Appendix H.1.3

Bund Integrity Testing

AD ANALYTICAL

CONFIDENTIAL REPORT

Client: Schwarz Pharma Ltd.,
Shannon Industrial Estate,
Shannon,
Co. Clare.

Attention: Mr. Pat McMahon

Commencement Date: 24/03/2005 **Report Date:** 07/04/2005

TITLE: **Bund Assessment to BRITISH STANDARD B.S. 8007 : 1987**

Signed:
Simon Grannell

AD Analytical
8 Terenure Rd. North,
Terenure,
Dublin 6w.

Phone (353-1-4991824/5)
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ISO 9001:2000 EQA QUALITY ASSURED FIRM

Directors: Dr. A Deane, E Moran

CONTENTS

1.0 Executive Summary

AD Analytical was commissioned by Schwarz Pharma Ltd. to carry out Bund testing at their facility in Shannon, Co. Clare. The survey was performed between 24/03/05 and 07/04/05. The bunded area included in this study was referenced as follows:

1. B032 – IIE-6611 Cold Water Cooler. Spill Tray.
2. B023 – Scrubber No. 1

The above bunded area's were tested for liquid tightness for seven days in accordance with B.S. 8007:1987 sections 9 and was found to be in **Compliance** with the test.

Signed: _____

Simon Grannell

2.0 Scope

AD Analytical was contracted by Schwarz Pharma to carry out Bund testing at their facility in Shannon, Co. Clare. The scope of the survey is limited to the following:

a. Identification and Inspection of the bunded area.

b. Test the bunded area for 'liquid tightness' as specified in section nine of B.S. 8007: 1987 as required for **seven** days.

c. Reporting and interpretation of the assessment results.

3.0 Survey Methodology

3.1 Monitoring requirements

As part of the ongoing assessment of the bunded area on site these tests were performed to determine the integrity of the bund. This areas is:

Bund I.D.

1. B032 – HE-6611 Cold Water Cooler. Spill Tray.
2. B023 – Scrubber No. 1

3.2 Assessment Techniques

AD Analytical staff visually inspected the bunded area's on 24th March 2004.

The bunded area's were filled with clean tap water to the fill level, marked and allowed to stabilise for 24 hours.

After stablisation, the level of the liquid surface was recorded by means of a photograph at 24-hour intervals for the test period of seven days.

3.3 Reporting

A Daily Log for the bunded area is reported as follows:

Appendix 1. B032 – HE-6611 Cold Water Cooler. Spill Tray.
Appendix 2. B023 – Scrubber No. 1.

4.0 Discussion

The criteria used for testing of bunds, tanks and sumps are as follows:

1. A bund containing one vessel should have a nominal capacity of 110 % of the vessel's maximum capacity.
2. A bund containing more than one vessel should have a nominal capacity of 110% of the largest vessel or 25% of the total capacity of all the vessels, which ever is the greater.
3. Sumps, built with double skins (i.e. an inner and outer layer) should have no water in between the two layers.

The bunded area's, as detailed in previous sections, were allowed stabilise for 24 hours and tested. During this 7-day test period the total permissible dip in level (allowing for evaporation) should not exceed 1/500th of the average water depth of the full bund in all cases.

The above indicates, therefore, that the bunded area's detailed in this report were found to satisfy a 'seven-day Test' for 'Liquid Tightness', as described in ***section nine, B.S. 8007: 1987: Design of Concrete Structures for the retaining Aqueous Liquids.***

APPENDIX 1

BUND TESTING

CLIENT: Schwarz Pharma, Shannon, Co. Clare.

BUND LOCATION: B032 – HE-6611 Cold Water Cooler. Spill Tray.

SURVEY DATES: 24th March to 31st March 2005

PERSONNEL: Mr. Simon Grannell (AD Analytical)

DAILY LOG

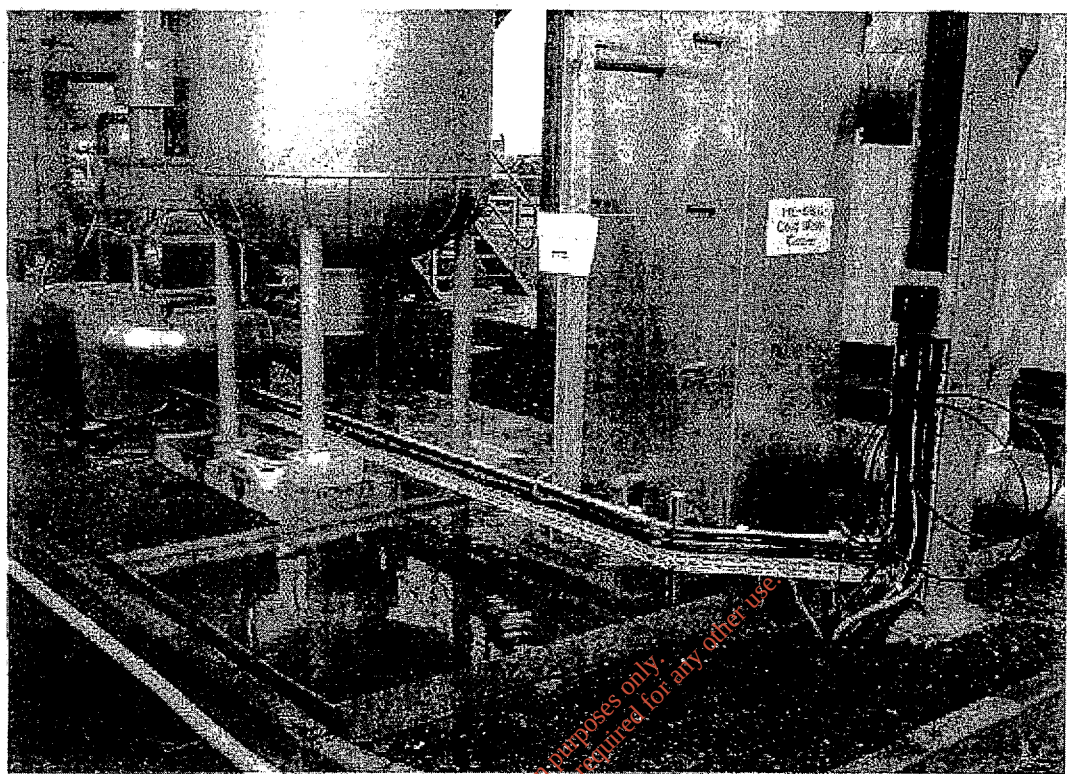
DATE		WATER LEVEL	EVAPORATION /24hr	PHOTO No.	PERSONNEL
25/03/05	Fill	107mm	-	1	S.G.
26/03/05	Test	107mm	-	2	S.G.
31/03/05	Test	116mm	-	3	S.G.

COMMENTS

This bund (B032 – HE-6611 Cold Water Cooler. Spill Tray) was tested for seven days in accordance to B.S. 8007: 1987 (Design of concrete structures for the retaining aqueous liquids: Section Nine - inspection and testing of the structure).

Conformance to B.S. 8007: 1987 Section 9

Compliant



Location : B032 – HE-6611 Cold Water Cooler Spill Tray

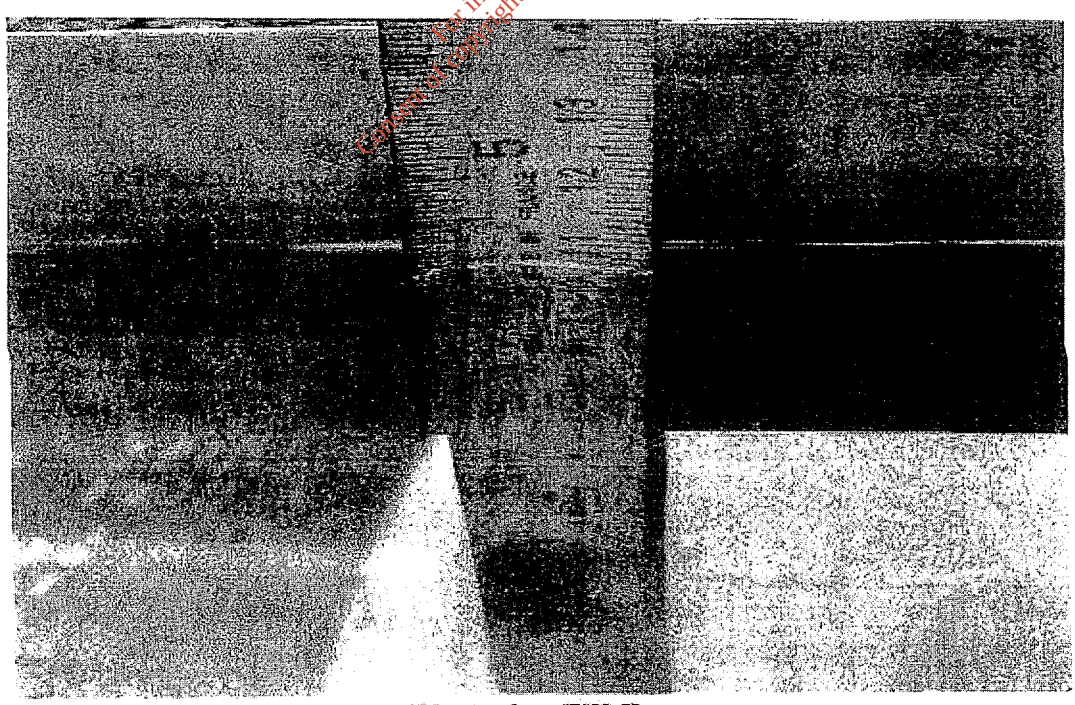


Photo 1 – Fill Day

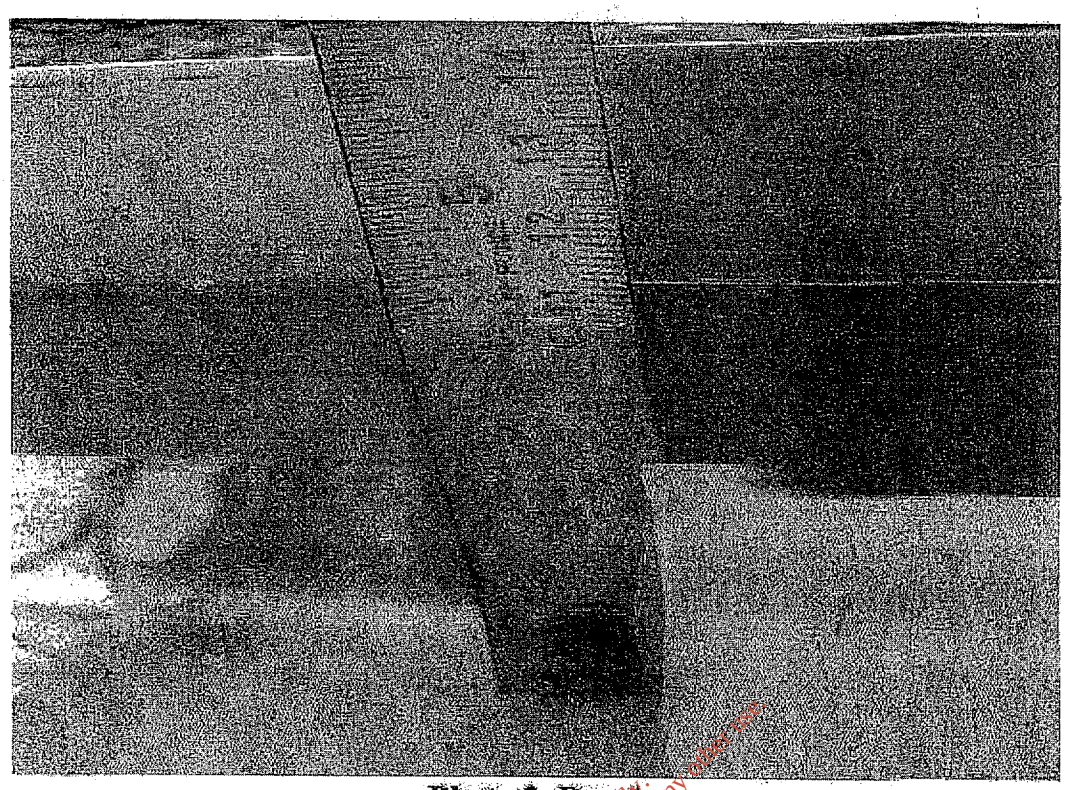


Photo 2–Day 1

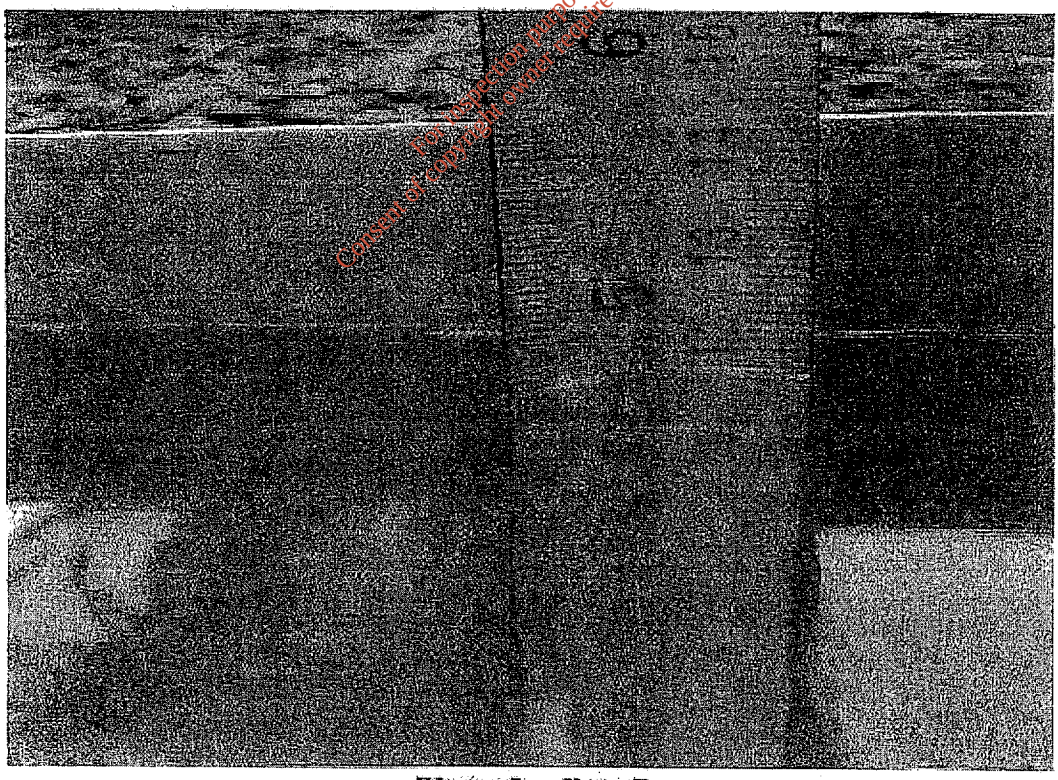
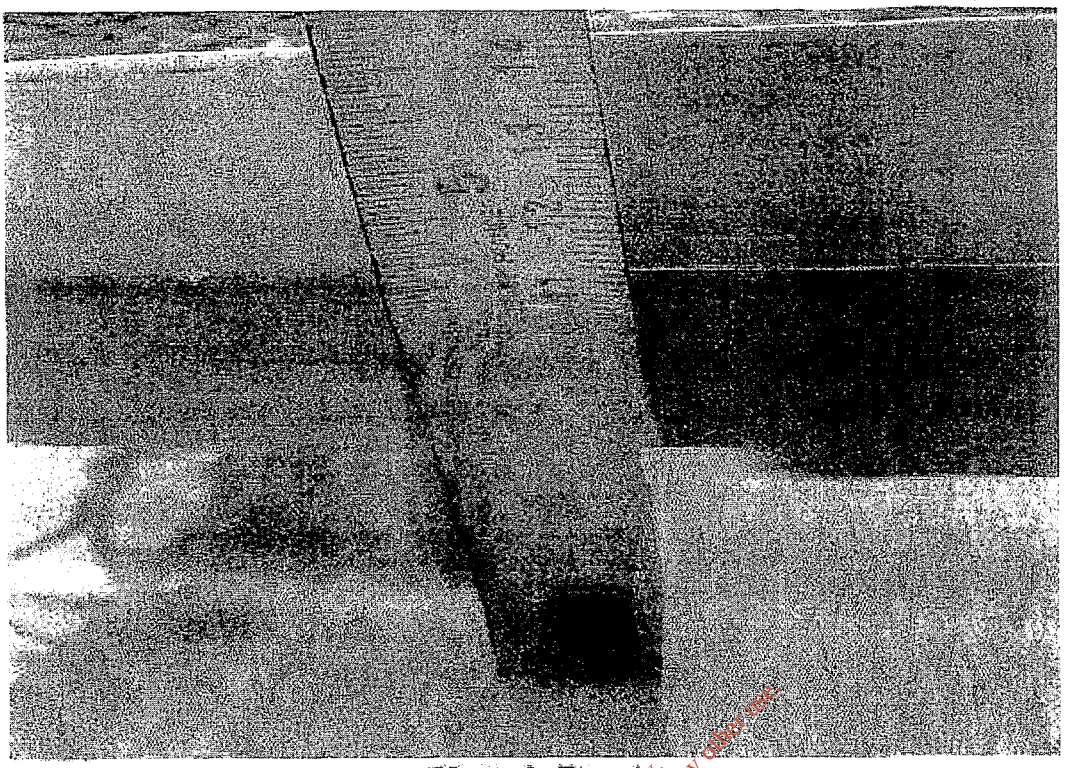


Photo 3 – Day 7



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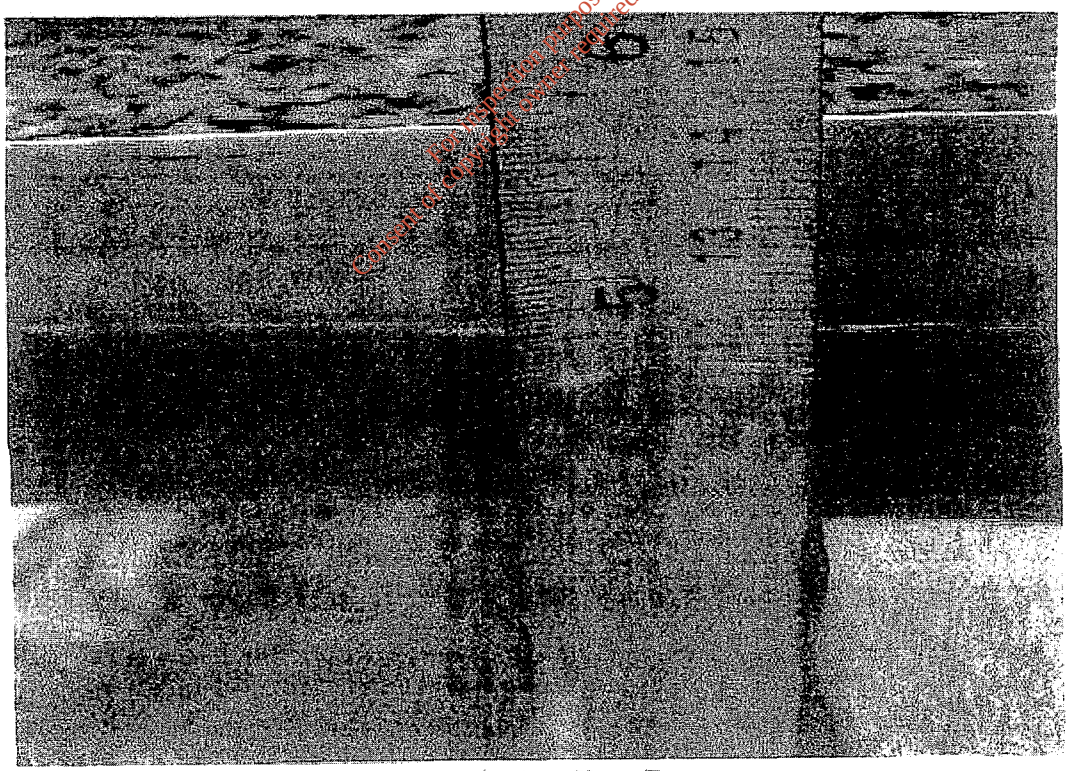


Photo 3 – Day 7

APPENDIX 2

BUND TESTING

CLIENT: Schwarz Pharma, Shannon, Co. Clare.

BUND LOCATION: B023 – Scrubber No. 1

SURVEY DATES: 31st March to 7th April 2005

PERSONNEL: Mr. Simon Grannell (AD Analytical)

DAILY LOG

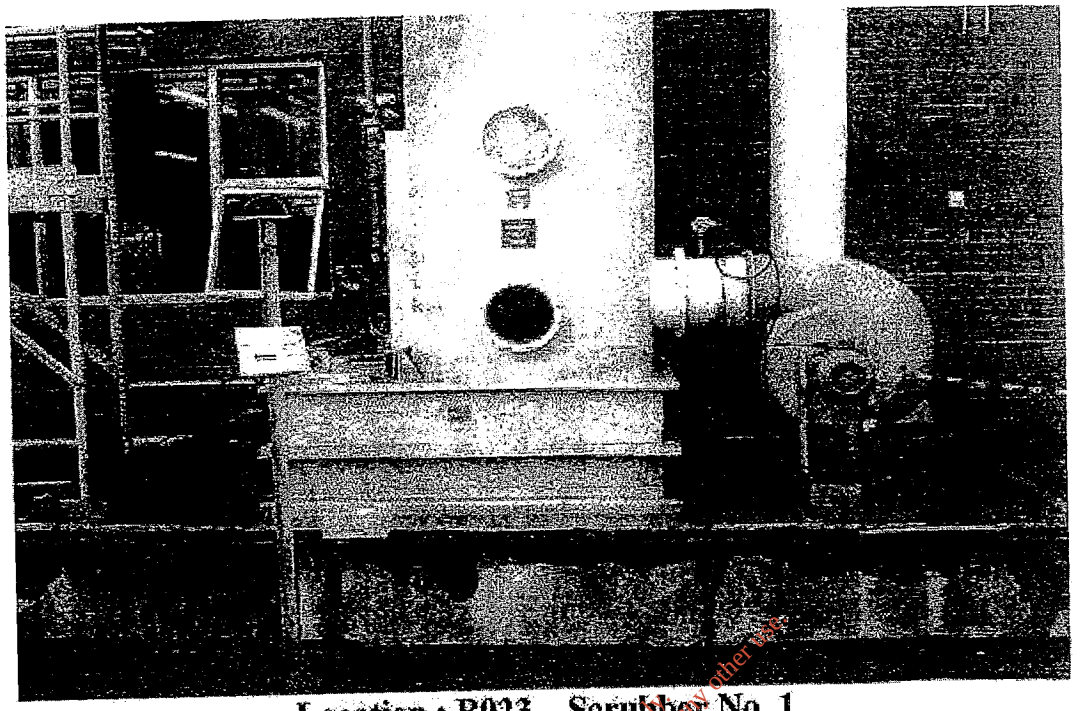
DATE		WATER LEVEL	EVAPORATION /24hr	PHOTO No.	PERSONNEL
30/03/05	Fill	230mm	-	1	S.G.
31/03/05	Test	230mm	-	2	S.G.
07/04/05	Test	264mm	-	3	S.G.

COMMENTS

This bund (B023 – Scrubber No. 1) was tested for seven days in accordance to B.S. 8007: 1987 (Design of concrete structures for the retaining aqueous liquids: Section Nine - inspection and testing of the structure).

Conformance to B.S. 8007: 1987 Section 9

Compliant



Location : B023 – Scrubber No. 1

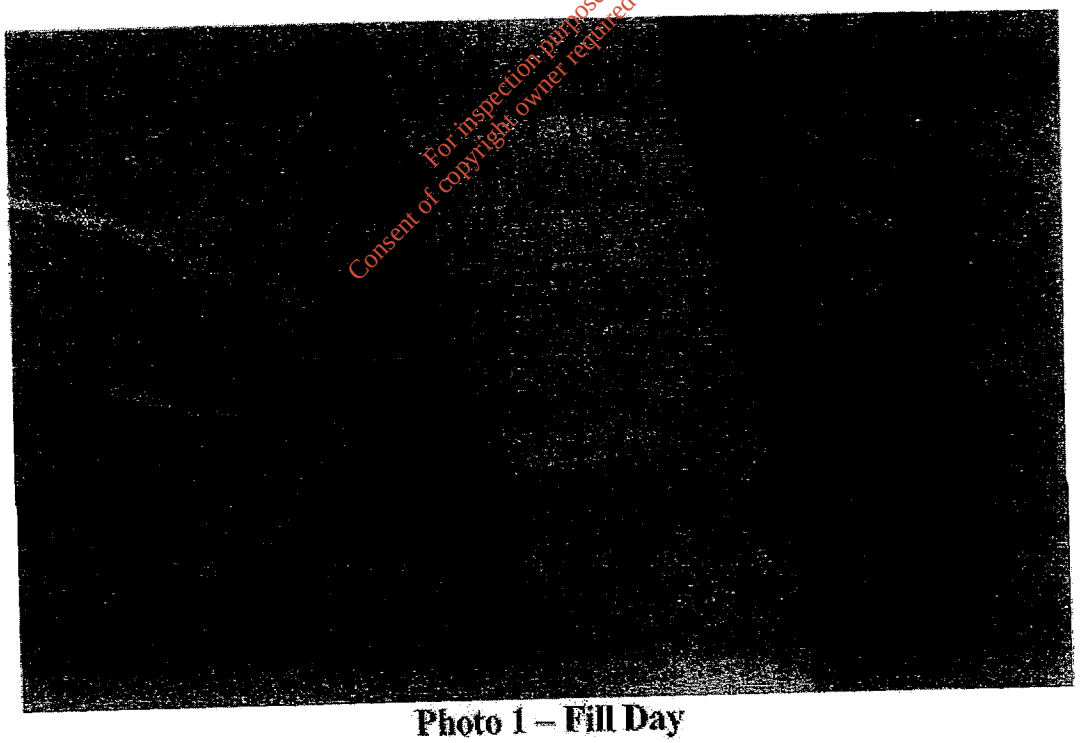


Photo 1 – Fill Day

Photo 2–Day 1

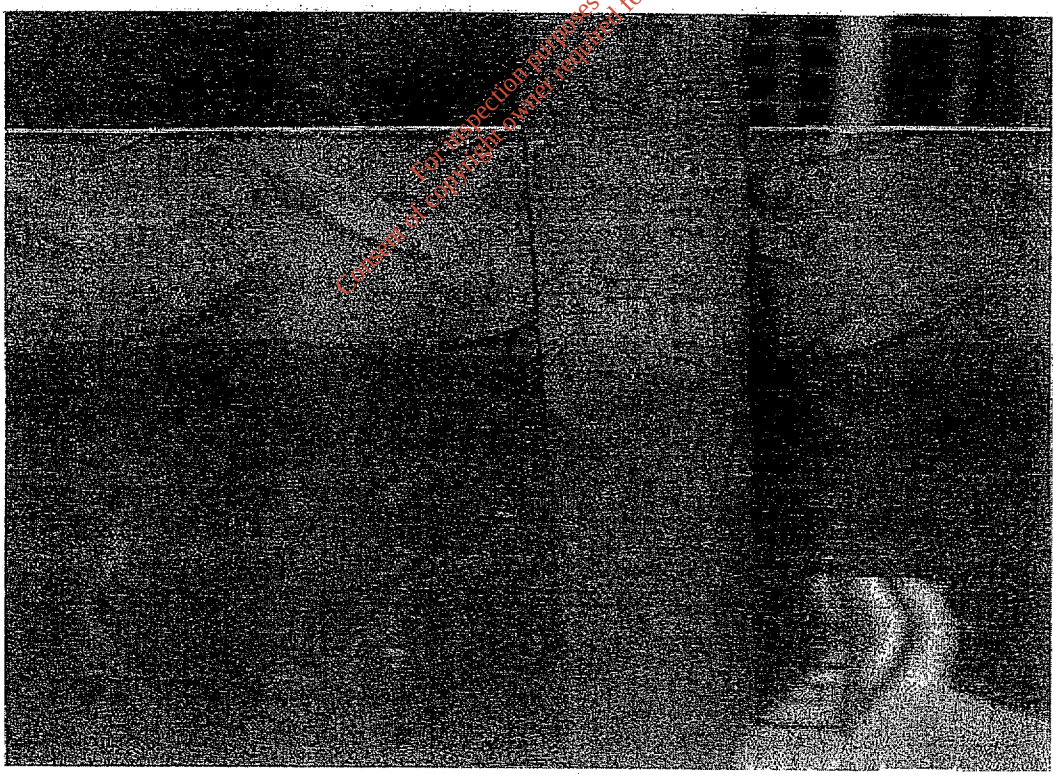
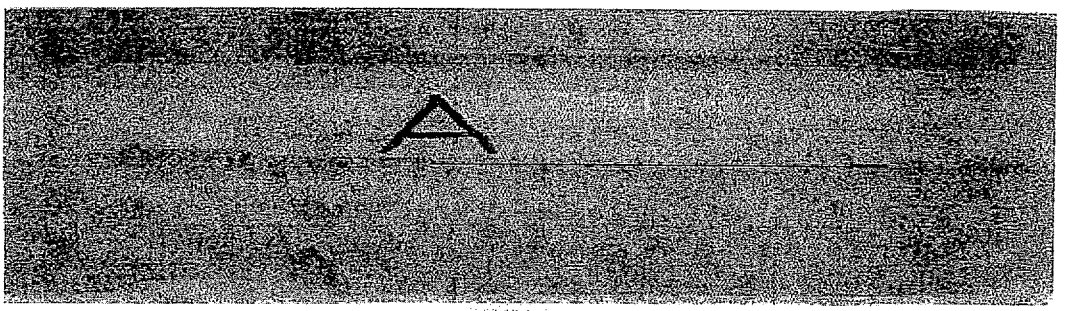


Photo 3 – Day 7

Rain/Evaporation Gauge A – (31/03/05 – 07/04/05) B023 Area



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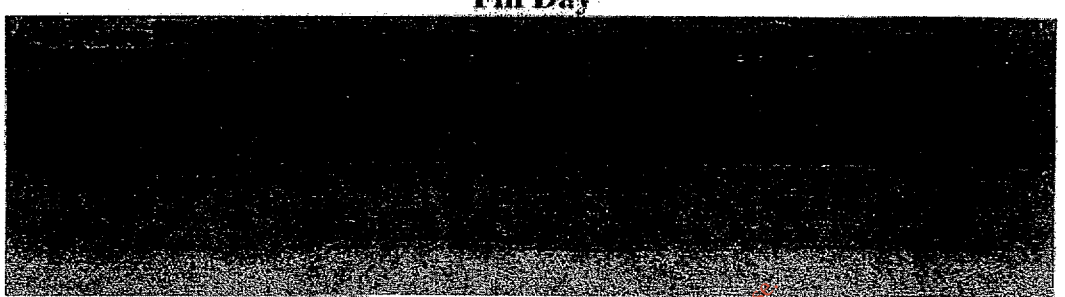
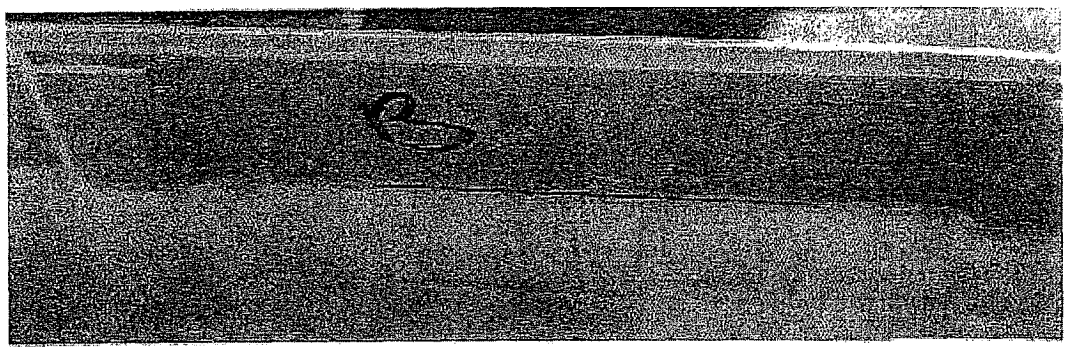


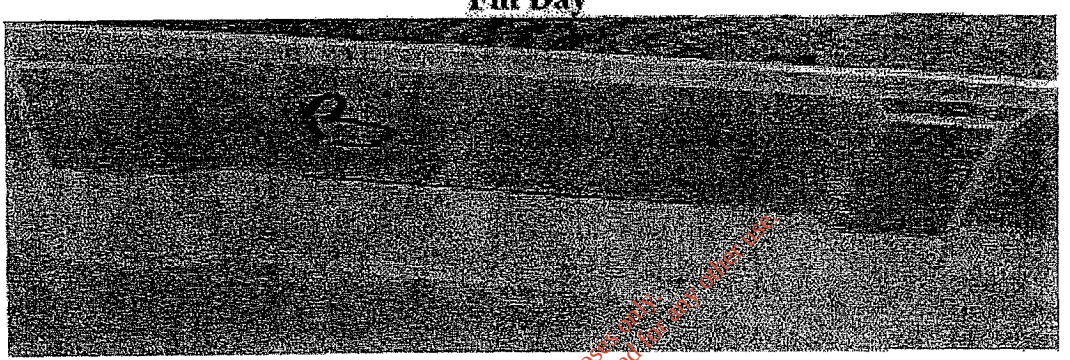
Day 1

Day 7

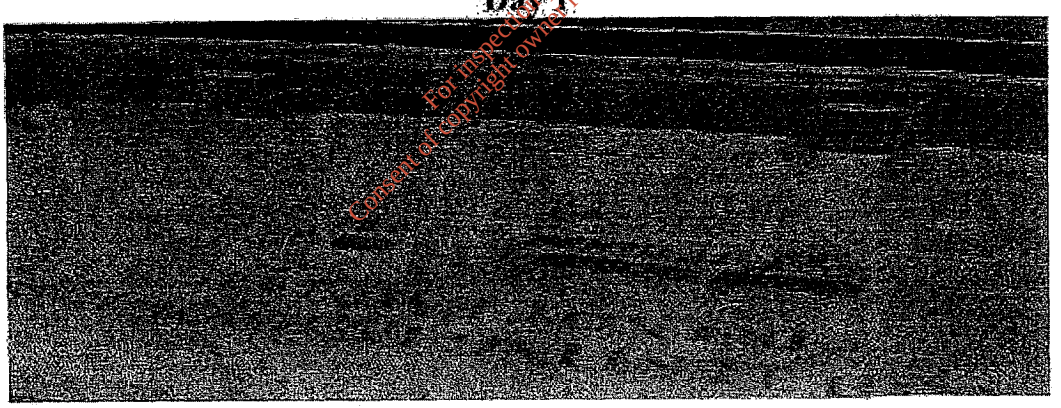
Rain/Evaporation Gauge B – (24/03/05 – 31/03/05) B032 Area



Fill Day



Day 1



Day 7

AD ANALYTICAL
CHEMICAL AND ENVIRONMENTAL SERVICES

CONFIDENTIAL REPORT

Client: **Schwarz Pharma Ltd.,**
Shannon Industrial Estate,
Shannon,
Co. Clare.

Attention: **Ms. Sinead Mc Aleer**

Commencement Date: 06/12/2004 **Report Date: 16/12/2004**

TITLE: **Bund Assessment to**
BRITISH STANDARD B.S. 8007 : 1987

Signed: Simon Grannell
Simon Grannell

AD Analytical
8 Terenure Rd. North,
Terenure,
Dublin 6w.

Phone (353-1-4991824/5)
Fax (353-1-4990926)
e-mail adana@indigo.ie

ISO 9001:2000
EQA
QUALITY ASSURED FIRM

CONTENTS

1.0 Executive Summary

AD Analytical was commissioned by Schwarz Pharma Ltd. to carry out Bund testing at their facility in Shannon, Co. Clare. The survey was performed between 06/12/04 and 13/12/04. The bunded areas included in this study were referenced as follows:

1. B006 – Extract receiver
2. B026– Mother Liquor Bund
3. B027– Emergency Catch Tank

The above bunded areas were tested for liquid tightness for seven days in accordance with B.S. 8007:1987 sections 9 and were found to be in **Compliance** with the test.

Signed: _____

Simon Grannell

2.0 Scope

AD Analytical was contracted by Schwarz Pharma to carry out Bund testing at their facility in Shannon, Co. Clare. The scope of the survey is limited to the following:

a. Identification and Inspection of the bunded areas.

b. Test the bunded areas for 'liquid tightness' as specified in section nine of B.S. 8007: 1987 as required for **seven** days.

c. Reporting and interpretation of the assessment results.

3.0 Survey Methodology

3.1 Monitoring requirements

As part of the ongoing assessment of the bunded areas on site these tests were performed to determine the integrity of the bunds. These areas are:

Bund I.D.

1. B006 – Extract receiver
2. B026– Mother Liquor Bund
3. B027– Emergency Catch Tank

3.2 Assessment Techniques

AD Analytical staff visually inspected the bunded areas on 6th December 2004.

The bunded areas were filled with clean tap water to the fill level, marked and allowed to stabilise for 24 hours.

After stablisation, the level of the liquid surface was recorded by means of a photograph at 24-hour intervals for the test period of seven days.

3.3 Reporting

A Daily Log for the bunded areas is reported as follows:

Appendix 1.	B006 – Extract receiver
Appendix 2.	B026– Mother Liquor Bund
Appendix 3.	B027– Emergency Catch Tank

4.0 Discussion

The criteria used for testing of bunds, tanks and sumps are as follows:

1. A bund containing one vessel should have a nominal capacity of 110 % of the vessel's maximum capacity.
2. A bund containing more than one vessel should have a nominal capacity of 110% of the largest vessel or 25% of the total capacity of all the vessels, which ever is the greater.
3. Sumps, built with double skins (i.e. an inner and outer layer) should have no water in between the two layers.

The bunded areas, as detailed in previous sections, were allowed stabilise for 24 hours and tested. During this 7-day test period the total permissible dip in level (allowing for evaporation) should not exceed 1/500th of the average water depth of the full bund in all cases.

The above indicates, therefore, that the bunded areas detailed in this report were found to satisfy a 'seven-day Test' for 'Liquid Tightness', as described in ***section nine, B.S. 8007: 1987: Design of Concrete Structures for the retaining Aqueous Liquids.***

APPENDIX 1

BUND TESTING

CLIENT: Schwarz Pharma, Shannon, Co. Clare.

BUND LOCATION: B006 – Extract Receiver

SURVEY DATES: 6th December to 13th December 2004

PERSONNEL: Mr. Simon Grannell (AD Analytical)

DAILY LOG

DATE		WATER LEVEL	EVAPORATION /24hr	PHOTO No.	PERSONNEL
06/12/04	Fill	276mm		2	S.G.
07/12/04	Test	276mm	-	3	S.G.
09/12/04	Test	276mm	-	4	S.G.
13/12/04	Test	277mm	-	5	S.G.

COMMENTS

This bund (B006 – Extract Receiver) was tested for seven days in accordance to B.S. 8007: 1987 (Design of concrete structures for the retaining aqueous liquids: Section Nine - inspection and testing of the structure).

Conformance to B.S. 8007: 1987 Section 9

Compliant

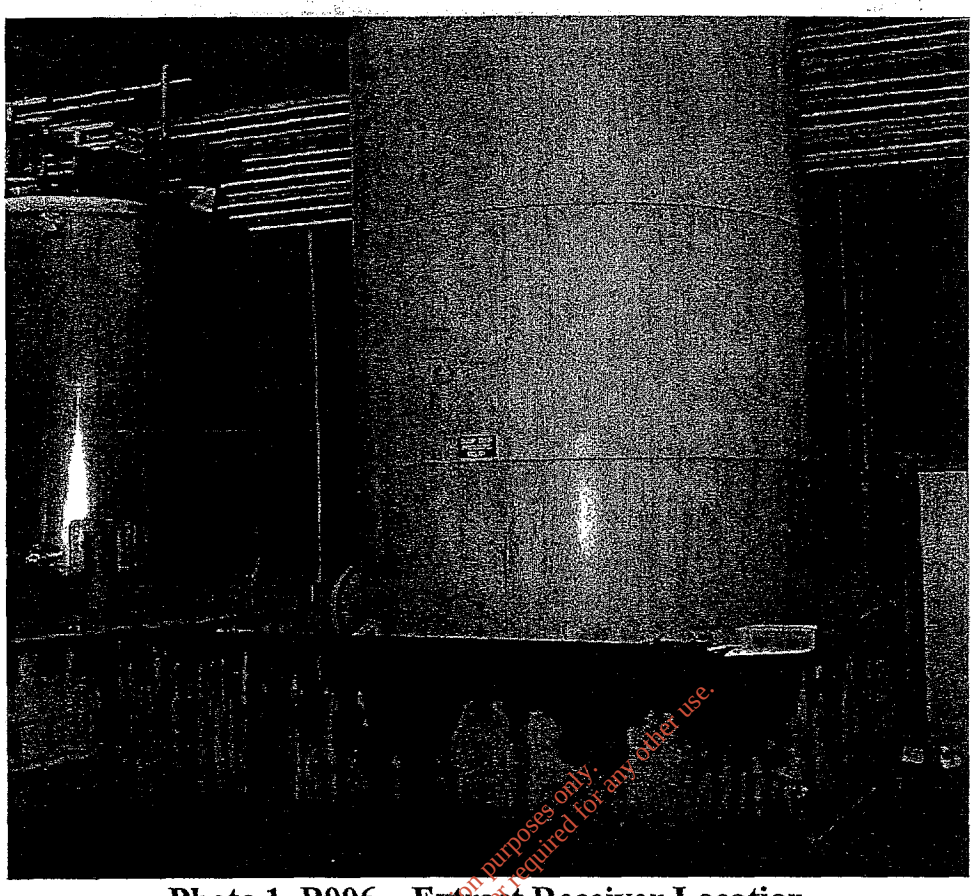


Photo 1. B006 – Extract Receiver Location

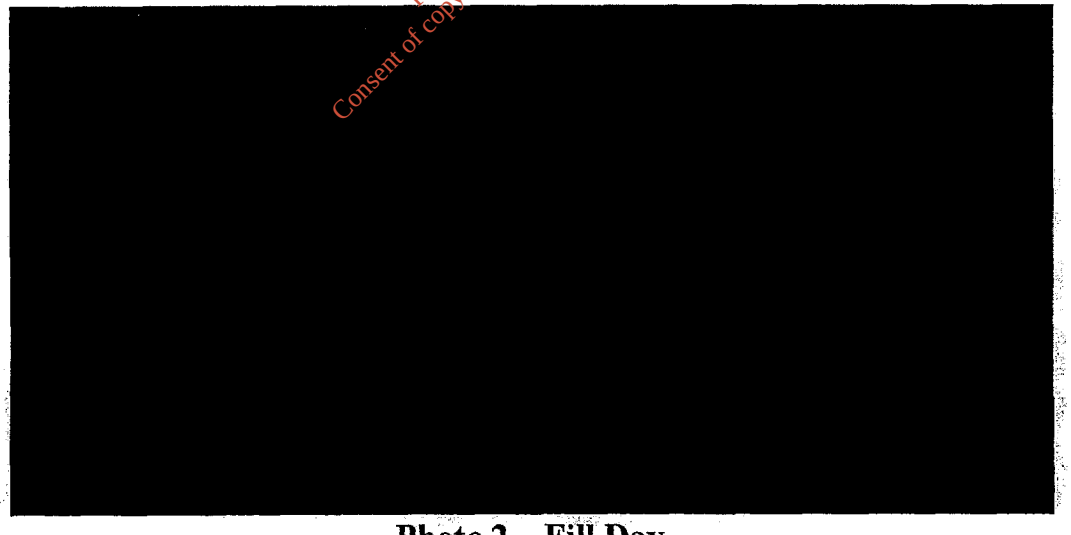


Photo 2 – Fill Day

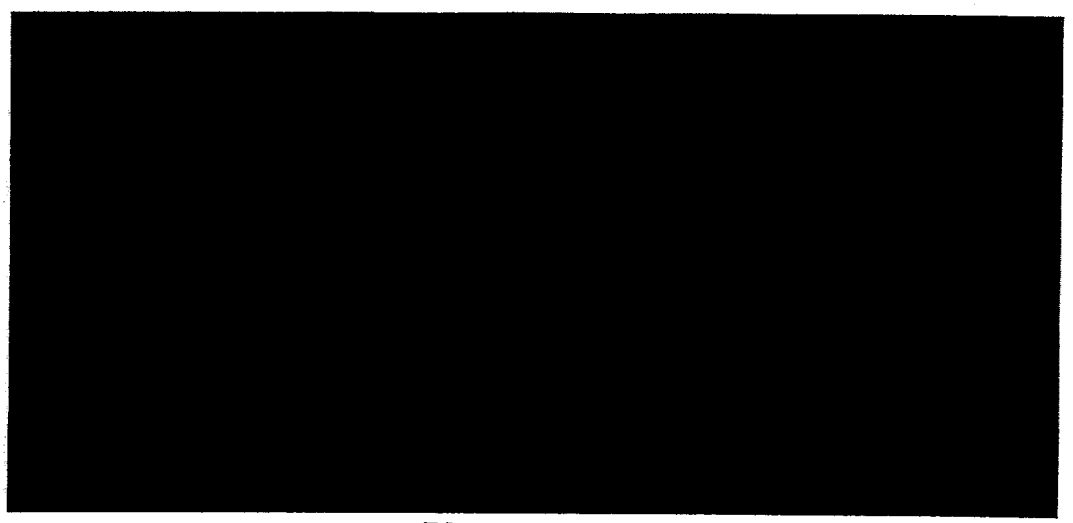


Photo 3–Day 1

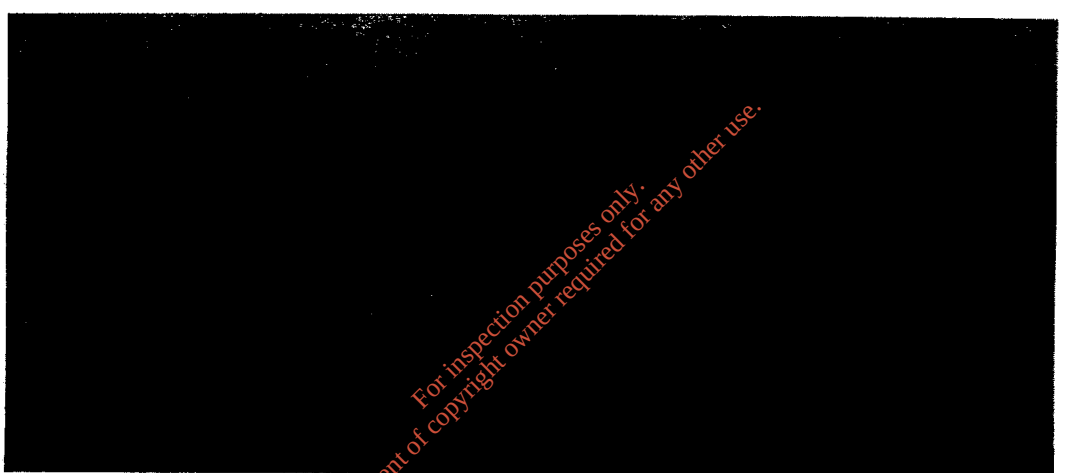


Photo 4 – Day 3

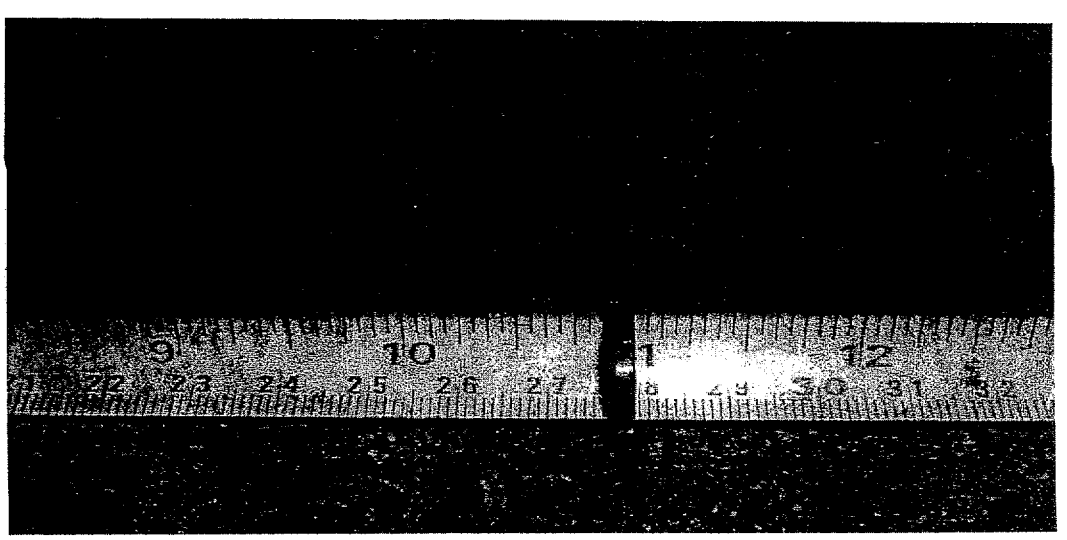


Photo 5 – Day 7

APPENDIX 2

BUND TESTING

CLIENT: Schwarz Pharma, Shannon, Co. Clare.

BUND LOCATION: B026– Mother Liquor Bund

SURVEY DATES: 6th December to 13th December 2004

PERSONNEL: Mr. Simon Grannell (AD Analytical)

DAILY LOG

DATE		WATER LEVEL	EVAPORATION /24hr	PHOTO No.	PERSONNEL
06/12/04	Fill	242mm	-	2	S.G.
07/12/04	Test	242mm	-	3	S.G.
09/12/04	Test	240mm	2	4	S.G.
13/12/04	Test	240mm	-	5	S.G.

COMMENTS

This bund (B026– Mother Liquor Bund) was tested for seven days in accordance to B.S. 8007: 1987 (Design of concrete structures for the retaining aqueous liquids: Section Nine - inspection and testing of the structure).

Conformance to B.S. 8007: 1987 Section 9

Compliant

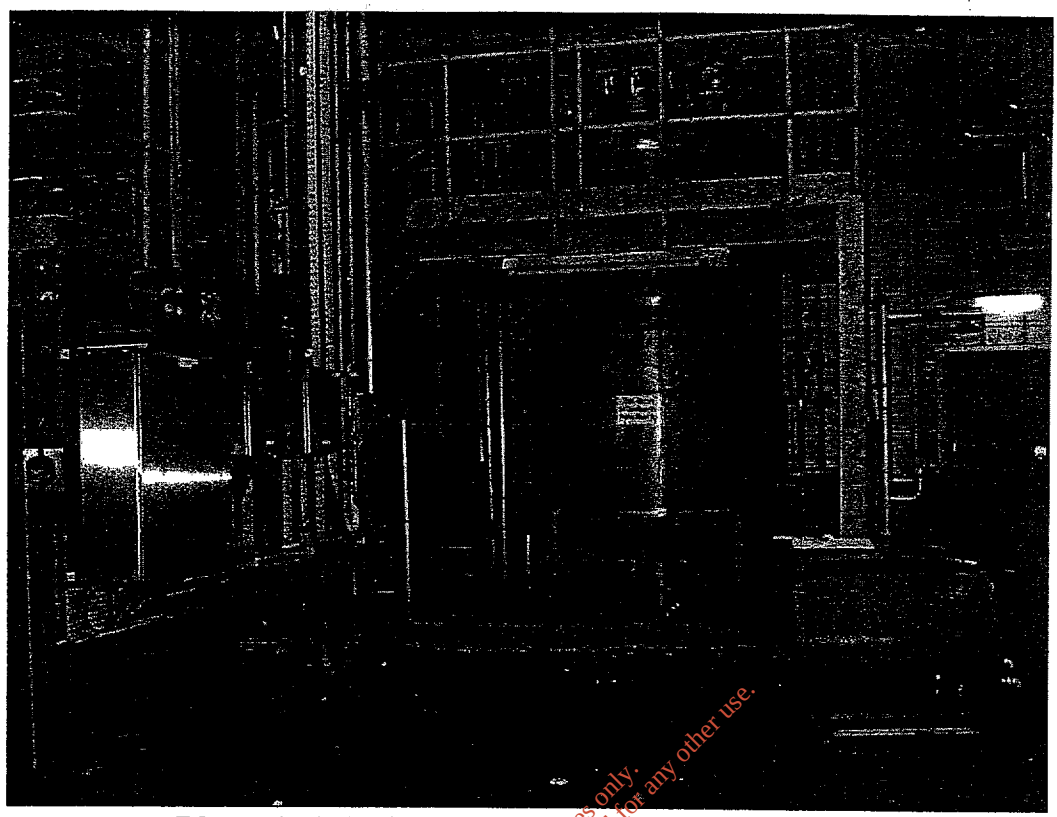


Photo 1 - B026– Mother Liquor Bund Location

Photo 2 – Fill Day

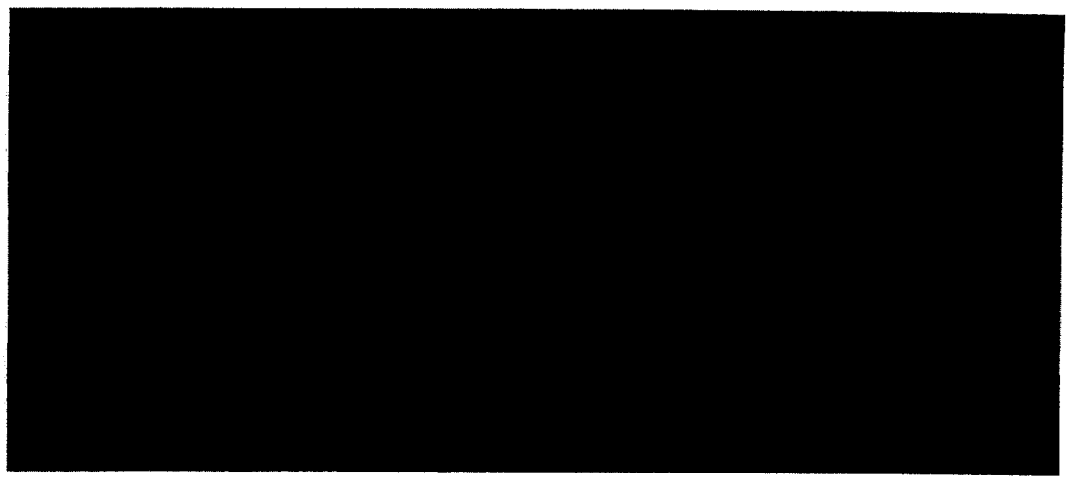


Photo 3 – Day 1

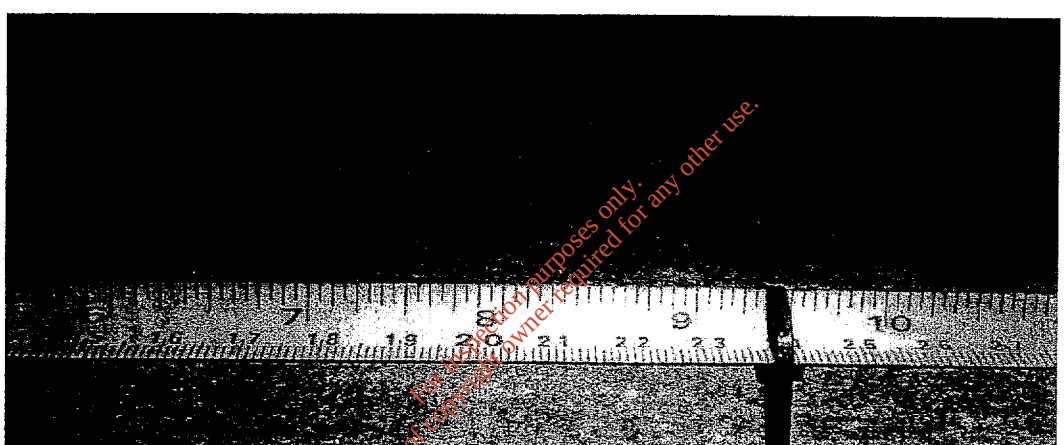


Photo 4 – Day 3

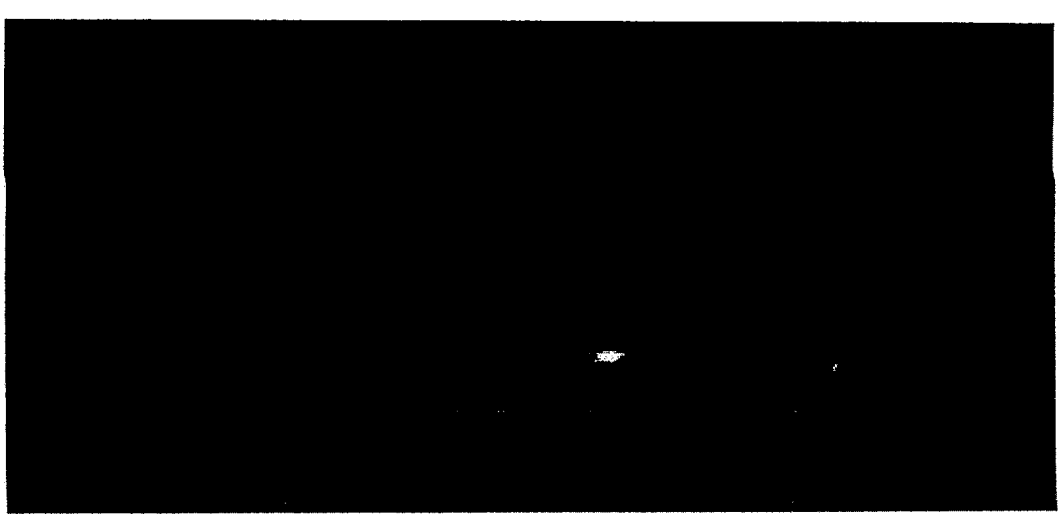


Photo 5 – Day 7

APPENDIX 3

BUND TESTING

CLIENT: Schwarz Pharma, Shannon, Co. Clare.

BUND LOCATION: B027– Emergency Catch Tank

SURVEY DATES: 6th December to 13th December 2004

PERSONNEL: Mr. Simon Grannell (AD Analytical)

DAILY LOG

DATE		WATER LEVEL	EVAPORATION /24hr	PHOTO No.	PERSONNEL
06/12/04	Fill	289mm	-	2	S.G.
07/12/04	Test	289mm	-	3	S.G.
09/12/04	Test	289mm	-	4	S.G.
13/12/04	Test	289mm	-	5	S.G.

COMMENTS

This bund (B027– Emergency Catch Tank) was tested for seven days in accordance to B.S. 8007: 1987 (Design of concrete structures for the retaining aqueous liquids: Section Nine - inspection and testing of the structure).

Conformance to B.S. 8007: 1987 Section 9

Compliant

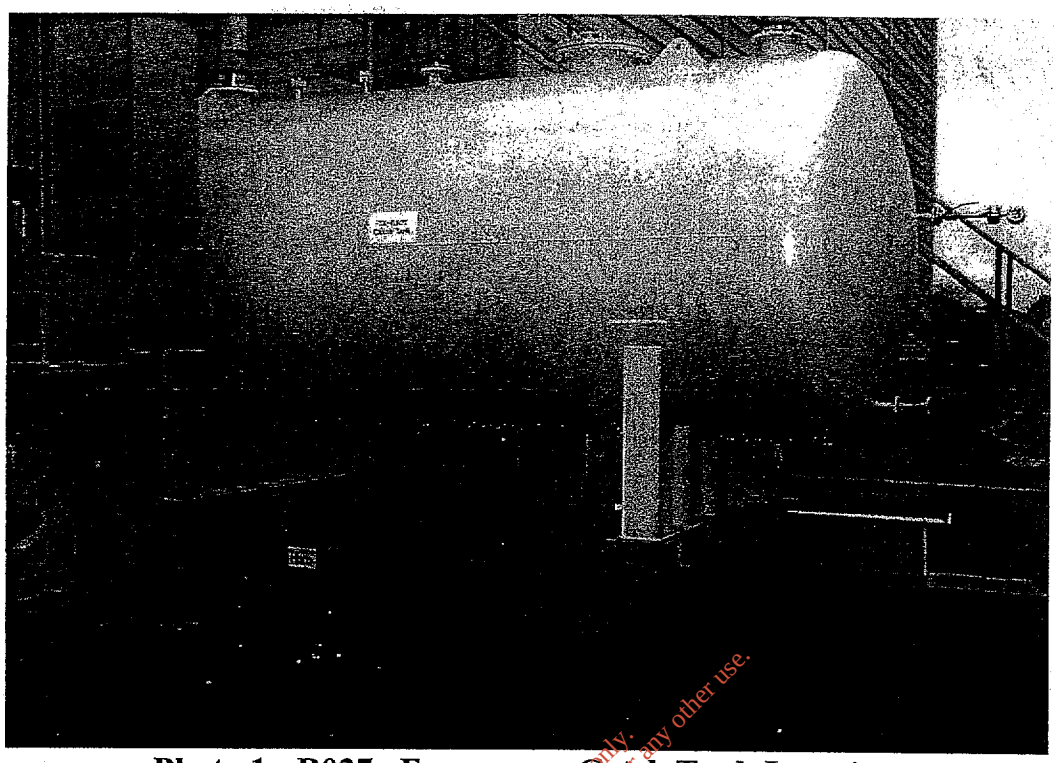


Photo 1 - B027– Emergency Catch Tank Location

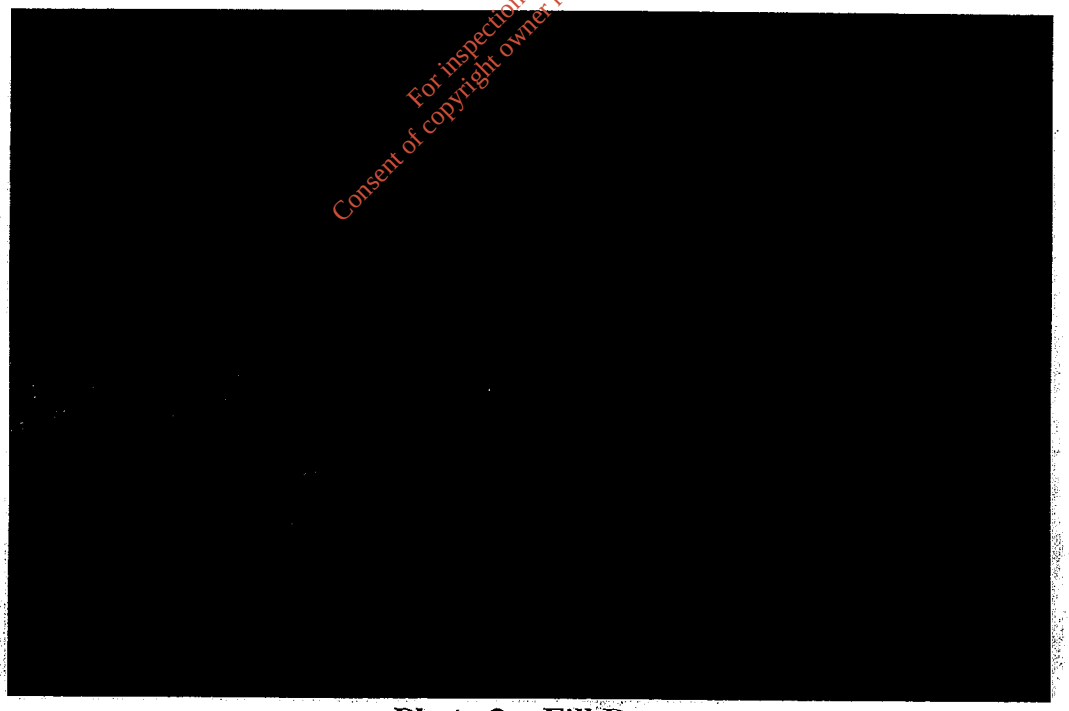


Photo 2 – Fill Day

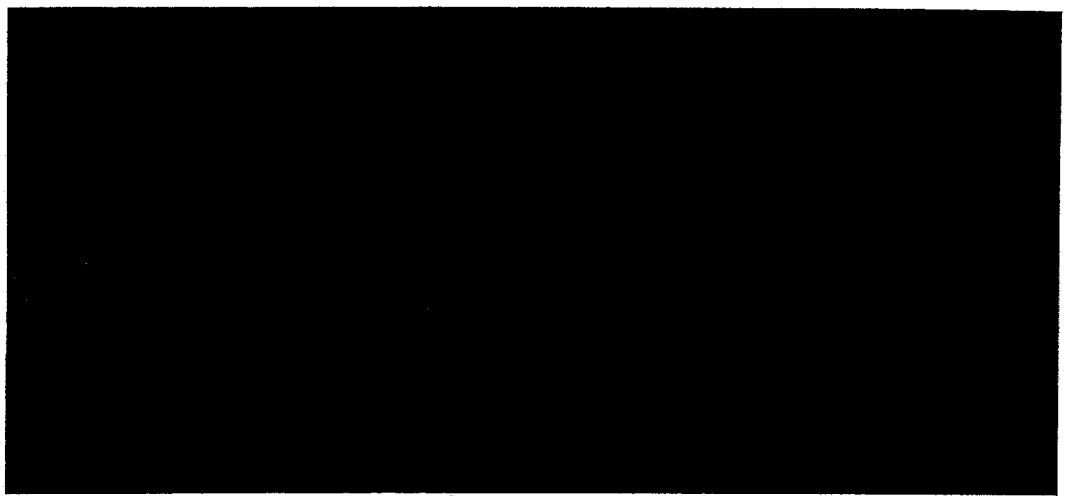


Photo 3 – Day 1

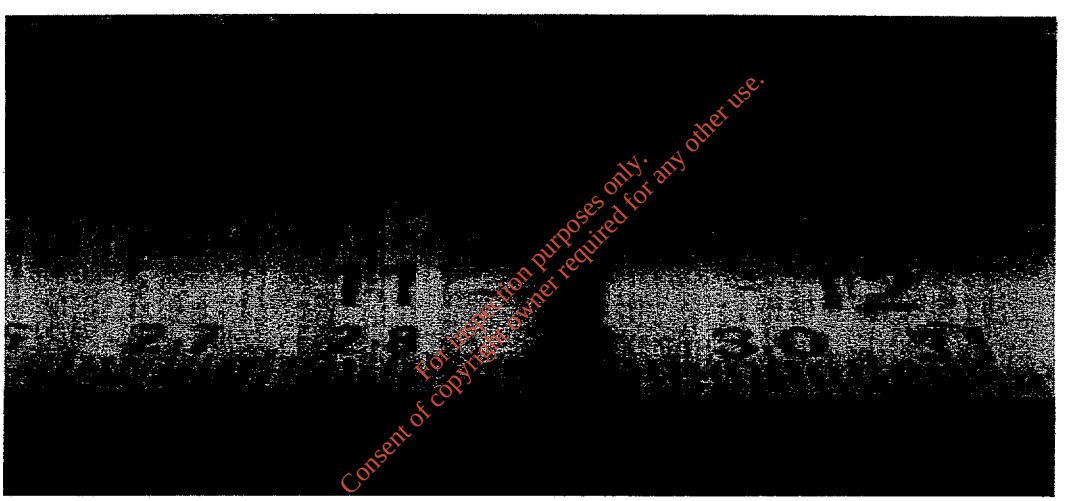


Photo 4 – Day 3

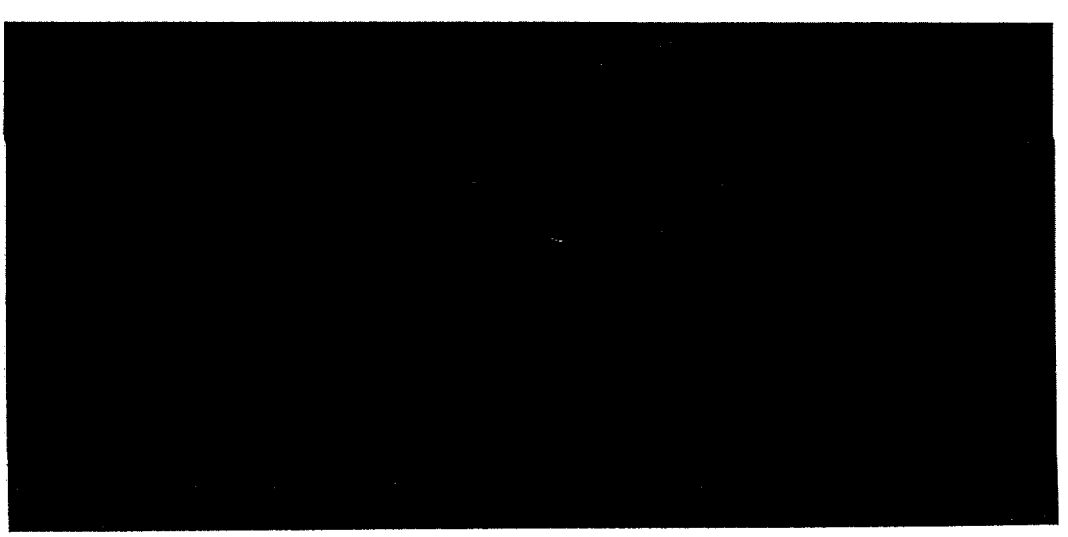


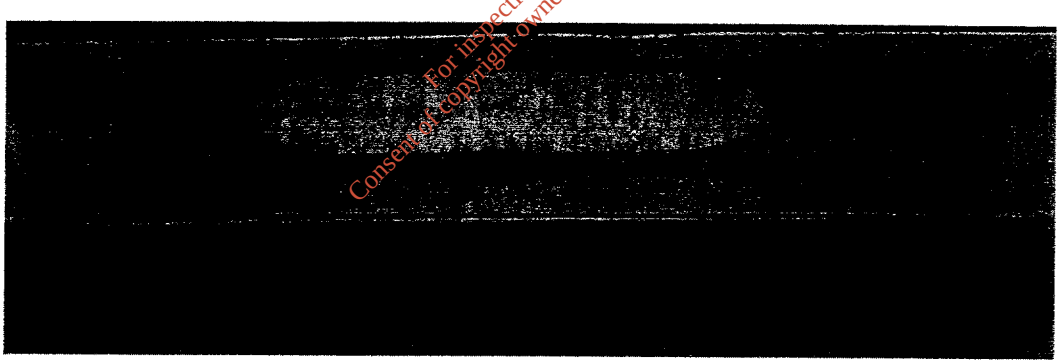
Photo 5 – Day 7

APPENDIX 4

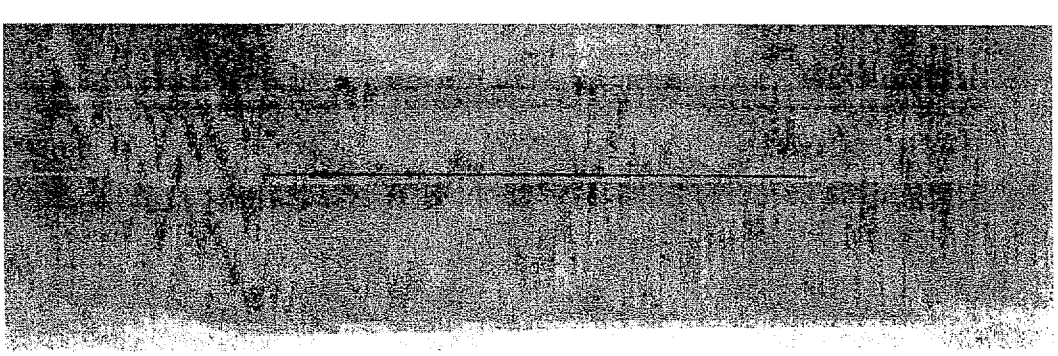
Rain/Evaporation Gauge A – (06/12/04 – 13/12/04)

Fill Day

Day 1



Day 3



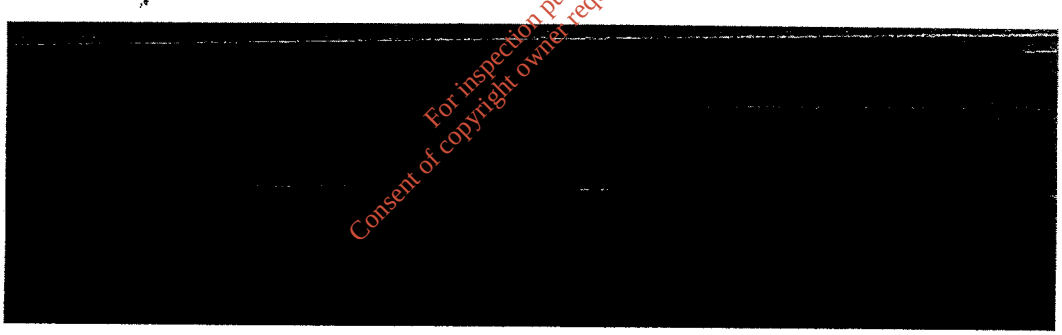
Day 7

APPENDIX 5

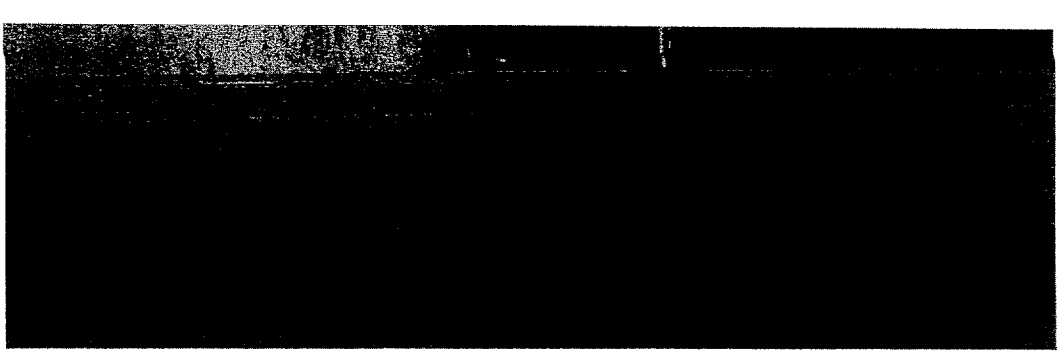
Rain/Evaporation Gauge B – (06/12/04 – 13/12/04)

Fill Day

Day 1



Day 3



Day 7

Appendix H.1.4

Bund Management

SAFETY & ENVIRONMENTAL PROCEDURE	S O P	Page 1 of 3
TITLE: **Bund Management**	606.025	Effective Date: _____ Revision No: 3 Date: 10.01.02 Prev Rev No: 2 Dated: 06.09.01

1.0 PURPOSE

To define the process whereby containment bunds are routinely inspected and drained of their contents in such a manner as to prevent any possibility of environmental damage either through spillage, leakage or the improper discharge of material to surface water drains or groundwater.

2.0 PROCEDURE

2.1 It is the responsibility of the Departmental Manager in whose department the bunds listed in Attachment 1 reside to ensure that this procedure is adhered to.

2.2 All process bunds must be checked daily while all other bunds must be checked at the frequency outlined in Attachment 1.

2.3 Inspection is necessary in order to:

- Determine if it is necessary to drain the contents of the bund.
- Ensure that the bund contents will not overflow the bund. (Ideally the bund should be dry, as any volume occupied by liquid within the bund reduces the potential of the bund to retain the spilled contents of a tank should a spillage or leakage occur and it also results in an increase in the volume of contaminated liquid should a spill occur).
- Check the condition of the bund.
- Ensure drain valves are in the closed position and locked if necessary.

2.4 A log sheet as outlined in Attachment 2 must be maintained in order to verify the Inspection and Drainage record for each bund. All bund drainage records must be filed and held in their department of origin. Bund inspection and drainage records may also be recorded as part of the Daily or Weekly Check list as outlined in SOP 209.104 Check List – Production, SOP 400.017 "Warehouse Weekly Check List" – Logistics, and SOP 209.104 "Check List – Production" – Bay 130.

2.5 Bunds should normally remain dry therefore if on inspection it is deemed necessary to drain the bund, the contents of the bund must be first be assessed to ensure that their identity is known.

Written By:	Approved By:	Approved By:	Approved By:
Sinead McAleer, Env. Technologist.	Pat Gallagher, Facilities Mgr.	Frances Martin, BPC Manuf. Mgr	Mary Clifford, Materials & Logistics Mgr
Date: _____	Date: _____	Date: _____	Date: _____
Approved By:	Approved By:	Approved By:	
John O'Donoghue, Safety & Env. Mgr.	Bernie Harten, Nitrates Manfu. Mgr.	Werner Kunz, Pharma Manfu. Mgr.	
Date: _____	Date: _____	Date: _____	

2.6 If the bund contains anything other than rainwater then an odour and visual assessment of the bund contents must be made before it can be discharged. It may be necessary to analyse the contents of the bund if its identity cannot be determined following initial inspection.

2.7 If it is determined following the identification of the bunds contents that they are unsuitable for discharge to the Wastewater Treatment Plant, the material must then be transferred into suitable, clearly labelled drums or tanks and disposed of as deemed necessary.

2.8 When the suitability of the bund material for discharge to drain has been confirmed then the contents may be discharged to drain as appropriate using an air pump and flexible hosing or by opening a drain valve. Ensure there are no leaks on the pump or transfer lines and where possible position the pump inside the bund wall when pumping.

2.9 Bund Content Discharge

2.9.1 All materials drained from bunds must where possible discharge directly into the drainage network which brings the effluent to the waste water treatment plant. The contents of these bunds should not be drained to surface water under any circumstances. The only exception to this rule is the discharge of nitration bunds.

2.9.2 Nitration plant bunds : The contents of the nitration plant bunds are normally discharged to surface water if they are free of contamination and are only directed to waste water treatment plant if contaminated. Before discharging from the tank farm bund, the liquid must be checked for pH to ensure it is not acidic. Before discharging liquid from the Mother Liquor Tank Bunds, the liquid must be checked to ensure it does not contain solids or odour. Please refer to SOP 507.001 on aqueous discharged from the nitration plant.

2.10 If the contents of a bund cannot be drained directly into the sewer system then they must be collected and discharged into the sewer system at a suitable discharge point.

2.11 Any oil or other hydrophobic chemical material should be removed before discharging the contents of a bund to the sewer. Oils must not be allowed go to the Wastewater Treatment Plant as they cannot be treated by the system and hence will pass though the system resulting in a breach of the IPC licence limits.

2.12 Once the bund is fully drained, any debris contained within the bund must be removed and disposed of in a proper manner. The bund must then be hosed down thoroughly and discharged to drain as described above.

2.13 Any bund defects including cracks, faulty valves etc must be noted and the Safety and Environmental Manager should be informed of the situation.

2.14 Full integrity testing of the bunds should take place at a maximum frequency of 3 years and records relating to the testing will be held by the Engineering Department.

2.15 Bunds must not be used for the storage of empty drums or any other materials.

2.16 Bunds must not be modified in any way that would alter their capacity or integrity.

3.0 DOCUMENTATION

Attachment I Bund register

Attachment II Example of bund inspection and drainage log book.

The form is available on Q:/S&E/SOP's/Forms/606.025_Bund Inspection & Drainage Log.doc for those not using a log book.

4.0 REVISION

This SOP is reviewed annually according to SOP 100.007. Any necessary changes will be documented in a new revision of this SOP.

SAFETY & ENVIRONMENTAL ATTACHMENT I TITLE: BUND REGISTER	SOP 606.025	Page 1 of 2 Effective Date: _____ Revision No: 3 Date: 10.01.02 Prev Rev No: 2 Dated: 06.09.01

Bund Ref. No	Bund Name	Location	Responsibility	Inspection Frequency	Available Retention (Lts)	Required Retention (Lts)	Largest Tank Volume (Lts)
B001	AT 1,2,3	BPC	BPC	Daily	5390	4950	4500
B002	AT 4,5,6	BPC	BPC	Daily	8490	5500	5000
B003	AT 7,8,9	BPC	BPC	Daily	6410	5500	5000
B004	IBC Bund	BPC (SPU End)	BPC	Daily	1140	1100	1000
B005	Effluent Pre Treatment Tanks	BPC (SPU End)	BPC	Daily	14800	13200	12000
B006	Extract Receiver	BPC	BPC	Daily	3200	2750	2500
B007	Nitric Acid Tank	Bay130	Bay 130	Daily	29970	20020	22712
B008	Fuel Oil Tank	Bay130	Bay 130	Daily	17270	15180	13800
B009	Yard Bund	Bay 130	Bay 130	Daily	18500	1100	1000
B010	Brominc Storage	Drum Storage	Logistics	Weekly	610	220	200
B011	Fuel Oil Tank	Rear of Boiler house	Logistics	Weekly	57250	33000	30000
B012	Sodium Hypochloride Storage	Drum Storage	Logistics	Weekly	1463	220	200
B013	Administration Fuel Oil Tank	Rear of Administration	Logistics	Weekly	12950	5104	4640
B014	Main Drum store	Main Drum Store	Logistics	Weekly	N/A	1100	1000
B015	Tank Farm	Rear of BPC	Logistics	Weekly	70000	33000	30000
B016	Glycol Tank	Rear of Refrigeration	Maintenance	Weekly	89880	88000	80000
B017	Maintenance Oil Store	Maintenance Yard	Maintenance	Weekly	2260	220	200
B018	Old WWTP Caustic/Sulphuric	Old WWTP	Environmental	Weekly	N/A	11509	10463
B019	WWTP Chemical Bund	WWTP	Environmental	Weekly	1295	1100	1000
B020	DIW Chemicals	Rear of DIW room	Maintenance	Weekly	1232	1100	1000
B021	Waste Oil Storage	Drum Storage	Logistics	Weekly	610	220	200
B022	Scrubber No. 3	Road Side of BPC	BPC	Weekly	1770	550	500

SAFETY & ENVIRONMENTAL ATTACHMENT I TITLE: BUND REGISTER	SOP 606.025	Page 2 of 2 Effective Date: _____ Revision No: 3 Date: 10.01.02 Prev Rev No: 2 Dated: 06.09.01

Bund Ref. No	Bund Name	Location	Responsibility	Inspection Frequency	Available Retention (Lts)	Required Retention (Lts)	Largest Tank Volume (Lts)
B023	Scrubber No. 1	BPC	BPC	Weekly	3303	2200	2000
B024	Acetic Acid & Acetic Anhydride Storage Tanks	Nitration plant	Nitration	Weekly	82320	33000	30000
B025	Nitric Bund	Nitration plant	Nitration	Weekly	36096	22000	20000
B026	Mothar Liquor Tanks	Nitration plant	Nitration	Weekly	9975	9350	8500
B027	Emergency catch tank	Nitration plant	Nitration	Weekly	17860	N / A	26000
BO28	Pharma Scrubber	Pharma Plant	Pharma	Weekly	1248	770	700
BO29	Pharma Scrubber Buffer Tank	Pharma Plant	Pharma	Weekly	1600	N/A	65000
BO30	Acid Dosing Storage Bund	WWTP	Environmental	Weekly	1200	1100	1000

SAFETY & ENVIRONMENTAL ATTACHMENT II Title: Example of : BUND INSPECTION AND DRAINAGE LOG	S O P 606.025	Page 1 of 1 Effective Date: _____ Revision No: 3 Date: 10.01.02 Prev Rev No: 2 Dated: 06.09.01

Bund Inspection and Drainage Log

Department: _____ Log No: _____

Date	Bund Ref.	Bund Inspected (Yes /No)	Inspection Comments	Analysis Required (Yes /No)	Analysis Results (If Applicable)	Bund Drained (Yes /No)	Signed

Bund Ref. No	Bund Name	Location	Responsibility	Inspection Frequency
B001	AT 1,2,3	BPC	BPC	Daily
B002	AT 4,5,6	BPC	BPC	Daily
B003	AT 7,8,9	BPC	BPC	Daily
B004	IBC Bund	BPC (SPU End)	BPC	Daily
B005	Effluent Pre Treatment Tanks	BPC (SPU End)	BPC	Daily
B006	Extract Receiver	BPC	BPC	Daily
B007	Nitric Acid Tank	Bay130	Bay 130	Daily
B008	Fuel Oil Tank	Bay130	Bay 130	Daily
B009	Yard Bund	Bay 130	Bay 130	Daily
B010	Bromine Storage	Drum Storage	Logistics	Weekly
B011	Fuel Oil Tank	Rear of Boiler house	Logistics	Weekly
B012	Sodium Hypochloride Storage	Drum Storage	Logistics	Weekly
B013	Administration Fuel Oil Tank	Rear of Administration	Logistics	Weekly
B014	Main Drum store	Main Drum Store	Logistics	Weekly
B015	Tank Farm	Rear of BPC	Logistics	Weekly
B016	Glycol Tank	Rear of Refrigeration	Maintenance	Weekly
B017	Maintenance Oil Store	Maintenance Yard	Maintenance	Weekly
B018	OLD WWTP Caustic/Sulphuric	Old WWTP	Environmental	Weekly
B019	WWTP Chemicals Bund	WWTP	Environmental	Weekly
B020	DIW Chemicals	Rear of DIW Room	Maintenance	Weekly
B021	Waste Oil Storage	Drum Storage	Logistics	Weekly
B022	Scrubber No. 3	Road Side of BPC	BPC	Weekly
BO23	Scrubber No. 1	BPC	BPC	Weekly
BO24	Acetic Acid & Acetic Anhydride Tank	Nitration Tank Farm	Nitration	Weekly
BO25	Nitric Bund	Nitration Tank Farm	Nitration	Weekly
BO26	Mothar Liquor Tanks	Nitration Plant	Nitration	Weekly
BO27	Emergency Catch Tank	Nitration Plant	Nitration	Weekly
BO28	Pharma Scrubber	Pharma Plant	Pharma	Weekly
BO29	Pharma Scrubber Buffer Tank	Pharma Plant	Pharma	Weekly
BO30	Acid Dosing Storage Bund	WWTP	Environmental	Weekly

REVISION LOG

SOP TITLE: Bund Management	SOP NUMBER/CODE: 606.025

REVISION NO.	REQUESTED BY:	REASON FOR REVISION	EFFECTIVE DATE
0	DH	Bund management programme required as part of ISO14001	30.09.00
1	DH	Update to include DIW and WWTP Chemical bunds scrubber 3 and a waste oil bunds.	19.12.00
2	S. Mc	• Updated page 2 of attachment 1 to include bund ref no's 23, 24, 25, 26 and 27. • Include section 3 referring to documentation and Att. II available on the Q drive.	21.09.01
3	S. Mc	➢ Update Attachment I and II to include 3 new bunds 28, 29, 30. ➢ Change B022 to "Scrubber No. 3" from "Scrubber No. 2".	

RECEIPT OF SOP CONFIRMATION

SOP TITLE: BUND MANAGEMENT	SOP NO: 606.025	REV. NO: 3
I acknowledge receipt of the above SOP. ***For All Copies Except Q.A Master Copy:*** **I have destroyed (returned in the case of Master BMI's and CPs) the superseded revision of the SOP.**		
Signed: **Department:**		**Date:**

Appendix H.1.5

Bund Locations

Rev	Date	Description
9	29/4/05	H Level Efful. Enviro Mods
8	22/7/04	CC 04/??. Enviro Mods
7	25/5/04	CC 04/189,Monitoring Pts
6	13/1/04	Include NPD Portacabin
5	26/7/02	Updated
4	13/5/02	Updated
3	28/8/01	Includes Canteen
2	24/9/99	Includes Nitration
1	29/4/99	Includes WWTP and Warehouse
B	20/2/97	Pharma Building Included

Drawing no. 100G00018_11

SCHWARZ PHARMA

Drawn: PMCM

Checked: RL

Scale: 1:1000

Date: 29/4/05

Title: SITE_BUND NO'S

Appendix H.1.6

Material Flow

N

RAW MATERIAL IN/OUT
WASTE
INTERMEDIATE / PRODUCT
L : LIQUID WASTE
S : SOLID WASTE

ACCESS ROAD
TANKFARM
NITRATION PLANT
PIPERACK
BLOWER HOUSE
WASTE WATER TREATMENT
OFFICE
SETTLE TANK
E.T. TANK
450m³
WATER TANKS
100m³
WWTP Chemicals
CONTRACTORS WORKSHOP
SPRINKLER PUMP HOUSE
FOAM PUMP HOUSE
CONTRACTORS AIR Compressor Room
STORE Lithiumamide
SCRUBBER
ACETONE CONTAINER
PHARMACEUTICAL PRODUCTION
PHARMA WAREHOUSE
STAIRWAY
PORTA 3
Sodium Hypochlorite
Refrig. Plant
Waste Management Area
DRUM STORE
DRUM STORE
COVERED DRUM STORE
Electrical
ESB
Boiler House
DI Plant
WPC Store
CHEMICAL WAREHOUSE
Solid Waste Departure Point
CANTEEN
LABORATORY SOLVENT STORE
TANKFARM
BULK PHARMACEUTICAL CHEMICALS
MAINT.
Oil Store
ERT
PORTA 1
PORTA 2
PORTA 7
PORTA 8
PORTA 9
PORTA 10
PORTA 11
PORTA 4
PORTA 5
OFFICES
ADMINISTRATION BUILDING
OIL TANK
CAR PARK
CARPARK
SECURITY
CAR PARK
Bottle Bank
Entrance
BOUNDARY

Rev	Date	Description
9	29/4/05	H Level Efful. Enviro Mods
8	22/7/04	CC 04/??, Enviro Mods
7	25/5/04	CC 04/189, Monitoring Pts
6	13/1/04	Include NPD Portacabin
5	26/7/02	Updated
4	13/5/02	Updated
3	28/8/01	Includes Canteen
2	24/9/99	Includes Nitration
1	29/4/99	Includes WWTP and Warehouse
B	20/2/97	Pharma Building Included

Drawing no. 100G00018_06

SCHWARZ PHARMA

Drawn: PMCM
Checked: RL
Scale: 1:1000
Date: 29/4/05

Title: MATS FLOW

Appendix H.1.7

Bund upgrade program

Bund No.	Location	21/06/04-26/06/04	07/10/04-11/10/04	6/12/04 – 13/12/04 & 24/3/05 – 07/04/05
B001	AT 1,2,3	Passed	-	
B002	AT 4,5,6	Passed	-	
B003	AT 7,8,9	Failed	Passed	
B004	IPC Bund	Passed		
B005	Effluent Pre-Treatment Tanks	Failed	Passed	
B006	Extract Receiver	Failed	Failed	Passed
B010	Bromide Storage (connected with B012)	Passed		
B011	Fuel Oil Tank	Failed		
B012	Sodium Hypochlorite Storage	See B010		
B013	Administration Fuel Oil Tank	Failed		Replaced-no testing required
B014	Drum Store			Cannot be tested during production operation
B015	Tank Farm	Passed		
B016	Glycol Tank	Passed		
B017	Maintenance Oil Store	Passed		
B018	Old WWTP Caustic/ Sulphuric	Passed		
B019	WWTP Chemical Bund	Passed		

Bund No.	Location	21/06/04-26/06/04	07/10/04-11/10/04	6/12/04 – 13/12/04 & 24/3/05 – 07/04/05
B020	DIW Chemicals	Passed		
B021	Waste Oil Storage	Passed		
B022	Scrubber No. 3	Passed		
B023	Scrubber No. 1	Failed		Passed
B024	Acetic Acid/ Acetic Anhydride Storage	Passed		
B025	Nitric Acid Bund	Failed		
B026	Mother Liquor Bund	Failed		Passed
B027	Emergency Catch Tank	Failed		Passed
B028	Pharma Scrubber	Failed		No longer in use
B029	Pharma Scrubber Buffer Tank	Failed		No longer in use
B030	Acid Dosing Storage Bund	Passed		
B031	BST1 Vacuum Pump Room	Passed	-	-
B032	Cold water cooler spill tray			Passed