

5.1 COMMUNICATION OF NEW AND PROPOSED SHIPPING and TRANSPORTATION REGULATIONS

5.1.1 All new and proposed ICAO, IMO and other applicable

shipping and transportation regulations will be communicated from the DGSA or EHS Department to Dangerous Goods/Hazardous Materials employees by email, training, workshops, or other media distribution techniques.

5.2 INSTRUCTIONS FOR THE TRANSPORTATION OF DANGEROUS GOOD/HAZARDOUS MATERIALS

5.2.1 Research Compounds/Small volumes of hazardous materials: Person(s) wanting to ship a research compound should first reference the compound's Material Safety Data Sheet, and/or contact the DGSA to determine if the shipment will meet the definition of a dangerous good/hazardous material. Proper documents must be executed (e.g. Chain of Custody, Confidentiality Agreement) as necessary.

5.2.2 Regulated-Waste Shipments: Manifested shipments of regulated waste must be conducted only by Abbott employees specifically trained in both hazardous materials transportation and waste management procedures. Only carriers who maintain the proper and current legal permits to transport the waste being offered by Abbott are authorized to transport manifested wastes. Specific examples of proper transportation permits include those associated with hazardous or other waste classified as a hazardous material for transportation purposes.

All dangerous goods/hazardous materials transportation shipments originating in AIC must follow the instructions within this procedure. The DGSA must be notified if:

- a hazardous materials/dangerous goods transportation inspection from an external agency is requested at Cootehill site, or
- if questions arise regarding a hazardous material/dangerous goods shipment's proper classification, packaging, labeling, marking, paperwork, or
- for any hazardous material/dangerous goods transportation activity not addressed by this procedure.

5.3 PROHIBITED TRANSPORTATION OF MATERIALS

Abbott employees are prohibited from personally transporting any volume of dangerous good/hazardous material or other material that could pose a safety hazard associated with Abbott interests using personal vehicle or any other mode of public transportation.

If a Governmental agency requests from Abbott Ireland, Cootehill a sample of a dangerous good/hazardous material for purposes of governmental interest (i.e. approval, clinical trial, analysis, demonstration, or research) – the party of request must first obtain written approval from the DGSA supporting the site.

5.4 EMERGENCY RESPONSE AND NOTIFICATION

5.4.1 Emergency response information for AIC site's dangerous goods/hazardous materials being transported must be provided directly to the Emergency Response Provider or to the site DGSA or designee, who will then supply the information to the emergency response organization as required.

5.4.2 If a dangerous good/hazardous material package being shipped or transported is found to be leaking, the DGSA must be contacted immediately for an

assessment of the situation and subsequent notification or reporting as warranted.

5.4.3 A dangerous goods/hazardous materials transportation incident must be reported to the GEHSE Global Dangerous Goods Group no later than the close of business on the day following the incident. The site DGSA, along with input from those immediately involved will complete an incident investigation and submit the relevant information to the GEHSE Global Dangerous Goods Group per current requirements.

5.4.4 In cases where a hazardous material/dangerous good is released in a quantity equal to or greater than its reportable quantity (RQ), the site DGSA must work expeditiously with Global Environmental Health, Safety & Energy group to report the release to the National Response Centre.

5.4.5 In cases where a Dangerous Goods Transportation Incident initiates reporting under Abbott Laboratories Global EHS Technical Standard T15 (Significant EHS Incident Reporting and Management), reporting requirements in T15 will take precedence.

6.0 TRAINING

6.1 EACH DANGEROUS GOODS/HAZARDOUS MATERIALS EMPLOYEE MUST RECEIVE TRAINING RELEVANT TO THEIR JOB FUNCTION THAT INCLUDES ELEMENTS OF THE FOLLOWING:

6.1.1 General Awareness –

- designed to provide familiarity with the requirements of the hazardous materials/dangerous goods regulations (e.g. packaging, labeling, marking, recordkeeping, training, placarding);
- enable the employee to recognize and identify dangerous goods/hazardous materials.

6.1.2 Function Specific Training –

- designed to train employees on dangerous goods/hazmat transportation requirements and exemptions specifically applicable to the functions the employee is assigned to perform (e.g. training issued for compliance with ICAO/IATA shipments).

6.1.3 Safety Training –

- emergency response information to be implemented for dangerous goods/hazmat transportation incidents (e.g. use of Materials Safety Data Sheet or the Emergency Response Manual);
- measures to protect the employee from the hazards associated with hazardous materials to which they may be exposed in the workplace, including measures that Abbott has implemented to protect employees from potential exposure; and

- methods and procedures for avoiding accidents, such as the proper procedures for handling packages containing hazardous materials.

6.2 INITIAL AND RECURRENT TRAINING REQUIREMENTS FOR THE TRAINING ELEMENTS OF SECTION 7.1

6.2.1 Initial Training –

6.2.1.1 A new dangerous goods/hazmat employee or one that has changed job functions may perform those functions prior to the completion of training provided the employee performs those functions under the direct supervision of a properly trained and knowledgeable dangerous goods/hazmat employee and the training is completed within 90 days after employment or change in job function.

6.2.2 Recurrent Training –

6.2.2.1 Dangerous goods/hazmat employees must receive the required elements of dangerous goods/hazmat transportation training at least once every two (2) years.

6.3 RECORDKEEPING

6.3.1 Each dangerous goods/hazmat employee's training record that is specifically associated with the shipping or transportation of hazardous materials shall be maintained for the duration of that employee's job function plus 90 days thereafter. The training records shall contain:

6.3.1.1 The hazmat employee's name;
6.3.1.2 The most recent hazmat training completion date;
6.3.1.3 A description, copy, or reference to the location of the training materials used to meet the training requirements;
6.3.1.4 The name and address of the person/organization providing the training; and
6.3.1.5 Certification that each hazmat/dangerous goods employee was trained and tested.

6.3.2 A copy of the shipping papers (e.g. bill of lading, manifest, shipper's declaration), or an electronic image thereof, associated with hazardous material/dangerous goods must be retained by the AIC operating area indefinitely. For a hazardous waste, mixed waste, or other waste regulated for transportation purposes - the shipping paper copy must also be retained indefinitely.

6.3.3 All relevant employees shall be trained on this procedure. Training shall be documented using the HR033 Form and/or Compliancewire.

7.0 **REFERENCE DOCUMENTS**

Abbott laboratories global EHS Technical Standard T-03 (Dangerous Goods and Hazardous Material)

Attachment H.2.1 – Waste Management SOPs

Document ID: EHS038
Document Type: Standard Operating Procedure
Title: Hazardous Waste Management

Effective By Date: 07-Jun-2009
Approved Date: 08-May-2009

1. Introduction

1.1 The purpose of this procedure is to define the Abbott Ireland, Cootehill (AIC) procedure with regard to the safe handling, segregation, storage, and disposal of the hazardous waste generated at the facility. This procedure documents the management of Hazardous waste under segregation, storage, record keeping, labelling, transportation, and disposal requirements as per legislative requirements.

1.2 Hazardous waste is both a potential source of environmental contamination and a health a safety risk, and as such must be handled and disposed of in line with current legislation and with minimum risk to the environment.

1.3 This SOP is also in compliance with Technical standards T04 on Waste Disposal Facility Selection and T10 on Waste Management.

2. Definitions / Abbreviations

2.1 AIC: Abbott Ireland Cootehill

2.2 AER: Annual Environmental Report

2.3 EPA: Environmental Protection Agency

2.4 MSDS: Material Safety Data Sheets

2.5 IPPCL: Integrated Pollution Prevention Control licence

2.6 GEHS: Abbott Global Environment Health and Safety

2.7 A hazardous waste is defined primarily by reference to 14 different characteristics, which render such waste hazardous. These characteristics are as follows;

- H1 Explosive
- H2 Oxidising
- H3 Flammable
- H4 Irritant
- H5 Harmful
- H6 Toxic
- H7 Carcinogenic
- H8 Corrosive
- H9 Infectious
- H10 Teratogenic
- H11 Mutagenic
- H12 Substances, which may release toxic gases.
- H13 Substances capable of yielding a hazardous leachate
- H14 Ecotoxic

2.8 European Waste Catalogue (EWC): definitive EU list of wastes based on origin each waste type given a unique 6-digit code.

2.9 Waste: any substance, which the holder disposes of or intends to or is required to dispose of.

2.10 Hazardous waste: as defined in the Waste Management Act 1996 “Waste listed in Category 1 of Part 1 of the 2nd schedule of WMA…or...waste listed in Part 2 and has properties specified in Part 3 …or…such other waste having properties specified in Part 3.

2.11 ADR: means the European agreement concerning the International Carriage of Dangerous Goods by Road Regulations.

2.12 S.I. means ‘Statutory Instrument’.

2.13 DGSA means ‘Dangerous Goods Safety Advisors’.

2.14 Dangerous goods means those substances and articles the carriage of which is prohibited by ADR, or authorized only under the conditions prescribed therein, and in accordance with the recommendations of the site DGSA

2.15 Carriage means the change of place of dangerous goods, including stops made necessary by transport conditions and including any period spent by the dangerous goods in vehicles, tanks and containers made necessary by traffic conditions before, during, and after the change of place Carrier means the enterprise, which carries out the transport operation with or without a transport contract.

2.16 Competent authority means the authority or authorities or any other body or bodies designated as such in each State and in each specific case in accordance with domestic law.

2.17 Consignor means the enterprise, which consigns the dangerous goods either on its own behalf or for a third party, i.e., the originator of the waste.

2.18 Consignee means the enterprise, which takes charge of the dangerous goods on arrival after carriage, i.e., the receiver of the waste.

2.19 Consignment means any package or packages, or load of dangerous goods, presented by a consignor for carriage.

2.20 UN number means the four-digit identification number of the substance or article taken from the UN Model Regulations.

2.21 A Consignment Note (C1) document is required to transport hazardous waste by road, with the exception of waste oil, within Ireland.

2.22 A Transfrontier Shipment form (TFS) is required to transfer hazardous waste from Ireland to another state/country.

2.23 List I As listed in the EC Directives 76/464/EEC and 80/68/EEC and amendments.

2.24 List II As listed in the EC Directives 76/464/EEC and 80/68/EEC and amendments.

3. Responsibility

3.1 Department Managers have the following responsibilities
- Ensure that this procedure is adhered to
- Ensure proper facilities storage facilities are available on site for the correct storage and segregation of waste.

3.2 Team Leader/Supervisors have the following responsibilities
- Ensure that this procedure is adhered to
- Ensure that hazardous waste generated in their area is placed in correct bags or containers and labelled with the contents.
- Ensure that hazardous waste generated in their area is segregated correctly
- Ensure that hazardous waste is bought to the designated “Hazardous Waste” holding areas on site.

3.3 Employees have the following responsibilities
- Ensure that this procedure is adhered to.
- Ensure that hazardous waste bags are labelled with contents
- Ensure that hazardous waste bags are not overfilled and are tied off when full with cable ties
- Ensure that hazardous waste is brought to the designated “Hazardous Waste” holding area.
- This “hazardous waste” holding area must be kept tidy at all times.

3.5 Environmental & Operations Support Manager /EHS Coordinator has the following responsibilities
- Ensure that all employees are aware of and adhere to this procedure.
- Ensuring that the facility is in compliance with all legislative aspects for the safe management of all hazardous waste generated on site.
- Select and audit hazardous waste transfer stations and final disposal sites.
- Obtain approval from the EPA for the use of any new hazardous waste facility or final disposal site.

3.6 The DGSA (Ciarán Sexton or designee) is responsible for
- Labelling all hazardous waste prior to it being removed off site.
- Draw up an Annex for submittal to the hazardous waste carrier identifying, the waste, its EWC code, quantity and date for collection.
- For ensuring all hazardous waste is transported in suitable UN approved drums, IBC’s and tankers.
- Must check all the paperwork of any dangerous goods carrier, which comes to site to remove hazardous waste.
- Sign and take copy of documentation (C1 and TFS) prior to a Hazardous waste shipment leaving site.

- Maintain a file of all hazardous waste shipments for inspection on an internal audit or by an external agency.

4. Safety/Environmental:

4.1 Instructions outlined in this document must be strictly adhered to, to protect human health, safety, and the environment.

- Abbott's Safety and Environmental procedures should be complied with in full
- The assigned PPE should be worn when handling hazardous wastes and dangerous goods, consult the chemical risk assessments to ensure you have the correct PPE.
- Employees should work in twos if they are transferring waste from one container to another.
- AIC does not permit the transfer of any empty or other chemical containers to AIC employees or others for personal use. This applies whether or not the containers have been cleaned or rinsed.
- Empty chemical containers may also be suitable for use as waste containers. UN approved fibre-keg drums may be used as receptacles for compatible solid waste. Similarly IBC's, which stored a raw material, can be used for the storage of a similar waste. All previous labelling is removed and the container properly re-labelled as required.
- The DGSA shall maintain an up-to-date inventory of all hazardous waste stored on-site.
- AIC shall not dispose of or recover Hazardous waste on-site
- Clean up and report any chemical spills to the Environmental & Operations Support Manager /EHS Coordinator
- Only an approved waste haulier and waste disposal contractor shall be used.

5. Procedure

5.1 Segregation

- Flammables to be stored in separate container
- Chlorinated solvents to be separated form non chlorinated solvents
- Formaldehyde waste to be in separate container
- Toxics to be stored in separate container
- Acids packed in separate container
- Bases (Alkalis) in separate container
- Oxidizers stored in separate container
- Inorganic peroxides stored in separate container
- Mercury – pure metal, or items containing mercury packed separately.
- Potent product – do not remove from the original container (i.e sample container), double bag place in an open top Fibre drum.
- If you are unsure of the compatibility of chemical please consult the DGSA/Environment Manager.
- Light bulbs – store in "Lamp coffin" at Refrigeration MCC Room in Engineering.
- Batteries – store in double lined container at Refrigeration MCC Room in Engineering.

5.2 Storage

• All containers holding waste material should be stored so that they are easily accessible, the amount of handling required to remove them is minimised and if a leak occurs it should be easily identified and dealt with.
• Drums should only be filled to 95% capacity to allow room for expansion.
• Hazardous waste bags should not be overfilled and should be tied off with cable ties.
• All hazardous waste generated on site must be stored and contained within an area with secondary containment. These areas must be kept secure at all times.
• These storage areas must be kept tidy at all times, ensure any waste left in these areas are labelled.
• All storage containers must be in good condition, any containers that have swelling, major Indentations, or severe rusting should be replaced and have their contents re-drummed.
• AIC shall make a reasonable and responsible effort to prevent the spillage of material during the transport and dumping of all hazardous wastes.

5.3 Labelling and Documentation

• Each department generating a hazardous waste shall insure that all bags, drums, IBC's generated in their area, has a written label indicating what it contains.
• On the day of collection, the hazardous waste disposal contractor for each drum provides all labels, IBC etc, which identifies it by a UN number and the details of its contents and hazards. The DGSA ensures labels are in place prior to removal from site.
• The DGSA or designee ensures that appropriate EWC and UN numbers are used on the documentation.
• A consignment Note (C1) document and a Trem card must accompany all Hazardous waste with the exception of waste oil, WEEE and medical waste transported within Ireland. A C1 document is obtained from the local Authority where the Hazardous waste originates.
• Transfrontier Shipment Form must accompany all Hazardous waste when the waste is being transported outside the country. A copy of this document should be made available by the waste contractor and should be retained on file.
• The carrier representative and the site DGSA sign the C1 form. The DGSA retains the pink copy, i.e., Consignor's copy. The remaining copies are retained by the carrier The White Copy is the Carrier's copy – to be given to the carrier of the waste, after completion of Part C by the consignee, and retained by the carrier representative and accompany the waste while in transit in Ireland.
• When the hazardous waste disposal contractor intends to ship waste for disposal, they complete the transfrontier shipment forms, notify the relevant local authorities in the jurisdiction of the disposal site, and upon receipt of approval from the local authority the shipment is moved to that site.
• A certificate of acceptance must be made available by the disposal contractor to ensure that the waste has arrived safely and has been accepted into the transfer station. The DGSA keeps this document on file with a copy of the C1.
• A certificate of disposal must be made available from the disposal company to ensure that the waste has been disposed of correctly.

5.4 Shipment of Waste from site

No Hazardous waste shall leave AIC site unless both the driver and the transport vehicle are fully compliant.

When AIC require a Hazardous Waste Shipment to be made, the person requesting that shipment contacts the DGSA and gives him or her details of the shipment.
• When the DGSA gets details of the shipment he then contacts the Waste Disposal Company giving those details of the shipment, and books that shipment for collection. He also requests a Hazchem Driver for the collection.
• On arrival the DGSA shall carry out all relevant checks on both the vehicle and the driver to ensure ADR compliance.
• All the paperwork is completed and signed.
• When checks are completed and verified, label all the Hazardous Waste according to the updated information on the Annex forwarded by the Waste Disposal Company with the driver. When all the Waste has been labelled and verified it is then loaded onto the truck for transporting to the Waste Disposal Company. Ensure all the paperwork is completed and signed.

6 System Review

• The Environmental & Operations Support Manager /EHS Coordinator shall communicate all data in relation to the management of hazardous waste at the AIC site as part of Annual Environmental Report
• The Environmental & Operations Support Manager /EHS Coordinator will provide details of hazardous waste metrics to GEHS twice per year
• The Environmental & Operations Support Manager /EHS Coordinator will provide details of hazardous waste management activities at Management Review Meetings.

7 Training

All relevant employees shall be trained on this procedure. Training shall be documented using the HR033 Form and/or Compliancewire.

8 Records

All records of waste disposal must be maintained permanently on site.

9 Reason for Revision:

Per CR213

Document ID: HR040
Document Type: Standard Operating Procedure Approved Date: 12-Oct-2009
Title: Procedure for Disposal of Waste from Kitchen & Canteen

1.0 Purpose

1.1 This procedure outlines the necessary steps and precautions to take with regard to disposal of canteen waste.

2.0 Scope

This procedure outlines the requirements for

2.1 Procedure

2.2 Stocks and Maintenance

2.3 Disposal

2.4 Security

3.0 Procedure

3.1 All waste within the canteen area should be disposed of through the kitchen external door.

3.2 Prior to exiting this door the canteen staff

3.2.1 Must either change into their civil clothing or gown up using a green overall covering their canteen uniform.

3.2.2 Place shoe covers over captive shoes

3.3 When returning into the kitchen area canteen staff must

3.3.1 Remove green overall at entrance and remove shoe covers

3.3.2 When returning to the canteen handwashing procedure should be followed.

4.0 Stock and Maintenance

4.1 A stock of green overalls should be maintained in the canteen area. Canteen staff are responsible to ensure there is sufficient stock of green suits available for use.

4.2 A stock of shoe covers should be available to the canteen staff.

4.3 Green suits can be placed in laundry bins in the locker-rooms that require cleaning.

4.4 Green overalls must not be stored in lockers where internal uniforms are stored. This could lead to cross contamination.

5.0 Disposal

5.1 All waste from the canteen should be disposed of in the bins provided in the external storage area.

5.2 There are bins for general waste and recyclable waste including cardboard and plastics. Food waste may be disposed of using the maserator. It is the responsibility of the canteen staff to report any faults to plant engineering with regard to the maserator.

5.3 Waste should be disposed of daily from the canteen in order to reduce risk of infestation.

6.0 **Security**

6.1 Under no circumstances should any staff exit through the door in the canteen without gowning appropriately as detailed above.

6.2 The kitchen door should only be used for this purpose along with accepting deliveries from suppliers. Delivery personnel should not enter through the canteen door without prior approval from security and placing shoe covers on.

6.3 At all other times this door should be kept closed and locked. This door should not be opened until confirmation of expected deliveries.

7. Cover

7.1 On occasions HR janitors will be asked to help in this area if required. They will follow this procedure also.

8.0 References

N/A

9.0 Reason for revision

October 2009 – Per CR 478 - New SOP

Document ID: MM040
Document Type: Standard Operating Procedure
Title: Segregation and Storage of Drummed Material Waste BS7750

Effective By Date: 01-Jun-2007
Approved Date: 01-Jun-2007

1.0 PURPOSE

To outline practices and procedures to be followed when storing hazardous material and waste in the Portable Compound Store/Laboratory Chemical Store.

2.0 RESPONSIBILITY

Responsibility for implementing this procedure in the Portable Compound Store is divided as follows:

Main bulk process storage area : Warehouse Manager
Laboratory chemicals store : Laboratory Manager

3.0 DEFINITIONS

Flammable : Liquid substances or preparation having a flash point equal to or greater than 21 o C and less than or equal to 55oC.

Corrosive : Substances or preparations which destroy living tissue on contact.

Toxic : Substances or preparations (including very toxic substances or preparations), which if they are inhaled or ingested or if the penetrate the skin, may involve serious, acute, chronic health risks and even death.

Irritant : Non corrosive substances or preparations which, through immediate. prolonged or repeated contact with the skin, can cause inflammation.

Cited : Appendix A Annex III of Council Directive 91/689/EEC.

4.0 PROCEDURE

4.1 Process raw materials stored in the Portable Compound Store and Laboratory Chemical Store are classed as irritant, flammable or corrosive, while laboratory waste is either flammable, corrosive or toxic. This classification is dictated by chemical properties of the material/waste. Each hazard class shall be separated using these designated areas.

4.2 The following are the key materials and wastes stored at the Compound/Laboratory Chemical Store together with hazard classification and volume at any one time.

Process Raw Materials

Material	Classification & Number	Volume
Sodium Hydroxide	Corrosive 8	5 tonnes
Sodium Chloride	n/a	5 tonnes
Sodium Hydroxide (Galtee Special)	Corrosive 8	250 KGs
Vanilla	Flammable 3	12 x 1000 litres
Steri Dri	Flammable 3	400 litres
Various print ink	Flammable 3	56 litres
Paint	Flammable 3	20 litres

Laboratory Waste

Waste Description	Classification	Volume
Inorganic COD vials	Toxic	50 litres
Organic waste: - Halogenated - Non-Halogenated	Flammable 3	 250 litres 150 litres
Caustic Waste	Corrosive and Toxic	400 litres

Material/Waste Storage

4.3 Designated areas are provided for process raw materials and waste based on their hazardous classification (refer to Appendix 1). No material/waste shall enter the storage areas unless the hazardous classification has been assigned and labelled accordingly.

4.4 **Laboratory Chemical Storage Areas**

Laboratory chemicals are classified as follows and stored accordingly:

Classification	Storage Requirement
Organic Solvents	Designated Flammable Cabinet
Caustic Corrosives	Designated Cabinet
Acid Corrosives	Designated Cabinet
Oxidising Agents	Designated Cabinet

4.5 MSDS's must be available in the stores for all process raw material and laboratory chemicals. In the event of a new chemical being introduced the internal database should be checked and/or the supplier consulted re storage requirements and MSDS.

4.6 The condition of all containers/drums should checked prior to entry in to the compound store and further checked on a monthly basis as per BOP MM042. Any containers/drums that have swelling, major indentations or severe rusting should be replaced and have their contents re-drummed.

4.7 All material/waste should be stored so that they are easily accessible, amount of handling required to remove them is minimised and if a leak occurs it should be easily identified and dealt with. No drums should be stored so as to prevent access to Containment drain. Drums should be stored at ground level.

4.8 Where appropriate, dangerous substances warning notices should be posted outside and inside the store. Fire fighting equipment should be readily available and no ignition source should be permitted within the building.

4.9 When the store is not in use it should be locked so as to prevent trespassing.

4.10 Only personnel trained in the handling and use of hazardous material and waste should be allowed handle same. Safety glasses, mask, Lab. coat and gloves must be worn when handling hazardous material or waste. Refer to relevant MSDS for more detail.

4.11 IBC's should be removed from the delivery lorry in a careful manner using the Outside Diesel Truck.

4.12 Only materials/waste of the same hazard class may be stored over each other. No container/drums should stored directly in contact with the ground i.e. pallets should be used where practicable.

4.13 In the event of a spillage the spill procedure posted on the walls should be followed. Refer to HR019. A spill kit is available. The capacity of the compound containment is 110 % of the largest volume container i.e. 1000 litres. For operation of sump refer to EN037. All spills must be reported and cleaned up immediately.

4.14 Laboratory waste should be handled, labelled and disposed of as per procedure. No drum/container should have contradictory labels on it. If drums are being reused old labels must be completed removed/obliterated. Only approved UN drums should be used e.g. corrosive material should only be stored in plastic UN approved drums.

5.0 References

Council Directive 91/689/EEC.
HR019 - Spill Procedure.
MM042 - Inspection of Compound and storage area.
QA024 - Transport and handling of Hazardous Waste.
EN037 - Bunds.

6.0 Appendix 1 - Compound Store Layout – TEMPORARY COMPOUND STORE IN USE.

7.0 Reason for revision

- 2006 Annual Review to include reference to Portable Compound Store in all sections.

Document ID: QA169
Document Type: Standard Operating Procedure
Title: Laboratory Testing Waste Disposal

Effective Date: 19-Jun-2009
Approved Date: 19-Jun-2009

1.0 Introduction:

This SOP outlines the method of disposal of analytical and microbiological waste generated in testing in the laboratory and also the disposal method for any hazardous waste or expired ingredients/chemicals from the plant. An approved Hazardous Waste Contractor is used to dispose of Abbott hazardous waste. Contact the Laboratory Manager or the Environmental Manager for contact details. Only approved hazardous or non-hazardous waste contractors must be approved by the EPA and Abbott prior to use.

2.0 Procedure:

2.1 **Analytical Waste**

2.1.1 There are two classifications of waste generated in the Analytical laboratory in Cootehill, Non Chlorinated and Chlorinated.

2.1.1.1 The Non – Chlorinated is subdivided below.

Class 1:

Type (1) Halogenated organic waste/ISO octane based - Dichloromethane (Flammable and toxic)

Type (2) Non Halogenated organic waste (Ether based) (Flammable and toxic)
Non Halogenated organic waste (Methanol and MethylTertButylEther

Type (3) Mercury waste (Toxic and Corrosive)

Type (4) Inorganic Corrosive - Caustic and Acid Based (Toxic and Corrosive)

Type (1) waste is collected in a 25 litre UN approved drum in the Analytical laboratory.

Type (2) waste is collected in 25 litre UN approved drums in the Analytical Lab.

Type (3) waste is collected in 25 litre UN approved drum stored under the Kjeltec.

Type (4) waste is collected in a 11.356 litres plastic container stored in the Analytical laboratory.

2.1.1.2 – Chlorinated Waste

Class 2: Chlorinated Waste, this is stored separately in a 25 litre UN approved drum in the Analytical Laboratory.

5 waste drum types are located in the Analytical Lab. From here they are transported to the external chemical compound for collection by the approved hazardous waste contractor. Refer to SOP QA024 for more detail on transport of hazardous waste in Abbott Cootehill.

The drums/containers in the lab and compound store are labeled with appropriate preprinted labels provided by the approved waste disposal contractor. These labels include details containing the PSN; Substance; Main Hazard including safety sign; Customer Name; In Case of an Emergency contact details; UN Number.

Pre-order of labels is carried out by the Safety Rep within the Laboratory Area.

2.1.2 Great care is to be exercised when transferring waste to waste drums from workstations. P.P.E. including appropriate protective gloves for the waste being handled and safety glasses must be worn. Where risk of spills may occur, it is critical that this task is completed at a contained spill area. Where a spill may occur refer to the Material Safety Data Sheet which gives details of clean up requirements.

2.1.3 Waste is classified per test as identified on the attached list in this SOP.

2.1.4 Expired chemicals and any other chemical waste from the plant is clearly identified and appropriately disposed. Labelling is provided by Indaver Ireland Ltd, the waste disposal company.

2.1.5 Mixing of chlorinated and non-chlorinated chemicals is strictly forbidden.

2.1.6 The Laboratory Manager manages the supply of drums to ensure a sufficient stock to maintain for this system.

2.1.7 The Environmental Manager must be notified of any new chemicals or changes to processes to ensure alignment to agreed EPA requirements.

2.2 Microbiological Waste

2.2.1 Microbiological testing waste in biohazard bags is decontaminated by autoclaving at 130°C for 30 minutes before disposal.

2.2.2 Syringe sample needles (Sharps) are collected in the microbiological laboratory.

2.3 Medical Waste

2.3.1 Syringe sample needles are also collected in a sharps container in the medical room and disposed of through an Abbott Approved Hazardous Waste Contractor. They are notified of when a collection is required.

2.4 Collection of hazardous waste is organised by the laboratory manager, therefore if there is any waste from other departments e.g. above, medical waste contact him/her to organise collection.

3.0 Reason for Revision

June 2009: As per CR 271

Waste generated from tests completed by Abbott Laboratories Cootehill

TEST	CHEMICALS USED	EQUIPMENT	WASTE DISPOSAL
Vitamin A & E	Mobile Phase: Dichloromethane Propan 2-ol Iso-Octane Methanol	HPLC	Organic Waste Halogenated
Vitamin B2/B6	Metaphosphoric Acid Sodium Octanesulphonic Acetonitrile Triethylamine Formic Acid	HPLC	Dispose to sink
Titratable Acidity	0.1N Sodium Hydroxide	N/A	Inorganic Corrosive Dilute/Drain
Total Phosphorus	Potassiumn Persulphate Phosphate Reagent Potassium Pyrosulphate Sodium Hydroxide Sulphuric Acid	DR 20/10 Spectrophotometer	Inorganic Corrosive Wash vials with water and dispose vials in glassware waste
Beta Carotene	Chloroform Cyclohexane Iso-Propyl Alcohol Iso-Octane	HPLC	Organic Waste Halogenated
Chloride	0.5M Nitric Acid 0.1N Silver Nitrate distilled water	Voltmeter	Chlorine waste drum.
Vitamin C	Trichloroacetic Acid Ethylevediaminetetra-acetate 2.6 dichlorophenol Indophenol Sodium Salt	Metrohm Vitamin C Analyser	Dispose to sink.
Fat	Ammonium Hydroxide 25% {Ethyl Alcohol 95% {Methyl Alcohol 5% Ethyl Ether Petroleum Ether Phenolphtalein 1% All are evaporated	Mojonnier	Organic Waste Non-Halogenated
Free Fatty Acid	Sodium Hydroxide Ethanol 95% Diethyl Ether Phenolphtalein	Mojonnier	Organic Waste Non-Halogenated

TEST	CHEMICALS USED	EQUIPMENT	WASTE DISPOSAL
Total Nitrogen	Total Nitrogen Hydroxide Reagent Sodium Hydroxide Total Nitrogen Reagent A Sodium Metabisulphate Total Nitrogen Reagent B Chrpomotropic Acid, Disodium Salt White Quartz Sand Metabisulphate Urea Total Nitrogen Reagent C Sulphuric Acid Total Nitrogen Persulphate Reagent Potassium Persulphate	DR 20/10 Spectrophotometer	Inorganic Corrosive Wash vials with water and dispose vials in glassware waste
Fat Extraction from Powdered product	Methanol Chloroform Sodium Sulphate Anhydrous	Rotary Evaporation	Organic Waste Non halogenated
Homogenisation	Ammonoium Hydroxide,Petroleum Jelly 40% Glycerol Solution	Nikon Alphaphatg Microscope	Disposal via sink
Iron Copper Zinc Manganese Magnesium Potassium Sodium Calcium	HCL – 10% Lithium Berylium Cesium Chloride	3300 DV I.C.P.	Disposal via sink
Moisture	Hydranal Composite 5 Karl Fisher Methanol Chloroform	Karl Fisher 701 Titrino	Organic Waste Non halogenated
Lutein	MethylTertButylEther Ethanol 99% Tetrahydrofuran Methanol	LC 2010 HPLC	Organic Waste Non halogenated

TEST	CHEMICALS USED	EQUIPMENT	WASTE DISPOSAL
Peroxide	Distilled Water Glacial Acetic Acid Chloroform Saturated Potassium Iodide Starch Indicator Sodium Thiosulphate	N/A	Organic waste Non halogenated
Nitrates	(1) Nitrate Reagent A-Sulphuric Acid (2) Nitrate Reagent B Chromotropic Acid, Dissodium Salt White Quartz Sand Sodium Metabisylfite	DR 20/10 Spectrophotometer	Inorganic Corrosive Wash vials with water and dispose vials in glassware waste
Protein	0.05N Hydrochloric Acid, Sodium Hydroxide-Sodium Thiosulphate Sodium Hydroxide Sodium Thiosulphate Boric Acid Solution Metyl Red Bromocresol Green Methanol 1 Mercury Catalyst Tablet Sulphuric Acid	Kjeltec 1030	Mercury Waste Special Hazardous waste due to Mercury
COD	Chromic Acid Mercuric Sulphate Sulphuric Acid	DR 20/10 Spectrophotometer	COD vials sent for special disposal (Mercury Waste)
Phosphates	Phosphate Reagent Ascorbic Acid Potassium Pyrosulphate Potassium Molybdate	DR 20/10 Spectrophotometer	Inorganic Corrosive Wash cells with water
Ammonia	Ammonia Salicylate Reagent, Sodium Citrate, Sodium Nitroferricyanide Sodium Salicylate Sodium Tartrate Ammonia Cyanurate Lithium Hydroxide Sodium Citrate Sodium Dichloroiso Cyanurate Sodium Tartrate	DR 20/10 Spectrophotometer	Inorganic corrosive Wash cells with water

Document ID: MM017
Document Type: Standard Operating Procedure
Title: Waste Compactor Operation Instructions
Effective By Date: 01-Jun-2007
Approved Date: 01-Jun-2007

1.0 Purpose

This B.O.P. is designed to enable a safe and hygienic system of waste disposal via the Waste Compactor.

Priority will be given to ensure that all corrugate, plastic pallets and any such items will be segregated and stored for recycling before any material is dumped into the Compactor.

2.0 Procedure

Hop Bins

2.1 Hop Bins have been provided for the temporary storage and transport of refuse from respective areas to the Compactor.

2.2 These Hop Bins are to be maintained in a clean and hygienic condition at all times and should be cleaned if necessary before returning it to your area.

Bungs are fitted to the bottom of each Bin and will enable thorough washing and draining.

2.3 The lids on the Hop Bins should be kept closed during transportation of waste and when not in use.

2.4 Hop Bin wheels are fitted with a foot brake which can be applied by depressing the pedal. This brake should be applied at all times that the bin is stationery.

2.5 The Bins have been distributed as follows:

3 - Packing
2 - Process
1 - Lab. Inspection Area

2.6 Whenever a Bin is full, it should be brought to the Compactor for disposal and the following procedure should be followed:

3.0 Compactor Operation

3.1 Ensure Mains Isolator and the Power switch on the panel are on. Release the "EMERGENCY STOP" button if necessary.

3.2 Load refuse into compactor hopper or chute and close loading door(s).

3.3 Press Green "START" button. The compactor will now cycle back and forth for the period set on the timer (usually 2 to 3 cycles) and switch off automatically.

3.4 Continue to operate compactor as required until the packing blade stops automatically in the forward position. The "BIN FULL" light will now indicate that the container is full.

3.5 N.B. The "BIN FULL" light can also indicate that a temporary blockage has jammed the system. If the operator feels that the bin may not be full, then turn the power off and on again and press the green "START" button to restart the system.

3.6 Once the container is full, the Waste Contractor should be notified.

4.0 Bin Lift Operation

4.1 When placing hop bins on the bin lift, always ensure that the Hop bin is properly presented to the bin lift arms or comb.

4.2 Close door on safety cage.

4.3 Press the green "START" button.

4.4 To empty, press the "UP" button and hold until the hop bin stops in the up position.

4.5 Wait until the hop bin is fully emptied. This may take 1 or 2 compactor cycles.

4.6 To lower, press the "DOWN" button and hold until the hop bin stops at floor level.

4.7 Remove the hop bin from the bin lift and resume normal compactor operation.

5.0 Safety

5.1 Only Authorized and Trained personnel should operate this equipment.

5.2 Only the Operator should be in the area of this equipment during operation. Never enter the cage area when the compactor is operating.

5.3 Before operating, always ensure that no person has entered or is working on any part of the compactor system.

5.4 Do not enter the loading hopper or chute or any part of the compactor system for any reason.

5.5 Do not operate the compactor system unless all covers and guards are secured correctly.

5.6 Do not operate the compactor system unless all safety switches/devices are operating correctly.

5.7 Do not power hose or steam clean the electrical control panel or electrical components.

5.8 Do not power hose or steam clean the hydraulic power pack or electric motor.

5.9 Always ensure that the container clamps are properly attached to the container.

5.10 Always ensure that the container clamps are in good repair and working order.

5.11 Always stand well clear of compactor, container and truck during loading and unloading of container.

5.12 Always stand clear of bin lift during operation.

5.13 Do not enter bin lift cage or area around bin lift unless the bin lift is in the fully lowered position.

6.0 General Guidelines (as per Notice in Compactor Room)

ONLY COMPACTABLE WASTE TO BE BROUGHT TO THE TRASH ROOM

ALL CARTON/CORRUGATE TO BE BALED FOR RE-CYCLING

ALL PLASTIC TO BE SEGREGATED FOR RE-CYCLING

ALL CANS TO BE CRUSHED AND BALED FOR RECYCLING

HAZARDOUS WASTE TO BE HANDLED IN ACCORDANCE WITH THE SAFETY PROCEDURE

STEEL BOXED FILTERS AND ALL METALS SHOULD NOT BE DUMPED IN COMPACTOR

OPEN SKIP TO BE BOOKED FOR ALL OTHER WASTE - 047 81164

IF COMPACTOR IS FULL RING 047 81164 MON TO SUN 08.00 - 24.00

THROW ALL BAGS INTO THE COMPACTOR CHUTE

DO NOT THROW INTO OTHER BINS FOR OTHERS TO EMPTY

SWITCH ON THE COMPACTOR BY PRESSING THE "ON" SWITCH

IF USING LARGE BIN, PLACE BIN INTO THE LIFTING GEAR BY PUSHING IN FULL SQUARE

ALWAYS ENSURE LID IS FULLY CLOSED

CLOSE THE OUTER GATE BEFORE PRESSING THE " UP" BUTTON
WHEN THE BIN HAS LIFTED UP FULLY AND EMPTIED,

PRESS THE DOWN BUTTON A FEW TIMES, TO CLEAR
AND THEN HOLD DOWN THE BUTTON TO LOWER THE BIN

OPEN THE GATE AND REMOVE THE BIN. PRESS "ON" AGAIN AND LEAVE RUNNING

EMPTY ALL BINS ON ARRIVAL

REPORT ANY HAZARDOUS WASTE

Reason for Revision

2006 Annual Review – Section 3.6 notification of Contractor and Section 5.2 inclusion of extra safety statement.