

File Note

File Reference: SOR113385

Subject:

Date: 19/10/2012

Project Number: 240302

File Number: SOR113385

Att:

Subject (Detail): Phone Call

Description of proposed activity: Proposed change to condition of existing approval (new chemical storage shed) 50 Flood Road, Josephville (Council Reference 30000264)

Background: Received an application for a condition change to an existing approval.

Phoned ASI Planning today to determine what volume of chemicals the existing operation would be storing. Left message with graduate planner for the Principal /owner to call me on Monday.

Actions:

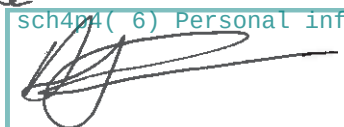
Follow up phone call

Statutory deadline 2/11/2012

ASI Response - Should not trigger ERA 8.

issue note

sch4p4(6) Personal inf



Our Ref:Q416

28th August 2012

Scenic Rim Regional Council
PO Box 25
Beaudesert QLD 4285

mail@scenicrim.qld.gov.au

Dear Sir/ Madam,

Re: Proposed Change to Condition of Existing Approval (New Chemical Storage Shed)
50 Flood Road, Josephville (Council Reference 30000264)

We hereby make a second application for a change to an approval (change to condition 1), Council Reference 3000264, overland described as Lots 1 and 2 on RP 118424 and lot 3 on CP 862699, situated at 50 Flood Road, Josephville.

We refer to you to proposal plans attached - Drawing Number AG – 17 – PL – 04 dated 10/10/11 prepared by Gelita Australia Pty Ltd and Ref CRQRB20810 Page 01 and 02 Revision A dated 2/08/2012 prepared by Endurance Sheds and Structures.

A previous application was made for a change to approval for a new shed (Council ref TP/893), which was approved on the 14th December 2012. This approval was for a new shed which was 30m in length, 9m in width and 6.2m in height. Subsequent to the approval, it has been identified that this shed is an insufficient size for the business requirements and this application is to change the approval with a proposed shed which is 30m in length, 11.5m in width and 7.257m in height. This new shed will establish an additional 345m² of Gross Floor Area. The shed will be located adjacent to the Hide shed and the existing apron will be extended to provide all weather access to the new shed. The shed is located to the east of existing operations. The shed will be utilised to store chemicals which will be detailed below.

Gelita Australia Pty Ltd has occupied the site for many years and has provided significant employment for the area. The operations of the current business have expanded such that additional storage space is required.

The organisation is very experienced with operations and the expansion will operate under industry guidelines and subject to all requirements of the Environmental Protection Authority with regard to relevant Environmentally Relevant Activities.

The proposed shed will store class 5 and 8 chemicals and will do so under the correct procedures to ensure minimal risk. Existing ERA's will be amended where necessary.

The proposed shed is in excess of 1km to other structures/ houses on adjacent lots and would not be visually dominate. The structure will have little if any impacts on adjacent lots.



326 Albany Creek Road
Bridgeman Downs QLD 4035
p. 1300 087 899
m. 0422 239 332
e. craig@asiplanning.com.au
www.asiplanning.com.au
ABN 90 289 134 703

Please see attached the completed "Request to Change an Existing Approval Form". Please advise of requirements to make payment of the applicable fee which we have been advised is \$900.00. Should Council require additional information, please let us know.

We look forward to receiving Council's favourable response as soon as possible.

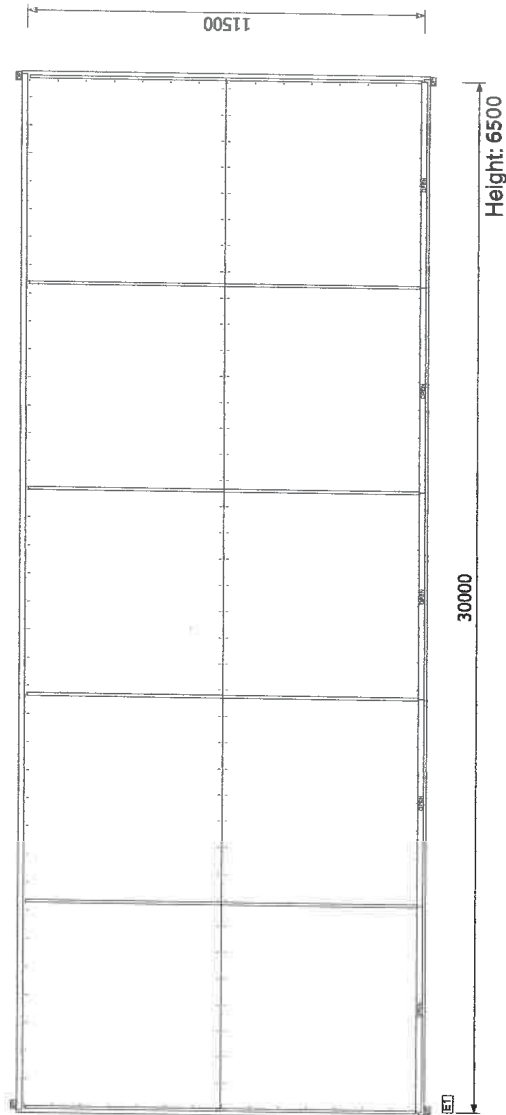
Yours faithfully

sch4p4(6) Personal inf

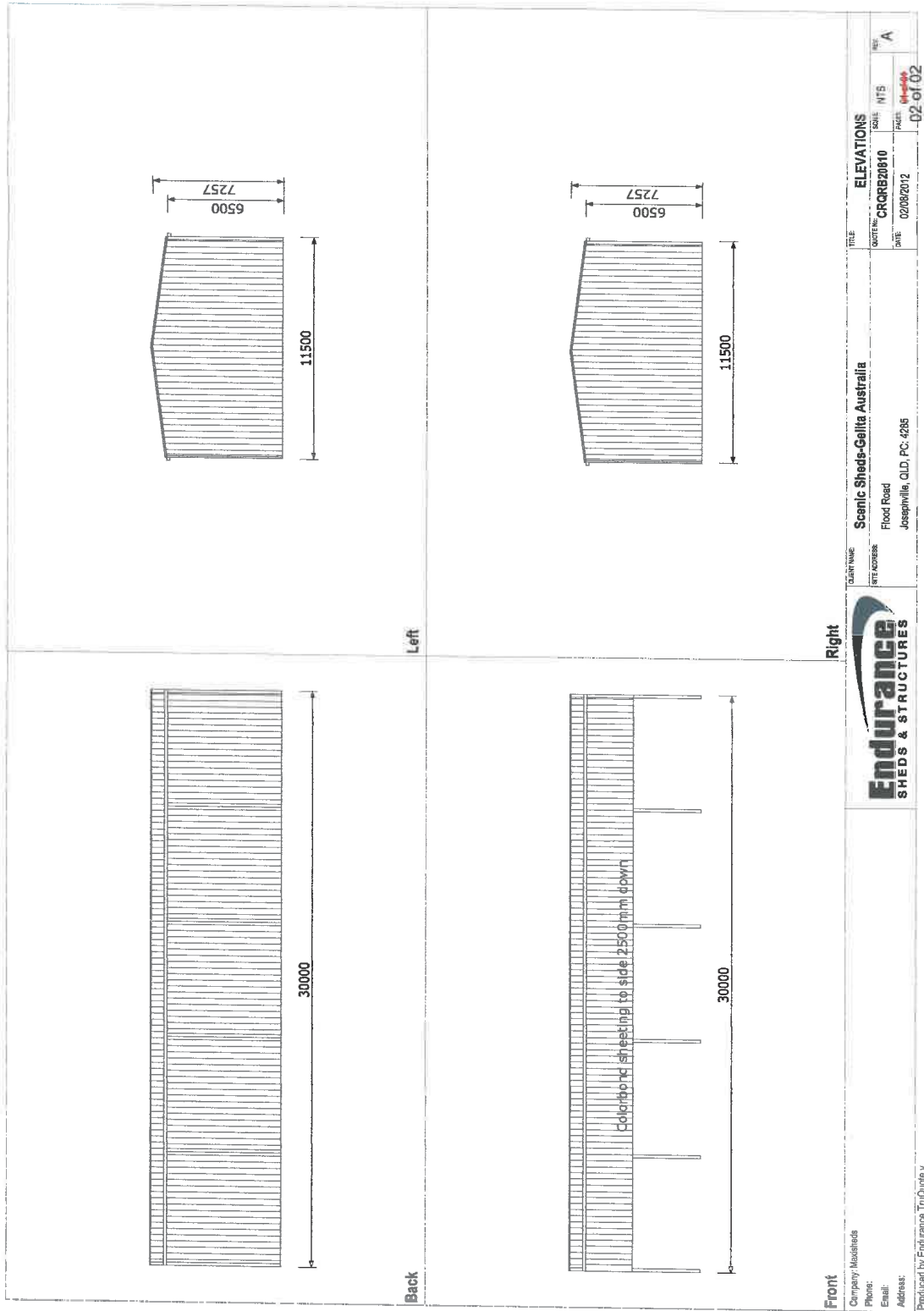
Craig Christie
Principle

OPTION ITEMS LIST:

5 x Open Side Bays
(E1) 1xEng - Form 15 (QLD) - Enduro



Company: Macarville Phone: Email: Address:		Produced by Endurance TruQuote v	
Endurance SHEDS & STRUCTURES		CLIENT NAME: Scenic Sheds-Gallia Australia SITE ADDRESS: Flood Road, Josephville, QLD, PC: 4285	
TITLE: PLAN VIEW SHEET No: CRQR820810 DATE: 02/08/2012		SCALE: NTS REGION: A OF 02	





Complaint/Report Details

Complaint/Report Ref: **CR52086**

Priority/Sensitive: N

Complainant

Ref	Name	Address	Phone	Mobile	Fax	Email
668820	Bourke, Brendan (1) (b) C	735 Sandy Creek Road JOSEPHVILLE QLD 4285	0420 534711			

Alleged Source

Ref	Name	Address	Phone	Mobile	Fax	Email
400434	GELITA Australia Pty Ltd	Sunny Hills Flood Road Josephville Via BEAUDESERT QLD 4285	5541 9442		5541 3612	cameron.smeal@gelita.com

Incident Location

Name	Risk Level	Address
Beaudesert		

Type: Nuisance complaint

Nature: Air : Odour : General

Received Date: 11/AUG/11

Receiving Officer: BEHRBOHM, Natalie

Receiving Office: Permit and Licence Management

Status: Finalised

Origin: Public

Notification Method: Email

Project Manager: BRUYNIOUS, Ernst

Responsible Office: ES-RSD-SER-Logan Scenic Rim

Description

Event On/From Date:	Event On/From Time:	Received Time:
Event To Date:	Event To Time:	Ongoing: N
Print Related Permits:		
Description		
Discharge of waste water via irrigator on vacant block. Spray and odour a nuisance. Complaint form received forwarded to regional office.		

Running Sheet Summary

Accrued Time: 1 hrs 0 mins

First Action	Date Commenced	Due Date	Action Type	Officer Involved	Outcome	Date Completed
Y	22/AUG/11		Complaint Form Received	BRUYNIOUS, Ernst	NFA - activity in compliance	30/SEP/11

Related Complaints/Reports

Ref	Complainant	Alleged Source	Incident Location	Received Date
CR35042	Bourke, Brendan (1) (b) C	Unknown Alleged Source - Use This One	Beaudesert	27/JUL/06
CR3536	Thorley, Sharyn	Terra Firma Fertilizer	Beaudesert	10/JUN/05
CR37659	Hynch, Graham	UNKNOWN, UNKNOWN	Beaudesert	01/MAY/07
CR40906	Stille, John	AJ Bush & Sons (Manufacturers) Pty Ltd	Beaudesert	17/MAR/08
CR41738	Doyle, Loma	AJ Bush & Sons (Manufacturers) Pty Ltd	Beaudesert	15/MAY/08
CR41739	Poutier, Max	AJ Bush & Sons (Manufacturers) Pty Ltd	Beaudesert	15/MAY/08
CR41742	Mancetlow, John	AJ Bush & Sons (Manufacturers) Pty Ltd	Beaudesert	15/MAY/08
CR44896	Bean, Kerry	Steggles	Beaudesert	22/JAN/09
CR46284	Edwards, gay	unknown	Beaudesert	18/JUN/09
CR4705	King, Darryl	Spackman, Rod	Beaudesert	01/SEP/05
CR51079	Moriarty, Marlene	AJ Bush Factory	Beaudesert	21/MAR/11
CR51091	Keenan, C & R	AJ Bush Factory	Beaudesert	21/MAR/11
CR6482	Veolia Environmental Services (Australia) Pty Ltd	Notification by source	Beaudesert	31/JAN/06

Related Compliance Activity

Ref	Type	Information Entered	Client	Activity Location
CA19994	Maintenance	16/DEC/09	GELITA Australia Pty Ltd	Beaudesert
CA4306	Licensed Activity	15/AUG/05	TERRA FIRMA	Beaudesert
CA4308	Licensed Activity	15/AUG/05	Terra Firma Fertilisers Pty Ltd	Beaudesert

Running Sheet Summary

Complaint/Report Ref: CR52086

Complainant						
Ref	Name	Address	Phone	Mobile	Fax	Email
668820	Bourke, Brendan	735 Sandy Creek Road JOSEPHVILLE QLD 4285	0420 534711			

Alleged Source						
Ref	Name	Address	Phone	Mobile	Fax	Email
400434	GELITA Australia Pty Ltd	Sunny Hills Flood Road Josephville Via BEAUDESERT QLD 4285	5541 9442		5541 3612	cameron.smeal@gelita.com

Incident Location		
Name	Risk Level	Address
Beaudesert		

Source Ref: CR52086

Action Source Ref:

Date Commenced: 22/AUG/11 **First Action:** Y

Officer Involved: BRUYNIUS, Ernst

Responsible Office: ES-RSD-SER-Logan Scenic Rim

Action Type: Complaint Form Received

Inspection Type: Reactive - initial

Enforcement Measure Type:

Referral To: Other

Action: Contacted GELITA re odour and spray-drift allegation adversely affecting nearby resident. GELITA emailed DERM on 30 September 2011 stating that irrigator was stopped and would be moved the next day.

Time Spent Hours: 1

Time Spent Minutes:

Outcome: NFA - activity in compliance

Outcome Description:

Due Date:

Date Completed: 30/SEP/11

Complaint/Report Details

Complaint/Report Ref: **CR39041**

Priority/Sensitive: N

Complainant

Ref	Name	Address	Phone	Mobile	Fax	Email
600441	Unknown,					

Alleged Source

Ref	Name	Address	Phone	Mobile	Fax	Email
400434	GELITA Australia Pty Ltd	Sunny Hills Flood Road Josephville Via BEAUDESERT QLD 4285	5541 9442		5541 3612	cameron.smeal @gelita.com

Incident Location

Name	Risk Level	Address
Sunny Hills Flood Road JOSEPHVILLE QLD 4285	2 Low	Sunny Hills Flood Road JOSEPHVILLE QLD 4285

Type: Incident - major

Nature: Water : Effluent/Sewage

Received Date: 04/SEP/07

Receiving Officer: CARRICK, Steven

Receiving Office: SouthReg Environmental Operations*

Status: Finalised

Origin: Notification by source

Notification Method: Telephone call - business hours

Project Manager: CARRICK, Steven

Responsible Office: ES - Reg Serv - Bne South - Bne

Description

Event On/From Date:	Event On/From Time:	Received Time:
Event To Date:	Event To Time:	Ongoing: N
		Print Related Permits:

Description

EPA officer S.Carrick received telephone call from Cameron Smeal - the site environmental manager of Gelita who reported a "major" incident.

CS stated approx 1.5 ML of effluent had discharged into the Logan River over the weekend. He was not sure of the exact cause at this stage as he had only just become aware of the incident, reason being he did not work on the weekend and was out of the office on Monday. CS said a complete incident report will be compiled as in accordance with DA conditions and sent to EPA.

SC stated it was a serious incident and EPA will need to carry out an investigation to determine what exactly happened and if there was any environmental harm caused.

PIN NO: 001617 Sent via registered post 26/09/07.

Enforcement Measure

Type	Ref	Issued/Received Date	Status
PIN	PIN3722	25/SEP/07	Paid in Full

Running Sheet Summary

Accrued Time: 4 hrs 0 mins

First Action	Date Commenced	Due Date	Action Type	Officer Involved	Outcome	Date Completed
Y	04/SEP/07		Site Inspection - Level B	CARRICK, Steven	Action Required -	04/SEP/07
	25/SEP/07		Enforcement Measure	NICHOLS, Sarah	further investigation	
	12/OCT/07		PIN - acknowledging payment	MURRAY, Caroline	Enf Measure - PIN	25/SEP/07
					NFA - payment	12/OCT/07
					received	

Related Complaints/Reports

Ref	Complainant	Alleged Source	Incident Location	Received Date
CR41396	GELITA Australia Pty Ltd	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	08/APR/08
CR42564	Krahnen, Matthew and Simone	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	21/JUL/08
CR57925	Krahnen, Matthew and Simone	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	01/MAR/13

Related Compliance Activity

Ref	Type	Information Entered	Client	Activity Location
CA13293	Not Applicable	06/DEC/04	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285
CA16882	Not Applicable	17/JUL/08	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285

Complaint/Report Details

Related Compliance Activity

Ref	Type	Information Entered	Client	Activity Location
CA18007	Licence	05/DEC/08	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285
CA18010	Licence	05/DEC/08	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285
CA1869	Licensed Activity	17/MAR/05	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285
CA316	Licensed Activity	22/OCT/04	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285
CA5307	Licensed Activity	07/DEC/05	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285
CA8396	Licensed Activity	09/NOV/06	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285
CA8397	Licensed Activity	09/NOV/06	Leiner Davis Gelatin International Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285

Running Sheet Summary

Complaint/Report Ref: CR39041

Complainant

Ref	Name	Address	Phone	Mobile	Fax	Email
600441	Unknown,					

Alleged Source

Ref	Name	Address	Phone	Mobile	Fax	Email
400434	GELITA Australia Pty Ltd	Sunny Hills Flood Road Josephville Via BEAUDESERT QLD 4285	5541 9442		5541 3612	cameron.smeal@gelita.com

Incident Location

Name	Risk Level	Address
Sunny Hills Flood Road JOSEPHVILLE QLD 4285	2 Low	Sunny Hills Flood Road JOSEPHVILLE QLD 4285

Source Ref: CR39041

Action Source Ref:

Date Commenced: 04/SEP/07

First Action: Y

Officer Involved: CARRICK, Steven

Responsible Office: ES - Reg Serv - Bne South - Bne

Action Type: Site Inspection - Level B

Inspection Type: Reactive - Incident

Enforcement Measure Type:

Referral To:

Action: EPA officer - Christine Jurgensen conducted a site inspection later that day (arrived approx 2:45pm).

Time Spent Hours: 3

Time Spent Minutes: 0

Outcome: Action Required - further investigation

Outcome Description: It appeared the release of effluent occurred due to a break in a irrigation hydrant.

Further details of information collected during the inspection by CJ are on file STH495-13.

Due Date:

Date Completed: 04/SEP/07

Source Ref: CR39041

Action Source Ref: PIN3722

Date Commenced: 25/SEP/07

First Action: N

Officer Involved: NICHOLS, Sarah

Responsible Office: ES - Reg Serv - Bne South - Bne

Action Type: Enforcement Measure

Inspection Type:

Enforcement Measure Type: PIN

Referral To:

Action: PIN issued. For more information, see file STH495-13.

Time Spent Hours: 1

Time Spent Minutes: 0



Running Sheet Summary

Outcome: Enf Measure - PIN

Outcome Description: Will finalise this case (CR39041) once penalty fee is paid.

Due Date:

Date Completed: 25/SEP/07

Source Ref: CR39041

Action Source Ref: PIN3722

Date Commenced: 12/OCT/07

First Action: N

Officer Involved: MURRAY, Caroline

Responsible Office: ES - Reg Serv - Bne South - Bne

Action Type: PIN - acknowledging payment

Inspection Type:

Enforcement Measure Type: PIN

Referral To:

Action: PAYMENT RECEIVED PAID IN FULL PIN 001617

Time Spent Hours:

Time Spent Minutes:

Outcome: NFA - payment received

Outcome Description: Case closed.

Due Date:

Date Completed: 12/OCT/07

Compliance Activity Details Report

Compliance Activity Ref: CA16882

Priority/Sensitive: N

Client						
Ref	Name	Address	Phone	Mobile	Fax	Email
400434	GELITA Australia Pty Ltd	Sunny Hills Flood Road Josephville Via BEAUDESERT QLD 4285	5541 9442		5541 3612	cameron.smeal@gelita.com

Activity Location		
Name	Risk Level	Address
Sunny Hills Flood Road JOSEPHVILLE QLD 4285	2 Low	Sunny Hills Flood Road JOSEPHVILLE QLD 4285

Program Type: Not Applicable

Compliance Program: 2007-08/Not Applicable/Not Applicable/Environmental Operations

Status: Finalised

Info Entered: 17/JUL/08

Project Manager: CARRICK, Steven

Responsible Office: ES - Reg Serv - Bne South - Bne

Subject: DA Condition Breach

Enforcement Measure			
Type	Ref	Issued/Received Date	Status
PIN	PIN4976	28/JUL/08	Paid in Full

Running Sheet Summary					
Accrued Time: 6 hrs 0 mins					
Date Commenced	Due Date	Action Type	Officer Involved	Outcome	Date Completed
14/JUL/08		Letter - received	CARRICK, Steven	Enf Measure - PIN	14/JUL/08
16/JUL/08		Site Inspection - Level B	CARRICK, Steven	Enf Measure - PIN	16/JUL/08
06/AUG/08		Other	CAVENDISH, Gina	NFA	06/AUG/08
29/AUG/08		PIN - acknowledging payment	CAVENDISH, Michael	NFA - payment received	29/AUG/08

Related Complaints/Reports				
Ref	Complainant	Alleged Source	Incident Location	Received Date
CR39041	Unknown,	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	04/SEP/07
CR41396	GELITA Australia Pty Ltd	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	08/APR/08
CR42564	Krahn, Matthew and Simone	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	21/JUL/08
CR57925	Krahn, Matthew and Simone	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	01/MAR/13

Related Compliance Activity					
Ref	Type	Information Entered	Client	Activity Location	
CA13293	Not Applicable	17/JUL/08	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	
CA18007	Licence	17/JUL/08	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	
CA18010	Licence	17/JUL/08	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	
CA1869	Licensed Activity	17/JUL/08	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	
CA316	Licensed Activity	17/JUL/08	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	
CA5307	Licensed Activity	17/JUL/08	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	
CA8396	Licensed Activity	17/JUL/08	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	
CA8397	Licensed Activity	17/JUL/08	Leiner Davis Gelatin International Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	

Related Permits					
Ref	Type	Client	Location	Issued Date	Status
ENCD00441205	Development Approval (Chuckie)	Leiner Davis Gelatin International Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285		Current
ENRE00783008	Registration - suitability report not required	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285		Superseded
ENRE00783008	Registration - suitability report not required	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285		Superseded
ENRE00783008	Registration - suitability report not required	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285		Superseded
ENRE00783008	Registration - suitability report not required	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285		Superseded - Greentape
ENRE00783008	Registration - suitability report not required	Smith, Natasha	Sunny Hills Flood Road JOSEPHVILLE QLD 4285		Superseded - Greentape
EPPR00495113	Environmental Authority	GELITA Australia Pty Ltd	Sunny Hills Flood Road		Current



Compliance Activity Details Report

Related Permits					
Ref	Type	Client	Location	Issued Date	Status
EPPR00495113	(Site Specific) Environmental Authority	Smith, Natasha	JOSEPHVILLE QLD 4285 Sunny Hills Flood Road		Current
IPCE00858608	(Site Specific) Concurrence Response for a MCU involving an ERA	Leiner Davis Gelatin International Pty Ltd	JOSEPHVILLE QLD 4285 Sunny Hills Flood Road		Current
IPDE00992208	Development Approval for a MCU involving an ERA	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285		Current
SR0722	Environmental Authority	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	04/NOV/97	Cancelled
SR0722	Environmental Authority	Seach, Roger	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	04/NOV/97	Cancelled
SR1114	Environmental Authority	GELITA Australia Pty Ltd	Sunny Hills Flood Road JOSEPHVILLE QLD 4285	14/DEC/98	Cancelled

Running Sheet Summary

Compliance Activity Ref: CA16882

Client						
Ref	Name	Address	Phone	Mobile	Fax	Email
400434	GELITA Australia Pty Ltd	Sunny Hills Flood Road Josephville Via BEAUDESERT QLD 4285	5541 9442		5541 3612	cameron.smeal@gelita.com

Activity Location		
Name	Risk Level	Address
Sunny Hills Flood Road JOSEPHVILLE QLD 4285	2 Low	Sunny Hills Flood Road JOSEPHVILLE QLD 4285

Source Ref: CA16882

Action Source Ref:

Date Commenced: 14/JUL/08

Officer Involved: CARRICK, Steven

Responsible Office: ES - Reg Serv - Bne South - Bne

Action Type: Letter - received

Inspection Type:

Enforcement Measure Type:

Referral To:

Action: Cameron Smeal (Gelita) phoned and emailed S.Carrick to alert of a trap dam wall collapse. The collapse resulted in an unknown volume of diluted effluent discharging into the Logan River.

Time Spent Hours: 1

Time Spent Minutes: 0

Outcome: Enf Measure - PIN

Outcome Description: Inspection of the collapsed dam wall required.

Due Date:

Date Completed: 14/JUL/08

Source Ref: CA16882

Action Source Ref:

Date Commenced: 16/JUL/08

Officer Involved: CARRICK, Steven

Responsible Office: ES - Reg Serv - Bne South - Bne

Action Type: Site Inspection - Level B

Inspection Type: Reactive - Incident

Enforcement Measure Type:

Referral To:

Action: EPA officer Steve Carrick inspected the area of the dam wall collapse.

Time Spent Hours: 5

Time Spent Minutes: 0

Outcome: Enf Measure - PIN

Outcome Description: Pin recommended.

Due Date:

Date Completed: 16/JUL/08



Running Sheet Summary

Source Ref: CA16882

Action Source Ref: PIN4978

Date Commenced: 06/AUG/08

Officer Involved: CAVENDISH, Gina

Responsible Office: ES - Law Clerks - Central Office

Action Type: Other

Inspection Type:

Enforcement Measure Type:

Referral To:

Action: PIN 003421 Cancelled and PIN 003422 issued in lieu.

Time Spent Hours:

Time Spent Minutes:

Outcome: NFA

Outcome Description:

Due Date:

Date Completed: 06/AUG/08

Source Ref: CA16882

Action Source Ref: PIN4976

Date Commenced: 29/AUG/08

Officer Involved: CAVENDISH, Michael

Responsible Office: ES - Litigation - Law Clerks

Action Type: PIN - acknowledging payment

Inspection Type:

Enforcement Measure Type:

Referral To:

Action: Full payment received 25/08/2008 receipt no. 1400016118

Time Spent Hours:

Time Spent Minutes:

Outcome: NFA - payment received

Outcome Description:

Due Date:

Date Completed: 29/AUG/08



Alleged Breach Report

Incident Investigation – Southern Region

ALLEGED OFFENDER DETAILS:

Name: Gelita Australia Pty Ltd
ACN no: 000 010 597
Registered Address: Gelita Australia Pty Ltd
C-1
Piper Alderman Lawyers Level 9
239 George St
BRISBANE QLD 4000
Phone: 5541 3544
Development Approval no: IPDE00992208
File no: STH495-13
Ecotrack no: CA16882
Pin no: PIN4976 / PIN003422

DATE OF ALLEGED OFFENCE:

14 July 2008

LOCATION OF ALLEGED OFFENCE:

Sunny Hills, Flood Road, JOSEPHVILLE VIA BEAUDESERT on land described as Lot 1 RP118424;
Lot 2 RP 118424 & Lot 3 CP 862699

BRIEF SUMMARY OF INCIDENT:

On 14 July 2008, Gelita's environmental manager – Mr Cameron Smeal telephoned and emailed EPA officer Steven Carrick to report an uncontrolled discharge of treated effluent from Gelita's site into the bordering Logan River.

The collapse of a trap dam wall was the primary cause for the release. This dam is located in the south east corner of the site and is the designed end point of a drainage line that's purpose is to capture overland flow of effluent which would otherwise drain to the Logan River.

On the day of the incident the site had received a substantial amount of rainfall and an irrigator servicing the dam broke down. The combination of these two factors caused the dam to fill to a level beyond its capacity and consequently collapse.

Mr Smeal is unsure what volume of effluent discharged and for how long it occurred before he was alerted to the incident.

ALLEGED OFFENCE(S) - List Act(s) & section(s) involved:

Gelita Australia Pty Ltd hold a registration Certificate under section 73F for Development Approval IPDE00992208 for ERAs including ERA 50(b) Rendering operation – commercially processing or extracting substances, including for example, fat tallow, derivatives of fat or tallow or proteinaceous matter, from animal waste or by-products (other than an operation using wastes solely derived from an activity mentioned in item 32(a) or 47 in works having a design production capacity of 300 tonnes or more per year.

As a result of the uncontrolled discharge to waters, Gelita has breached condition C1 of SR0722 which states: *Contaminants must not be released or indirectly released from the licensed place to any waters or the bed and banks of any waters except:*

- (i) *as permitted under the stormwater management schedule; or*
- (ii) *to a sewer as permitted or otherwise agreed from time to time by the relevant Local Government.*

Failure to comply with this condition has resulted in Gelita contravening section 435(2) of the *Environmental Protection Act 1994* which states:

"A person must not contravene a development condition of a development approval"

LIST ELEMENTS OF EACH ALLEGED OFFENCE AND A BRIEF SUMMARY OF AVAILABLE EVIDENCE FOR EACH ELEMENT:

"Person"

A person is defined in schedule 10 of the *Environmental Protection Act 1994*. A person includes a body of persons, whether incorporated or unincorporated and is therefore a person for the purposes of the *Environmental Protection Act 1994*.

A CITEC search has revealed Gelita Australia Pty Ltd as being a registered company and incorporated in NSW (see attached).

"Contravene"

Contravene is defined in the *Macquarie Dictionary* as – to come or be in conflict with; or go or act counter to; oppose; to violate; infringe; or transgress; to contravene the law.

“Development Approval”

Development approval is defined in the Integrated Planning Act 1997. Development Approval means a decision notice that –

- (a) approves, wholly or partially, development applied for in a development application (whether or not the approval has conditions attached to it); and
- (b) is in the form of a preliminary approval, development permit or an approved combining both a preliminary approval and a development permit in the one approval.

A decision notice is in place which authorises Gelita to have carried out the development works for the rendering operation.

“Development Condition”

Development condition is defined in schedule 3 of the *Environmental Protection Act 1994* as:

Development condition of a development approval, means a condition of the approval imposed by, or imposed because of a requirement of, the administering authority as assessment manager or concurrence agency for the application for the approval.

The relevant development condition is condition C1 which is in the condition of the development approval - IPDE00992208.

Condition C1 states:

Contaminants must not be released or indirectly released from the approved place to any waters or the bed and banks of any waters except:

- (i) *as permitted under the stormwater management schedule; or*
- (ii) *to a sewer as permitted or otherwise agreed from time to time by the relevant Local Government.*

“Contaminant”

A contaminant is defined in section 11 of the Environmental Protection Act 1994. A ‘Contaminant’ can be-

- (a) a gas, liquid or solid; or
- (b) an odour, or
- (c)
- (e) A combination of contaminants.

The contaminant released was treated effluent (liquid).

“from the approved place”

There is no contention that the source of the contamination is from the approved place.

“Waters”

Waters is defined in schedule 3 of the Environmental Protection Act 1994. Waters means Queensland waters.

Waters is also defined in schedule 2 of the Environmental Protection (Water) Policy 1997. Waters includes the bed and banks of waters.

The release of effluent flowed into the freshwater reaches of the Logan River which is a water for the purposes of Qld's state legislation”.

“Stormwater management schedule”

The release was not authorised under the stormwater management schedule.

“Sewer”

The release of effluent was not to a sewer.

LIST EPA OFFICER/S INVOLVED:

Louise Jordan

Steven Carrick

DATE INVESTIGATION BEGAN:

14 July 2008

AGGRAVATING CIRCUMSTANCES:

There has been two previous uncontrolled discharges of treated effluent to the Logan River within the previous 12 months. These incidents occurred on the 2 September 2007 and 18 May 2008. The September 2007 incident resulted in a discharge of 1-2 ML while the 18 May 2008 incident resulted in an approximate discharge of 15,000KL. A PIN was issued for the September 2007 incident only.

MITIGATING CIRCUMSTANCES:

- Mr Smeal reported the incident to EPA in accordance with DA conditions as soon as becoming aware.
- Immediate remediation works commenced once Mr Smeal became of the incident and were completed the following day. Mr Carrick conducted an inspection of the dam on the 16 July 2008 and confirmed the completion of those works. This included increasing the capacity of the dam to prevent another discharge should a similar set of "lead up" events occur again.
- The discharged effluent was heavily diluted with rain water
- Regular monitoring of electrical conductivity is conducted 50m downstream of where the effluent discharged into the Logan River. It revealed no increases on the day of the incident.

IS ANY FURTHER INFORMATION OBTAINABLE?

No

ATTACHMENTS

- 1) CITEC search.

RECOMMENDATION FOR EACH OFFENCE:

It is recommended that Gelita be issued with a penalty infringement notice for failing to comply with condition C1 in Development Approval IPDE00992208.

REPORT COMPLETED BY:

Steven Carrick
Senior Environmental Officer
Southern Region
23 July 2008

REPORT REVIEWED BY:

Louise Jordan
Manager
Bris South – Env Services
July 2008

REPORT FORWARDED FOR DECISION TO:

Louise Jordan
Manager
Bris South – Env Services
July 2008

FINAL DECISION FOR EACH OFFENCE:

PIN issued to Gelita Australia Pty Ltd for contravention of section 435 of the *Environmental Protection Act 1994* as a result of breach of condition C1 of Development Approval IPDE00992208.

This decision is in accordance with the ERA's Enforcement Guideline.

Louise Jordan: _____
Manager
July 2008



Queensland Government

Environmental Protection Agency
Queensland Parks and Wildlife Service

Report
Model Breach Report

Enquiries Steven Carrick
Telephone 3225 1040
Your reference
Our reference STH495

28 July 2008

Gelita Australia Pty Ltd
C/-
Piper Alderman Lawyers
Level 9 239 George St
BRISBANE QLD 4000

C/c
Mr Cameron Smeal
Gelita Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

Dear Mr Klaus Hanke, Mr Pablo Sibler and Mr David Van Zeeland,

As you may be aware the Environmental Protection Agency (EPA) has been investigating an incident which occurred on 14 July 2008 that resulted in effluent generated from within Gelita Australia Pty Ltd's (Gelita) gelatine manufacturing site at Josephville discharging into the Logan River.

Through information obtained in Gelita's official notification, EPA's attendance at the site on 16 July 2008 and EPA discussions with the site's Environmental Manager - Mr Cameron Smeal, it is evident that effluent was unlawfully released from a trap dam to waters described as the Logan River. EPA's investigations have revealed that the operator of this activity to which Development Approval IPDE00992208 applies is therefore in breach of condition C1, which states:

Contaminants must not be released or indirectly released from the licensed place to any waters or the bed and banks of any waters except:

- (i) *as permitted under the stormwater management schedule; or*
- (ii) *to a sewer as permitted or otherwise agreed from time to time by the relevant Local Government.*

I draw your attention to Section 435(2) of the *Environmental Protection Act 1994* which states that "*A person must not contravene a condition of a development approval*". A copy of this section is enclosed for your information as Attachment 1.

A person who contravenes a condition of a development approval can be prosecuted by the EPA in court in which case the maximum penalty the court can impose is \$124 875 for individuals and \$624 375 for corporations. Alternatively, the EPA can exercise its discretion to issue an Infringement Notice for the offence that requires the payment of a set fine. The infringement notice penalty for contravention of a condition of a development approval is \$1500. You should note that an infringement notice can be issued for each condition of a development approval that is breached.

On this occasion the EPA has decided to issue Gelita with an Infringement Notice (No. 003422) for failing to comply with condition C1 of IPDE00992208 on 14 July 2008. Should the EPA obtain evidence indicating that the alleged offence is more serious than first thought, the EPA may withdraw the Infringement Notice within 28 days and may consider taking further action under the provisions of the *Environmental Protection Act 1994*. The Infringement Notice is attached to this letter.

I acknowledge the proactive actions Gelita took shortly after the event to adequately reduce the risk of future incidents of this type. I am also aware however that this is the third time an incident of this nature has occurred within the last 12 months and would therefore like to advise that any further uncontrolled release may result in more serious enforcement action.

The EPA would like to thank Gelita for its co-operation throughout the investigation and looks forward to continued positive working arrangements.

If you have any questions regarding the content of this letter please phone Steven Carrick on telephone no. 3225 1040.

Yours sincerely

Louise Jordan
Team Leader
Brisbane South
Environmental Services

ATTACHMENT 1

Section 435 - Offence to contravene development condition

(1) A person must not wilfully contravene a development condition of a development approval.

Maximum penalty—2000 penalty units or 2 years imprisonment.

(2) A person must not contravene a development condition of a development approval.

Maximum penalty—1665 penalty units.

(3) In a proceeding for an offence against subsection (1), if the court is not satisfied the defendant is guilty of the offence charged but is satisfied the defendant is guilty of an offence against subsection (2), the court may find the defendant guilty of the offence against subsection (2).



Alleged Breach Report

Incident Investigation – Southern Region

ALLEGED OFFENDER DETAILS:

Name: Gelita Australia Pty Ltd
ACN no: 000 010 597
Registered Address: Gelita Australia Pty Ltd
C-1
Piper Alderman Lawyers Level 9
239 George St
BRISBANE QLD 4000
Phone: 5541 3544
Development Approval no: SR0722
File no: STH495
Ecotrack no: CR39041
Pin no: PIN3722

DATE OF ALLEGED OFFENCE:

2 September 2007

LOCATION OF ALLEGED OFFENCE:

Sunny Hills, Flood Road, JOSEPHVILLE VIA BEAUDESERT on land described as Lot 1 RP118424; Lot 2 RP 118424 & Lot 3 CP 862699

BRIEF SUMMARY OF INCIDENT:

EPA received a call from Cameron Smeal (Site Environmental Manager) of Gelita on 4/9/07 to report an incident which resulted in a breach of conditions contained in Development Approval no. SR0722. The incident occurred sometime between midday - 1/9/07 to midday - 2/9/07. Gelita became aware of the incident on 3/9/07, however Mr Smeal was not on site that day and did not become aware of the incident until the following day which caused the delay in initial notification to EPA.

The incident involved an uncontrolled release of approximately 1 – 2 ML of treated effluent from a break in an irrigation line. The effluent discharged into the bordering Logan River (see attached photo). The majority of irrigation lines run inside bunded areas with overland flow draining to storage ponds. The location of the break in this instance was outside a bunded area. The cause of the break was due to operator error.

No monitoring of the discharged effluent was undertaken, however the quality of effluent is monitored weekly to monthly depending on the contaminant to be monitored. The most recent results are described below.

Test Description	Units	Sampling Point 1	Sampling Point 2
BOD5	mg/L	22	40
NH3	mg/L	520	500
Total Nitrogen	mg/L	590	510
Total Phosphorous	mg/L	1.8	1.3
Sodium	mg/L	510	570
Calcium	mg/L	200	310

ALLEGED OFFENCE(S) - List Act(s) & section(s) involved:

Gelita Australia Pty Ltd hold a registration Certificate under section for Development Approval SR0722 for ERAs including ERA 50(b) Rendering operation – commercially processing or extracting substances, including for example, fat tallow, derivatives of fat or tallow or proteinaceous matter, from animal waste or by-products (other than an operation using wastes solely derived from an activity mentioned in item 32(a) or 47 in works having a design production capacity of 300 tonnes or more per year.

As a result of the uncontrolled discharge to waters, Gelita has breached condition C1 of SR0722 which states: *Contaminants must not be released or indirectly released from the licensed place to any waters or the bed and banks of any waters except:*

- (i) *as permitted under the stormwater management schedule; or*
- (ii) *to a sewer as permitted or otherwise agreed from time to time by the relevant Local Government.*

Failure to comply with this condition has resulted in Gelita contravening section 435(2) of the *Environmental Protection Act 1994* which states:

"A person must not contravene a development condition of a development approval".

LIST ELEMENTS OF EACH ALLEGED OFFENCE AND A BRIEF SUMMARY OF AVAILABLE EVIDENCE FOR EACH ELEMENT:

“Person”

A person is defined in schedule 10 of the Environmental Protection Act 1994. A person includes a body of persons, whether incorporated or unincorporated and is therefore a person for the purposes of the Environmental Protection Act 1994.

A Queensland business search (CITEC) has revealed Gelita Australia Pty Ltd as being a registered company and incorporated in NSW.

“Contravene”

Contravene is defined in the Macquarie Dictionary as – to come or be in conflict with; or go or act counter to; oppose; to violate; infringe; or transgress; to contravene the law.

Gelita has contravened condition C1 of Development Approval SR0722 which states:

Contaminants must not be released or indirectly released from the licensed place to any waters or the bed and banks of any waters except:

- (i) *as permitted under the stormwater management schedule; or*
- (ii) *to a sewer as permitted or otherwise agreed from time to time by the relevant Local Government.*

“Development Approval”

Development approval is defined in the Integrated Planning Act 1997. Development Approval means a decision notice that –

- (a) approves, wholly or partially, development applied for in a development application (whether or not the approval has conditions attached to it); and
- (b) is in the form of a preliminary approval, development permit or an approved combining both a preliminary approval and a development permit in the one approval.

A decision notice is in place which authorises Gelita to have carried out the development works for the rendering operation.

“Development Condition”

- 1) Development condition, of a development approval, means a condition of the approval imposed by, or imposed because of a requirement of, the administering authority as assessment manager or concurrence agency for the application for the approval.
- 2) The term includes a reference to a condition referred to in the State Development Act, section 39(1).

The relevant development condition is condition C1 which is in EPA's concurrence response to Beaudesert Shire Council – SR0722. SR0722 is also referred to as the EPA issued Development Approval number.

Condition C1 states:

Contaminants must not be released or indirectly released from the licensed place to any waters or the bed and banks of any waters except:

- (i) as permitted under the stormwater management schedule; or*
- (iii) to a sewer as permitted or otherwise agreed from time to time by the relevant Local Government.*

“Contaminant”

A contaminant is defined in section 11 of the Environmental Protection Act 1994. A ‘Contaminant’ can be-

- (a) a gas, liquid or solid; or
- (b)
- (e) A combination of contaminants.

The contaminant released was treated effluent which contained a high concentration of nitrogen.

“from the licensed place”

There is no contention that the source of the contamination is from the licensed place.

“Waters”

Waters is defined in schedule 3 of the Environmental Protection Act 1994. Waters means Queensland waters.

Waters is also defined in schedule 2 of the Environmental Protection (Water) Policy 1997. Waters includes the bed and banks of waters.

The release of effluent flowed into the freshwater reaches of the Logan River and is therefore a “water”.

“Stormwater management schedule”

The release was not authorised under the stormwater management schedule.

“Sewer”

The release of effluent was not to a sewer.

LIST EPA OFFICER/S INVOLVED:

Louise Jordan
Steven Carrick

DATE INVESTIGATION BEGAN:

4 September 2007

AGGRAVATING CIRCUMSTANCES:

- Gelita has stated in its investigation report that the incident occurred a result of “operator error”.
- Gelita did not stop the release of effluent on their own accord. Rather the effluent ceased overflowing because it was directed elsewhere as part of the automated system. It was not until approximately 24 hours after the release had ceases that Gelita became aware of this incident.

MITIGATING CIRCUMSTANCES:

Once the incident was brought to the attention of the site's environmental manager – Cameron Smeal, actions were taken to rehabilitate the flow channel and to prevent a further incident of this type. Actions included:

- Removing the irrigation hydrant from that point and relocating it within a bunded area.
- Committing to backfill the channel excised through the sandy bank by the discharge to ensure that an earthen barrier with a 0.5 freeboard is in place.
- Committing to undertake a full operational procedural review of irrigation practices.
- Relieving the operator responsible of operational irrigation duties.

IS ANY FURTHER INFORMATION OBTAINABLE?

- Results of monitoring undertaken in the Logan River both upstream and downstream of the discharge point will be submitted to EPA as soon as they become available.
- EPA has drafted a letter to Gelita which includes a request that it undertakes a risk assessment of its irrigation practice and subsequent measures implemented where deficiencies were found. The risk assessment is to cover staff training, emergency alarms and notification procedures, emergency response and contingency planning.



ATTACHMENTS

- 1) Photo taken during the discharge event. It was taken by an unknown person and delivered to Gelita.
- 2) CITEC search.

RECOMMENDATION FOR EACH OFFENCE:

It is recommended that Gelita be issued with a penalty infringement notice for failing to comply with condition C1 in of Development Approval SR0722.

REPORT COMPLETED BY:

Steven Carrick
Senior Environmental Officer
Southern Region
24 September 2007

REPORT REVIEWED BY:

Louise Jordan
Operations Manager
Southern Region
25 September 2007

REPORT FORWARDED FOR DECISION TO:

Louise Jordan
Operations Manager
Southern Region
25 September 2007

FINAL DECISION FOR EACH OFFENCE:

PIN issued to Gelita Australia Pty Ltd for contravention of section 435 of the *Environmental Protection Act 1994* as a result of breach of condition C1 of Development Approval SR0722.

Louise Jordan: _____
Operations Manager
25 September 2007



Enquiries Steven Carrick
Telephone 3225 1073
Your reference
Our reference STH495

25 September 2007

Gelita Australia Pty Ltd
C-\
Piper Alderman Lawyers Level 9
239 George St
BRISBANE QLD 4000

C/c
Mr Cameron Smeal
Gelita Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

Dear Mr Anthony Akred, Mr Klaus Hanke and Mr Herbert Gareis,

As you may be aware the Environmental Protection Agency (EPA) has been investigating an incident in which effluent generated from within Gelita Australia Pty Ltd's (Gelita) rendering site at Josephville discharged from an irrigation hydrant which resulted in 1 to 2 ML of effluent discharging into the Logan River.

Through information obtained in the Gelita incident report, EPA's attendance at the site on 4 September 2007 and EPA discussions with the site's Environmental Manager - Mr Cameron Smeal, it is evident that effluent was unlawfully released from an irrigation hydrant to waters described as the Logan River. EPA's investigations have revealed that the operator of this activity to which Development Approval SR0722 applies is in breach of condition C1, which states:

Contaminants must not be released or indirectly released from the licensed place to any waters or the bed and banks of any waters except:

- (i) *as permitted under the stormwater management schedule; or*
- (ii) *to a sewer as permitted or otherwise agreed from time to time by the relevant Local Government.*

I draw your attention to Section 435(2) of the *Environmental Protection Act 1994* which states that "*A person must not contravene a condition of a development approval*". A copy of this section is enclosed for your information as Attachment 1.

A person who contravenes a condition of a development approval can be prosecuted by the EPA in court in which case the maximum penalty the court can impose is \$124 875 for individuals and \$624 375 for corporations. Alternatively, the EPA can exercise its discretion to issue an Infringement Notice for the offence that requires the payment of a set fine. The infringement notice penalty for contravention of a condition of a development approval is \$1500. You should note that an infringement notice can be issued for each condition of a development approval that is breached.

On this occasion the EPA has decided to issue Gelita with an Infringement Notice (No. 001617) for failing to comply with condition C1 of SR0722 sometime between midday 2 September and midday 3 September 2007. Should the EPA obtain evidence indicating that the alleged offence is more serious than first thought, the EPA may withdraw the Infringement Notice within 28 days and may consider taking further action under the provisions of the *Environmental Protection Act 1994*. The Infringement Notice is attached to this letter.

The EPA acknowledges the commitment made by Gelita in its Environmental Incident report to conduct a full operational review of current irrigation practices. Specifically, it is requested that the report includes a risk assessment of the current irrigation practice and details of measures implemented where deficiencies are found. It should also cover staff training, emergency alarms and notification procedures, emergency response and contingency planning. It is requested that this report be submitted to the EPA by 25 November 2007.

The EPA acknowledges the proactive actions Gelita took shortly after the event to adequately reduce the risk of future incidents of this type. However, EPA records indicate that the first notification was by telephone on 4 September 2007 when Gelita had been aware of the incident since the previous day. Accordingly, I draw your attention to condition G7 which requires Gelita to notify the EPA **as soon as practicable** after becoming aware of such an incident.

The EPA thanks Gelita for its co-operation throughout the investigation and looks forward to continued positive working arrangements.

If you have any questions regarding the content of this letter please phone Steven Carrick on telephone no. 3225 1073.

Yours sincerely

Louise Jordan
Operations Manager - Local Governments Unit
Southern Region, EPA

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference
Our reference STH495\5\SR0722

25 October 2002

Mr R C Wearne
General Manager
Davis Gelatine Australia Pty Limited
PO Box 409
BEAUDESERT QLD 4285

Dear Mr Wearne

Re: Compliance Audit Response for Environmental Authority SR0722.

I refer to the inspection of the rendering operation (extracting gelatine) of Davis Gelatine Australia Pty Limited located at Flood Road, Josephville via Beaudesert on 15 October 2002 by Environmental Protection Agency (EPA) Officers Don Shackel and Adam Burt.

The purpose of the audit was to assess site compliance with conditions of Environmental Authority SR0722, assess compliance with general provisions of the *Environmental Protection Act 1994* (the Act) and associated policies and to develop an action plan to address any non-compliances.

The audit and site inspection identified a number of non-complying bunding matters requiring attention at your Josephville operation.

In particular, the following repair / upgrading works were indicated for action:

1. The external, bulk Sulphuric Acid storage tank bund, associated drainage outlet and service surrounds, including the roll-over bunded vehicle unloading bay / pad were observed to be in an eroded condition requiring repair work, as soon as practicable; and
2. The vehicle discharge / unloading approach area to the small, above-ground diesel storage tank located in a bunded area within the "old stables" fuel store requires bunding and sealing with impervious material, to obviate contamination of soil in the area, due to fuel spillage.

During post-audit discussions, Davis Gelatine gave an undertaking that the bunding works documented above could be completed by 1 December 2002.

I recall that these bunding issues were raised in my letter to you of 20 February 2002, following which your response of 12 March 2002 indicated completion dates for these works. However, while I understand that these upgrades now constitute “works-in-progress”, the previous timelines were not met.

While a number of non-compliant parameters have been previously identified and reconfirmed with regard to the quality of treated wastewater irrigated to land, it is acknowledged that approved Environmental Management Program (EMP) No.1157, concerned with “Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner”, due for completion on or before 30 September 2003, is expected to resolve these issues and hence such non-compliances will not be pursued at this time.

It is expected that outcomes generated by completion of the EMP will provide significant worthwhile options for the sustainable disposal of treated wastewater on site.

On behalf of the EPA Officers involved, I wish to thank you for your cooperation during the recent audit and look forward to our continued association in further promoting and supporting environmental improvement projects initiated by your company.

Should you have any questions concerning the above matters, please feel free to contact Don Shackel on telephone (07) 3225 1040.

Yours sincerely

Kyle Roberts
Operations Manager, Heavy Industry Group
Environmental Operations
Southern Region

Checklist

Compliance

Compliance program — inspection checklist

Instructions for use

Where an Agency issue is determined to be relevant, note appropriate detail in the observations section.

Where there is any non-compliance, discuss with the company representative and note any required action.

Where the assessment will include licence conditions, use the licence condition compliance section of the checklist.

This checklist is to be used for all inspections. Refer to the procedural guide for guidance.

Cover Sheet Module:

Company Name: GELITA Australia Pty Limited		Date of Inspection: 29/10/2003
Trading as: GELITA – The Gelatine Group		EA No.: SR0722
Description of Business Activity: ERA 50(b) – Rendering operation		
Site Street Address: Flood Road		
Suburb: Josephville	City/Town: Beaudesert	Post Code: 4285
Registered Office Address: "Sunny Hills", Flood Road, JOSEPHVILLE via BEAUDESERT QLD 4285		
Suburb: JOSEPHVILLE	City/Town: BEAUDESERT	Post Code: 4285
Site Representative: Cameron Smeal	Position: Environmental Officer	Contact phone: (07) 5541 9442

Inspection type	☐ Catchment	☐ Industry Sector	☐ Complaint	☒ Compliance
Compliance level	☐ 1	☐ 2	☒ 3	Inspection type
				☐ A
				☐ B
				☒ C
Audit focus is the following relevant Agency interests:				
☒ Water issues ¹	☒ Air issues ¹	☒ Noise issues ¹	☐ National and international	
☒ Land issues ¹	☒ Waste issues ¹	☒ Social issues	☒ Impacts on surrounds	
☐ Coastal issues	☐ Heritage issues	☐ Biodiversity		
☒ Resource allocation	☐ Tenure issues	☐ Other issues		

¹ Main issues to consider for *Environmental Protection Act 1994* focus.

Details of Scope or Particular Focus:

GELITA Australia Pty Ltd, previously **Davis Gelatine Australia Pty Limited**, recently acquired by German private business interests from Goodman Fielder, remains committed to completion of **EMP No.1157** concerned with, "Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner", which reached full term for completion on 30 September 2003. E-mail advice from the Company at the due date of the reporting period on 30 October 2003, indicated that EMP No.1157 was completed and written-up, apart from "two final items from external sources for inclusion in the report", viz; an effluent stream characterisation under the cleaner production section and monitoring schedule from the Company soils consultant. The total report relevant to EMP NO.1157 will be forwarded to the EPA as soon as these outstanding items become available.

Subsequently, licence limits requirements for treated wastewater parameters such as Total Nitrogen and Total Dissolved Solids observed as not achieving compliance, on an on-going basis, will be addressed by the EMP review process, within a holistic context for the site. While non-compliances were flagged by this audit, on-going corrective actions remain in place, relevant and ongoing. The company has regularly provided progress reports for EMP No.1157 to the EPA for assessment and information, indicating milestones towards achieving compliance by 30/09/2003. It is expected that outcomes of EMP No.1157 will indicate a need to seriously reassess, amend or delete some or all treated wastewater limits from SR0722.

Sustainability of application of treated wastewater to on-site land will be achieved through a mix of options including; pasture / grazing systems, cropping (cutting & exporting hay products) and agro-forestry, which plant products will / may become a raw material source (green waste) for **on-site compost-making**, utilising all processing wastes generated by gelatine manufacturing ("skutch", belt-press sludge, boiler ash) for total on-site soil conditioning purposes.

To this end, the EPA has recently approved continuation of composting activities on site, following an initial 12 month waste composting project period (September 2002-September 2003) to trial processing methodology and assess outcomes (an odour control plan is in place), with a view to long term, on-going total waste utilisation / recycling on site. Davis Gelatine Australia Pty Limited holds DA7 (with conditions) and SR1114 for ERA 53, relevant to "soil conditioner manufacturing". The company has contracted part-time consultancy services from Johannes Biala of "The Organic Force", to assist with the composting project. The composting consultant Company has prepared a report dated October 2003, titled "Assessing the Suitability of Covered Windrow Composting for On-site Processing of Gelatine By-products", for GELITA Australia Pty Ltd.

Review of SR0722 and a subsequent site inspection was undertaken by the company Environmental Officer, Mr Cameron Smeal, while General Manager, Mr Bob Wearne was involved in initial and exit discussions.

A series of 22 digital photographs taken during the site audit on 15/10/2002 indicate the current environmental status of the site, particularly with regard to EMP No.1157 aspects, together with a limited number of records of processing plant surrounds issues (unsatisfactory bund condition).

A review of Chuckle and STH495 records for 2002 indicated that any complaints received by the company had been actioned and reports provided to the EPA, in each instance.

Agency interests module

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ☐

Assessments & Observations:

Administrative: Both the company business and activity location addresses were confirmed CORRECT. The anniversary date of SR0722 of 4 November 2002 for submission of the company annual return for 2002 was drawn to the attention of Cameron Smeal, Environmental Officer. In regard to ERA 50(b) – Rendering operation, Cameron Smeal indicated that he did not consider gelatine manufacture a rendering process. These comments were acknowledged by EPA Officer Don Shackel who considered / indicated that wording in the ERA definition including, "processing or extracting substances, including, for example, ----- proteinaceous matter, from animal wastes or by-products", were relevant to the Davis Gelatine operation.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ☐

Schedule A - General Conditions:

A2, A3, A4 – In-Compliance

A5 – No change – annual gelatine production remains around 2200 MT.

A6 – Viewed calibration records file – In-Compliance.

A8, A9, A10, A11, A12, A13, A14 – **IEMS** – Updating / amendment of the documentation is linked to company progress towards ISO 14000 certification [A14], running around six (6) months behind schedule and now due for action about March 2003. Company training matrix was viewed [A9(iii)]. Environmental performance and energy audits / reviews will be provided to the EPA with the 2002 annual return due for submission by 4/11/2002 [A9(iv), A10, A11]. On-site gelatine processing waste utilisation / composting trials have commenced with a view to achieving total internal recycling of nutrients [A9(v)].

A15 – Community Liaison Committee is in place and operating – most recent meeting completed on 19/06/2002 – membership is being updated to include site surrounding residential changes. An annual site Review Committee (earlier Court Case requirement) meeting is planned for April 2003.

Schedule B - AIR:

B3-B7 – Boiler stack emissions testing due “biennially from 2001” [Schedule H – Table1], hence scheduled for completion in Jan/Feb 2003.

B9, B10, B11 – Co-generation project remains on the “back-burner”, however sufficient biogas can now be collected and held to fuel a trial / short production run.

B12, B13, B14 – In-Compliance during audit inspection - advised that the raw materials building ventilation air volume / changes have been recently improved / upgraded.

B15 – In-Compliance – large biofilter serviced during 2002.

B16 – In-Compliance – small biofilter serviced during 2002 and odour attenuation efficiency and untreated leakages significantly minimised, compared to previous assessments.

B17 – In-Compliance – ambient air odour levels will be assessed Jan/Feb 2003, at the same time as boiler emissions testing.

B18 – In-Compliance – biogas is flared / Co-generation project remains “on hold”.

B19, B20 – In-Compliance - regular system checks are in place.

Schedule C - Water:

C1 – In-Compliance – DNR Logan River monitoring stations above and immediately below the Davis Gelatine property boundary continuously trace a range of indicator parameters on river water passing these points. Cameron Smeal indicated that these plots have not indicated any significant deviations from expected ranges. Data will be included with the up-coming annual return for 2002, due by 4/11/2002.

C2-C8 – **Ponds conditions** – In-Compliance – “free-board” requirements confirmed, ponds integrity maintained, stormwater impacts minimised.

Schedule D – Stormwater Management:

D5, D6 – Staff are expected to effectively capture / contain / clean-up any spillages to the sealed surrounds to the processing facility. However, any liquid discharges to the formed drainage system and roadways located immediately adjacent to all areas surrounding the production buildings and associated plant installations, drain to a double trap-dam system, situated in a gully below the belt-press shed. Any material collected in these dams is pumped to the wastewater treatment plant for processing. It was noted during the audit that the second trap dam in the series was empty, while the first catchment dam appeared to be at around 50% of capacity.

D7, D8 – In consideration of the Sulphuric Acid external storage tank bund and the small, above-ground fuel storage tank located in the “old stables” shed, both these situations are considered to be in **NON-COMPLIANCE**, as far as effective bunding is concerned. Both these issues will be addressed in a letter to the company in due course, seeking timelines for completion of corrective actions. Cameron Smeal indicated that these bunding issues are considered, by the company, to be “work-in-progress”. Discussions with company management indicated that appropriate works should be completed to a satisfactory standard by 1/12/2002.

D9-D14 – Apart from the bunding deficiencies indicated above, requirements in regard to these conditions are essentially in-compliance.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ☐

Schedule E – Land Application:

E1 – Treated wastewater release sources – In-Compliance.

E2 – Confirmed on file 961EA472\1, documentation, "Leiner Davis Gelatine Sunny Hills Irrigation Farm", site plan. A copy will be forwarded to Davis Gelatine for confirmation / updating purposes, as necessary.

E3, E4 – no off-site disposal of treated wastewater has been undertaken to date.

E5 – Approximately 121 hectares of land comprises the treated wastewater disposal areas – In-Compliance.

E6-E9 – Irrigation practices for treated wastewater applications provide effective controls and will be included in an updated Irrigation Management Plan (IMP) due for completion around January / February 2003, which is planned to include data / information arising from the on-going projects driving EMP No.1157 towards a conclusion by 30/09/2003 (current procedures reference documents include company EM Plan of 1994 and IEMS of 1997).

E10 – The total quantity of contaminants released to the irrigation areas on any day remains below 3ML of final treated wastewater – records are maintained – In-Compliance.

E11, E12, E13, E14 – Land application practices are in place and will be included in an updated IMP due for completion around January / February 2003 (current procedures reference documents include company EM Plan of 1994 and IEMS of 1997).

E15, E16, E17 – Sewage effluent disposal – observed restricted access / signage in place / valving in place – In-Compliance.

E18-E23 – IMP – Due for completion around January / February 2003, which is planned to include data / information arising from the on-going projects driving EMP No.1157, towards a conclusion by 30/09/2003. The 15 requirements included under condition E19 are being addressed by EMP No.1157, which includes data / projects operated by both the company, UQ and DNR.

E24, E25 – Viewed and discussed monthly contaminant release monitoring results, which will be provided with the company annual return for 2002, due to be forwarded to the EPA by November 2002. EMP No.1157 covers any non-compliances in this regard, viz; Total Nitrogen and Total Dissolved Solids.

Schedule F – Noise:

F1 – Company indicated that no noise complaints had been received for 2002 and hence no noise assessments had been undertaken on site.

F2, F3 – Vehicle curfews remain in place and are actioned – In-Compliance.

Schedule G – Waste Management:

G1, G2 – No burning of waste is undertaken on site – In-Compliance.

G3, G4 – Appropriate recycling of waste materials is undertaken, viz; paper and "skutch", belt-press sludge, boiler ash [currently composted by Moreshost P/L / on-site trials underway].

G5, G6, G7 – Regulated wastes, viz; "skutch", belt-press sludge, boiler ash are transported to Moreshost P/L for garden mix / composting purposes by J J Richards. Davis Gelatine waste tracking database viewed – In-Compliance.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review__Non-compliant ☐**Schedule H – Self Monitoring & Reporting:**

H1-H8 – Records are in place / viewed. Complaints and incidents are actioned / followed-up as required (H7) and reported to the EPA. A complaints summary for 2002 will be included in the company annual return due to be provided to the EPA early November 2002.

H9-H12 – Boiler and Biofilter emissions monitoring due January / February 2003 (testing “Frequency” as Schedule H, Table 1 – “Biennially from 2001”) or on an odour complaints-driven basis (no specific complaints identified from known on-site point sources).

H13-H17 – No noise complaints received during 2002 and hence no noise monitoring undertaken.

H18-H23 – Viewed and discussed monthly contaminant release monitoring results, which will be provided with the company annual return for 2002, due to be forwarded to the EPA by November 2002. EMP No.1157 covers any non-compliances in this regard, viz; Total Nitrogen, Total Dissolved Solids. EMP No.1157, which includes data / projects operated by both the company and UQ is moving towards finality on 30/09/2003 (See also comments under “Details of Scope or Particular Focus” above). **NOTE:** Due to workplace health and safety concerns by the company, SMP 1 equivalent material is now collected from the “Reticulation Pump” in lieu of, “the overflow from the final effluent balancing storage dam” (H19). A number of NATA Registered Laboratories are used by Davis Gelatine for monitoring / interpreting sample analyses; Brisbane Water, FALA, QG Health (H21, H27 & H31).

H24-H28 – Daily **Logan River monitoring** is carried out by DNR automatic recording stations within the river, both above and also immediately below the property downstream boundary. These recordings for 2002 will be attached to the current annual return, due to be provided to the EPA by November 2002. Parameters are confirmed as those included in the company EM Plan of 1994, due for review in early 2003, as part of the IMP update.

H29-H32 – **Soils monitoring** – Monitoring results, which will be provided with the company annual return for 2002, due to be forwarded to the EPA by November 2002, are covered by EMP No.1157, that includes data / projects operated by both the company and UQ, which is moving towards finality on 30/09/2003. Cropping trials to ascertain nutrient utilisation in soils irrigated with treated wastewater, form a number of projects associated with EMP No.1157.

H33-H35 – **Groundwater monitoring** – Results of bimonthly standing water levels and contents analyses of 31 bore-holes over the site will be provided with the company 2002 annual return due to be provided to the EPA by November 2002. Discussions and review of results for the current period did not indicate nutrient transfer / leakage to the groundwater systems on site. In many areas of the “farm”, shallow top-soil cover, over a deep clay base, precludes transfer of irrigated treated wastewater to groundwater (See Figures 15-18). In the light of data accumulating from EMP No.1157, the value of retaining a number of the parameters included in condition H34(d) will warrant reassessment, at conclusion of the process.

E36 – Davis Gelatine seeks expert advice from a variety of sources regarding results emanating from the site monitoring programs, viz; Consulting NATA Laboratories, Air, Noise Environment, UQ Project Team, Soil Consultant Dr Brian Schafer and Ted Gardner of DNR (soil / plant systems [particularly Vetiver grass applications / hydrology issues]).

H37, H38 – Licence limit(s) exceedances arising with the irrigated disposal of treated wastewater to land on site are covered by EMP No.1157 and hence have not been advised to the EPA.

Required Actions: Davis Gelatine Australia Pty Limited is to be forwarded a written request to indicate timeframes for completion of nominated bunding improvements.

Licence conditions module

Condition Number(s)	Details of non-compliance(s)
D7, D8 & D9, D10, D11, D12, D13, D14	The bulk Sulphuric Acid tank bund, drain outlet and external surrounds, including the roll-over bunded vehicle unloading area / pad were observed to be in a poor state of repair requiring upgrading as soon as practicable (Figures 5 & 6). The vehicle unloading approach area to the small diesel above-ground tank located in a bunded area within the "old stables" shed requires upgrading to a bunded pad to obviate spillage to / contamination of soil in this area.

Recommendation (consider what is being emitted, the activity's impact and the adequacy of the EA)
<u>NO RECOMMENDATIONS OFFERED AS CONDITIONS INCLUDED IN EA SR0722 ADEQUATELY ENSURE SUSTAINABILITY OF THE ACTIVITIES CARRIED OUT ON SITE.</u>

Signoff Sheet

Additional Comments:
<u>NIL</u>
Recommendation:
<u>NIL</u>

Adoption of Report (sign below and initial every page)
This report accurately represents the issues and outcomes of this site inspection.

Inspecting officer

Don Shackel

Signed

Date

Inspecting officer

Signed

Date

Comments and Recommendation:

Supervisor

Signed

Date



sch4p4(6) Personal Information



Re







COPY

Site Visit Report

Compliance Inspection No: 1473

Responsible Officer: MR/Don Shackel

Licence Number:	Date of Inspection	Inspection Level	Internal Office File No
SR0722	28/03/2001	EMP	STH495/1

Licensee	Did the Licensee Comply?
Leiner Davis Gelatin International Limited	Yes
Trading As:	Work Needs to be Done by?
Leiner Davis Gelatin International Limited	30/03/2002

If Not Complying Why Not?

The aim of the EMP is to ensure that the treated wastewater irrigated disposal to land undertaken by LDGA will be operated in a long term environmentally and economically sustainable manner.

What Needs to be Done ?

Ongoing progress towards completion of EMP No.1157 by 30/03/2002, concerning sustainability of irrigated disposal of treated effluent to company land at Josephville, Beaudesert.

- ☐ Infringement notice issued?
- ☐ Warning notice issued?
- ☐ Field notice issued?

Any Other Comments?

On Wednesday, 28 March 2001, EPA Officer Don Shackel visited the Josephville site of LDGA, as a follow-up contact to a previous meeting held on site on 14/02/2001, attended by Mike Ronan and Don Shackel (See Site Visit No.1407). The following actions were completed with the following LDGA staff participating; Bob Wearne, Operations Manager, Cameron Smeal, Environmental Officer and Seren McKenzie, Student Technician: Reviewed Minutes of the meeting of 14/02/2001 to consider completed (Boiler TSP EMP No1158 - signed-off by EPA) / incomplete issues; Reviewed and discussed draft amendments to licence conditions proposed by EPA emanating from 14/02/2001 and a number of additional issues following consideration of proposed changes by LDGA, viz., review frequency of biofilter testing to co-ordinate with boiler stack emissions checks (biennially from 2001) and separate sulphur level requirements for biogas from other fuels used on site (Conditions B10/B11). Reviewed EMP No.1157 concerning sustainability of irrigated treated wastewater to company land, which is running well behind schedule, due to changes to the UQ teams operating the EMP over the last 12 months. Cameron Smeal will provide to EPA an updated action program for the EMP, particularly in regard to land issues / impacts for the remainder of the lifetime of the EMP, due for completion by 30/03/2002. Following the meeting, a vehicle tour of the land activities of the EMP was completed where the following aspects were observed: runoff trap dams / river-side contour banks in place; large stormwater storage lagoon showing numerous types of water birds ("fresh" water source adjacent to the Logan River for emergency dilution purposes available); native trees planting project generally "thriving" and being maintained with strategic irrigated applications of treated wastewater; a number of representative soil profile sampling sites inspected and explanations offered by LDGA on soil sustainability and best agricultural uses; boiler ash sedimentation dams (2) and downstream runoff trap dams indicated (effective in recent exceptional rain event situations where material holding dams temporarily overtopped). Also inspected was the windrowed composting trial comprising a base of belt-press sludge and boiler ash mix with

on, will it be complete by 30/3/02? anything else looks like it is easy to be good result.

Report M01 by Chuckle on: Thursday, 29 March 2001

Page: 1

Site Visit Report

Compliance Inspection No: 1473

Responsible Officer: MR/Don Shackel

"skutch" added into the mass and allowed to mature / compost for up to 4 weeks - these windrows will be turned in about 2 weeks time (mid April 2001), when the success or otherwise in breaking down / composting the "skutch" waste will be assessed. At the time of inspection, no offensive odours were evident immediately adjacent to the heaps. Cameron Smeal will advise the EPA of the outcome of the trial following turning (particularly odour status, during and after turning, to be indicated). Other matters: Bob Wearne indicated that LDGA would call a meeting of the parties involved in the EMS Review Committee in an effort to force a resolution of this Court-imposed constraint / requirement. EPA will be advised of the date etc of this proposed meeting. The writer (DKS) to update the draft amended SR722 document to include the revised conditions discussed at the meeting of 28/03/2001 and provide the material to Cameron Smeal, as soon as practicable. Subsequently, this was completed and faxed to CS am on 29/03/2001. Following provision of the additional amendment material, Cameron Smeal indicated that a letter would be forwarded to the EPA requesting the inclusion of the additional conditions amendments under the current S117, "Application for amendment of a licence" dated 5 March 2001, with a receival date by the EPA of 14/03/2001. Documents provided to the EPA during the meeting included: 2 x odour complaints reports for 15 & 23/03/2001, which have been investigated by LDGA and a Report of Pot Trial Conducted for Leiner Davis Gelatin - 2000, concerning; "Evaluation of Digested Sludge on Growth and Production of Pot-Grown Perennial Ryegrass", by Jubilee Consulting, 21 March 2001 (All material filed on STH495/1). NOTE: Highly putrescible "skutch" waste is being processed by Queensland Organic Recycling Systems / Hindmarsh of Swanbank. Cameron Smeal would appreciate comment from EPA suggesting LDGA review in-house options in this regard, to consider alternative applications for "skutch" as opposed to off-site placement at Swanbank. Mr Smeal also requested advice from EPA regarding, "Best Regional Practice" issues. ***** Don Shackel ***** 29/03/2001.

COPY

Meeting between EPA and LDGA 14/2/01

Location: LDGA conference room, 10:30am.

Present: EPA, Mike Ronan, Don Shackel

LDGA, Bob Wearne, Cameron Smeal, Karen Lawrence, Seren McKenzie

Licence Breaches 2001

The spillage of 'black material' on the road in January was discussed. Even though no one was certain it came from a LDGA truck, it was reported due to the belief that it probably was ours. This needed to be reported to the EPA due to the procedure in the EMS.

The issue of trap dam overflows into the gully and possibly down to the river was addressed. Due to the nature of the incident, ie, excessive rainfall in one day, no further action will be taken.

Boiler EMP

LDGA has undertaken extensive work to try to reach the limit of 100mg/Nm³ as set in the licence. When the boiler was set up the company responsible led LDGA to believe that such levels were attainable, hence the limit was set so low. However LDGA feels these are unattainable levels, and would like to request that the limit be set to 250mg/Nm³, as this is a common level for this type of boiler setup.

LDGA wanted to change this in an amendment by agreement, but the EPA fears this would suggest favouritism, and would prefer an application to amend be submitted. Mike and Don said they would look at the report LDGA has submitted, and will get back to us on any contentious issues before we apply for amendments to the licence. Don will then send this form out to Cameron.

Wording of some of the licence conditions

Cameron asked for clarification about the ambiguous wording of B7 schedule B, Don said this was a standard condition, so will remain, but with clarification of the wording.

B7 and B8 apply to Table 2, which is in concentration rather than mass emission. With the proposed change to the particulate discharge to 250mg/Nm³ this will be changed.

B18 states all gas must go to the flare. However LDGA is proposing a possible co-generation project, so would want to reuse some of the gas. Mike believes that reuse of gas is a positive, and there would be no issues with changing this. On the proposal for change to licence, must say that we are not proposing for extra releases. An additional release point for table 1 is also required.

EMS review committee

Cameron explained the problems encountered when trying to convene with the review committee, particularly due to no-one in the DPI taking any responsibility for their position within the committee. It was suggested that Bob contact our lawyers and due to the problems with the changing of DPI departments, and our responsibility due to our licence conditions, request that the agreement be terminated. A letter is then to be submitted to the EPA, BSC, and to DNR.

Cameron is to write a report stating the changes which have been made since the EMS committee, such as contour banks and trap dams being added to the property. The risk assessment that has been put in place also needs to be included. The proposal is then that LDGA does not require the 300ML of dilution water that is kept for us. The report is to be forwarded to all members of the EMS review committee.

The review committee could be made up of members from LDGA, EPA and BSC only. If we were able to link the EMS to ISO14001, the review committee could probably be disbanded.

Review of Licence Conditions

The method for measuring TDS that LDGA has been using is not a standard method. The new method that is currently being investigated is a standard method, and gives much more reproducible results. The time frame for the EMP on the farm has not been followed as closely as would have been

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Prepared by SM

liked, but Don and Mike assure us that the time limit can be expanded if required. To do this, the objectives and outcomes must be seen as achievable, and the application must be made well before the expiry date of the current EMP.

The issue of salted hide was raised, LDGA explained that this year the salted hide was washed off site, therefore reducing our salt load onto the farm. There is also a system imposed limit to the amount of salt that can be put through the waste water system. There will be a formal report on the farm from UQ in mid March, and the relevant sections will be passed onto EPA.

Cameron enquired about the possibility of composting our waste for non commercial use on the farm. Mike said that due it being a non commercial use, there would not need to be a licence, however warned us of the problems that others have experienced. There is a large risk of odour, however if the compost were to be made in the open but under a tarp with a biofilter system the risk would be lowered. Mike stated that the EPA would commend this type of approach, however there would be conditions dependant on management practices, and there may be a need for a reapplication for licence due to increasing the potential risk to the environment. Mike felt that the composting constitutes a meeting, and also reminded us that different councils have different interpretations and views of the legislation on waste use.

Exporting Water to Farmers

Cameron asked if exporting treated water by diluting it with river or bore water (2:1), would need an ERA. This would probably not be classed as a regulated waste, so would be acceptable. An irrigation plan and a deed of agreement would be necessary, as well as an amendment to the licence.

Cogeneration Proposal

The cogeneration project would result in recycling of sulphur through the system. This would be advantageous to all, as there would be a definite reduction of sulphur in the waste water stream, as well as a reduction in buying of sulphur products. It would be expected that between 200 and 300 W of power would be produced, and this would be bought back by LDGA and ensure a supply of power during power surges and spikes. This would also be another example of moving towards ESD, with 'green' energy being produced and used by LDGA.

The next meeting is to be scheduled for Wednesday March 28 at 10:00am. The same agenda will be revisited.

Actions

Bob:

Contact lawyers about the EMS review committee, ie, removing DPI from the group. Write letter to EPA and DPI.

Cameron:

Write a report on improvements to LDGA since the court order on the EMS and review committee. Forward to members of the EMS review committee.

Reschedule next meeting for March 28 at 10am.

Mike and Don:

Review report on boiler limit. Send Cameron application for amendment to licence if satisfactory. Otherwise contact Cameron for further details.

FEES project.

1. Soil Study:

All areas of the farm under irrigation were sampled for soil type and elements present. This was undertaken by Dr Brian Schaefer and an honours student from UQ at Gatton. Results are not yet finalised, in the meantime, the original soil type map from the EIS is being used. (map 1).

2. Groundwater sampling:

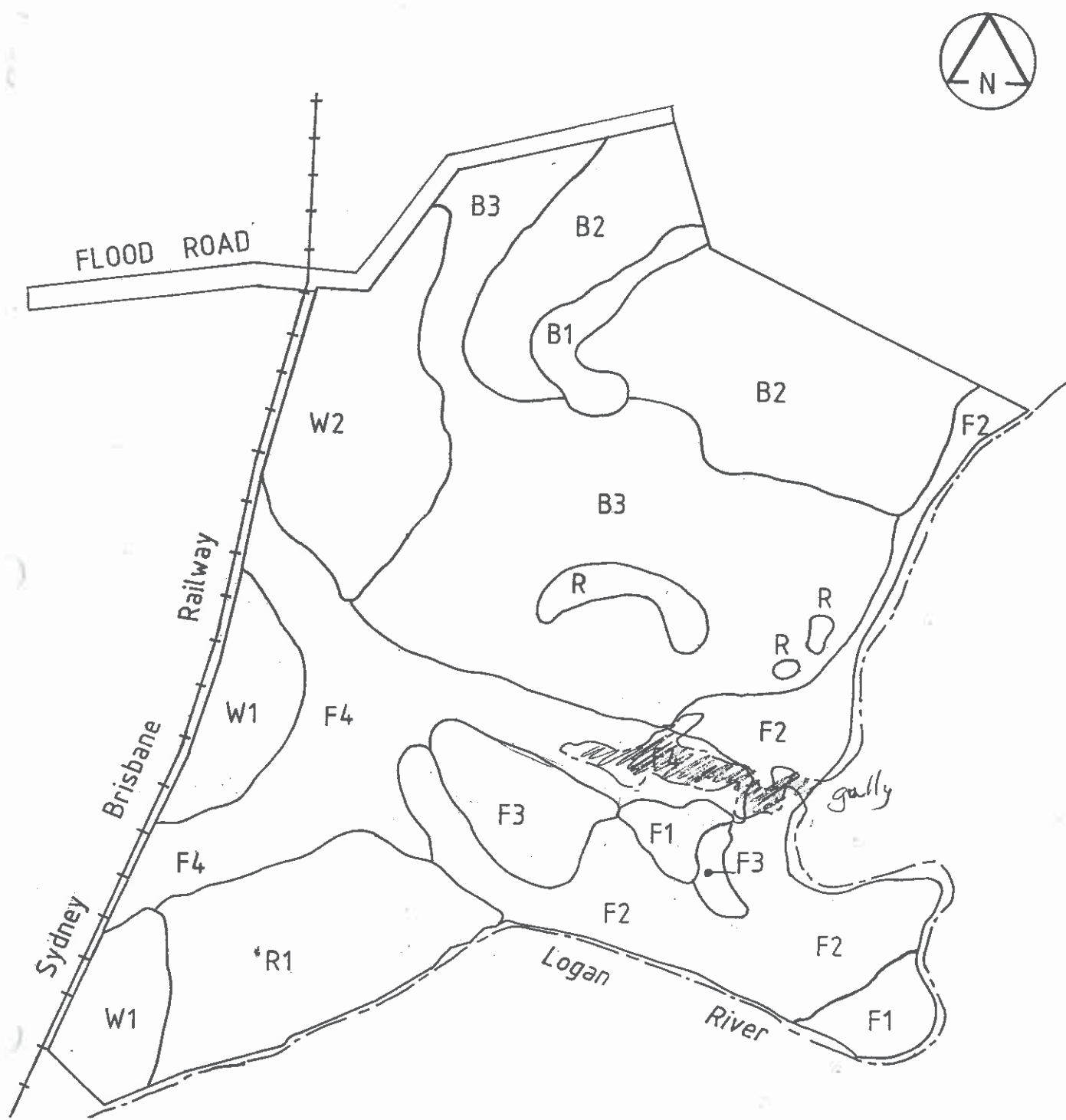
There is now a total of 31 groundwater sampling bores on the site (see map 2). These are tested monthly following the Murray Darling Basin Groundwater Quality Sampling Guidelines. The samples are sent to UQ, where they are tested for a variety of elements. Regular monthly testing has occurred since May 2000, so patterns are not yet evident of water levels or nutrient variability.

3. Tree planting project:

An area of approximately 4 hectares has been prepared for the tree planting. The land was treated by grazing, ploughing, and cultivating. The area was also sprayed to control weeds prior to planting. Over 5200 tube trees, mainly *Eucalyptus moluccana* and *E. tereticornis*, are currently being planted. Other species, such as *Malaleuca* and *Casuarina* were planted, but in small numbers. This project was undertaken by Queensland Forestry Research Institute (QFRI), who worked with UQ to determine the most suitable area (map 3). QFRI will continue to monitor the health of the trees for the next 12 months, reporting on the major themes of growth, determined by height of the trees, and survival. Replacement of trees will be conducted after one month, when the first set of measurements is taken. QFRI will also check the establishment of the trees at 6 months and 12 months.

The University of Queensland will be reporting on soil, water, and plant foliar changes throughout the growth of the trees.

4. The new temporary project manager for the FEES project is Peter Horn, who is based at UQ. Peter has experience in mine rehabilitation and erosion management. He also has a masters in soil physics, so is well suited to the job.



LEGEND

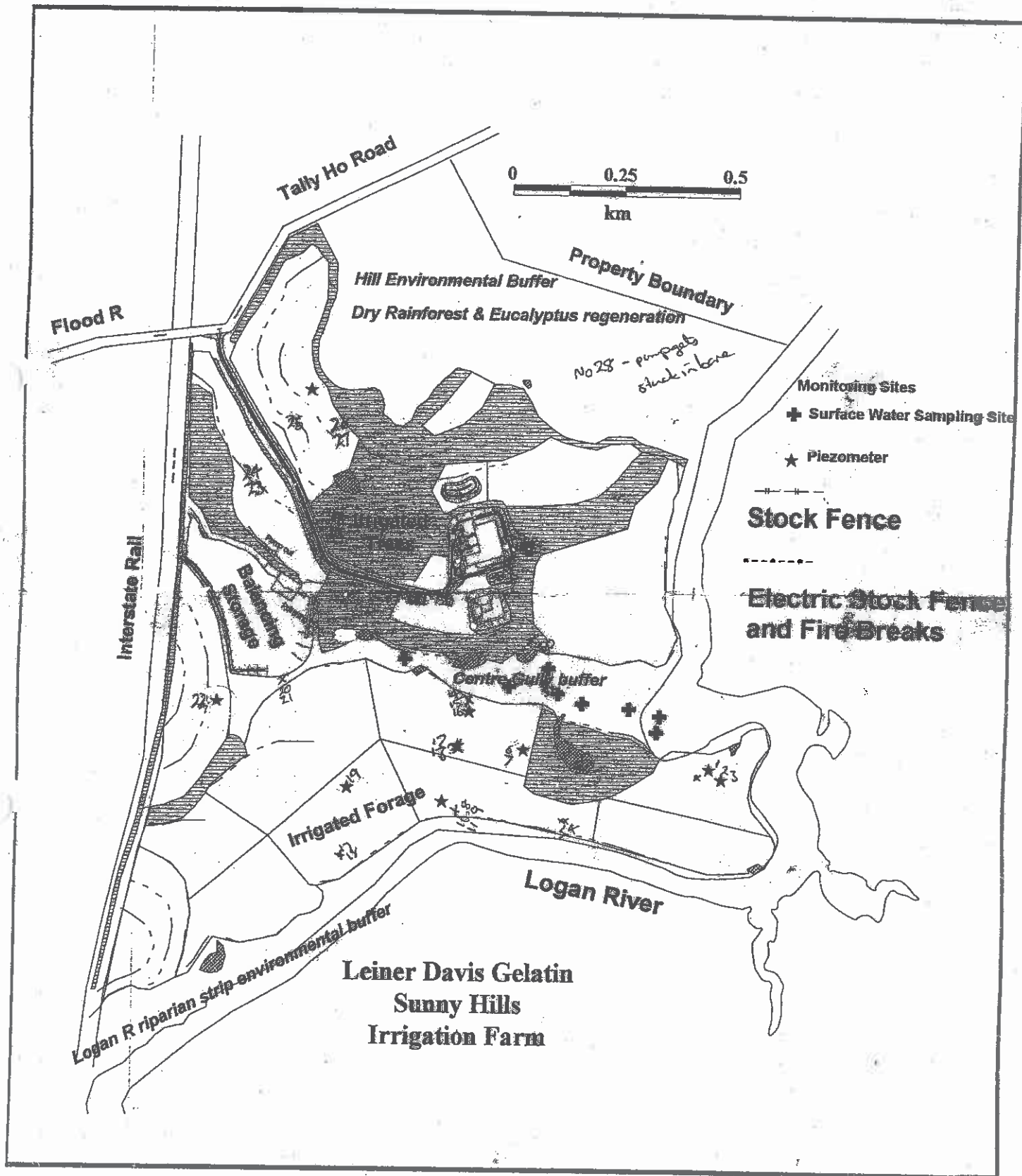
- B1 - Shallow Stony Lithosols
- B2 - Shallow Stony Prairie Soils
- B3 - Deep Brown Clays
- W1 - Solodics/Soloths
- W2 - Solodics
- R1 - Deep Grey Brown Clays
- F1 - Deep Siltated Alluvial Clays
- F2 - Deep Brown Alluvial Clays
- F3 - Wiesendobens
- F4 - Deep Gilgaied Heavy Clays
- R - Rock Outcrop

R
PS

SOILS
GELATINE FACTORY

Fig. 4.7

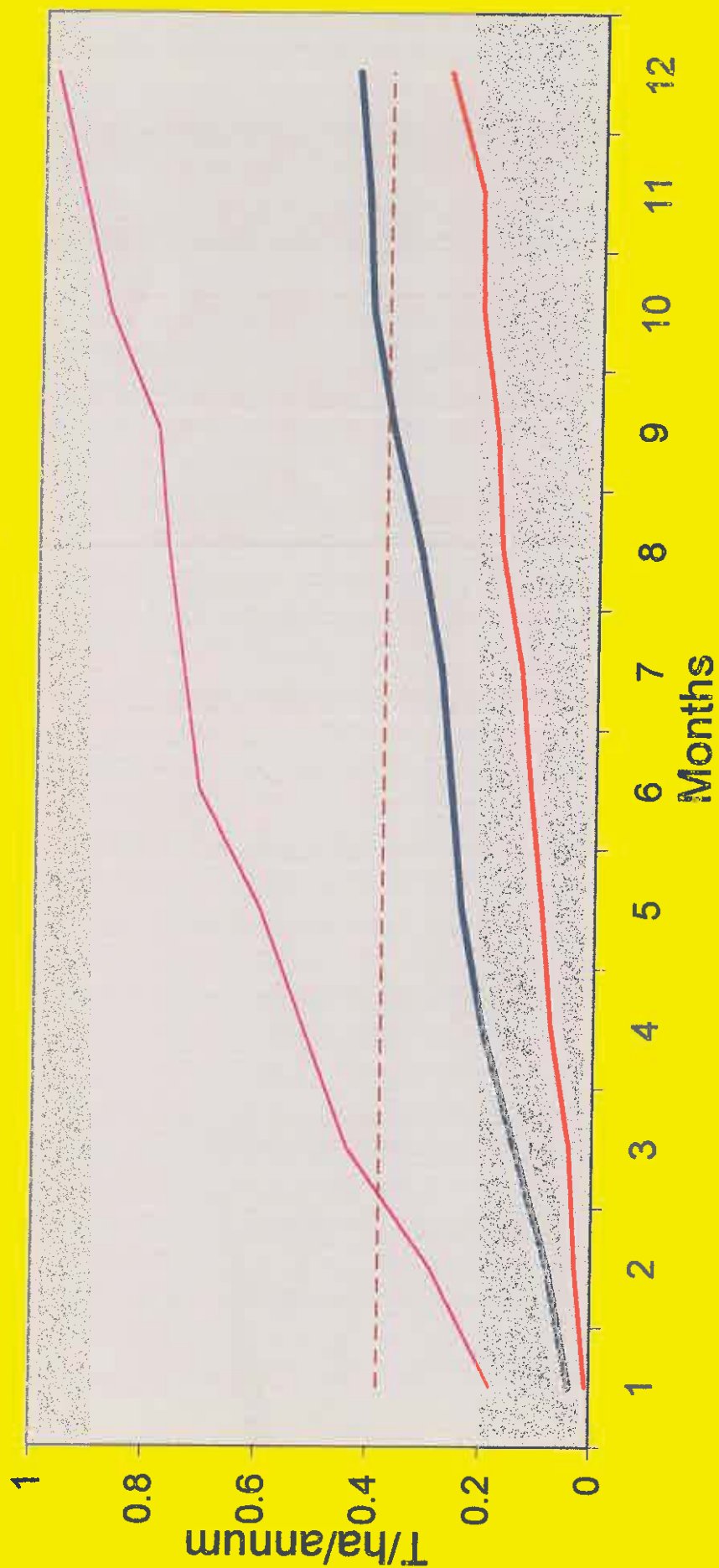




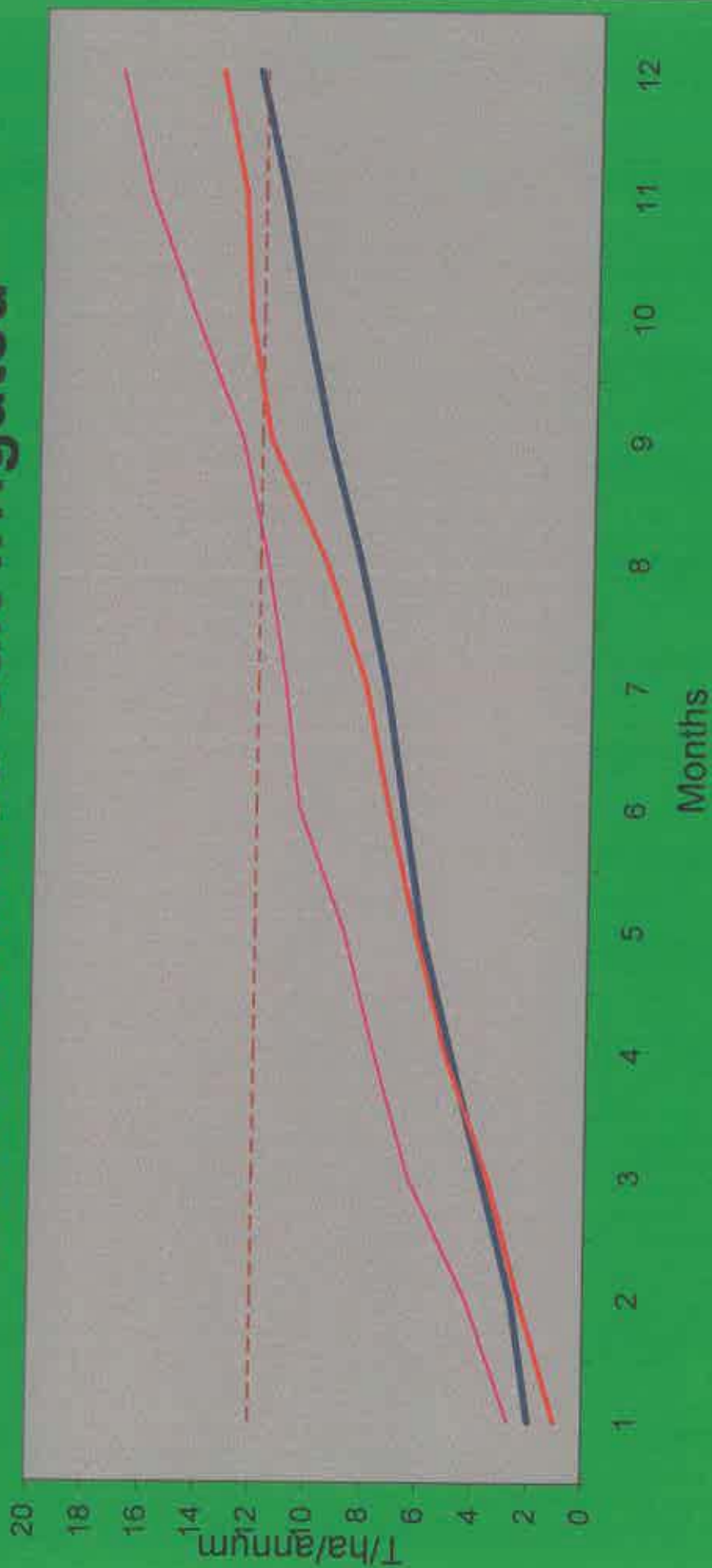
Brief overview of why Leiner Davis Gelatin (Aust) should be allowed to export treated effluent to other properties for irrigation.

- The Queensland government is set to spend \$41 million over a four year period to ensure the states existing irrigation water is better used. This leads to a proposed increase of \$280 million in agricultural production. The minister for Environment and Heritage and Natural Resources, Mr Rod Welford says " we are targeting irrigation water management on farms through adoption or extension programs." To help encourage this financial incentives to help farmers produce best practice in irrigation water management are being offered.
- In an article written by Mr Welford, ' Every Drop Counts', Welford states the governments intentions of water being an ecologically sustainable development, and that it is a smart long term strategy. To do this, the government is encouraging industries to closely examine the reuse of wastewater, stating that at the present time, the pressure on our waterways is intense.
- Findings from a recent report entitled 'Water and the Australian Economy' include the threat that if current water use arrangements continue, in twenty years the water needs of industry will outstrip water availability. However, by changing our usage patterns, the needs can be met.
- Therefore it would seem obvious that the use of good quality drinking water for irrigation needs to be stopped where possible. Instead, the use of treated effluent, such as has been proposed for the Lockyer valley from the Brisbane River, needs to be further considered and acted upon. The land at Leiner Davis Gelatin (Aust) has been irrigated for the past five years with treated wastewater, and there have been no issues with the quality of the water for this purpose. We would like to be able to export our treated water to farms neighbouring our property. We feel that with the emphasis that Mr Welford is putting on such an initiative we would be a perfect candidate for the project.

Total Nitrogen Irrigated



Total Dissolved Salt Irrigated



14/2/2001
LAGA MEETING**LSA** Lear Siegler Australasia Pty. Ltd.

ACN 001 279 849 ABN 55 001 279 849 Duns Number:751103748

P.O. Box 572

Engadine NSW 2233

Telephone: (02) 9548 1322

Int. Phone: 61 2 9548 1322

Mobile: 0408 679 077 Pers

Fax: (02) 9548 1323

Int. Fax: 61 2 9548 1323

To: Company: Liener Davis Gelatin

Attention: Cameron Smeal

Telephone No : 07 5541 3544

Facsimile No : 07 5541 3612

Email Address:

Reference No : 20275

Message No : 17141

From : David Witts

Email Address: dwitts@learsiegler.com.au

No of Pages : 1

(Including this page)

Date : 29/01/01

Hello Cameron,

Thank you for the opportunity to quote for the particulate monitor on your coal boiler.

It must be noted that as with all these types of instruments they will only work where the gas temperature is higher than the Dew point of the gas.

The sheets you gave me have a stack temp of between 50 - 56°C with Average moisture content of between 10 - 26% . At 50°C and 26% moisture the dew point is way above the stack temperature i.e. you have "rain" in the stack.

This moisture will affect the reading given by any light attenuating type of equipment. I think this is where you have run into trouble before.

Real time monitoring may well be out of the question without conditioning of the sample which will add to the cost of the unit appreciably.

A few questions which come to mind are;

1. Why is the gas temp. so low?
2. Can it be raised?

If the conditions remain the same manual sampling may be the only option. I am sure many companies will promise the world, I would be very interested if they deliver a cheap system that will give an accurate measure of particulate in your stack.

The only four options I can think of are:

1. Raise the stack temp.
2. Pay 60K for the optional bypass system which is proven to work in these conditions.
3. Take continuous moisture readings and compensate for moisture content in an opacity/concentration reading. This would take a degree of sampling to get an approximate correlation only, not necessarily an accurate one because as the data suggests parameters are constantly changing and the attenuation of water acts differently regardless of concentration. I would imagine EPA would have to OK any assumed correlation.
4. Manual sample.

Your engineer coming from overseas, I assume, must have seen this before, so he may have a solution. My feeling is that the solution lies before the gas gets into the stack.

Not the best of news but these problems are solvable. I hope this helps in some way.

If you need my input or help in any way please don't hesitate to call.

Best regards

sch454 (6) Personal


DAVID WITTS.

1

Received
5/2/01
GPH

P.1/1

FEB 01 10:29 AM

14/2/2001
LDGA MEETING

Justification for changing ERA.

Current ERA: 50(b)

Rendering operation – commercially processing or extracting substances, including, for example, fat, tallow, derivatives of fat or tallow, or proteinaceous matter, from animal wastes or by-products (other than operation using wastes solid derived from an activity mentioned in item 32(a) or 47 in works having design production capacity of More than 300t per year - \$6020

Proposed ERA: 32(a)(1)

Meat processing – slaughtering animals for commercially producing meat or meat products for human consumption, or processing (other than smoked mentioned in item 35) or packing of meat or meat products for human consumption –

- (a) if an integral part of the activity involves the operation of rendering plant with a design production capacity of more than 300t per year – in works (other than a retail butcher shop) having a design production capacity of
 - (i) 1000 t or more but less than 3000t per year - \$1,000.

Arguments for change:

1. Although on the face of it, it may seem that LDG's operations are best suited to ERA 50(b), further investigations reveal that to be incorrect.

While ERA 50(b) states that a rendering operation is a commercial business extracting substances including proteinaceous matter from animal by products, it expressly excludes those activities using waste solely derived from activities mentioned in ERA 32(a). Not only is this express exclusion apparent, but legal maxims state that where a specialist section exists it should be used in favour of general ones¹.

2. ERA 32(a)(i)

It can be argued that LDG is not in the business of slaughtering animals, but the definition of meat processes states that s32(a) covers slaughtering animals, OR processes of meat products. Since hide is a meat product and extraction of gelatin from these hides is processing, LDG's operations fit into this category.

To be excluded from ERA 50(b) the waste must be solely derived from circumstances in ERA 32(a). Because the sole raw material used for extracting gelatin is hide, this requirement is met.

¹ *Expressio unius est exclusio alterius* - Moris et al, 199, Laying Down the Law 4th Edition, Butterworths, Brisbane:194.

ERA 32(a) also states that the meat product must be for human consumption. Considering our gelatin is 100% sold for human consumption it would also seem to fall under this definition.

Subsection (a) of this item states that if an integral part of the operating is rendering then the activity should fall under this category. Considering our current categorisation under rendering operation ERA 50, this would seem to meet the requirement.

LDG argues that we would fall into subsection (a)(I) because the factory capacity is at about 2500 tonnes per, and have currently not reached over 2000t per year.

3. The only gelatin factory in Australia

Because LDGA is the only Gelatin factory in Australia, changing the ERA will cause no problems with other corporations wanting ERA.

4. Having regard to the act

All legislation must be interpreted with the object of the act in mind². The object of the Environmental Protection Act is to protect Qld's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ESD).

Changing the required ERA for LDG does not offend this purpose in any way, and infact ensures that LDG's environmentally sustainable development can continue to run efficiently.

Alternative Arguments

Hide is a meat product

Meat is flesh, flesh consists of connective tissue, skin contains connective tissue, hide is skin.

² Acts Interpretation Act

14/2/2001
LGA MEETING

Total Dissolved Solids

The new method of TDS analysis is a standard method from Standard Methods for Water and Wastewater 18th Edition. The previous method used was not a standard method.

A copy of the standard method is attached as are results obtained from several months' analysis. Results from this method of analysis have been used since 19-10-2000. Samples have also been analysed at the Qld Health and Scientific Services Laboratory to check method accuracy. This type of external analysis will be continued to monitor the accuracy of the results obtained in the laboratory at Leiner Davis.

Electrical Conductivity (EC) is used as an indication of salinity and concentration of dissolved salts. Equations have been developed to convert EC to these other parameters. However, the accuracy of these relationships can be affected by the proportions of different ions, which contribute to the conduction of electricity, by the aqueous solution. Leiner Davis irrigation water is prone to variability in composition.

The new method is from the Standard Methods for Water and Wastewater 18th Edition.

2540 C. Total Dissolved Solids Dried at 180° C

20mls of filtered sample are used.

Drying boats were pre-dried in the 180° C oven (1hour) and placed in desiccator to cool.

Weights were recorded to 4-decimal places for the drying boat and the sample.

Each sample is done in triplicate at present.

All samples are placed in 180° C oven for 2.0 hrs (Trials showed that the sample is at constant weight at this time when approx 20mls of sample is used). This gives a residue of approximately 50mg.

Samples placed in desiccator to cool and then weighed.

Drying at 180° C removes all mechanically occluded water but some water of crystallisation may remain particularly if sulphates are present. The sulphate level in the POP samples were approximately 1400mg/L. Organic matter may be lost by volatilisation, but not completely destroyed. Loss of CO₂ results from the conversion of bicarbonates to carbonates and carbonates may be decomposed partially to oxides or basic salts. The bicarbonate level in the POP sample was approximately 135mg/L and about half of this is expected to be lost. Some chloride and nitrate may be lost and the levels of these in the POP were approximately 870mg/L and 68mg/L respectively.

There has been extensive consultation with Gerry Denaro Chief Chemist at Qld Health and Scientific Services concerning the method and the chemical species of the sample. This standard method is the accepted method for water and wastewater.

2540 C. Total Dissolved Solids Dried at 180°C

1. General Discussion

a. Principle: A well-mixed sample is filtered through a standard glass fiber filter, and the filtrate is evaporated to dryness in a weighed dish and dried to constant weight at 180°C. The increase in dish weight represents the total dissolved solids. This procedure may be used for drying at other temperatures.

The results may not agree with the theoretical value for solids calculated from chemical analysis of sample (see above). Approximate methods for correlating chemical analysis with dissolved solids are available.¹ The filtrate from the total suspended solids determination (Section 2540D) may be used for determination of total dissolved solids.

b. Interferences: See 2540A.2 and 2540B.1. Highly mineralized waters with a considerable calcium, magnesium, chloride, and/or sulfate content may be hygroscopic and require prolonged drying, proper desiccation, and rapid weighing. Samples high in bicarbonate require careful and possibly prolonged drying at 180°C to insure complete conversion of bicarbonate to carbonate. Because excessive residue in the dish may form a water-trapping crust, limit sample to no more than 200 mg residue.

2. Apparatus

Apparatus listed in 2540B.2a-h is required, and in addition:

*a. Glass-fiber filter disks** without organic binder.

b. Filtration apparatus: One of the following, suitable for the filter disk selected:

1) *Membrane filter funnel.*

2) *Gooch crucible, 25-mL to 40-mL capacity, with Gooch crucible adapter.*

3) *Filtration apparatus with reservoir and coarse (40- to 60- μ m) fritted disk as filter support.[†]*

c. Suction flask, of sufficient capacity for sample size selected.

d. Drying oven, for operation at 180 $\pm$ 2°C.

3. Procedure

a. Preparation of glass-fiber filter disk: Insert disk with wrinkled side up into filtration apparatus. Apply vacuum and wash disk with three successive 20-mL volumes of reagent-grade water. Continue suction to remove all traces of water. Discard washings.

b. Preparation of evaporating dish: If volatile solids are to be measured, ignite cleaned evaporating dish at 500 $\pm$ 50°C for 1 h in a muffle furnace. If only total dissolved solids are to be measured, heat clean dish to 180 $\pm$ 2°C for 1 h in an oven. Store in desiccator until needed. Weigh immediately before use.

c. Selection of filter and sample sizes: Choose sample volume to yield between 10 and 200 mg dried residue. If more than 10 min are required to complete filtration, increase filter size or decrease sample volume. When very low total suspended solids are encountered (less than 10 mg/L), less dried residue may be collected; compensate by using a high-sensitivity balance (0.002 mg).

d. Sample analysis: Stir sample with a magnetic stirrer and pipet a measured volume onto a glass-fiber filter with applied vacuum. Wash with three successive 10-mL volumes of reagent-grade water, allowing complete drainage between washings, and continue suction for about 3 min after filtration is complete. Transfer total filtrate (with washings) to a weighed evaporating dish and evaporate to dryness on a steam bath. If filtrate volume exceeds dish capacity add successive portions to the same dish after evaporation. Dry for at least 1 h in an oven at 180 $\pm$ 2°C, cool in a desiccator to balance temperature, and weigh. Repeat drying cycle of drying, cooling, desiccating, and weighing until a constant weight is obtained or until weight change is less than 4% of previous weight or 0.5 mg, whichever is less. Duplicate determinations should agree within 5% of their average. If volatile solids are to be determined, follow procedure in 2540E.

4. Calculation

$$\text{mg total dissolved solids/L} = \frac{(A - B) \times 1000}{\text{sample volume, mL}}$$

where:

A = weight of dried residue + dish, mg, and

B = weight of dish, mg.

5. Precision

Single-laboratory analyses of 77 samples of a known of 293 mg/L were made with a standard deviation of differences of 21.20 mg/L.

6. Reference

1. SOKOLOFF, V.P. 1933. Water of crystallization in total solids of water analysis. *Ind. Eng. Chem., Anal. Ed.* 5:336.

7. Bibliography

- HOWARD, C.S. 1933. Determination of total dissolved solids in water analysis. *Ind. Eng. Chem., Anal. Ed.* 5:4.
- U.S. GEOLOGICAL SURVEY. 1974. Methods for Collection and Analysis of Water Samples for Dissolved Minerals and Gases. Techniques of Water-Resources Investigations, Book 5, Chap. A1. U.S. Geological Surv., Washington, D.C.

* Whatman grade 934AH; Gelman type A/E; Millipore type AP40; E-D Scientific Specialties grade 161; or other products that give demonstrably equivalent results.

[†] Practical filter diameters are 2.2 to 12.5 cm.

[‡] Gelman No. 4201 or equivalent.

POP					
Date	Dish wt	Sample wt	wt after 2hrs	TDS	EC
19/10/2000	0.5471	19.5627	0.6039	2903	6340
19/10/2000	0.5465	19.1813	0.6022	2904	
19/10/2000	0.5438	19.8361	0.6013	2899	
9/11/2000	0.544	20.4761	0.6005	2759	6060
9/11/2000	0.5416	20.303	0.5978	2768	
9/11/2000	0.5501	20.959	0.6078	2753	
16/11/2000	0.5461	20.4763	0.6018	2720	6160
16/11/2000	0.5436	20.7594	0.6006	2746	
16/11/2000	0.5477	21.3255	0.6059	2729	
23/11/2000	0.5455	21.6239	0.5996	2502	6240
23/11/2000	0.5429	22.6601	0.6003	2533	
23/11/2000	0.5516	21.8226	0.6062	2502	
29/11/2000	0.5506	21.0255	0.6012	2407	6520
29/11/2000	0.5429	20.1059	0.5917	2427	
29/11/2000	0.5475	23.6146	0.6036	2376	
18/12/2000	0.5436	20.4596	0.5973	2625	6690
18/12/2000	0.5468	20.3717	0.6016	2690	
18/12/2000	0.5383	20.272	0.592	2649	
21/12/2000	0.5518	21.3683	0.6062	2546	6880
21/12/2000	0.5444	20.7702	0.597	2532	
21/12/2000	0.5494	23.2814	0.6082	2526	
28/12/2000	0.5484	20.5412	0.6004	2531	6760
28/12/2000	0.5498	21.0786	0.6041	2570	
28/12/2000	0.5463	20.2928	0.5982	2558	
17/01/2001	0.5479	20.6248	0.6136	3185	6740
17/01/2001	0.5452	20.7978	0.6109	3159	
2/02/2001	0.533	20.2115	0.5825	2449	6550
2/02/2001	0.5447	20.3999	0.5943	2431	
2/02/2001	0.5527	22.2516	0.6075	2463	
6/02/2001	0.5451	20.807	0.5969	2490	6740
6/02/2001	0.549	20.6097	0.6002	2484	
6/02/2001	0.5453	20.3814	0.5961	2492	

PO

Date	Dish wt	Sample wt	wt after 2hrs	TDS 2hrs	EC
19/10/2000	0.5477	19.7379	0.5971	2503	6480
19/10/2000	0.5498	21.9262	0.6056	2545	
19/10/2000	0.5445	20.782	0.5969	2521	
9/11/2000	0.5514	20.1617	0.6025	2535	5930
9/11/2000	0.5418	22.2767	0.5987	2554	
9/11/2000	0.5477	20.244	0.5994	2554	
16/11/2000	0.5446	20.3496	0.5928	2395	6370
16/11/2000	0.5396	20.8112	0.5895	2398	
16/11/2000	0.5464	22.2434	0.5997	2396	
24/11/2000	0.5477	21.0008	0.5968	2338	6590
24/11/2000	0.5493	20.8407	0.5985	2361	
24/11/2000	0.5466	21.2627	0.5967	2356	
29/11/2000	0.5458	20.4289	0.5944	2379	6870
29/11/2000	0.5465	21.8278	0.5984	2378	
29/11/2000	0.5522	20.3761	0.6003	2361	
18/12/2000	0.5476	20.8593	0.5975	2392	7910
18/12/2000	0.5484	21.4539	0.5991	2363	
18/12/2000	0.5447	20.2637	0.5921	2339	
21/12/2000	0.5503	20.027	0.6017	2567	7690
21/12/2000	0.5451	20.0096	0.5963	2559	
21/12/2000	0.546	20.8962	0.599	2536	
28/12/2000	0.5386	20.4986	0.587	2361	7810
28/12/2000	0.5449	21.3666	0.5955	2368	
28/12/2000	0.5477	22.8262	0.6009	2331	
17/01/2001	0.5488	20.5812	0.6233	3620	7950
17/01/2001	0.543	20.7608	0.618	3613	
2/02/2001	0.5457	20.5849	0.5975	2516	7690
2/02/2001	0.5446	21.4413	0.5987	2523	
2/02/2001	0.5384	20.0575	0.5894	2542	
6/02/2001	0.547	20.7145	0.5999	2559	7370
6/02/2001	0.5413	21.2105	0.5959	2574	



**Leiner Davis Gelatin
(Australia)**

Leiner Davis Gelatin International Limited

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Telephone (07) 5541 3544
Facsimile (07) 5541 3612

EPA SOUTHERN REGION	
Correspondence No. STH2001 8452	Barcode No.
File No. STH495	PART FOLIO 21 20
Action Officer Don Shackle	Related Items

RECEIVED & NOTED 13/09/2001

11 September 2001

Mr Don Shackle
South Eastern Regional Office
Environmental Protection Agency
GPO Box 2771
BRISBANE QLD 4001

Re: Licence Breach Notification

Dear Don,

Please find attached written notification of the gully discharge incident that occurred in early August. I would like to advise that remedial actions are now complete.

LDGA has undertaken to ensure that there is no repeat of this incident by installing improved border check controls and associated earthworks.

I would like also to confirm your site inspection and attendance at the University presentation scheduled for Thursday 27th of September 2001.

At this point it is expected that a party of three consisting of yourself, Mike Ronan and Neal House will be arriving at approximately 9:30 am.

Should circumstances change or if you require further detail regarding these items please do not hesitate to contact me on (07) 5541 9442.

Sincerely,

AC4464(6) Personal information

Cameron Smeal
Environmental Officer.





*Leiner Davis Gelatin
(Australia)*

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ENVIRONMENTAL INCIDENT REPORT - LEVEL 1

DATE: 29/08/01	
REPORTED BY: Cameron Smeal	SIGNATURE: 

COMPLAINT

(i) Type of communication (underline type)

<u>Telephone</u>	Fax	Personal	Letter	E-Mail
------------------	-----	----------	--------	--------

(ii) Date Received: 27/08/01

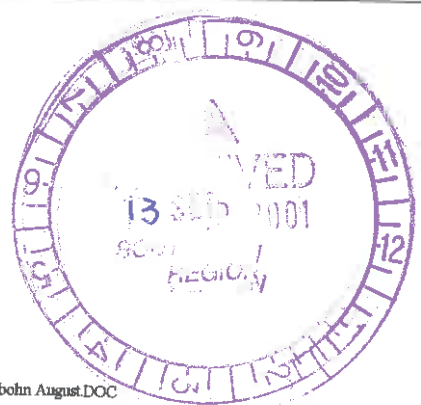
(iii) Time Received: 1657

Name/Address/Contact Telephone Number of complainant:

(iv) LDGA Environmental Officer

Nature of complaint:

(v) Trap dam overflowing to centre gully.



B. RESPONSE / INVESTIGATION

(i) Name of investigator:
Cameron Smeal
Signature: 

Authorised by Operations Manager
Signature: 

Action taken:

- (ii) Operations Manager informed of problem.
- (iii) Two mobile pumps sited at trap dam to return irrigation runoff to BSD suffered independent mechanical failures.
- (iv) Maintenance fitter contacted to rectify mechanical failure.
- (v) Earthworks to minimise potential for recurrence of incident programmed.
- (iv). Informed EPA officers of incident.
- (vi) Earthworks completed 11th 2001.
- (vii) No discharge to river.

C GENERAL REMARKS

Simultaneous multiple pump failure is considered an unlikely event.

Potential for irrigation run off to reach gully has been highlighted by this incident.

The EPA has been advised of the incident under LDGA's license and self-monitoring obligations.

The EPA will be given this report as written confirmation of the incident and actions.

Every reasonable endeavour has been, and will be, made to ensure that the requirements of the License are met, GED obligations are fulfilled and that uncontrolled discharges to waterways by LDGA operations are prevented.



Leiner Davis Gelatin (Australia)

Leiner Davis Gelatin International Limited

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4 September 2001

Don Shackle
South Eastern Regional Office
Environmental Protection Authority
GPO Box 2771
BRISBANE QLD 4001

EPA SOUTHERN REGION	
Correspondence No. STH2001/8221	Barcode No.
File No. STH 495	PART/FOLIO 21/19
Action Officer Don Shackle	Related Items

RECEIVED & NOTED
6/09/2001
α

Re: Licence

Dear Don,

Please find attached official written notification of several reported environmental incidents over the last month. Whilst actions for the remaining reported incident (discharge to gully), are to be finalised the summary notification has not been forwarded.

Should you require any additional information in regard to the incidents or reports, please do not hesitate to contact me on 5541 9442.

Regards

sch4p4(6) Personal information

Cameron Smeal.



Last printed 4/09/2001 6:07 PM



**Leiner Davis Gelatin
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Telephone (07) 5541 3544
Facsimile (07) 5541 3612

RECEIVED & NOTED
6/09/2001



Wednesday, 29 August 2001

Don Shackle
South Eastern Regional Office
Environmental Protection Authority
GPO Box 2771
BRISBANE QLD 4001

Re: Notification of Environmental Incident

Dear Don,

Please find attached report of a complaint involving a contracted transporter of LDGA raw materials. We have already verbally advised you of this event but remain uncertain whether it qualifies as a reportable or notifiable incident under the license. We trust that the attached report satisfies our obligations under the general environmental duty requirements.

Should you have any further queries in regard to this matter please do not hesitate to contact me.

sch4p4(6) Personal information

Regards
Cameron Smeal.





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ENVIRONMENTAL INCIDENT REPORT - LEVEL 1

DATE: 17/08/01

PREPARED BY: Cameron Smeal

SIGNATURE:

Section 6 Personal

COMPLAINT

(i) Type of communication (underline type)

Telephone

Fax

Personal

Letter

E-Mail

(ii) Date Received: unknown

(iii) Time Received: unknown

(iv) Name/Address/Contact Telephone Number of complainant:

Section 6 Confidential source
Mrs J Herbohn
Sly Creek Road
Josephville (07) 5541 2603

Nature of complaint:

- (v) Operations manager received a call about bins on a truck on Sunday. No specific details available as Op Manager off site all week. Mrs Herbohn has not as yet answered the phone. No answering machine to leave message.
- (vi) LDGA Environmental Officer contacted Mrs Herbohn approximately 4:00pm Thursday.
- (vii) Mrs Herbohn first registered complaint was regarding vehicle entering LDGA site on Sunday 29/07/01. Truck at approximately 4:10 going in to LDGA. Plastic bins full of animal parts hanging over sides. Big white truck.
- (viii) Mrs Herbohn confirms similar instance occurred on Sunday 05/08/01. This vehicle was Farmers Transport red and white truck. LDGA contacted Farmers 06/08/01 and confirmed this fact.
- (ix) 12/08/01 Mrs Herbohn noted Sunday vehicle had red covered sides and that there was nothing offensive regarding this delivery. NB Mrs Herbohn considers the sight of animal parts hanging out of bins to be quite offensive.
- (x) Copy of this report to be forwarded to EPA and Mrs Herbohn.

If this document is not on blue paper it is an uncontrolled copy and the information it contains may be out of date

Page 1

RESPONSE / INVESTIGATION

(i) Name of investigator: Cameron Smeal

Signature:

sch4p4(6) Personal info


Action taken:

- (ii) Return call/unanswered Thursday 16/08/01 12:15
- (iii) Return call/unanswered Thursday 16/08/01 02:00
- (iv) Return call. Mrs Herbohn answered Thursday 16/08/01 04:10
- (v) Following telephone conversation with Mrs Herbohn refer incident to Purchasing Manager to contact transport operators. This was done verbally 20/08/01. Letter sent 22/08/01 (refer attachment).
- (vi) Establish possibility that all loads of raw materials entering site be transported on covered vehicles.
- (vii) Note that Mrs Herbohn feels that community values and the general amenity of area are degraded by the sight of bins containing animal pieces.
- (viii) Confirm vehicular movements and times coincide with Sunday raw material deliveries.

GENERAL REMARKS

Some degree of uncertainty exists regarding LDGA obligations in this instance. Transport operator has been requested to cover all loads as a goodwill gesture but no legal requirement to do so has been established. This report has been forwarded to the EPA.

Attach copy of Purchasing Manager's letter to transport contractor.

Operations Manager LDGA to sign off on final report.

sch4p4(6) Personal informat


General Manager Operations



LEINER DAVIS
GELATIN

22nd August, 2001

Farmers Bulk Haulage
164 Brisbane Street
Beautesert Qld. 4285

Leiner Davis Gelatin (Australia)
ACN 000 010 597

"Sunny Hills" Flood Road
Josephville via Beautesert
QLD 4285 Australia

PO Box 409 Beautesert
QLD 4285 Australia

Telephone 617 5541 3544
Facsimile 617 5541 3612

Attention Ian Farmers

Ian,

I'm writing in reference to the complaint we received recently from one of our neighbours about the sight of hide pieces being transported in bins to our factory on one of your trucks.

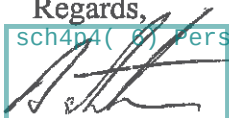
In the interests of being "a good neighbour", Leiner Davis Gelatin has tried to remedy such concerns as they are identified and after consultation with the parties involved.

Leiner Davis Gelatin's position on this matter is that we would request that a trailer with covered sides be used at all times for the collection and delivery to our factory of all hide collection bins.

We appreciate your prompt action to utilize a different trailer with covered sides for this service since this issue was raised a couple of weeks ago.

Ian, should you wish to discuss this matter further please give me a call on direct dial [07] 5541-9421.

Regards,

sch4p4 (8) pers


Brad Peterson



A Goodman Fielder Company

RECEIVED
6/19/2001

ENVIRONMENTAL INCIDENT REPORT - EXTERNAL COMPLAINTS

DATE: 01/08/01

PREPARED BY: Cameron Smeal

SIGNATURES: 

sch4p4 (6) Personal information

A. COMPLAINT

(i) Type of communication (underline type)

<u>Telephone</u>	Fax	Personal	Letter	E-Mail
------------------	-----	----------	--------	--------

(ii) Date Received: 01/08/01

(i) Time Received: 1000

(iv) Name/Address/Contact Telephone Number of Complainant:

Mr Neil Phillips
Ipswich City Council
38106855
(10 am)

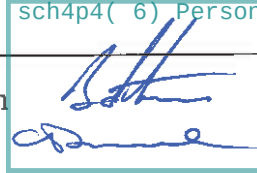
(v) Nature of Complaint:

Odour/flies from salted hide store at Redbank.
(Shed 5 River Road Redbank)

B. RESPONSE / INVESTIGATION

sch4p4(6) Person

(i) Name of investigators: Bradley Peterson
Signature: Cameron Smeal



Action taken:

- (i) Operations Manager/Production Manager informed of complaint.
- (ii) Amalgamated Pest Control contacted to assess and eliminate vermin as required at site.
- (iii) Odour control unit malfunction noted
- (iv) Replacement units to be installed by 2 pm day of complaint
- (iv). Site inspection by Bradley Peterson scheduled for 02/08/01
- (v). Inform EPA officers of complaint 10:20 am
- (vi). Contact Ipswich City Council 10:25-N.Phillips n/a until 3:30pm
- (vii). Contact site manager to advise of complaint/ request that any queries be directed to LDGA

C. GENERAL REMARKS

No significant element of doubt exists as to the origin of the odour noted by the complainants. The fly infestation has not been confirmed at this point but regular pest control measures will be implemented to eliminate the threat if required.

This incident was reported to the Ipswich City Council. The EPA has been advised of the incident under LDGA's general environmental duty (GED) of care obligations.

The EPA will be given this report as written confirmation of the incident.

Every reasonable endeavour has been, and will be, made to ensure that the requirements of Council are met, GED obligations are fulfilled and that air quality is not adversely affected by LDGA operations.

The control unit for odour control has broken down twice in the past month.

It is suggested that a consideration of contingencies for the storage of salted hide be considered immediately.



*Leiner Davis Gelatin
(Australia)*

RECEIVED & NOTED
6/09/2001

Leiner Davis Gelatin International Limited

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ENVIRONMENTAL INCIDENT REPORT - LEVEL 1

DATE: 29/08/01

PREPARED BY: Cameron Smeal

SIGNATURE:

sch4p4(6) Personal

COMPLAINT

(ii) Type of communication (underline type)

Telephone

Fax

Personal

Letter

E-Mail

(ii) Date Received: Report received approximately 06/08/01

(iii) Time Received: N/A

Name/Address/Contact Telephone Number of complainant:

(iv) Leiner Davis Gelatin (Australia) Environmental Officer
(07) 5541 9442

Nature of complaint/incident:

(v) Boiler emission particulate discharge in excess of license conditions. This event occurred during boiler stack analysis by external consultants on 17 July 2001. The consultant was asked to confirm findings prior to this report being filed with the EPA. The consultant is confident of the veracity of the analysis.

RESPONSE / INVESTIGATION

(i) Name of investigator: Cameron Smeal

Signature

scmp4(6) Personal info
G.M.O.

Action taken:

- (iii) Operations Manager informed of breach.
- (iiii) EPA advised by telephone of breach.
- (ivi) Boiler operator questioned as to likely cause. "Over firing" or excessive operational load on boiler is suspected.
- (vi) Production and engineering departments input sought to assess control options.
- (vii) Business Group engineer flown in from New Zealand 28/08/01 to assist in investigation.
- (viii) Boiler operational and design load capacity scrutinised.
- (viii) Continuous Emission Monitoring unit demonstrated to be unreliable gauge of discharge.
- (ix) Investigations are ongoing.

GENERAL REMARKS

Copy of this report to be forwarded to EPA as written confirmation as per license conditions.

Attach a copy of the consultants results regarding the breach.

Attach copy of Engineers email instructions regarding investigation.

This incident is reported as per the requirements of self monitoring.

LDGA is of the belief that this incident is an isolated occurrence given the history of previous test results. LDGA will continue the assessment and report the findings formally to the EPA immediately upon conclusion.

Operations Manger LDGA to sign off on final report.



29/08/2001 10:21 AM

Engineering Manager - APA
GF Ingredients Ltd - Botany

To: Cameron Smeal/Gelatin/Beaundesert/AU/GFIngredients@GFIngredients, Aubrey
DCosta/Gelatin/Beaundesert/AU/GFIngredients@GFIngredients, Ross
Pointing/Gelatin/Beaundesert/AU/GFIngredients@GFIngredients
cc: Bob Wearne/Gelatin/Beaundesert/AU/GFIngredients@GFIngredients, Pablo
Silber/Gelatin/Beaundesert/AU/GFIngredients@GFIngredients, Tony
Akred/Gelatin/Botany/AU/GFIngredients@GFIngredients
Subject: Present particulate discharge levels from Finafire boiler

All, as discussed by all yesterday and agreed please find listed the challenges we need to address urgently re the above subject.

- Confirm the present method of measuring the actual blowdown from the Finafire boiler is accurate over a given period of time.
- Confirm the present method of measuring the boiler's feed water temperature is accurate.
- Confirm the present method of measuring the boiler's steam output/draw-off is accurate.
- Confirm the present method of measuring the boilers steam pressure is accurate.
- Re-configure the present data logging method to ensure the boiler's steam output number resets.
- Re-configure the PCME data logger unit so that it is sending a signal to the boiler data logger.
- Confirm what units the PCME in measuring the particulates levels in.

The goal of this work is to gather accurate data so we can measure and record the steam output of the boiler in Kg's per hour along with the boiler's steam pressure against the actual particulate discharge levels over a given period.

Regards, Mark

PS: The Boiler's performance data is as follows:

As per Bill Lomont's fax dated 24/03/00 the Finafire boiler's performance output is based on an operating pressure of 1,100 Kpa gauge with a blowdown of 2% which would allow the boiler's full load rating to be 7,600 Kg/hr of steam per hour with a feed water temperature of 105 deg C.



3 RESULTS

3.1 STACK EMISSIONS TESTING

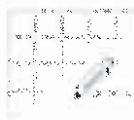
Results of the stack emissions testing are compared to emission limits in Table 1.

Table 1 – Results of Emission Testing

Compound	Boiler	Licence Limit (26/4/01)
		Env Auth SR0722
	mg/m ³ *	mg/m ³ *
Particulates (@ 12% CO ₂ reference)	444	250
NOx (as NO ₂)	351	500
Sulphur Dioxide	310	N/A

* - mg/m³ at 0°C at 1 atm Pressure.

The comparison shown in Table 1 confirms that the test data for NOx and SO₂ comply with the revised environmental licence emission limits as detailed in Environmental Authority # SR0722 (26/4/01). Particulate Emissions were found to exceed the licence limit during the monitoring period.



Cameron Smeal
07/08/2001 09:47 AM

Environmental Officer
Leiner Davis Gelatin - Beaudesert

To: Bob Wearne/Gelatin/Beaudesert/AU/GFIIngredients@GFIIngredients
cc:
Subject: Boiler

Bob

Despite the EPA having lifted our particulate discharge limit to 250 mg/Nm³, we have not been able to operate within license. The latest test results (18/07/01) indicate boiler emissions at the time of sampling were 444 mg/Nm³. The boiler operator was not given advance notice of the testing and no unusual or artificial operational conditions were in evidence at the time of sampling.

The boiler operator advises that it is common to experience periods of over design demand on the boiler through inappropriate use of steam eg heating too many pans simultaneously. This issue has been raised previously with Engineering but must now be considered and addressed collectively by Production and Engineering.

Among the options to be considered are the development of the wet bag scrubber, stricter controls on steam use, overall boiler efficiencies, and the development of trigger points for control of particulate discharge. Considering we have installed a stack monitor that should provide continuous emission monitoring capabilities, it should be possible to develop reactionary procedures to prevent further breaches.

A preferred option would be to develop the wet bag scrubber, (if Dr Agronovsky is still willing to deal), as in the long term discharge limits will be tightened. The wet scrubber option offers long term capability to meet stricter controls. Improved procedures would also appear to be mandatory.

I am required to report this current breach to the EPA and outline the actions undertaken to prevent a recurrence within 2 weeks. Your attention to and direction in regard to this matter would be appreciated.

Regards
Cameron



"Neil Lister" <neil@processdynamics.com.au> on 29/08/2001 04:31:04 PM

Please respond to "Neil Lister" <neil@processdynamics.com.au>

To: "Cameron Smeal" <cameron.smeal@gfingredients.com>

cc:

Subject: Biofgas massflow enquiry

Cameron

Thanks for gas composition data.

Could you also please advise on the following:

Pipe type and I.D.

Pressure]

Temperature] - min/max/normal

Flowrate]

Regards

Neil Lister

Process Dynamics Pty Ltd

Ph 61 7 3353 4249

Fx 61 7 3353 4205

Email neil@processdynamics.com.au

Web www.processdynamics.com.au



Leiner Davis Gelatin
(Australia)

"Sunny Hills", Flood Road
Josephville via Beaudesert Qld 4285
Australia
PO Box 409
Beaudesert Qld 4285
AUSTRALIA

Telephone (07) 5541 3544
Facsimile (07) 5541 3612

RECEIVED & NOTED
6/09/2001
COPY TO MURRAY ALLAN
6/09/2001

ENVIRONMENTAL INCIDENT REPORT - LEVEL 1

DATE: 29/08/01

PREPARED BY: Cameron Smeal

SIGNATURE:

8554p4(6) Personal infor

A. COMPLAINT

(i) Type of communication (underline type)

Telephone

Fax

Personal

Letter

E-Mail

(ii) **Date Received: 27/08/01**

(iii) **Time Received: 1657**

(iv) **Name/Address/Contact Telephone Number of complainant:**

8554p4(6) Confid
Mrs J Herbohn
14 Sandy Creek Road
Josephville
(07) 5541 2603

(v) **Nature of complaint:**

Very bad Smell"(refer attached response form).

"Sunny Hills", Flood Road
Josephville via Beaudesert Qld 4285
Australia
PO Box 409
Beaudesert Qld 4285
AUSTRALIA

Telephone (07) 5541 3544
Facsimile (07) 5541 3612

B. RESPONSE / INVESTIGATION

(i) Name of investigator:

Cameron Smeal

Signature:

sch4p4(6) Personal Inform

(ii) Authorised by Operations Manager

Signature:

sch4p4(6) Personal Inform

(ii) Actions taken:

- a. Operations Manager informed of complaint.
- b. Wind direction prior to receipt of complaint logged for analysis.
- c. Wind direction was not from LDGA towards complainants residence (refer attachment).
- d. Boundary inspection to check for odour was undertaken without any odour detected.
- e. Odour typical of AJ Bush operation was noted by Environmental Officer along Sandy Creek Road at time of complaint.
- f. Wind speed was between 15 and 33 km/hr and consistently SSW at time of complaint.
- g. No other complaints were received.

C. GENERAL REMARKS

Copy of this report to be forwarded to EPA as written confirmation as per license conditions.

Attach copy of weather data record.

This complaint is vigorously contested on the grounds that no odour was detected by investigators at the LDGA site, that the wind direction was inconsistent with the origin of the complaint for LDGA to be responsible for such odour, that the wind was consistent in direction from 9am to midnight, that AJ Bush was generating odour at the time of complaint and that AJ Bush is located to the North East of the complainants domicile.

LDGA is of the belief that this complaint has been incorrectly made against LDGA.

Operations Manger LDGA to sign off on final report.

File

- a. One copy to EPA.
- b. One copy internal file EPA 2000-2001.
- c. Note document file path T:\ENVIRO\EPA & Other Gov organ\2001\EnvIncident Herbohm 2Augst2001.dot

Attachments

- a. wind log
- b. Copy of "Hotline" response fax

LEINER DAVIS GELATIN ENVIRONMENTAL RESPONSE FORM

DATE: 27/08/01	PHONE LINE: 0732160518	TIME: 1657
COMPLAINT - NAME: JUNE HERBOH4.	OPERATOR: Chinese	
IF SUPPLIED - PHONE:		
IF SUPPLIED - ADDRESS: 14 Sandy Creek Rd		

DETAILS OF COMPLAINT:

Very Bad Smell

FAXED

WEEKDAYS: 0600 - 1800

MUST CONTACT:

BRAD PETERSON

LEINER DAVIS (AFTER 0800)



0755419421

MUST FAX COPY TO:

BRAD PETERSON

LEINER DAVIS



0755413612

JOHN FRASER

DEPARTMENT OF ENVIRONMENT



32258723

AFTER HOURS: 1800 - 0600

MUST CONTACT:

BEAUDESERT SECURITY SERVICES



0755414616

MUST FAX COPY TO:

BRAD PETERSON

LEINER DAVIS



0755413612

BEAUDESERT SECURITY SERVICES



0755414711

JOHN FRASER

DEPARTMENT OF ENVIRONMENT



32258723

FAX ALL RESPONSES TO SECURITY 2000



0755005033

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
27/08/01	12:00a	12.4	12.4	12.4	12.6	12.4	61	5.1	3.2	9.7	SSW	0.0	758.7	19.4	44	30
27/08/01	12:30a	12.4	12.4	12.4	12.5	12.2	63	5.6	4.8	11.3	SW	0.0	758.9	19.2	44	30
27/08/01	1:00a	12.2	12.2	12.2	12.2	12.2	59	4.4	4.8	11.3	SSW	0.0	758.8	19.1	43	30
27/08/01	1:30a	12.2	12.2	12.2	12.3	12.1	58	4.2	3.2	9.7	SW	0.0	758.6	18.8	43	30
27/08/01	2:00a	12.1	12.1	12.1	12.2	12.0	57	3.8	4.8	12.9	SW	0.0	758.6	18.7	42	30
27/08/01	2:30a	12.0	12.0	12.0	12.1	11.8	57	3.8	6.4	16.1	SSW	0.0	758.5	18.6	42	30
27/08/01	3:00a	11.7	11.7	8.9	11.8	11.6	54	2.7	11.3	24.1	SSW	0.0	758.3	18.3	41	30
27/08/01	3:30a	11.7	11.7	7.4	11.8	11.6	53	2.4	14.5	27.4	SSW	0.0	758.4	18.2	40	30
27/08/01	4:00a	11.7	11.7	8.1	11.8	11.5	53	2.4	12.9	27.4	SSW	0.0	758.3	17.9	40	30
27/08/01	4:30a	11.4	11.4	11.4	11.5	11.4	54	2.4	4.8	17.7	SSW	0.0	758.3	17.8	40	30
27/08/01	5:00a	11.1	11.1	11.1	11.4	10.8	57	2.9	1.6	9.7	S	0.0	758.3	17.7	40	30
27/08/01	5:30a	10.6	10.6	10.6	10.8	10.3	58	2.7	3.2	12.9	N	0.0	758.3	17.6	39	30
27/08/01	6:00a	10.1	10.1	10.1	10.4	9.9	57	2.0	3.2	9.7	N	0.0	758.4	17.6	39	30
27/08/01	6:30a	9.7	9.7	9.7	9.9	9.4	60	2.3	1.6	9.7	N	0.0	758.5	17.4	39	30
27/08/01	7:00a	9.6	9.6	9.6	9.9	9.3	62	2.7	3.2	11.3	N	0.0	758.7	17.2	39	30
27/08/01	7:30a	10.8	10.8	10.8	12.1	9.9	57	2.7	3.2	8.0	N	0.0	758.9	17.1	39	30
27/08/01	8:00a	13.6	13.6	13.6	14.8	12.2	47	2.4	1.6	9.7	N	0.0	758.9	17.2	39	30
27/08/01	8:30a	15.8	15.8	15.8	16.9	14.9	44	3.6	4.8	12.9	N	0.0	758.7	17.7	40	30
27/08/01	9:00a	17.2	17.2	16.3	17.8	16.9	39	3.2	8.0	24.1	SSW	0.0	758.6	18.5	40	30
27/08/01	9:30a	18.1	18.1	15.1	18.5	17.8	34	2.0	14.5	30.6	SSW	0.2	758.3	19.3	37	30
27/08/01	10:00a	18.8	18.8	15.9	19.6	18.3	35	3.1	14.5	30.6	SSW	0.0	758.8	20.0	37	30
27/08/01	10:30a	18.2	20.2	17.6	20.6	19.6	34	3.9	14.5	35.4	SSW	0.0	757.8	20.6	37	30
27/08/01	11:00a	18.7	20.6	17.1	20.7	20.3	33	3.7	19.3	33.8	SSW	0.0	757.2	21.2	38	30
27/08/01	11:30a	19.6	21.7	19.8	22.7	20.6	31	3.8	12.9	25.7	SSW	0.0	756.8	21.7	37	30
27/08/01	12:00p	21.7	22.5	20.4	22.7	22.3	31	4.6	14.5	33.8	SSW	0.0	756.3	22.2	37	30
27/08/01	12:30p	21.7	22.6	20.1	23.0	22.3	32	5.1	16.1	35.4	SSW	0.0	755.7	22.6	37	30
27/08/01	1:00p	21.7	22.8	20.6	23.1	22.4	30	4.4	14.5	29.0	SSW	0.0	755.4	23.0	36	30
27/08/01	1:30p	21.6	22.7	20.3	23.0	22.4	29	3.7	16.1	35.4	SSW	0.0	755.1	23.4	37	30
27/08/01	2:00p	21.3	22.7	19.9	23.0	21.8	28	3.2	17.7	35.4	SSW	0.0	754.8	23.7	36	30
27/08/01	2:30p	21.4	22.6	19.7	22.6	21.8	27	2.8	14.5	30.6	SSW	0.0	754.6	24.1	35	30
27/08/01	3:00p	20.4	22.3	19.7	22.6	21.8	27	2.4	16.1	33.8	SSW	0.0	754.5	24.3	35	30
27/08/01	3:30p	19.4	21.7	18.7	22.5	21.2	27	1.9	17.7	45.1	SSW	0.0	754.4	24.6	34	30
27/08/01	4:00p	18.9	20.8	17.2	21.4	20.4	27	1.2	20.9	41.8	SSW	0.0	754.6	24.8	34	30
27/08/01	4:30p	17.7	20.2	18.1	20.4	19.9	28	1.1	12.9	29.0	SSW	0.0	754.7	24.8	33	30
27/08/01	5:00p	19.5	19.5	16.8	20.0	18.9	27	0.0	14.5	33.8	SSW	0.0	755.0	24.8	33	30
27/08/01	5:30p	18.4	18.4	15.9	18.9	17.9	29	0.2	12.9	27.4	SSW	0.0	755.3	24.6	33	30
27/08/01	6:00p	17.6	17.6	15.0	17.9	17.2	31	0.2	9.7	24.1	SSW	0.0	755.5	24.3	32	30
27/08/01	6:30p	17.0	17.0	15.6	17.2	16.9	33	0.6	9.7	24.1	SSW	0.0	755.8	23.9	32	30
27/08/01	7:00p	16.7	16.7	15.8	16.9	16.5	35	1.2	8.0	20.9	SSW	0.0	756.0	23.6	32	30
27/08/01	7:30p	16.3	16.3	16.3	16.5	15.9	37	1.6	4.8	14.5	SSW	0.0	756.3	23.2	32	30
27/08/01	8:00p	16.0	16.0	14.4	16.1	15.7	38	1.7	9.7	20.9	SSW	0.0	756.7	22.8	32	30
27/08/01	8:30p	15.4	15.4	11.3	15.7	15.3	38	1.2	16.1	33.8	SSW	0.0	756.8	22.4	33	30
27/08/01	9:00p	15.4	15.4	13.8	15.5	15.3	36	0.4	9.7	35.4	SSW	0.0	757.5	22.1	32	30
27/08/01	9:30p	15.4	15.4	15.4	15.5	15.3	36	0.4	6.4	20.9	SSW	0.0	757.2	21.8	33	30
27/08/01	10:00p	15.3	15.3	14.3	15.4	15.2	36	0.3	8.0	25.7	SSW	0.0	756.8	21.6	32	30
27/08/01	10:30p	15.2	15.2	15.2	15.2	15.1	36	0.2	6.4	22.5	SSW	0.0	756.8	21.3	32	30
27/08/01	11:00p	14.9	14.9	13.2	15.1	14.8	37	0.3	9.7	24.1	SSW	0.0	756.7	21.1	32	30
27/08/01	11:30p	14.6	14.6	12.2	14.8	14.5	39	0.8	11.3	32.2	SSW	0.0	756.5	20.8	32	30
27/08/01	12:00p	14.5	14.5	11.4	14.6	14.4	39	0.7	12.9	29.0	SSW	0.0	756.6	20.6	32	30



SOIL MAP LEGEND

Soil Order	Geology/Geomorphic Element	Summary Description	Map Unit
Rudsoil	Basalt, convex crest	Shallow, stony medium clay	1a
Demoisol	Basalt, mid-slope shelf	Shallow stony, light clay to 52 cm pH & CaCO ₃ at 31-52cm	1b
Demoisol	Basalt, lower slope	Shallow stony brown medium clay to 60 cm depth	1c
Rudsoil	Alluvium, relic and current major levees	Deep, sandy loam to sandy clay loam, prismatic to polyhedral, pH neutral at depth	2a
Rudsoil	Alluvium, dissected levee	Deep, clay loam/sandy clay to medium clay at depth. Neutral pH	2b
Rudsoil	Alluvium, backplain	Deep, sandy clay loam to medium depth. Alkaline pH at	2c
Vertisol	Basaltic alluvium, closed depression	Black cracking, medium days, alkaline at depth. Self mudding surface	2d
Vertisol	Basaltic alluvium, relic backplain	Dark cracking, medium days, alkaline at depth. Crusty surface	2e
Demoisol	Alluvium, dissected relic levee	Brown, sandy clay loam	2f
Sodosol	Willoon sandstone Member, upper convex slopes	Brown clay loam over mottled clay. Neutral to alkaline at depth	3a
Vertisol	Willoon, alluvium member, relic terrace	Brown clay loam over light medium clay alkaline at depth	3b
Sodosol	Mixed, basalt/Willoon sediments, upper/mid-slopes	Organic black layer over light - medium brown clay, alkaline at depth	3c
Vertisol	Colluvium basalt/Willoon sediments. Relic gully infill	Deep, brown light-medium clay over medium heavy clay. Alkaline at depth	3d
+ 23	Soil sampling Sites		

LEINER DAVIS GELATIN PROPERTY, BEAUDESERT
Topographic base supplied by Beaudesert Shire Council
(Peter Mustant, GIS Manager)
Scale approx. 1:4000

John C. Taylor

From: Louise Gilshenan [louise.gilshenan@env.qld.gov.au]
Sent: Friday, 23 November 2001 12:48 PM
To: John C. Taylor
Subject: Advice for dip site at Bromelton
Importance: High
CLU File Ref: 900772.

John,

As discussed, the CLU considers that the following advice should be attached to DA you are currently reviewing for Bromelton.

- Lot 3 on CP862699 is currently listed on the Environmental Management Register (EMR) for Notifiable Activity number 22- Livestock Dip or Spray Race (as defined in Schedule 2 of the *Environmental Protection Act 1994*). Information provided to the Environmental Protection Agency (Contaminated Land Unit) indicates that this activity is no longer conducted on this site.

As such, if this land is not currently used for any other Notifiable Activities, the owners of the site may wish to consider having contaminated land investigation and associated validation works undertaken. Dependent upon the results of this investigation, works may be sufficient to enable the Environmental Protection Agency (EPA) (Contaminated Land Unit) to issue a Suitability Statement enabling removal of the site from the EMR. These works must be conducted and submitted in accordance with the *Environmental Protection Act 1994* and the *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* (DEH, 1998). Please contact the EPA (Contaminated Land Unit) on 3225 1827 if you require further information.

- The removal of any contaminated soil from this site requires prior approval from the Environmental Protection Agency EPA (Contaminated Land Unit) under the *Environmental Protection Act 1994*.

Regards,
Louise.

Louise Gilshenan
Contaminated Land Unit
Environmental Protection Agency
Ph: (07) 3227 7667 Fax: (07) 3247 3278

For further information visit our website at:
<http://www.env.qld.gov.au/environment/business/contaminated/>

21

Fax



Queensland Government

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

To: Cameron Smeal **Fax:** (07) 5541 3612

From: John C Taylor, Southern Region

Telephone: (07) 3224 6139 **Fax:** (07) 3225 8723

E-mail: johnc.taylor@env.qld.gov.au

Date: 23 November 2001 **Pages:** 3 (including this page)

Subject: Proposed Storage Shed on Lot3 CP862699
[on CLU Environmental Management Register]

Reference: STH495 vol.3 / 900772

Cameron,

Based on a comparison of the mapping information retained by our Contaminated Land Unit (supplied by Beaudesert Shire Council?) – copy attached; and the data you provided this morning; - it is unclear to me, whether or not the proposed shed extension site is superimposed on the historic stock-dip/spray race location.

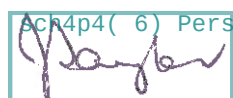
If the proposed shed is remote from the historic stock-dip/spray race location, then there is no immediacy to any need to rehabilitate the historic stock-dip/spray race site.

Contaminated Land Unit, Louise Gilshenan (07) 3225 1827 will be able to assist with any further inquiry regarding Contaminated Land matters, and has provided the attached advice which outlines a course of action which you may choose to address.

In the unlikely event that the proposed shed extension site is superimposed on the historic stock-dip/spray race location, then you might consider it prudent to address the contaminated land matters prior to the erection of the shed extension. However, soil should not be removed from the site (Lot 3 CP862699), prior to its remediation.

I trust that this is of assistance to you,

Regards,

Ack4p4(6) Pers


John C Taylor
Principal Inspector
IDAS Coordination
Southern Region

Privacy and confidentiality notice

The information contained in this facsimile is intended for the named recipient/s only. It may contain privileged and confidential information and if you are not an intended recipient, you must not copy, distribute or take any action in reliance on it. If you have received this facsimile in error, please notify the sender.

GPO Box 2771, Brisbane, Queensland 4001 Australia

CLU File Ref: 900772.

The CLU considers that the following advice should be provided to the applicant for the DA Southern Region is currently reviewing on Lot 3 CP862699 at Bromelton.

- Lot 3 on CP862699 is currently listed on the Environmental Management Register (EMR) for Notifiable Activity number 22- Livestock Dip or Spray Race (as defined in Schedule 2 of the *Environmental Protection Act 1994*). Information provided to the Environmental Protection Agency (Contaminated Land Unit) indicates that this activity is no longer conducted on this site.

As such, if this land is not currently used for any other Notifiable Activities, the owners of the site may wish to consider having contaminated land investigation and associated validation works undertaken. Dependent upon the results of this investigation, works may be sufficient to enable the Environmental Protection Agency (EPA) (Contaminated Land Unit) to issue a Suitability Statement enabling removal of the site from the EMR. These works must be conducted and submitted in accordance with the *Environmental Protection Act 1994* and the *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* (DEH, 1998). Please contact the EPA (Contaminated Land Unit) on 3225 1827 if you require further information.

- The removal of any contaminated soil from this site requires prior approval from the Environmental Protection Agency EPA (Contaminated Land Unit) under the *Environmental Protection Act 1994*.

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- SANDY CR. ROAD
- BRISBANE-STONEY RAIL CORRIDOR
- FLOOD ROAD
- TALLY-HO ROAD
- LOGAN RIVER



LOT 3 CP 862699

 STOCK-DIP / SPERM RACE LOCATION (INDICATIVE)

STH2001/10700

**Leiner Davis Gelatin
(Australia)****To:** Environmental Protection Agency
Southeastern Region**Fax:** 3225 8723

Pages including cover sheet 3

FACSIMILE TRANSMISSION**RETURN FAX:** 07 5541 3612

Leiner Davis Gelatin International Limited ACN 000 010 597

"Sunny Hills", Flood Road Telephone (07) 55413544
Josephville via Beaudesert QLD 4285 Facsimile (07) 55413612
Australia
PO Box 409
Beaudesert Qld 4285

Attention: John Taylor

John

As per our telephone discussion, I tender these faxed documents to assist in the determination of the location of the suspected site of the contaminated land.

Regards

ssh4p3(6) Personal information

Cameron Smeal

WARNING - PLAN MA

61 7 5541 3612 OR MUTILATED PLAN WILL NOT BE ACCEPTED

TRAVERSES

LINE	BEARING	DIST
9-12	29°24'25"	23.904
10-12	327°51'40"	22.97
11-13	1°59'45"	20.203
17-18	21°50"	21.078

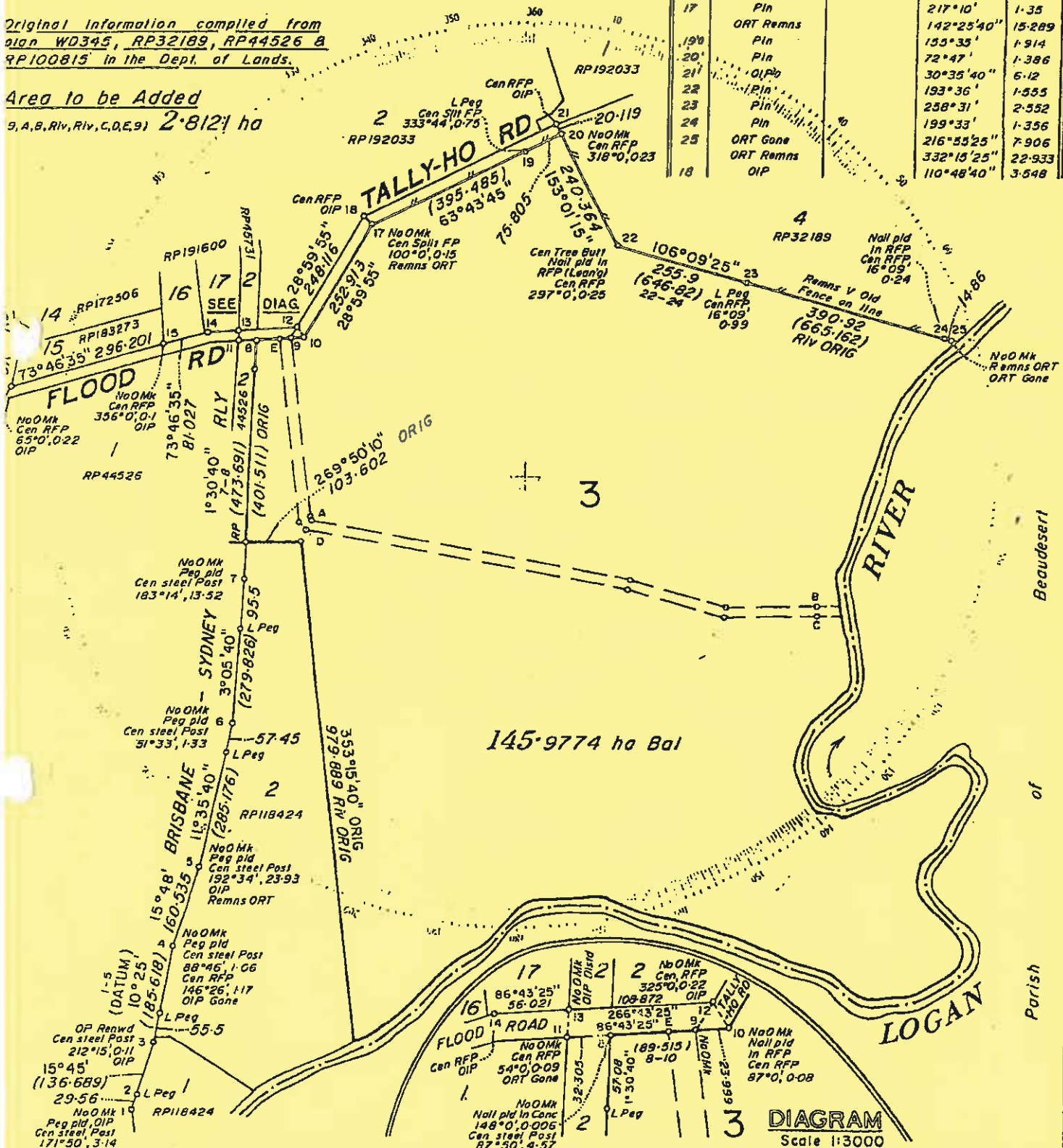
REFERENCE MARKS

STN	TO	ORIGIN	BEARING	DIST
1	OIP (10.3 deep)		105°45'	1.016
2	Pin		126°25'	2.594
3	OIP		130°25'	1.006
4	OIP Gone		100°25'	1.006
5	Pin		68°20'	2.329
6	OIP		157°52'	0.523
	ORT Remns		117°30'	13.317
	Pin		99°23'	1.232

7	Pin	85°31'	2.267
8	Pin	103°48'	6.385
10	Pin	134°58'	1.196
11	ORT Gone	247°37'45"	5.633
12	OIP (New Ref)	238°58'	1.183
13	OIP Distd	290°07'	4.144
14	OIP	348°55'35"	0.886
15	OIP (Diff N.B.C.)	355°57'25"	0.898
16	OIP	47°27'05"	1.542
	Pin	102°40'	1.708
17	Pin	217°10'	1.35
	ORT Remns	142°25'40"	15.289
19	Pin	153°35'	1.914
20	Pin	72°47'	1.386
21	OIP	30°35'40"	6.12
22	Pin	193°36'	1.555
23	Pin	258°31'	2.552
24	Pin	199°33'	1.356
25	ORT Gone	216°55'25"	7.906
	ORT Remns	332°15'25"	22.933
18	OIP	110°48'40"	3.548

Original information compiled from
plan WD345, RP32189, RP44526 &
RP100815 in the Dept. of Lands.

Area to be Added
9, A, B, Riv, Riv, C, D, E, 9) 2.8121 ha



David Hugh THOMPSON
certify that this plan has been surveyed and
imposed in this plan by me or by
Raymond AMBRIDGE (Surveying Associate)
the work of this company accept responsibility.
A plan is accurate, that the said survey was
made in accordance with the Surveyors Act and
the Regulations and that the said survey
was made on 5/7/93

PLAN OF
LOT 3
Cancelling Lots 1 & 2 on RP100815, Lots 10, 11,
& 14 on RP32189 and Lot 3 on RP44526.

PARISH **TAMROOKUM**
COUNTY **Word**
TOWN/LOCALITY
LOCAL AUTHORITY **BEAUDESERT S.C.**
LAND AGENTS/MINING
DISTRICT **BRISBANE**

ORIGINAL PORTION 341	YES SURVEY RECORDS DEPOSITED	REGISTERING DIST	CROWN PLAN 862699
MERIDIAN OF RP118424	MAP REF 9441-11	SCALE 1:7500	FILE REF 9/001451
29.7.93	2.9.93	BRISBANE	92 of 1035

61 7 5541 3612

MARCH 8, 1994

"SUNNY HILLS"

JOSEPHVILLE

VIA BEAUDESERT. QUEENSLAND.

REAL PROPERTY DESCRIPTION

EFFECTIVE: JANUARY 7, 1994

			<u>HA</u>
LOT 1 ON RP 118424	VOL 5805	FOLIO 198	2.646
LOT 2 ON RP 118424	VOL 5805	FOLIO 199	22.420
LOT 3 ON CP 862699	VOL 8669	FOLIO 200	145.9774

TOTAL AREA	171.0434
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(9)

File Note

FILE No.: STH495/3 (Previous: 961EN56\4) **Date:** 1/10/2001

FILE NAME: Leiner Davis Gelatin (Australia) Limited

ADDRESS: "Sunny Hills", Flood Road, Josephville via Beaudesert, QLD.

SUBJECT: Site Visit to Leiner Davis Gelatin (Australia) Limited - 27/09/2001.

Following earlier telephone contact and subsequent written confirmation from Mr Cameron Smeal, Environmental Officer for Leiner Davis Gelatin (Australia) Limited, a site visit to the Josephville facility at Beaudesert was arranged for Thursday, 27 September 2001.

A. - AM PROJECTS PRESENTATIONS:

Invitations were extended to EPA Officers; Neale House, Acting Manager - Licensing, Michael Ronan, Operations Manager - Licensing and Don Shackel, Senior Inspector, all of the Southern Region, to attend "a briefing on the major environmental projects being undertaken at the Leiner Davis site at Josephville".

The aim of the presentations was stated, "to outline the progress and direction of the research into the environmental and economically sustainability of the gelatin production operation at Sunny Hills."

EPA has a serious interest in this project which forms the basis for the progression / finalisation of Environmental Management Program (EMP) No.5080001157 - "Operation of the effluent disposal system in a long-term environmentally and economically sustainable manner", currently attached to the company site at Beaudesert.

A pre-visit meeting agenda was provided by the company, which indicated a 9:30am start on site, together with am and pm commitments for the EPA, separated by a farm visit to view tree-planted test plots .

On 27/09/2001, the presentations commenced on time with introductory / opening remarks by Bob Wearne, Operations Manager, for LDGA "Sunny Hills", who gave an historic overview of the "stop-start" progress of the EMP since commencement in May 1999. Bob Wearne indicated his confidence in the "new" University of Queensland team, to progress the "farm-based" aspects of the EMP projects. However, expanded timelines now required for completion of EMP No.1157, will require negotiation with the company within the next 3-4 months. EMP No.1157 commenced in May 1999, with a time-span for completion due for termination in March 2002. This completion date is now unattainable and may require a negotiated extension of up to two (2) additional years, while remaining under the five (5) year cut-off, to effect project sustainability goals.

A copy of the presentation agenda, together with a list of attendees is attached to this File Note (Attachment).

Brief notes follow on project aspects discussed by presenters:

1. A/P Bing So:

Discussed:

- Leaching Fraction (LF) / Salt loadings of soils / ESP (Na levels);
- Work completed: Soil Map / EM calibration / ESP-SAR & K-Infiltn;
- Work to be completed: Salinity Map / ESP Map;
- Irrigation historical data to be assessed: Quality / Quantity / Cumulative salt loadings, applied to farm areas to date / current;
- Soils characteristics to be assessed: Red-Ox and waterlogging potential / acidification / denitrification aspects;
- Agricultural aspects to be assessed: Tree establishment / trees verses grasses systems to be evaluated;
- ARC Project Application: UQ seeking grant monies to cover research aspects such as farm systems interactions involving water balance, salt balance and nitrogen balance plots, together with a proposal to model the whole farm system;
- Outcomes with and without ARC funding: Without funding - can determine overall sustainability of the farm disposal system, but with additional funding can determine how to manage the system to achieve sustainability.

A schematic layout of the key issues of the "Farm Economic and Environmental Sustainability Project" was provided (Attachment).

2. Ross Bigwood:

Discussed:

- Irrigation history of the farm used to estimate an overview of contaminant loads applied to areas / blocks over time;
- Early forestry trials are in place (2 x Eucalypts) to determine salinity, waterlogging and variable irrigation applications effects;
- For farm soils, ESP/SAR interactions estimated / salinity survey map (EM-31) generated using EM survey technique.

3. Dr Brian Schafer: Discussed:

- Soils characterisation: Using Australian Soils Classifications - 13 soils types identified on site (indicated on chart) / GIS to chart soil sampling sites / Piezometers in place and in use / data to be used to define agronomic strategies for the site.

4. Geoff Dickinson: Discussed:

- Tree plantings (QFRI/DPI) underway using UQ trial plan / tree spacing and irrigation applications trials ('Southern Cross' travelling irrigator) set up using Grey Box and Forest Redgum species at planting rates of 1250 and 2500 trees/hectare are progressing well (viewed in-situ) / salt tolerance and waterlogging tolerance plots also commenced. Planting establishment includes minimal P fertiliser application to drills and optimum weed control programs using herbicides such as "Roundup", "Simazine" and other specific weed control chemical applications, during early tree growth. A number of tree plots reaching six (6) months of age, assessed in August 2001, showed plant damage from waterlogging and unintentional cattle grazing.

- Timber / logging of plantation species: Proposed harvest rate of 3-6 years, with logging of timber for export / species selected suitable for coppicing to maximise salt and nitrogen uptake.

5. Dr Paul Truong: Discussed:

- Vetiver Grass (*Vetiveria zizanioides* L.) / Growth rate can achieve 2-2.5 metres / 6 months in ideal conditions / Sward-forming and hence good for sediment control and soil stabilisation in stormwater run-off, drains, waterways etc;
- Vetiver tolerant to: Hot & cold weather, drought & fire, waterlogging, salinity, high acidity (pH range; 3-12.5), acid sulphate soils, cracking clays, heavy metals (will take up and bind a number of these to roots and some deposited in leaf material), pesticides, herbicides. Takes-up N & P effectively - can utilise 94% of these elements from some materials applied over 4 days / Spread over 65 hectare trial plots to calibrate the MEDLI MODEL, with water utilisation, assessments included the following: Kikuyu grass - 0.73ML/day and Vetiver grass - 1.45ML/day. Vetiver is a suitable grass species for the sustainable irrigation of abattoir effluents, however sward management is necessary for effective animal utilisation and export of cut material is desirable to remove / control contaminant elements applied to the effluent-plant-soil systems.
- SEE ALSO: Handout from 27/09/2001 - "Vetiver Grass System for Environmental Protection" by Paul Truong & Dennis Baker, Pacific Rim Vetiver Network - Technical Bulletin No. 1998/1, April 1998.

The tree planting plots / trials located on the major alluvial, farm "flats", adjacent to the Logan River, were visited / discussed by attendees.

B. - PM COMPANY DISCUSSIONS:

An LDGA Issues Review Meeting was attended by Bob Wearne (RW), Cameron Smeal (CS) and Pablo Silber (PS) of LDGA and Michael Ronan (MR) and Don Shackel (DS) of the EPA at around 1pm on 27/09/2001. The following issues were discussed:

1. **Addition of boiler ash to site soils:** Concerns were expressed about an unexplained soil "pH drop" on site and an LDGA suggestion to add boiler ash to land (stated as 27% organic carbon), as a possible corrective measure. MR indicated that prior to application to land, heavy metal levels would need to be considered and such levels may determine the sustainable application rate for such material. Boiler ash applications to land allows carbon additions to soil without nitrogen additions. LDGA has boiler ash analytical data available for consideration. MR advised that an 'Operational Policy' concerning the "Beneficial use of biosolids" was available on the EPA website as follows:
[www.env.qld.gov.au \ Business & Industry \ Licensing \ Operational Policies \(side\) \ scroll down to Sch 1 & 7 for reference material.](http://www.env.qld.gov.au/Business%20and%20Industry/Licensing/Operational%20Policies/side/)
2. **Action:** LDGA to request Dr Brian Schafer to report on this proposed soil addition (ash) and then Cameron Smeal to provide a submission to the EPA (consider heavy metals).
3. **Scutch utilisation / disposal:** RW commented on the options available for utilisation \ disposal of the approximate 35 t/wk of scutch material:
 - Composting - static piles;

- Burning - problematic;
 - Digest to stabilised sludge (anaerobic) - not preferred.
- Consultants PPK and URS will report to LDGA on cost options and preferred method for utilisation \ disposal of scutch, in due course.
 - Scutch is currently trucked to composter Moreshost at Undullah, however LDGA has concerns regarding the stability \ desirability of long-term, exclusive supply to this outlet.
 - Cameron Smeal is conducting scutch composting trials with static windrows, both covered and uncovered, located on a compacted clay-pad area, using wastes available on site. Forced air addition to control fermentation and temperature, while minimising odour releases, remains to be trialed. MR indicated to the meeting that EPA Officer Luke Zambelli had experience with aeration of compost static piles using a "Lance" technique.
4. **DNR water allocation for LDGA (Maroon Dam):** RW and CS commented on this issue indicating the on-going cost and irrelevance of the Logan River "flushing" process put in place by a previous Court directive. LDGA indicated that the EMP Review Committee (single representative each from Beaudesert Shire Council, Department of Primary Industries, EPA and LDGA) established by Court Order to consider such issues, would be convened as soon as practicable to resolve the matter.

schap4 (6) PPK

Don Shackel
Senior Inspector
Environmental Operations
Southern Region

Subject: Project presentation

Date: Fri, 21 Sep 2001 10:43:31 +1100

From: <cameron.smeal@gfingredients.com>

To: Ross Bigwood <r.bigwood@uq.edu.au>,
"Geoff Dickinson" <dicking@qfri1.dpi.qld.gov.au>,
"AJ Salisbury" <ajs@hypermax.net.au>, "Brian Schafer" <schaferb@bigpond.com>,
"Jennifer Schafer" <schaferj@bigpond.com>, pablo.silber@gfingredients.com,
Bing So <h.so@mailbox.uq.edu.au>, bob.wearne@gfingredients.com,
paul.truong@dnr.qld.gov.au, don.shackel@env.qld.gov.au,
<Matthew.SCIACCA@dnr.qld.gov.au>,
"Grodecki Andrew" <Andrew.Grodecki@dnr.qld.gov.au>,
karen.lawrence@gfingredients.com, seren.mckenzie@gfingredients.com

You are cordially invited to attend a briefing on the major environmental projects being undertaken at the Leiner Davis site at Joseville on Thursday 27th of September.

Please find attached an agenda for the mornings presentations. Please note that the morning begins at 9:30 am precisely.

LDGA is holding this presentation to outline the progress and direction of the research into the environmental and economically sustainability of the gelatin production operation at Sunny Hills.

On arrival please ensure that you sign in at reception. This a requirement of our Workplace Health and Safety programme.

Your attendance would be appreciated.

Invitation list

EPA Don Shackel
Mike Ronan
Neal House

UQ Associate Professor Bing So
Ross Bigwood
Dr Brian Schafer

DNR Dr Paul Truong
Mathew Sciacca

CCC John Mann (apologies)
Andy Grodecki (also DNR)
Alan Birmingham
Shane Castles (apologies)
Pam McGohan

Agistment farmer
Dale Farmers

Beaudesert Landcare
Tony Salisbury (President)

BSC Jim Dodds (apologies)
Judy Harvey (apologies)

QFRI Geoff Dickinson

LDGA Tony Akred (apologies)
PabloSilber
Bob Wearne
Cameron Smeal
Seren McKenzie
Karen Lawrence

Chair Bob Wearne (LDGA Operations Manager)

COPY

Minutes Seren McKenzie/Karen Lawrence

Venue Farmhouse

Agenda

9:15- 9:30 Coffee/tea
9:30- 9:40 Welcome and opening remarks Bob Wearne (LDGA Operations
Manager)
9:40- 10:45 Presentations by As. Prof Bing So, Ross Bigwood (UQ), Dr
Brian Schafer, and Geoff Dickinson (QFRI)
10:45- 11:00 Morning tea
11:00- 11:45 Vetiver presentation by Dr Paul Truong (DNR) and Seren
McKenzie (LDGA)
11:45- 12:00 Closing remarks Bob Wearne (LDGA Operations Manager)
12:00- 12:30 BBQ Lunch
12:30- 1:30 EPA /LDGA closed session/tour

If you have any queries or are unable to attend please contact Cameron
Smeal on (07) 5541 9442.

Regards
Cameron Smeal

Subject: Project presentation

Date: Fri, 21 Sep 2001 10:43:31 +1100

From: <cameron.smeal@gfingredients.com>

To: Ross Bigwood <r.bigwood@uq.edu.au>,
"Geoff Dickinson" <dicking@qfri1.dpi.qld.gov.au>,
"AJ Salisbury" <ajs@hypermax.net.au>, "Brian Schafer" <schaferb@bigpond.com>, form
"Jennifer Schafer" <schaferj@bigpond.com>, pablo.silber@gfingredients.com,
Bing So <h.so@mailbox.uq.edu.au>, bob.wearne@gfingredients.com,
paul.truong@dnr.qld.gov.au, don.shackel@env.qld.gov.au,
<Matthew.SCIACCA@dnr.qld.gov.au>,
"Grodecki Andrew" <Andrew.Grodecki@dnr.qld.gov.au>,
karen.lawrence@gfingredients.com, seren.mckenzie@gfingredients.com

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✓ ~~PETER~~

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QFRI ✓ Geoff Dickinson

LDGA Tony Akred (apologies)
✓ Pablo Silber
✓ Bob Wearne
✓ Cameron Smeal
✓ Seren McKenzie
✓ Karen Lawrence

Chair Bob Wearne (LDGA Operations Manager)

Minutes Seren McKenzie/Karen Lawrence

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If you have any queries or are unable to attend please contact Cameron Smeal on (07) 5541 9442.

Regards

Cameron Smeal

Farm Economic and Environmental Sustainability Project

H. B. So¹, B.M. Schafer, R. C. Bigwood¹, D. Lamb², K. Yatapanage¹, N. W. Menzies¹ and P.J. Dart¹.

¹ School of Land and Food Sciences, University of Queensland, St. Lucia, QLD 4072.

² School of Life Sciences, University of Queensland, St. Lucia, QLD 4072.



Key Sustainability Issue One: Soil

What happens to the soil? Will the soil be degraded? If so, how badly will it degrade? Can it be prevented, managed or restored?

Key Sustainability Issue Two: Water

What happens to the water and soil? Where and how much discharge occurs? Is there leaching to the deep water table? Is salinization occurring?

Key Sustainability Issue Three: Irrigation

Soil condition and hydrology are driven by quantity of irrigation water.
What is the nature and pattern of input? What is the leaching fraction now? What is the future leaching fraction?

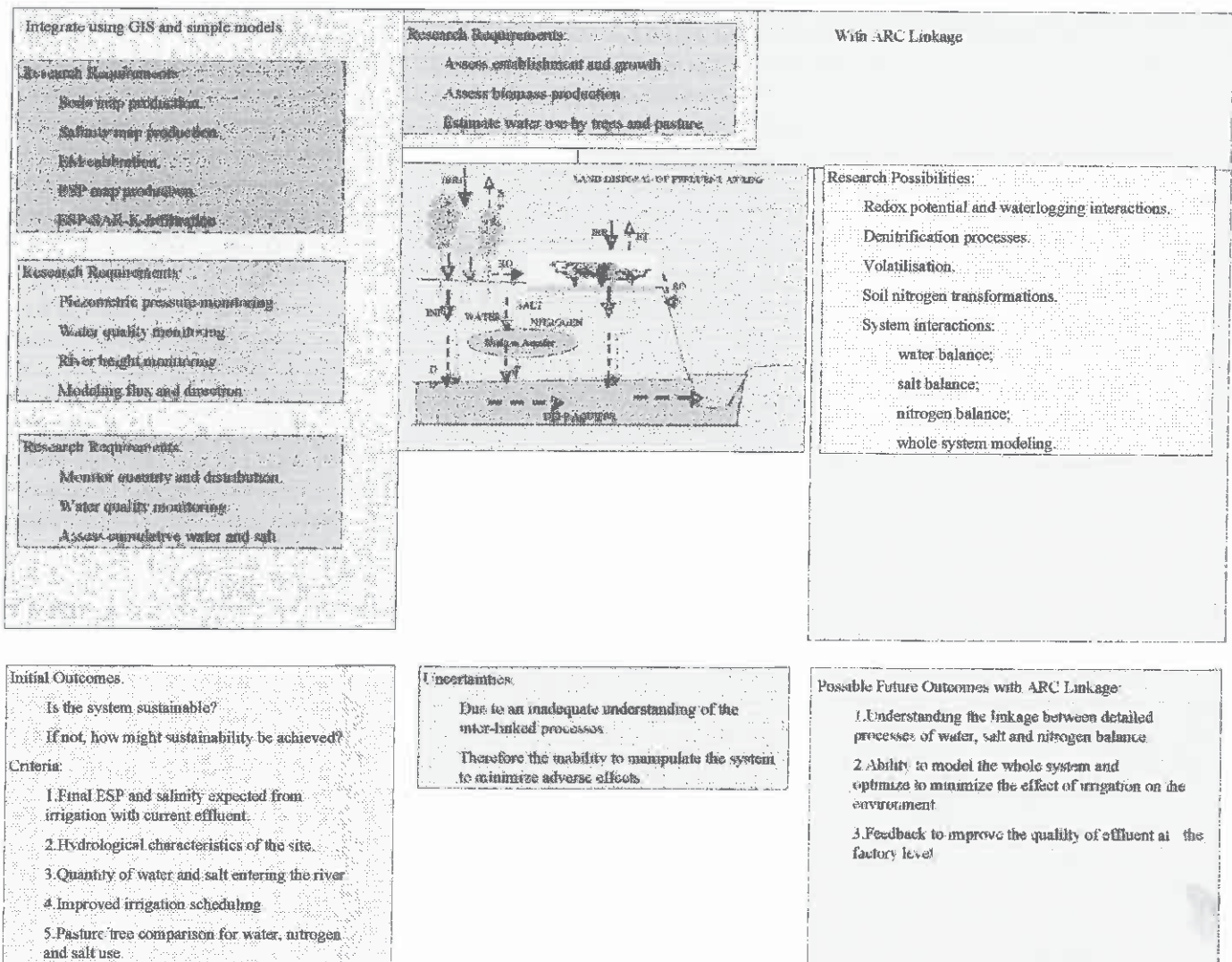
Key Sustainability Issue Four: Plant Growth

Will the soil be suitable for plant growth? What is the influence of waterlogging? What is the extent of denitrification? What is the extent of acidification?

Other Issues:

Can we manipulate the system to achieve better outcomes?

Can we transfer outcomes to other sites, soils, or climates?



Site Visit Report

Compliance Inspection No: 2633

Responsible Officer: KR/Don Shackel

Licence Number:	Date of Inspection	Inspection Level	Internal Office File No
SR0722	14/02/2002	EMP	STH495/4

Licensee

Leiner Davis Gelatin International Limited

Did the Licensee Comply?

Yes

Trading As:

Leiner Davis Gelatin International Limited

Work Needs to be Done by?

30/09/2003

If Not Complying Why Not?

1. Minor flood irrigation run-off of treated wastewater to the Logan River, prior to 30/01/2002

What Needs to be Done ?

1. Following the minor discharge of treated wastewater to the Logan River via a natural drainage gully located on the eastern boundary of the licensed site, LDGA immediately arranged for a contractor to place approximately 12 various sized "catch dams" across the length of the gully arising from the irrigated "shelf" on the hill behind the processing plant, to its connection with the Logan River.
2. Progress and provide milestone reports emanating from EMP No.1157 (UQ & LDGA).
3. Complete bunding requirements for the "Earth Store" and "Stable Fuel Store" (Letter 12/12/2001 - STH495/3 - Folio 31).
4. Maintain control / surveillance of the Aerobic Pond to improve performance / effectiveness.

☐ **Infringement notice issued?**

☐ **Warning notice issued?**

☐ **Field notice issued?**

Any Other Comments?

On Thursday, 14 February 2002, EPA Officer Don Shackel made a scheduled site visit to the Josephville premises of Leiner Davis Gelatin (Australia) [LDGA] for a 10am meeting and site tour / audit with company Environmental Officer, Cameron Smeal. Issues addressed during the visit included the following:

1. **IRRIGATION RUN-OFF TO THE LOGAN RIVER:** Visited the flood irrigated "shelf" on the hill immediately to the north of the processing plant where, during the week prior to 30/02/2002, treated wastewater run-off discharged to the Logan River via a natural drainage gully located on the eastern boundary of the site. No indication as to the volume or timespan of the discharge could be estimated. Lack of grass damage and absence of any bed and bank physical changes, particularly towards the lower part of the gully, would imply that the final flow of material to the river had been minimal. DNR monitoring results from automatic monitoring station recordings made in the Logan River, both above and below the inflow point, failed to indicate any real influence on base parameter values / recordings (copies of DNR graphical plots for river readings provided to the EPA). Such absence of changes would infer minimal effect from any run-off to the river, which was also being augmented with a daily release of around 40ML of water into the system, from Maroon Dam. Immediately the run-off was detected by the company, LDGA had a contractor place around 12 "catch dams", of various capacities, over the length of the gully (EPA photographs taken of examples of these) to obviate any further discharges to the Logan River via this system / source. In future, any captured run-off can be effectively re-irrigated, while retained stormwater will serve as stock watering points.

Site Visit Report

Compliance Inspection No: 2633

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2. EMP No.SR5080001157 (SR1157):

A number of UQ personnel associated with progress / completion of EMP No.SR1157 were on site during the site visit. The absolute completion deadline for EMP No.SR1157 of 30/09/2003, with regard to on-site sustainability issues concerning N, P and Salinity, was indicated / reinforced to Ross Bigwood, who accepted the scenario that as long as these matters were resolved to satisfy the original intent of company EMP No.SR1157 by the due date, other research aspects could be carried beyond this date, by agreement with LDGA. The need to provide on-going milestone reports of progress with EMP No.SR1157 was also reinforced with both Cameron Smeal (LDGA) and Ross Bigwood (UQ). Cameron Smeal and Bob Wearne have proposed an on-site review of progress with EMP No.SR1157 in April 2002 with representatives of Beaudesert Shire Council and the EPA, together with UQ and company personnel.

A number of on-site field trials, associated with EMP No.SR1157 were inspected, including the Vetiver grass / MEDLI (DNR) calibration plot which was showing strong growth, but exhibiting minor leaf-edge irrigation "spray scalding." The agroforestry trial plots are generally showing strong growth, with limited leaf scald effects resulting in some losses. Cameron Smeal has also planted a number of "spot" Vetiver grass plots to assess soil types effects and response to aspects such as salinity and overhead verses flood irrigation applications of treated wastewater. Pasture grass growth / cattle grazing trials have responded well to formal irrigation programs with various soil additions regimes designed to adjust / control soil pH / salinity effects of the previous, historical land application regimes of treated wastewaters, to these areas (EPA photographs).

LDGA took delivery of a new TRAILCO travelling irrigator (~~\$25,000~~) to assist with controlled treated wastewater land applications, under EMP No.SR1157 (3rd. Unit), during the site visit.

3. COMPOSTING TRIALS:

On-site composting trials have been temporarily suspended, awaiting the assessment of a suitable composting process for LDGA requirements via a consultation process. A "Composting Scoping" document is in the process of development by LDGA for consultant tendering purposes. LDGA has maintained Environmental Licence No.SR1114, relevant to ERA 53, in current condition. During the site visit LDGA flagged a proposal to conduct a trial application of belt press sludge (beneficial biosolids / regulated waste) on a local dairyfarm with a stated effective environmental management infrastructure and attitude. A written proposal will be forwarded to the EPA for consideration, in the near future.

A number of windrows of finished compost remain on the mixing clay pad, while minor localised odour remains from earlier skutch utilisation / mixing trials, which should not result in odour impacts beyond the boundary of the licensed place.

4. ENVIRONMENTAL AUDIT:

During the course of the site visit, an environmental audit was carried out with Cameron Smeal, primarily assessing the processing plant surrounds and wastewater treatment plant, including the aerobic pond and associated operations. The audit also addressed those issues for response, set out in a letter to the company dated 12 December 2001 (copy attached).

a. Irrigation Management Plan Update - expected to be completed as part of / evolving from the EMP No.SR1157 process, early 2003; and

b. ISO 14001 Compatible IEMS Document - implementation of ISO 14001 is running behind the timelines proposed by LDGA, due to the unavailability of a consultant certified environmental auditor, required to progress / assess the requisite elements of the process.

Re-start of the process will be progressed, as soon as practicable; and

Site Visit Report

Compliance Inspection No: 2633

Responsible Officer: KR/Don Shackel

c. Bunding works - both the "Earth Store" and "Stable Fuel Store" areas were inspected, where bunding requirements were found to be inadequate in the case of the former and non-existent in the case of the latter, in order to prevent potential contamination of stormwater and/or soil by chemicals / hydrocarbons. As LDGA has not responded to the EPA letter of 12/12/2001, with a corrective timeframe for these bunding works, a further letter will be sent to the company seeking action in this regard; and

d. The small biofilter located at the western end of the wastewater treatment plant appeared to be venting noticeable odour at times during the visit. This was stated to be due to overloading of the unit with headspace odour material from a sludge holding tank, which, if re-routed through the flare would allow this biofilter to cope with its designated duty; and

e. Aerobic Pond - This unit was noted as more odorous and the liquor mass more black in colour than expected. Discussions indicated that the pond had recently received material from a sludge tank overflow, together with on-going excessive loading from processing operations over the late December 2001- early January 2002 period. Primarily, this "loading-up" of the pond is stated to be caused by the adverse condition of raw material processed during this period. In many instances abattoirs which normally provide "fresh" raw material to LDGA are shut-down, necessitating LDGA use stored / salted hides for gelatin manufacture, resulting in significantly more load on the pond. While pond recovery can be assisted by limiting processing operations, LDGA is reluctant to reduce production, which results in reduced productivity / profitability. The poor condition of the aerobic pond was highlighted to Mr Bob Wearne, General Manager - Operations during the visit. Mr Wearne indicated that the pond remained under close control / surveillance and he was prepared to reduce production if necessary, to obviate pond problems. It was indicated that should the pond "roll-over" (become anaerobic and stink) so would LDGA's reputation; and

f General comments - the surrounds of the processing facility were generally environmentally satisfactory with residues of boiler ash adjacent to the boiler area, coal and raw material spillage in the "top" unloading areas well controlled / contained. A black, greasy deposit on the concrete building surround adjacent to the condenser unit, above raw materials room, was indicated for attention / clean-up.

Don Shackel ***** 18/02/2002.



14/02/2001

2001 Time Line for Implementing ISO 14001

	Staff	Mar		Apr		May		Jun		Jul		Sep		Oct		Nov		Dec	
		2	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4
Policy Manual	Bob/Helen																		
Review /update	Bob/Helen																		
Approval Manager	Bob																		
Approval Committee	Management																		
Procedures Manual	Bob/Helen																		
Enviro	Cameron																		
Waste Water	Karen/Seren																		
Approval	Bob																		
Implementation	Karen/Seren																		
IEMS/LEMP/EMP...	Bob/Helen																		
Review/Update	Bob/Helen																		
Approval Manager	Bob																		
Auditing																			
Reporting/ database	Cameron																		
Procedures	Cameron																		
Hazard Reporting																			
Reporting/database	Cameron/Seren																		
Procedure	Cameron																		
Legal Register																			
Compile	Cameron																		
Integrate into IEMS	Cameron																		
Document Control																			
Review ISO 9001	Helen																		
Implement	Helen																		
Reporting																			
Procedures	Cameron																		
Emergency Response																			
Contractors	Cameron																		
Staff	Cameron																		
Procedures	Cameron																		
Risk Assessment																			
Implement	Cameron																		
Procedure review	Cameron																		
Training																			
Document Control	Helen																		
Auditing	Helen																		
Reporting	Cameron																		
EMP	Cameron																		
General Licence	Cameron/Seren																		
Emergency Response	Cameron																		
Hazard Reporting	Cameron																		

14/02/02

2001 checklist for Implementing ISO 14001

ISO 14001 Clause	Requirement	Status	Check	Status
Introduction	Environmental review		Recommended when no existing system	
4.1 General	Establish and maintain env system to standard		Common to 14001/9000 system requirement	
4.2 Env policy	Must contain: commitment to, continuous improvement, prevention of pollution, compliance to relevant legislation, specific environmental objectives and targets, be publicly available		Policy must describe organisational commitment to environment	
4.3 Env aspects	Identify environmental aspects, determine significance of impacts=risk assessment MUST BE UP TO DATE!!!		Direct link to S4.4.6 Operational Control	
Legal and other requirements	Legal & policy documents; access and procedure		Must periodically evaluate compliance with relevant regs and legislation	
Objectives and Targets	Mandatory specification of objectives and targets		Consider legal requirements, technological and financial options	
EMP's	Address objectives and targets		LEMP Should be broad, address all environmental objectives and targets set	
4.4 Structure and responsibility	Roles responsibilities & authorities to be documented and communicated management to provide resources and management representative to be appointed		Resources	
Training	Conformance, policies, procedures, benefits consequences to appropriate level		Identify and provide training appropriate to position and personnel.	
Communication	"Interested party" communication procedure & document control		External communication controls	
Env management system documentation	Describe core elements and interactions of management system; document listing/guide		Descriptive of core elements	
Document Control	Documents must be dated; revisions numbered & dated		Common to 14001/9000 system requirement	
Operational Control	Identify activities via aspects+policy+objectives+targets; plan activities with procedures to prevent deviations; stipulate operating criteria; awareness training for suppliers and contractors		Refer S4.3.1 Environmental aspects	
Emergency preparedness and response	Risk management procedures; response and mitigation.		Periodic testing of procedures required	
4.5 Monitoring and measurement	Verification and tracking procedures to establish requirements are met; calibration; records		Performance must be tracked	
Non-conformance	Procedures for control of non-conformances, corrective and preventative actions		Hazard report forms, incident investigations require update	
Corrective action				
Preventative action				
Records	Keep records to demonstrate compliance with requirements of the system		Avoid duplication	
Env management system audit	Assess compliance and effectiveness of system. Audits to be included in management review.		Internal auditors to be trained; external auditors as required.	
4.6 Management review	Top level management reviews to ensure continuing suitability and effectiveness of system.		Site specific-top management	

Composting Scoping

History

Leiner Davis Gelatin Australia (LDGA) manufactures gelatine from cattle hide. A significant volume of waste material is generated as a result of the process. This waste includes spent pieces of dehaired animal skin (skutch), boiler ash, and sludge from aerobic and anaerobic water treatment processes. Appropriate means for disposal of these waste products forms the substance of this scoping exercise.

The idea of converting process by-products into compost formed an integral aspect of the original site concept and design of the Sunny Hills site. An area of one hectare in the vicinity of the original ash trap dam was designated for composting. For various reasons the idea was marginalised and not adequately championed.

The attempt to re-use by-products generated on the site has had several manifestations over the years. A significant investment of company time and expertise has been made to date. The substantive outcome of the investment is the issuing to LDGA of environmental authority SR1114 to carry out ERA 53-Soil conditioner manufacturing, and a series of analyses vindicating the use of the by-products for soil improvement.

The EPA has expressed qualified support for utilising the current license SR 1114 as the basis for establishing a composting operation. Stipulations for this course include adopting appropriate procedures including the development of an Odour Management Plan and adherence to the NSW EPA Environmental Guidelines for the Use and Disposal of Biosolids Products.

The EPA will support in principle; the use of in-vessel or static aerated pile methodology for this purpose.

¹ J:\ENVIRO\Reports\Composting\Composting consultancy scope.doc
I:\ENVIRO\Reports\Composting\Composting consultancy scope.doc

Technical Background

Based on earlier analyses and reports the material to be treated is classified as a Class B biosolid and cannot be distributed to the general public unless treated for pathogens. Composting is an approved method of treatment for pathogens.

A trial to determine the potential for (coal fired) boiler ash, minced skutch and green organics (as a bulking agent), has had promising outcomes. The trial was based on the green organics windrow method and established a significant level of organic reduction of the waste.

A site with compacted clay pad and a contour line to a trap dam was established for leachate control purposes. All runoff is pumped back into the water treatment system.

Over sixty days the windrows exhibited temperatures of 55° Celcius decreasing to 40° Celcius with time. The windrows were not turned for aeration purposes during this period in order to limit odour generation. Compost was remixed with skutch two to three times to adjust Carbon Nitrogen ratios and to establish loading limits.

The importance of proper mixing cannot be exaggerated. Poor mixing of materials and ash would consistently result in lumpy non-composted aggregates. These lumps were noted in some mature compost batches.

Mixing of the compost took place by discharging the skutch into ash "dams" lined with the tub grind (bulking agent). The volumes were arbitrary and based on loader buckets as units of measurement. Average batch figures of between 5 to 8 tonnes of wet minced skutch at 80%+ moisture were incorporated into each "dam" with 1-1.5 metres of green waste. There were about four buckets per batch of the dry ash component (15%-25% moisture) at around 27% carbon.

Mature compost moisture content varied with weather and on occasions was as low as

Skutch was premixed with 100kg of lime per batch prior to mixing as compost. The intention was to limit odour generation potential during mixing phase. The pH of the lime stabilised material limits this risk. There is some potential also for the high sulphate to be precipitated out as calcium sulphate.

Detailed analysis of the composted material prior to lime addition is appended. High levels of sulphate were observed. Nitrogen levels (as nitrate) were lower than expected. The potential for ammonia release has not been established. A further trial to increase nitrogen levels by spray irrigation of windrows with ammonium sulphate (generated by ion exchange column regeneration with aqua ammonia) is being considered. This would significantly improve the mature composts value as a soil conditioner for both on-site and off-site use.

Standard windrows (on this site), are not a method acceptable to the EPA. The minimum requirement for windrows to meet EPA standards is that windrows are static, aerated and subject to strict odour control mechanisms.

Scope of work

The consultant should bring to the consultancy a suitable depth of knowledge of composting to evaluate alternate methods of composting and recommend the process best suited to Leiner Davis' situation .

The recommended process will need to follow the guidelines established by the Victorian EPA and where applicable, AS 4454 1997, AS3743, and AS4419. These standards are the current benchmarks for composts, soil conditioners, mulches potting mixes and the production of soils for landscaping.

The process selected must have due regard to the limiting factors for successful composting. Crucial factors for success without odour generation should include adequate air, water, carbon, nitrogen, phosphorus, pH and temperature. These factors should offer measurable control points for the composting process.

The consultant should not preclude the consideration of new technology to meet the requirements of this brief.

The next stage, given that the windrow trials have demonstrated the material can be successfully composted; shall include the assessment or development of aerated static pile, or in-vessel composting. In order to limit capital costs, the use of current infra-structure (where possible), must be examined as part of the assesment.

This will include determining the potential of using the current biofilter for odour treatment/control. The current bio-filter is used to treat odour from the raw materials area of the factory. The concept may also require a pre-engineering assessment by a competent engineering consultant. The consultant should establish current load versus capacity of the large biofilter with a view to operating an aerated static pile. This study should also examine the feasibility of treating raw material foul odours via commercially available in-duct ozone generators with a view to limit current load on the biofilter.

Subject to the outcome of this aspect of the consultancy, a trial of blown and extracted aerated static piles may be devised and/or recent developments including FABCOM (forced aeration static pile composting system utilising sealed geotextile balloons), HOT ROT in-vessel composting system, VCU (vertical composting units), assessed for application on economic, legal and environmental grounds.

Scope of work

The development of composting as a quality controlled procedure to generate a non-pathogenic material for general farm use, to the requirements of the EPA, shall be the intended goal of this consultancy.

There is currently no recognised potential for this process to generate an income for LDGA.

Mincing of skutch and/or anaerobic pre-treatment has considerably accelerated the decomposition of the material. This has been verified with in-situ trials to date.

QWRC and DPI guidelines for disposal or use of sewage sludge on land specify that the material is suitable for reuse and recycling in compost.

Preliminary cost benefit analyses indicate that substantial capital costs are associated with implementing certain composting options. Economics and efficiency of recommended processes must be considered as part of the criteria for establishing a hierarchy of preferred options. EPA requirements for odour control and environmental risk management criteria must be evaluated and form a prerequisite to establishing the hierarchy.

An appropriate Odour Management Plan acceptable to the EPA must comprise part of the final process selection criteria.

Detailed analysis of material and volumes is appended. A coarse cost analysis is also attached for consideration.

The timeframe for the assessment is limited to six weeks from the allocation of the consultancy.

Composting

➤ Regulatory requirements

- Legislative
 - Environmental protection Act 1994
 - Integrated Planning Act 1997
 - Environmental Protection Policies-Waste/ Air /Water
 - National Pollutant Inventory
- License
 - SR 1114 (ERA 53)
 - Development Approval for soil conditioner manufacture
 - OMP (Odour management plan) must be developed
 - NSW EPA Environmental guidelines for the "Use and disposal of Biosolids Products" apply
- Technical requirements/restrictions
 - Unloading/initial mixing to occur in enclosed area
No longer required if skutch mixed within 6 hours from pan removal
 - Air from enclosed area to be removed and treated to remove odour
No longer required
 - Turning of windrows within 30 days allowed only if enclosed in weatherproof structure where air is to be removed and treated to remove odour
Not required for static aerated piles
 - If aerated static piles are used air must drawn/injected through piles and air treated to remove odour
Still required

➤ Cost benefits

- If implemented in 1998 waste disposal savings forecast at \$365 k per annum
- Current estimate maximum savings of \$252 k per annum (based F00 data)

➤ Capital expenditure estimates

- Variable and method dependant
- Require comprehensive pre-engineering assessment
- Bioblend system 1998 \$350 k (Not acceptable to EPA)
- Static aerated pile system
 - \$1.5 million (Fabcom system)
 - Approximate cost of \$13 m³ including capital and operational costs over life of system (assuming 10 000 tonnes pa)
 - Utilise current biofilter for odour treatment
 - Construct new biofilter for odour treatment
- Lance injection system
 - As yet uncoded
- In vessel composting ("Hot Rot") system \$115 000 (refer New Zealand)
 - Support plant required \$70 000
 - Largest design unit 4.5 tonnes pa (would need 2 units)
 - Waste generation F00 approx 9000 wet tones
 - Total estimate using current biofilter \$200 000 (NZ?)

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➤ Operational costs

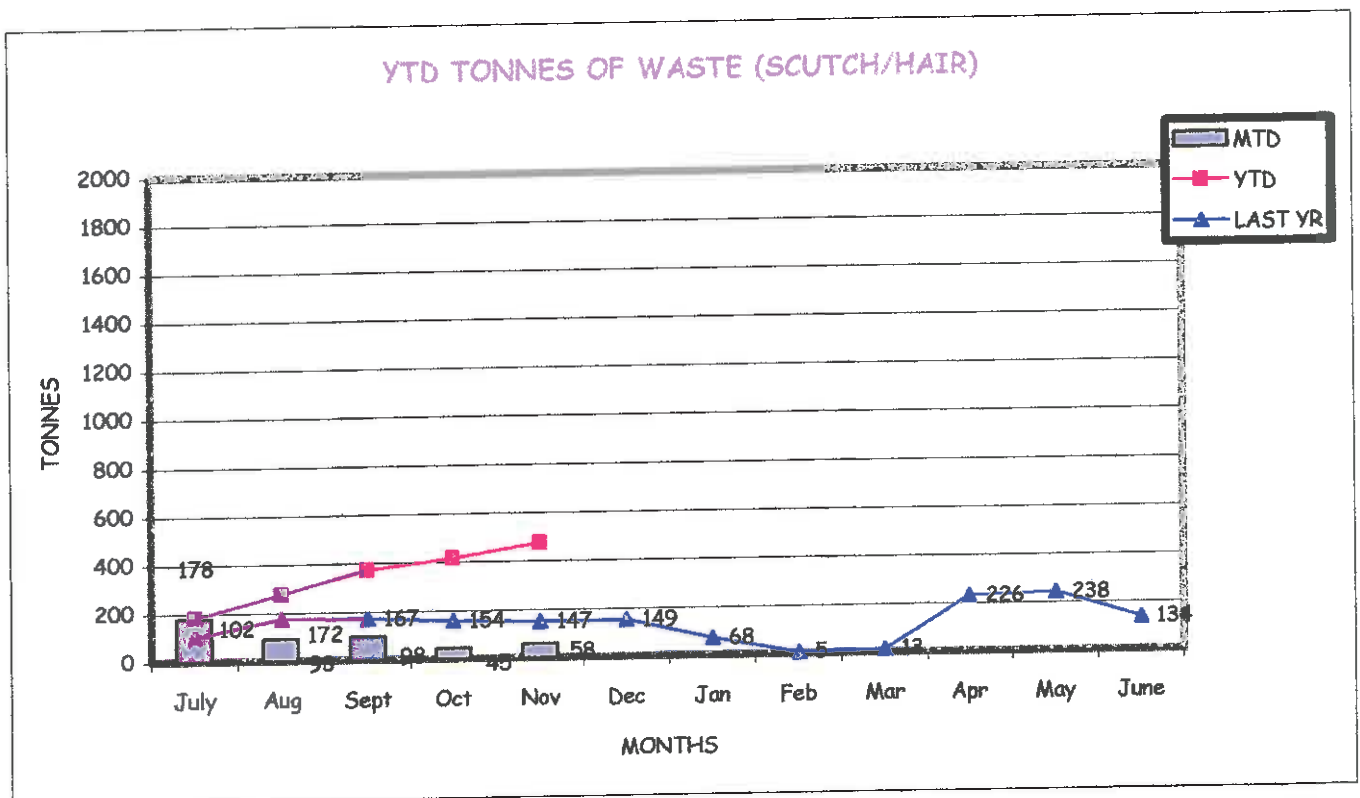
- System dependant
- Power
- Fixed labour costs
- Consumables
- Plant R&M

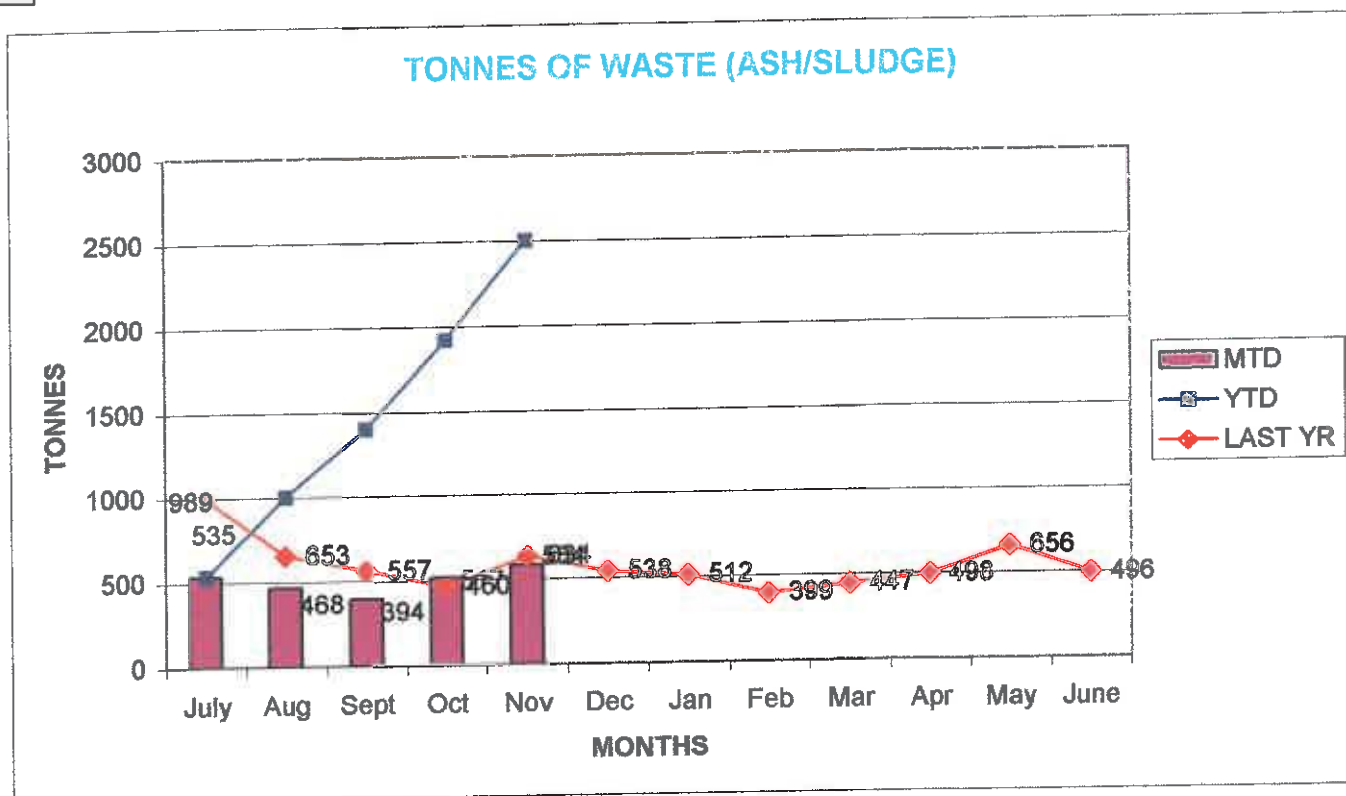
➤ Alternatives

- Outsourced disposal
- **\$12 tonne**

➤ Risks- assessment and management

- Product liability if on-sold
- Odour
- Pests-flies, rats
- Wet weather contingencies





	1999	2000	2001
Ash	\$20	\$20	\$10
Sludge	\$20	\$20	\$12
Tonnage	7311	6839	6000*
Cost	\$146 000	\$137 000	\$112 000
Skutch	\$105	\$73	\$45
Tonnage	2063	1575	1133*
Cost	\$216 000	\$115 000	\$51 000
Total	\$362 k	\$252 k	\$163 k

*(ytd) actual/5 months=calculated tonnes pa
 assume 2001 transport ash/sludge=400 2hr trips at \$50 hr=\$40k



**Leiner Davis Gelatin
(Australia)**

Leiner Davis Gelatin International Limited

ACN 000 010 597

"Sunny Hills", Flood Road
Josephville via Beaudesert Qld 4285
Australia
PO Box 409
Beaudesert Qld 4285
AUSTRALIA

Telephone (07) 5541 3544
Facsimile (07) 5541 3612

Friday, 8 February 2002

Don Shackle
South Eastern Regional Office
Environmental Protection Agency
GPO Box 2771
BRISBANE QLD 4001

EPA SOUTHERN REGION			
Correspondence No.		Sarcode No.	
SIH 2002/1139			
File No.	PART	FOLIO	
SIH 495	8	1	
Action Officer		Related Items	
Don Shackle			

RECEIVED & NOTED
12/02/02
[Stamp]

Re: Environmental License Breach

Dear Don,

Leiner Davis Gelatin wish to confirm the telephone advice that a complaint has been received from Mrs M Platyl of Tally Ho Road.

Leiner Davis has followed the requirements of license SR0722, and has investigated this complaint. We accept that an incident occurred and attach for your consideration an incident report detailing the actions followed.

Leiner Davis acted immediately to eliminate every potential for further odour upon receipt of the complaint and prevent any repetition of the incident.

Please find attached the Incident Report for this complaint.

Should you require any further details please do not hesitate to contact me.

Regards

sch4p4(6) Personal information

Cameron Smeal.



ENVIRONMENTAL INCIDENT REPORT - EXTERNAL COMPLAINTS

DATE: 30/01/02

43 Pages

ORIGINAL

sch4p4(6) Personal information

PREPARED BY: Cameron Smeal

SIGNATURE:



A. COMPLAINT

(i) Type of communication (underline type)

Telephone

Fax

Hotline

Personal

Letter

E-Mail

(ii) Date Received: 30/01/02

(iii) Time Received: 9:30pm

(iv) Name/Address/Contact Telephone Number of Complainant:

Mrs Michelle Platy
Tally Ho Road
(07) 5541 2060

(v) Nature of Complaint:

Odour/ water flow down gully for the last week (?) during irrigation

(Actual event period not accurately determined, complainant only visually confirmed flow once and did not immediately contact LDGA)

B. RESPONSE / INVESTIGATION

Name of investigator: Cameron Smeal	Signature: 
<p>Action taken:</p> <ul style="list-style-type: none">(i) Operations Manager notified.(ii) Wind direction for period of complaint logged for analysis.(iii) Site inspection to confirm source of odour.(iv) All potential odour sources contained.(v) Irrigation delivery system checked by Environmental Officer.(vi) Confirm discharge to Logan. (None during inspection-evidence of prior overland flow noted).(vii) Confirm odour.(viii) Photograph site. Photos indicate some flow occurred.(ix) Contact EPA 10:45am.(x) Contact DNRM 10:55am to check telemetry of in-stream monitor for any impact.(xi) DNRM confirm no variation to river water quality beyond normal river base levels.(xii) Dam release at 40 ML day for several days prior to complaint. (Weir level variance).(xiii) Conductivity 520ms/cm to 653ms/cm peak prior to complaint and steadily dropping(xiv) For further details contact DNRM, (Supervising Hydrographer Paul Martin) on 3224 2925.(xv) DNRM confirm no problem with trap dams in gully as remedial exercise(ref Bruce Brogan).(xvi) Excavator booked to build series of extra trap dams to prevent any possible recurrence.(xvii) Complainant advised of actions taken 12:01pm.(xviii) Remediation work completed 04/02/02.	

C. GENERAL REMARKS

The EPA should be given this report as written confirmation of the incident as required by LDGA licence SR722. This report will be tendered to the EPA on 08/02/02.

There complaint is not contested.

Attach digital photos to this report.

Attach copy of wind direction log to this report.

Operations manager to sign off this report.

Attach copy of fax/letter sent to EPA to this report.

Attach copies of DNR hydrography reports to this report.

Operations Director and Corporate head office advised of this event.

D. OPERATIONS MANAGER AUTHORISATION

Name of Operations manager: R.C.WEARNE	Signature: 
---	---

JANUARY 2002

30 Wednesday
Week 5 - 030-335

7.15AM → 1-2PM → 4PM

8.00 MEETING WITH INVAS GARD RESOURCES - 1CAM

9.00 MEETING ROOM - COMPLIANCE 10AM-12PM

9.30 COMPLETED - 10-11AM. WITH JOHN WALSH

10.00 DRAFTING: VALLEY BEEF CO SRISO 3AR 2DO1. REV. DEC

10.30

11.00 FILING ETC.

11.30

12.00 10.30AM TELEPHONE CONTACT FROM CAMERON SNEAL

12.30 LAGARE: LOGAN RIVER DISCHARGE INCIDENT(S)

1.00 OVER THE PAST WEEK FROM TRAP DAM ON SITE

1.30 DETECTED BY CS FOLLOWING RESIDENT INFORMATION

2.00 CONTACT / LIMITED VOLUME, FLOOD IRRIGATED

2.30 TREATED W/IN RUNOFF TO RIVER / PERIODICALLY OVER

3.00 PAST WEEK (3) / ON DETECTION (AM TESS) RIVER INFLOW

3.30 TERMINATED / CORRECTIVE ACTION TO INCLUDE

4.00 SITING OF ADDITIONAL TRAP DAM BARRIERS IN

4.30 GULLY IN QUESTION ASAP / CS WILL CHECK

5.00 STATUS OF GULLY WITH A/R / E-MAIL ADVISE

5.30 PHOTOS TO FOLLOW / MANPOWER SURVEILLANCE

6.00 TO INCREASE / INCREASE / FROM 1000 LITERS

Evening TRAVELLING, LOGIC BREAKDOWN ETC. / OVER PAST

WEEK UNKNOWN VOLUME OF RUNOFF HAS ENTERED

RIVER - LOW RIVER LEVEL & FLOW NOT HELD WELL.

NOVEMBER 2001	DECEMBER 2001	JANUARY 2002	FEBRUARY 2002
M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S
1 2 3 4	1 2	1 2 3 4 5 6	1 2 3
5 6 7 8 9 10 11	3 4 5 6 7 8 9	7 8 9 10 11 12 13	4 5 6 7 8 9 10
12 13 14 15 16 17 18	10 11 12 13 14 15 16	14 15 16 17 18 19 20	11 12 13 14 15 16 17
19 20 21 22 23 24 25	17 18 19 20 21 22 23	21 22 23 24 25 26 27	18 19 20 21 22 23 24
26 27 28 29 30	24 25 26 27 28 29 30	28 29 30 31	25 26 27 28
	31		

2002 7.15AM →

8.00

8.30 7.22AM E-MAIL

9.00

9.30 DRAFTING: VA

10.00

10.30 ✓

11.00

11.30

12.00

12.30

1.00

1.30

2.00

2.30

3.00

3.30

4.00

4.30

5.00

5.30

6.00

Evening

MARCH 2002

M T W T F S S
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31

E. ATTACHMENTS

Leiner Davis Gelatin wind direction records 20/01/02 to 29/01/02

DNR hydrographers cover note to water quality and discharge reports

Twelve month (2001-2002), water quality (pH summaries) graph for monitoring stations 145008A:Logan River at Round Mountain, 145024A:Logan River upstream of Bromelton Weir, 145025A:Logan River downstream of Bromelton Weir. Note that monthly data tables (January 2002), for individual sites are attached.

Twelve month (2001-2002), water discharge graph for monitoring stations 145008A:Logan River at Round Mountain, 145020A:Logan River at Rathdowney, 145025A:Logan River downstream of Bromelton Weir. Note that monthly data tables (January), for individual sites are attached.

Twelve month (2001-2002), water temperature and water discharge graph for 145025A:Logan River downstream of Bromelton Weir. Note that monthly data tables (January), for site are attached.

Twelve month (2001-2002), conductivity graph for 145024A:Logan River upstream of Bromelton Weir, and 145025A:Logan River downstream of Bromelton Weir. Note that monthly data tables (January), for each site are attached.

Twelve month (2001-2002), comparative conductivity, discharge and pH graph for 145025A:Logan River downstream of Bromelton Weir. Note that monthly data tables (January), for site are attached.

Twelve month (2000-2001), comparative conductivity, discharge and pH graph for 145008A:Logan River at Round Mountain.

Twelve month (2000-2001), comparative conductivity, discharge and pH graph for 145024A:Logan River upstream of Bromelton Weir.

Twelve month (2000-2001), comparative conductivity, discharge and pH graph for 145025A:Logan River downstream of Bromelton Weir.

Digital photos of gully after complaint.

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
20/01/02	12:00a	22.0	21.1	21.1	21.2	20.6	78	17.1	0.0	0.0	---	0.0	765.1	26.7	49	30
20/01/02	12:30a	21.7	20.3	20.3	20.6	20.1	80	16.8	0.0	0.0	---	0.0	764.9	26.3	49	30
20/01/02	1:00a	19.9	19.9	19.9	20.1	19.8	81	16.6	0.0	0.0	---	0.0	764.6	26.1	49	30
20/01/02	1:30a	19.6	19.6	19.6	19.9	19.3	82	16.4	0.0	3.2	NNW	0.0	764.2	25.8	49	30
20/01/02	2:00a	19.0	19.0	19.0	19.3	18.8	83	16.1	1.6	8.0	SSW	0.0	764.2	25.6	49	30
20/01/02	2:30a	18.8	18.8	18.8	18.8	18.7	83	15.8	1.6	6.4	SSW	0.0	764.0	25.3	49	30
20/01/02	3:00a	18.7	18.7	18.7	18.7	18.6	83	15.7	0.0	4.8	SSW	0.0	763.8	25.1	49	30
20/01/02	3:30a	18.5	18.5	18.5	18.7	18.3	83	15.6	0.0	4.8	SSW	0.0	763.7	24.9	49	30
20/01/02	4:00a	18.2	18.2	18.2	18.4	18.0	85	15.6	0.0	4.8	SSW	0.0	763.9	24.7	50	30
20/01/02	4:30a	17.9	17.9	17.9	18.0	17.7	86	15.5	1.6	6.4	SSW	0.0	763.9	24.6	50	30
20/01/02	5:00a	17.8	17.8	17.8	17.8	17.7	86	15.4	1.6	6.4	SSW	0.0	763.9	24.4	50	30
20/01/02	5:30a	17.7	17.7	17.7	17.8	17.6	86	15.3	1.6	6.4	SSW	0.0	764.1	24.2	50	30
20/01/02	6:00a	17.7	17.7	17.7	18.1	17.6	86	15.3	1.6	9.7	SSW	0.0	764.3	24.1	50	30
20/01/02	6:30a	18.5	18.5	18.5	19.1	18.1	85	15.9	3.2	8.0	S	0.0	764.6	23.9	50	30
20/01/02	7:00a	19.8	19.8	19.8	20.6	19.1	83	16.8	4.8	12.9	S	0.0	764.6	23.9	50	30
20/01/02	7:30a	22.6	21.5	21.5	22.4	20.6	78	17.5	4.8	11.3	S	0.0	764.5	24.0	51	30
20/01/02	8:00a	24.4	23.3	23.3	24.2	22.4	73	18.2	6.4	11.3	SSE	0.0	764.6	24.2	51	30
20/01/02	8:30a	25.4	25.2	25.2	26.2	24.2	64	17.9	3.2	9.7	SSE	0.0	764.4	24.4	51	30
20/01/02	9:00a	27.7	27.0	27.0	27.9	26.2	54	16.9	1.6	6.4	SSE	0.0	764.4	24.8	51	30
20/01/02	9:30a	29.1	28.3	28.3	29.1	27.8	47	15.9	1.6	12.9	W	0.0	764.1	25.2	51	30
20/01/02	10:00a	30.1	29.3	29.3	30.0	28.8	46	16.5	3.2	12.9	NW	0.0	763.9	25.6	51	30
20/01/02	10:30a	31.6	30.5	30.5	31.2	29.9	46	17.6	4.8	16.1	N	0.0	763.7	26.1	51	30
20/01/02	11:00a	33.3	31.6	31.6	32.1	31.2	45	18.2	3.2	19.3	N	0.0	763.5	26.7	51	30
20/01/02	11:30a	33.8	32.1	32.1	33.1	31.3	43	17.9	4.8	12.9	WNW	0.0	763.1	27.2	51	30
20/01/02	12:00p	36.0	33.6	33.6	34.4	33.0	42	18.9	3.2	14.5	N	0.0	762.7	27.8	51	30
20/01/02	12:30p	34.3	33.4	33.4	34.0	32.8	39	17.6	4.8	16.1	N	0.0	762.3	28.3	51	30
20/01/02	1:00p	35.2	34.1	34.1	34.8	33.4	38	17.8	6.4	22.5	N	0.0	762.1	28.9	51	30
20/01/02	1:30p	35.6	33.8	33.8	34.6	32.9	40	18.3	6.4	19.3	NW	0.0	761.8	29.4	51	30
20/01/02	2:00p	35.6	33.9	33.9	34.2	33.6	40	18.4	9.7	30.6	N	0.0	761.5	29.8	50	30
20/01/02	2:30p	36.0	33.7	33.7	34.0	33.5	42	19.1	11.3	25.7	N	0.0	761.3	30.3	50	30
20/01/02	3:00p	34.6	32.6	32.4	33.5	32.3	44	18.7	14.5	32.2	N	0.0	761.1	30.6	50	30
20/01/02	3:30p	34.9	32.5	32.4	32.6	32.4	46	19.4	12.9	25.7	NNE	0.0	760.9	30.8	49	30
20/01/02	4:00p	34.4	31.9	31.7	32.6	30.9	50	20.2	14.5	29.0	N	0.0	761.0	31.1	49	30
20/01/02	4:30p	32.7	30.4	30.1	30.9	30.1	53	19.7	11.3	25.7	N	0.0	761.3	31.2	49	30
20/01/02	5:00p	31.6	29.9	29.3	30.1	29.6	53	19.3	14.5	30.6	N	0.0	761.5	31.2	49	30
20/01/02	5:30p	30.3	28.9	28.2	29.6	28.2	55	18.9	12.9	29.0	N	0.0	761.9	31.1	48	30
20/01/02	6:00p	28.7	27.8	27.3	28.2	27.5	57	18.5	9.7	20.9	N	0.0	762.2	30.8	48	30
20/01/02	6:30p	28.2	27.1	26.6	27.5	26.7	59	18.4	9.7	20.9	N	0.0	762.3	30.5	48	30
20/01/02	7:00p	27.8	26.5	26.5	26.8	26.2	61	18.4	6.4	16.1	N	0.0	762.6	30.1	48	30
20/01/02	7:30p	27.2	25.9	25.9	26.2	25.7	62	18.1	4.8	12.9	N	0.0	762.8	29.7	49	30
20/01/02	8:00p	26.3	25.6	25.6	25.7	25.3	64	18.2	1.6	8.0	NNW	0.0	763.0	29.4	49	30
20/01/02	8:30p	25.6	25.2	25.2	25.3	25.1	65	18.2	1.6	6.4	NNW	0.0	763.1	29.2	49	30
20/01/02	9:00p	25.7	24.9	24.9	25.1	24.8	66	18.1	0.0	6.4	NNW	0.0	763.2	28.9	49	30
20/01/02	9:30p	25.3	24.7	24.7	25.0	24.2	68	18.4	0.0	6.4	N	0.0	763.2	28.7	49	30
20/01/02	10:00p	25.0	24.1	24.1	24.2	23.9	70	18.2	0.0	0.0	---	0.0	763.1	28.4	49	30
20/01/02	10:30p	24.4	23.5	23.5	23.9	23.1	73	18.4	0.0	0.0	---	0.0	763.0	28.2	49	30
20/01/02	11:00p	24.4	23.1	23.1	23.2	23.0	73	18.0	0.0	1.6	---	0.0	762.7	27.9	49	30
20/01/02	11:30p	23.6	22.8	22.8	23.1	22.7	75	18.1	0.0	0.0	---	0.0	762.6	27.7	49	30
20/01/02	12:00p	23.7	22.5	22.5	22.7	22.2	77	18.3	0.0	0.0	---	0.0	762.4	27.4	49	30

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
21/01/02	12:00a	23.7	22.5	22.5	22.7	22.2	77	18.3	0.0	0.0	---	0.0	762.4	27.4	49	30
21/01/02	12:30a	23.1	22.1	22.1	22.2	21.9	78	18.1	0.0	0.0	---	0.0	762.2	27.2	49	30
21/01/02	1:00a	22.7	21.7	21.7	21.9	21.5	79	17.9	0.0	0.0	---	0.0	761.9	27.0	49	30
21/01/02	1:30a	22.2	21.2	21.2	21.5	21.1	80	17.6	0.0	0.0	---	0.0	761.7	26.7	50	30
21/01/02	2:00a	22.2	20.9	20.9	21.1	20.6	81	17.5	0.0	0.0	---	0.0	761.5	26.5	50	30
21/01/02	2:30a	21.7	20.5	20.5	20.6	20.4	82	17.3	0.0	1.6	N	0.0	761.5	26.2	50	30
21/01/02	3:00a	21.1	20.2	20.2	20.4	20.0	83	17.2	0.0	3.2	NNW	0.0	761.4	26.1	50	30
21/01/02	3:30a	21.1	20.1	20.1	20.3	19.8	83	17.1	0.0	1.6	NNW	0.0	761.3	25.8	50	30
21/01/02	4:00a	19.7	19.7	19.7	19.8	19.5	84	16.9	0.0	3.2	NNW	0.0	761.6	25.7	50	30
21/01/02	4:30a	19.3	19.3	19.3	19.5	19.2	85	16.8	0.0	4.8	NNW	0.0	761.7	25.5	50	30
21/01/02	5:00a	19.1	19.1	19.1	19.2	19.0	86	16.7	0.0	4.8	SW	0.0	761.9	25.3	50	30
21/01/02	5:30a	19.3	19.3	19.3	19.4	19.1	85	16.7	0.0	4.8	SW	0.0	762.3	25.2	50	30
21/01/02	6:00a	19.3	19.3	19.3	19.3	19.2	86	16.9	0.0	3.2	SW	0.0	762.5	25.1	50	30
21/01/02	6:30a	19.2	19.2	19.2	19.4	19.1	86	16.8	0.0	6.4	SSW	0.0	762.8	24.9	50	30
21/01/02	7:00a	19.9	19.9	19.9	20.4	19.4	86	17.5	1.6	6.4	S	0.0	762.9	24.9	51	30
21/01/02	7:30a	22.8	21.6	21.6	22.8	20.4	80	18.0	3.2	6.4	S	0.0	763.0	24.9	51	30
21/01/02	8:00a	23.8	23.0	23.0	23.3	22.8	78	18.9	3.2	6.4	SSE	0.0	763.1	25.2	51	30
21/01/02	8:30a	25.7	24.6	24.6	25.6	23.3	72	19.2	1.6	6.4	SE	0.0	762.9	25.6	52	30
21/01/02	9:00a	28.9	26.9	26.9	28.3	25.6	65	19.8	1.6	6.4	SE	0.0	762.7	26.1	49	30
21/01/02	9:30a	31.2	29.2	29.2	29.8	28.3	56	19.5	1.6	9.7	SE	0.0	762.4	25.6	46	30
21/01/02	10:00a	32.3	29.8	29.8	30.0	29.4	57	20.3	3.2	12.9	WNW	0.0	762.5	25.2	46	30
21/01/02	10:30a	32.6	30.6	30.6	32.1	29.5	52	19.6	3.2	11.3	W	0.0	762.0	25.2	46	30
21/01/02	11:00a	35.2	32.5	32.5	32.9	31.9	48	20.1	4.8	17.7	N	0.0	761.8	25.3	46	30
21/01/02	11:30a	36.2	33.1	33.1	33.5	32.7	48	20.6	6.4	19.3	N	0.0	761.6	25.4	46	30
21/01/02	12:00p	35.6	33.2	33.2	33.8	32.7	45	19.7	4.8	16.1	N	0.0	761.2	25.6	46	30
21/01/02	12:30p	36.2	34.0	34.0	34.4	33.6	43	19.7	8.0	24.1	N	0.0	760.9	25.7	46	30
21/01/02	1:00p	35.6	33.4	33.4	33.8	33.1	45	19.9	8.0	22.5	NW	0.0	760.7	25.9	46	30
21/01/02	1:30p	35.4	32.8	32.8	33.6	32.2	49	20.7	8.0	22.5	N	0.0	760.3	26.1	46	30
21/01/02	2:00p	35.4	32.7	32.6	33.2	32.3	49	20.6	12.9	29.0	N	0.0	760.3	26.2	46	30
21/01/02	2:30p	34.8	32.3	32.2	32.6	31.9	49	20.3	12.9	25.7	N	0.0	759.8	26.2	46	30
21/01/02	3:00p	34.6	31.8	31.6	32.1	31.4	51	20.4	12.9	29.0	N	0.0	759.8	26.1	46	30
21/01/02	3:30p	34.6	31.4	31.1	31.6	31.1	51	20.1	12.9	29.0	N	0.0	759.7	26.1	47	30
21/01/02	4:00p	33.8	31.3	31.0	31.6	30.9	53	20.6	14.5	27.4	NNE	0.0	759.7	26.1	46	30
21/01/02	4:30p	33.1	30.5	29.9	30.9	30.2	55	20.4	16.1	32.2	N	0.0	759.5	26.0	46	30
21/01/02	5:00p	31.3	29.6	28.9	30.2	29.2	57	20.2	14.5	29.0	N	0.0	759.7	25.9	46	30
21/01/02	5:30p	30.5	28.9	28.2	29.2	28.4	59	20.1	12.9	27.4	N	0.0	760.0	25.5	46	30
21/01/02	6:00p	29.2	27.9	27.1	28.4	27.5	62	20.0	12.9	29.0	N	0.0	760.5	25.4	47	30
21/01/02	6:30p	28.9	27.2	26.6	27.5	26.8	65	20.0	9.7	22.5	N	0.0	760.8	26.2	48	30
21/01/02	7:00p	28.1	26.6	26.6	26.8	26.2	66	19.7	6.4	19.3	N	0.0	761.1	26.6	48	30
21/01/02	7:30p	27.2	25.9	25.9	26.2	25.7	68	19.6	4.8	12.9	N	0.0	761.4	26.7	48	30
21/01/02	8:00p	26.6	25.6	25.6	25.7	25.3	69	19.4	4.8	9.7	NNE	0.0	761.8	26.7	49	30
21/01/02	8:30p	26.3	25.0	25.0	25.3	24.7	72	19.6	1.6	8.0	N	0.0	762.2	26.7	49	30
21/01/02	9:00p	25.8	24.3	24.3	24.7	23.9	75	19.6	0.0	4.8	N	0.0	762.3	26.7	49	30
21/01/02	9:30p	25.0	23.7	23.7	23.9	23.5	77	19.4	0.0	1.6	N	0.0	762.4	26.6	50	30
21/01/02	10:00p	25.0	23.8	23.8	23.9	23.7	77	19.6	0.0	0.0	---	0.0	762.5	26.5	50	30
21/01/02	10:30p	24.4	23.5	23.5	23.7	23.2	79	19.7	0.0	0.0	---	0.0	762.5	26.4	50	30
21/01/02	11:00p	24.4	23.2	23.2	23.3	23.1	79	19.3	0.0	0.0	---	0.0	762.3	26.3	50	30
21/01/02	11:30p	23.9	22.8	22.8	23.1	22.5	81	19.4	0.0	0.0	---	0.0	762.1	26.1	50	30
21/01/02	12:00p	23.3	22.4	22.4	22.6	22.2	82	19.2	0.0	0.0	---	0.0	762.1	26.0	51	30

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
22/01/02	12:00a	23.3	22.4	22.4	22.6	22.2	82	19.2	0.0	0.0		0.0	762.1	26.0	51	30
22/01/02	12:30a	23.3	22.2	22.2	22.3	22.1	83	19.2	0.0	0.0	---	0.0	762.0	25.9	51	30
22/01/02	1:00a	23.3	22.4	22.4	22.6	22.3	83	19.4	0.0	0.0	---	0.0	761.8	25.8	51	30
22/01/02	1:30a	23.3	22.4	22.4	22.6	22.2	85	19.7	0.0	0.0	---	0.0	761.7	25.7	51	30
22/01/02	2:00a	23.3	22.3	22.3	22.3	22.2	85	19.6	0.0	0.0	---	0.0	761.7	25.6	51	30
22/01/02	2:30a	23.3	22.1	22.1	22.2	21.9	85	19.4	0.0	0.0	---	0.0	761.7	25.6	52	30
22/01/02	3:00a	23.3	22.1	22.1	22.2	22.0	85	19.5	0.0	0.0	---	0.0	761.6	25.5	52	30
22/01/02	3:30a	22.8	21.8	21.8	22.1	21.6	86	19.3	0.0	0.0	---	0.0	761.4	25.4	52	30
22/01/02	4:00a	22.8	21.4	21.4	21.6	21.2	87	19.1	0.0	0.0	---	0.0	761.4	25.3	52	30
22/01/02	4:30a	22.2	21.1	21.1	21.2	21.0	88	19.0	0.0	0.0	---	0.0	761.6	25.2	52	30
22/01/02	5:00a	22.2	20.9	20.9	21.1	20.7	89	19.0	0.0	0.0	---	0.0	761.6	25.1	52	30
22/01/02	5:30a	21.7	20.6	20.6	20.7	20.4	90	18.8	0.0	1.6	N	0.0	761.9	25.1	52	30
22/01/02	6:00a	21.7	20.8	20.8	20.9	20.6	89	18.9	0.0	1.6	N	0.0	762.2	24.9	53	30
22/01/02	6:30a	22.2	21.3	21.3	22.0	20.9	88	19.3	0.0	4.8	N	0.0	762.4	24.9	53	30
22/01/02	7:00a	23.9	22.9	22.9	23.8	22.0	84	20.1	1.6	6.4	SSE	0.0	762.6	25.0	53	30
22/01/02	7:30a	27.1	24.8	24.8	25.7	23.8	79	20.9	3.2	9.7	SE	0.0	762.6	25.1	53	30
22/01/02	8:00a	28.8	26.6	26.6	27.5	25.7	74	21.6	3.2	8.0	SE	0.0	762.6	25.4	54	30
22/01/02	8:30a	30.6	28.6	28.6	29.4	27.5	65	21.3	1.6	9.7	NNE	0.0	762.5	26.0	56	30
22/01/02	9:00a	32.1	29.6	29.6	30.2	29.1	62	21.6	3.2	11.3	NNE	0.0	762.5	26.1	49	30
22/01/02	9:30a	34.5	31.1	31.1	31.5	30.2	57	21.6	1.6	8.0	NE	0.0	762.5	25.5	47	30
22/01/02	10:00a	34.6	31.8	31.8	32.4	31.6	51	20.4	3.2	14.5	NNE	0.0	762.3	25.4	47	30
22/01/02	10:30a	36.1	32.7	32.7	33.3	31.7	52	21.6	4.8	17.7	NNE	0.0	762.2	25.4	47	30
22/01/02	11:00a	34.6	31.7	31.7	31.8	31.5	51	20.3	4.8	17.7	N	0.0	762.1	25.5	47	30
22/01/02	11:30a	34.2	31.7	31.7	32.5	31.3	49	19.7	4.8	14.5	NW	0.0	761.7	25.5	46	30
22/01/02	12:00p	34.8	32.3	32.3	32.7	31.9	49	20.2	3.2	16.1	NW	0.0	761.6	25.5	46	30
22/01/02	12:30p	34.8	31.9	31.9	32.3	31.4	49	19.9	4.8	12.9	NW	0.0	761.3	25.6	46	30
22/01/02	1:00p	34.0	31.8	31.8	32.3	31.4	48	19.4	4.8	16.1	N	0.0	761.1	25.4	46	30
22/01/02	1:30p	35.2	32.5	32.4	32.8	32.1	48	20.1	9.7	22.5	NNE	0.0	760.9	25.3	46	30
22/01/02	2:00p	35.7	32.2	32.1	32.5	31.9	53	21.4	12.9	25.7	N	0.0	760.7	25.4	47	30
22/01/02	2:30p	34.9	31.7	31.5	32.0	31.4	53	21.0	12.9	29.0	N	0.0	760.6	25.4	47	30
22/01/02	3:00p	35.3	31.8	31.6	32.2	31.6	55	21.7	16.1	32.2	N	0.0	760.6	25.4	48	30
22/01/02	3:30p	34.2	31.3	30.9	31.7	31.2	55	21.2	16.1	29.0	N	0.0	760.5	25.7	48	30
22/01/02	4:00p	33.6	30.6	30.1	31.2	29.9	58	21.4	14.5	29.0	N	0.0	760.3	25.6	47	30
22/01/02	4:30p	31.7	29.6	29.0	29.9	29.2	60	21.0	12.9	22.5	N	0.0	760.2	25.5	47	30
22/01/02	5:00p	32.1	29.2	28.4	29.4	28.8	62	21.2	14.5	27.4	N	0.0	760.4	25.3	47	30
22/01/02	5:30p	30.3	28.4	27.5	28.8	28.1	64	21.0	14.5	27.4	N	0.0	760.6	24.9	47	30
22/01/02	6:00p	29.7	27.9	27.1	28.1	27.6	65	20.7	12.9	27.4	N	0.0	761.1	24.6	47	30
22/01/02	6:30p	29.0	27.2	26.4	27.6	26.7	66	20.3	11.3	22.5	NNE	0.0	761.4	23.9	46	30
22/01/02	7:00p	27.2	26.3	26.3	26.7	25.8	67	19.7	4.8	11.3	N	0.0	761.6	23.1	45	30
22/01/02	7:30p	26.8	25.4	25.4	25.8	25.3	71	19.8	1.6	8.0	NNE	0.0	761.9	23.1	46	30
22/01/02	8:00p	26.6	25.2	25.2	25.3	25.1	74	20.2	3.2	12.9	N	0.0	762.3	23.7	47	30
22/01/02	8:30p	26.6	25.0	25.0	25.1	24.9	74	20.1	3.2	9.7	NNW	0.0	762.5	24.1	47	30
22/01/02	9:00p	26.7	24.9	24.9	24.9	24.8	75	20.2	1.6	8.0	NNW	0.0	762.8	24.3	48	30
22/01/02	9:30p	26.7	24.8	24.8	24.9	24.8	75	20.1	1.6	6.4	NNW	0.0	763.0	24.6	48	30
22/01/02	10:00p	26.8	24.9	24.9	24.9	24.8	76	20.4	0.0	4.8	NNW	0.0	762.9	24.7	48	30
22/01/02	10:30p	26.8	24.8	24.8	24.9	24.8	76	20.3	0.0	4.8	NW	0.0	762.8	24.9	49	30
22/01/02	11:00p	26.9	24.8	24.8	24.8	24.7	77	20.5	0.0	1.6	NW	0.0	762.6	25.0	49	30
22/01/02	11:30p	26.1	24.7	24.7	24.7	24.6	79	20.8	0.0	0.0	---	0.0	762.5	25.1	49	30
22/01/02	12:00p	26.1	24.6	24.6	24.6	24.6	79	20.7	0.0	0.0	---	0.0	762.3	25.2	50	30

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
23/01/02	12:00a	26.1	24.6	24.6	24.6	24.6	79	20.7	0.0	0.0	---	0.0	762.3	25.2	50	30
23/01/02	12:30a	26.1	24.6	24.6	24.6	24.5	79	20.7	0.0	0.0	---	0.0	761.9	25.2	50	30
23/01/02	1:00a	26.1	24.4	24.4	24.6	24.3	79	20.5	0.0	1.6	NW	0.0	761.9	25.2	50	30
23/01/02	1:30a	26.1	24.3	24.3	24.4	24.3	80	20.6	0.0	0.0	---	0.0	761.7	25.3	50	30
23/01/02	2:00a	26.1	24.3	24.3	24.4	24.3	80	20.7	0.0	3.2	NW	0.0	761.4	25.3	50	30
23/01/02	2:30a	25.0	24.1	24.1	24.3	23.9	80	20.4	0.0	1.6	NW	0.0	761.3	25.3	50	30
23/01/02	3:00a	25.1	24.0	24.0	24.1	23.9	81	20.6	0.0	0.0	---	0.0	761.4	25.4	50	30
23/01/02	3:30a	25.1	24.1	24.1	24.2	24.1	82	20.8	0.0	0.0	---	0.0	761.5	25.4	51	30
23/01/02	4:00a	25.2	23.9	23.9	24.1	23.8	84	21.0	0.0	0.0	---	0.0	761.7	25.4	51	30
23/01/02	4:30a	25.1	23.9	23.9	23.8	23.8	82	20.6	0.0	1.6	---	0.0	761.5	25.4	51	30
23/01/02	5:00a	24.4	23.6	23.6	23.8	23.2	83	20.5	0.0	0.0	---	0.0	761.7	25.4	51	30
23/01/02	5:30a	23.9	22.9	22.9	23.3	22.8	85	20.3	0.0	0.0	---	0.0	761.8	25.3	51	30
23/01/02	6:00a	23.9	22.8	22.8	22.9	22.7	86	20.3	0.0	0.0	---	0.0	762.0	25.3	52	30
23/01/02	6:30a	24.4	23.4	23.4	24.1	22.9	84	20.6	0.0	0.0	---	0.0	762.3	25.3	52	30
23/01/02	7:00a	27.1	25.0	25.0	25.9	24.1	79	21.1	0.0	4.8	NW	0.0	762.5	25.3	52	30
23/01/02	7:30a	28.6	26.6	26.6	27.4	25.9	72	21.2	1.6	6.4	N	0.0	762.4	25.5	52	30
23/01/02	8:00a	29.9	27.6	27.6	28.7	27.4	66	20.7	1.6	6.4	W	0.0	762.4	25.8	54	30
23/01/02	8:30a	30.1	28.3	28.3	28.7	27.9	63	20.6	1.6	8.0	NNE	0.0	762.3	25.8	49	30
23/01/02	9:00a	31.9	29.7	29.7	30.8	28.6	55	19.7	3.2	9.7	SSW	0.0	762.2	25.2	47	30
23/01/02	9:30a	33.2	30.8	30.8	31.4	30.2	56	21.0	4.8	16.1	NW	0.0	762.0	24.9	47	30
23/01/02	10:00a	35.4	32.2	32.2	32.9	31.4	52	21.1	4.8	16.1	NE	0.0	761.7	24.9	47	30
23/01/02	10:30a	35.9	32.2	32.2	33.2	31.6	54	21.7	4.8	12.9	WNW	0.0	761.4	24.9	47	30
23/01/02	11:00a	36.0	33.1	33.1	34.1	31.9	47	20.3	3.2	17.7	NE	0.0	761.2	24.9	47	30
23/01/02	11:30a	37.1	33.8	33.8	34.2	33.3	47	20.9	4.8	14.5	NNE	0.0	761.0	25.2	47	30
23/01/02	12:00p	37.5	35.0	35.0	35.2	34.2	41	19.8	6.4	22.5	NNE	0.0	760.6	25.4	47	30
23/01/02	12:30p	38.3	35.0	35.0	35.4	34.8	44	20.9	8.0	24.1	N	0.0	760.1	25.7	47	30
23/01/02	1:00p	38.9	34.9	34.9	35.1	34.8	46	21.6	12.9	27.4	NNE	0.0	760.0	25.9	48	30
23/01/02	1:30p	38.9	34.8	34.8	35.0	34.7	46	21.5	12.9	30.6	NNE	0.0	759.8	26.1	48	30
23/01/02	2:00p	38.4	34.5	34.5	34.8	34.2	48	21.9	14.5	30.6	NNE	0.0	759.4	26.2	48	30
23/01/02	2:30p	38.9	33.6	33.6	34.2	33.1	53	22.7	16.1	30.6	N	0.0	759.3	26.3	48	30
23/01/02	3:00p	36.4	32.6	32.5	33.2	32.2	53	21.8	16.1	33.8	N	0.0	759.4	26.4	48	30
23/01/02	3:30p	35.9	32.1	31.8	32.3	31.7	54	21.6	17.7	30.6	N	0.0	759.4	26.4	49	30
23/01/02	4:00p	35.1	31.6	31.2	31.7	31.3	54	21.1	16.1	29.0	N	0.0	759.3	26.4	48	30
23/01/02	4:30p	33.4	30.7	30.2	31.4	30.0	57	21.2	14.5	30.6	N	0.0	759.3	26.3	47	30
23/01/02	5:00p	31.6	29.6	28.9	30.0	29.3	59	20.8	14.5	30.6	N	0.0	759.5	26.0	48	30
23/01/02	5:30p	31.0	28.9	28.1	29.3	28.6	62	20.9	14.5	29.0	N	0.0	760.0	25.8	46	30
23/01/02	6:00p	30.3	28.1	27.2	28.5	27.6	64	20.6	12.9	32.2	N	0.0	760.4	25.3	47	30
23/01/02	6:30p	29.0	27.3	26.6	27.7	27.1	66	20.4	11.3	24.1	N	0.0	760.6	25.8	48	30
23/01/02	7:00p	29.1	27.1	26.6	27.2	26.9	67	20.4	9.7	22.5	NNE	0.0	760.9	26.2	49	30
23/01/02	7:30p	28.2	26.8	26.3	27.0	26.7	68	20.4	9.7	17.7	NNE	0.0	761.1	26.4	49	30
23/01/02	8:00p	28.2	26.5	25.9	26.7	26.3	68	20.1	9.7	19.3	NNE	0.0	761.4	26.5	49	30
23/01/02	8:30p	27.2	26.2	25.8	26.3	26.1	68	19.8	8.0	20.9	NNE	0.0	761.7	26.6	50	30
23/01/02	9:00p	27.2	26.0	26.0	26.1	25.9	69	19.9	6.4	14.5	N	0.0	762.1	26.6	50	30
23/01/02	9:30p	27.2	25.8	25.8	26.0	25.7	70	19.9	6.4	19.3	N	0.0	762.3	26.6	51	30
23/01/02	10:00p	26.8	25.7	25.7	25.7	25.6	71	20.0	3.2	11.3	NNE	0.0	762.4	26.6	51	30
23/01/02	10:30p	26.8	25.4	25.4	25.7	25.3	71	19.8	3.2	11.3	NNE	0.0	762.5	26.5	51	30
23/01/02	11:00p	26.2	25.2	25.2	25.3	25.1	71	19.6	1.6	8.0	NNE	0.0	762.4	26.4	52	30
23/01/02	11:30p	26.1	25.1	25.1	25.2	25.0	70	19.2	1.6	6.4	NNE	0.0	762.2	26.4	52	30
23/01/02	12:00p	26.2	24.8	24.8	25.0	24.6	71	19.2	3.2	8.0	NNE	0.0	762.1	26.3	52	30

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
24/01/02	12:00a	26.2	24.8	24.8	25.0	24.6	71	19.2	3.2	8.0	NNE	0.0	762.1	26.3	52	30
24/01/02	12:30a	25.7	24.3	24.3	24.6	23.8	73	19.1	0.0	4.8	NNE	0.0	761.8	26.3	52	30
24/01/02	1:00a	24.4	23.2	23.2	23.8	22.7	75	18.6	0.0	3.2	NNE	0.0	761.4	26.2	52	30
24/01/02	1:30a	23.0	22.4	22.4	22.7	22.0	77	18.2	0.0	4.8	NNE	0.0	761.0	25.9	52	30
24/01/02	2:00a	22.7	21.7	21.7	22.0	21.4	79	17.9	0.0	0.0	---	0.0	760.9	25.8	52	30
24/01/02	2:30a	22.2	21.0	21.0	21.4	20.8	81	17.6	0.0	3.2	NNW	0.0	760.6	25.6	52	30
24/01/02	3:00a	21.7	20.6	20.6	20.8	20.3	82	17.4	1.6	4.8	NNW	0.0	760.3	25.4	52	30
24/01/02	3:30a	21.1	20.2	20.2	20.3	19.9	81	16.8	0.0	4.8	NNW	0.0	760.2	25.2	52	30
24/01/02	4:00a	19.5	19.5	19.5	20.0	19.2	83	16.6	0.0	3.2	NNW	0.0	760.1	25.1	52	30
24/01/02	4:30a	19.0	19.0	19.0	19.2	18.8	84	16.2	0.0	4.8	NNW	0.0	760.2	24.8	52	30
24/01/02	5:00a	19.0	19.0	19.0	19.1	18.9	84	16.2	0.0	1.6	NNW	0.0	760.2	24.7	52	30
24/01/02	5:30a	19.1	19.1	19.1	19.3	18.9	84	16.3	0.0	4.8	NNW	0.0	760.5	24.6	52	30
24/01/02	6:00a	19.3	19.3	19.3	19.6	19.2	84	16.6	1.6	8.0	S	0.0	760.6	24.4	52	30
24/01/02	6:30a	21.1	20.0	20.0	20.4	19.6	82	16.8	1.6	4.8	S	0.0	760.8	24.3	52	30
24/01/02	7:00a	22.2	21.1	21.1	22.1	20.5	80	17.6	1.6	6.4	S	0.0	760.9	24.3	52	30
24/01/02	7:30a	25.0	23.8	23.8	25.5	22.1	70	18.1	6.4	12.9	S	0.0	760.9	24.4	52	30
24/01/02	8:00a	27.9	26.5	26.2	27.3	25.5	62	18.6	8.0	14.5	SSE	0.0	760.9	24.6	49	30
24/01/02	8:30a	29.4	28.2	28.2	29.2	27.3	57	18.8	4.8	12.9	SSE	0.0	760.9	23.8	48	30
24/01/02	9:00a	31.6	29.7	29.3	30.2	29.2	53	19.1	11.3	27.4	NE	0.0	760.7	23.6	47	30
24/01/02	9:30a	32.6	30.7	30.4	31.0	30.3	52	19.7	9.7	27.4	ENE	0.0	760.8	23.7	47	30
24/01/02	10:00a	32.9	31.1	30.9	31.9	30.4	48	18.8	11.3	25.7	NE	0.0	760.7	23.6	47	30
24/01/02	10:30a	33.7	31.2	30.9	31.8	30.7	52	20.2	11.3	27.4	NNE	0.0	760.5	23.7	48	30
24/01/02	11:00a	34.2	32.1	32.1	33.1	30.8	45	18.7	8.0	19.3	NE	0.0	760.2	23.9	48	30
24/01/02	11:30a	34.2	32.3	32.3	33.0	32.0	45	18.9	6.4	19.3	NNE	0.0	760.0	24.2	48	30
24/01/02	12:00p	36.0	33.9	33.9	34.6	32.7	42	19.2	6.4	17.7	ENE	0.0	759.7	24.6	48	30
24/01/02	12:30p	36.4	34.2	34.2	34.6	33.8	39	18.2	8.0	19.3	NE	0.0	759.5	24.8	48	30
24/01/02	1:00p	36.0	33.9	33.9	34.4	33.1	42	19.2	11.3	27.4	NNE	0.0	759.1	25.1	47	30
24/01/02	1:30p	34.9	33.1	33.1	33.6	32.4	42	18.5	9.7	29.0	NNE	0.0	758.8	25.2	47	30
24/01/02	2:00p	33.9	32.6	32.6	32.8	32.4	40	17.3	8.0	25.7	NNE	0.0	758.6	25.2	47	30
24/01/02	2:30p	34.2	32.3	32.3	32.8	31.9	45	18.9	8.0	22.5	NNE	0.0	758.2	25.2	47	30
24/01/02	3:00p	33.3	31.7	31.4	31.9	31.3	45	18.3	14.5	32.2	NNE	0.0	758.1	25.1	47	30
24/01/02	3:30p	32.4	31.3	31.1	31.7	30.9	46	18.3	12.9	33.8	NNE	0.0	757.9	25.1	46	30
24/01/02	4:00p	31.6	30.7	30.4	30.9	30.4	46	17.7	11.3	27.4	NE	0.0	758.0	24.7	46	30
24/01/02	4:30p	31.0	30.0	29.5	30.4	29.6	49	18.1	12.9	35.4	NE	0.0	758.2	24.6	45	30
24/01/02	5:00p	30.2	29.1	28.4	29.5	28.7	53	18.6	14.5	32.2	NNE	0.0	758.3	24.3	45	30
24/01/02	5:30p	29.4	28.4	27.5	28.7	28.2	55	18.6	14.5	32.2	NE	0.0	758.5	23.9	46	30
24/01/02	6:00p	28.7	27.8	26.8	28.2	27.4	57	18.6	14.5	29.0	NE	0.0	759.1	23.7	46	30
24/01/02	6:30p	28.3	27.2	26.4	27.4	26.9	60	18.7	11.3	27.4	NE	0.0	760.0	24.2	46	30
24/01/02	7:00p	27.8	26.6	25.9	26.9	26.3	60	18.2	9.7	24.1	NNE	0.0	760.0	24.7	47	30
24/01/02	7:30p	27.1	26.1	25.4	26.2	25.9	59	17.4	9.7	20.9	NE	0.0	760.0	25.0	47	30
24/01/02	8:00p	27.0	25.8	25.8	25.9	25.8	58	16.9	6.4	20.9	NE	0.0	760.1	25.2	48	30
24/01/02	8:30p	25.9	25.7	25.7	25.8	25.6	56	16.2	4.8	11.3	NNE	0.0	760.3	25.3	48	30
24/01/02	9:00p	26.0	25.6	25.6	25.6	25.4	58	16.7	3.2	11.3	NE	0.0	760.4	25.4	48	30
24/01/02	9:30p	25.1	25.2	25.2	25.4	25.1	61	17.2	0.0	4.8	NE	0.0	760.4	25.4	48	30
24/01/02	10:00p	25.6	24.9	24.9	25.1	24.7	65	17.9	3.2	8.0	SE	0.0	760.5	25.4	48	30
24/01/02	10:30p	25.2	24.6	24.6	24.7	24.4	67	18.1	3.2	9.7	SE	0.0	760.3	25.5	48	30
24/01/02	11:00p	25.4	24.3	24.3	24.5	24.2	69	18.3	3.2	11.3	ESE	0.0	760.5	25.5	49	30
24/01/02	11:30p	25.0	24.0	24.0	24.2	23.8	71	18.4	1.6	4.8	SE	0.0	760.5	25.5	49	30
24/01/02	12:00p	25.0	23.8	23.8	23.9	23.8	72	18.5	1.6	6.4	SE	0.0	760.3	25.4	49	30

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
25/01/02	12:00a	25.0	23.8	23.8	23.9	23.8	72	18.5	1.6	6.4	SE	0.0	760.3	25.4	49	30
25/01/02	12:30a	25.0	24.0	24.0	24.1	23.9	71	18.4	3.2	17.7	SE	0.0	760.3	25.4	49	30
25/01/02	1:00a	25.0	23.9	23.9	24.1	23.8	79	20.1	6.4	19.3	NNE	0.0	759.9	25.4	50	30
25/01/02	1:30a	24.4	23.4	23.4	23.8	23.1	80	19.7	0.0	6.4	NNE	0.0	759.7	25.4	50	30
25/01/02	2:00a	24.4	23.1	23.1	23.2	23.0	80	19.5	3.2	11.3	SSE	0.0	759.5	25.4	50	30
25/01/02	2:30a	23.9	22.9	22.9	23.1	22.9	81	19.5	4.8	11.3	S	0.0	759.2	25.3	51	30
25/01/02	3:00a	23.9	22.8	22.8	22.9	22.8	83	19.8	4.8	11.3	SSE	0.0	759.1	25.3	52	30
25/01/02	3:30a	23.9	22.6	22.6	22.8	22.3	84	19.7	4.8	12.9	SSE	0.0	759.0	25.3	52	30
25/01/02	4:00a	23.3	22.2	22.2	22.3	22.0	86	19.7	4.8	12.9	SSE	0.0	759.1	25.2	52	30
25/01/02	4:30a	23.3	22.1	22.1	22.1	22.0	87	19.8	1.6	6.4	SSE	0.0	759.2	25.2	53	30
25/01/02	5:00a	23.3	22.0	22.0	22.1	21.9	88	19.9	1.6	8.0	SSE	0.0	759.4	25.1	53	30
25/01/02	5:30a	23.3	22.0	22.0	22.1	21.9	88	19.9	3.2	8.0	S	0.0	759.7	25.1	53	30
25/01/02	6:00a	23.3	22.2	22.2	22.3	22.1	88	20.1	3.2	9.7	S	0.0	759.6	25.0	54	30
25/01/02	6:30a	23.9	22.7	22.7	22.9	22.3	86	20.2	4.8	11.3	SSE	0.0	759.7	25.0	54	30
25/01/02	7:00a	24.4	23.1	23.1	23.3	22.9	83	20.1	4.8	9.7	S	0.0	759.9	25.1	54	30
25/01/02	7:30a	25.0	23.7	23.7	24.1	23.3	80	20.0	6.4	12.9	SSE	0.0	760.1	25.1	54	30
25/01/02	8:00a	26.7	25.1	24.6	26.5	24.1	75	20.3	8.0	16.1	SSE	0.0	760.2	25.3	54	30
25/01/02	8:30a	28.3	26.7	26.4	26.9	26.5	70	20.8	8.0	17.7	SSE	0.0	760.1	24.6	49	30
25/01/02	9:00a	28.8	27.3	26.9	28.4	26.7	64	19.9	8.0	20.9	SE	0.0	760.0	24.0	48	30
25/01/02	9:30a	30.3	28.9	28.3	29.2	28.4	56	19.2	11.3	27.4	ENE	0.0	760.0	23.8	48	30
25/01/02	10:00a	31.6	30.1	29.9	30.6	29.2	53	19.5	8.0	25.7	ENE	0.0	759.7	23.7	48	30
25/01/02	10:30a	32.7	30.8	30.5	31.0	30.4	53	20.1	11.3	27.4	ESE	0.0	759.5	23.8	48	30
25/01/02	11:00a	32.6	30.7	30.4	31.1	30.4	52	19.7	11.3	25.7	E	0.0	759.3	23.9	47	30
25/01/02	11:30a	33.7	30.8	30.6	31.4	30.3	52	19.8	9.7	27.4	ENE	0.0	759.0	23.9	47	30
25/01/02	12:00p	33.8	30.9	30.6	31.5	30.1	53	20.2	12.9	27.4	SSE	0.0	758.6	23.9	47	30
25/01/02	12:30p	32.7	30.3	30.0	30.7	30.0	53	19.7	11.3	38.6	ESE	0.0	758.6	23.9	47	30
25/01/02	1:00p	31.6	29.8	28.9	30.8	29.4	53	19.2	19.3	35.4	E	0.0	758.5	23.9	47	30
25/01/02	1:30p	33.1	30.8	30.2	31.1	30.6	55	20.7	16.1	35.4	E	0.0	758.2	23.9	47	30
25/01/02	2:00p	35.1	31.6	31.2	31.8	31.1	54	21.2	20.9	38.6	SSE	0.0	758.1	24.0	48	30
25/01/02	2:30p	34.5	31.2	30.7	31.7	30.8	57	21.7	19.3	35.4	SE	0.0	758.0	24.3	48	30
25/01/02	3:00p	33.6	30.8	30.2	30.9	30.3	58	21.6	19.3	33.8	SSE	0.0	757.9	24.5	48	30
25/01/02	3:30p	33.7	29.6	28.8	30.3	28.3	69	23.3	14.5	32.2	SSE	0.2	758.0	24.6	49	30
25/01/02	4:00p	29.9	27.8	27.3	28.3	27.3	66	20.8	9.7	29.0	NE	0.0	758.1	24.2	47	30
25/01/02	4:30p	29.4	27.7	26.2	28.0	27.3	63	20.0	19.3	32.2	ESE	0.2	758.3	23.9	48	30
25/01/02	5:00p	28.6	27.2	25.4	26.5	25.9	65	19.3	22.5	48.3	ESE	0.0	758.8	23.8	47	30
25/01/02	5:30p	27.2	26.2	25.1	26.5	25.3	66	18.7	14.5	27.4	ESE	0.0	758.9	23.3	46	30
25/01/02	6:00p	26.4	25.6	24.1	25.9	25.3	67	18.6	11.3	22.5	ESE	0.0	759.1	22.7	46	30
25/01/02	6:30p	25.8	25.2	24.2	25.3	25.0	67	18.2	9.7	19.3	ESE	0.0	759.3	22.9	47	30
25/01/02	7:00p	25.8	24.8	24.0	25.0	24.6	67	18.2	9.7	19.3	ESE	0.0	759.4	23.6	48	30
25/01/02	7:30p	25.3	24.4	24.4	24.6	24.2	68	18.1	4.8	14.5	SE	0.0	759.7	23.8	48	30
25/01/02	8:00p	24.8	23.9	23.9	24.2	23.8	68	17.7	6.4	14.5	SE	0.0	759.8	24.1	49	30
25/01/02	8:30p	24.9	23.6	23.6	23.8	23.6	69	17.6	6.4	12.9	SE	0.0	759.9	24.2	49	30
25/01/02	9:00p	24.4	23.4	23.4	23.6	23.4	71	17.9	4.8	12.9	SE	0.0	760.0	24.3	49	30
25/01/02	9:30p	24.4	23.3	23.3	23.4	23.3	72	18.0	3.2	8.0	ESE	0.0	759.8	24.3	50	30
25/01/02	10:00p	24.4	23.2	23.2	23.3	23.2	72	17.9	4.8	11.3	ESE	0.0	760.0	24.4	50	30
25/01/02	10:30p	24.4	23.1	23.1	23.2	23.1	73	18.0	4.8	11.3	SE	0.0	759.9	24.4	50	30
25/01/02	11:00p	23.6	23.0	23.0	23.1	22.9	74	18.1	4.8	12.9	SE	0.0	759.9	24.4	51	30
25/01/02	11:30p	23.6	22.9	22.9	23.0	22.9	75	18.3	6.4	12.9	ESE	0.0	759.7	24.4	51	30
25/01/02	12:00p	23.6	22.8	22.8	22.9	22.7	75	18.2	6.4	14.5	SE	0.0	759.4	24.4	51	30

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
26/01/02	12:00a	23.6	22.8	22.8	22.9	22.7	75	18.2	6.4	14.5	SE	0.0	759.4	24.4	51	30
26/01/02	12:30a	23.6	22.6	22.6	22.7	22.5	75	17.9	6.4	14.5	ESE	0.0	759.2	24.4	52	30
26/01/02	1:00a	22.8	22.4	21.9	22.5	22.4	75	17.8	8.0	20.9	SE	0.0	759.0	24.4	52	30
26/01/02	1:30a	23.6	22.6	21.2	22.6	22.5	75	17.9	11.3	22.5	SSE	0.0	758.7	24.4	52	30
26/01/02	2:00a	23.7	22.6	21.6	22.6	22.5	76	18.1	9.7	19.3	SSE	0.0	758.6	24.4	53	30
26/01/02	2:30a	23.0	22.4	21.5	22.6	22.4	77	18.2	9.7	20.9	SE	0.0	758.3	24.5	53	30
26/01/02	3:00a	23.8	22.6	21.2	22.7	22.4	78	18.6	11.3	25.7	SE	0.0	758.3	24.5	53	30
26/01/02	3:30a	23.8	22.6	21.2	22.7	22.4	79	18.7	11.3	20.9	SE	0.0	758.3	24.5	54	30
26/01/02	4:00a	23.3	22.3	20.9	22.4	22.2	80	18.7	11.3	22.5	SE	0.0	758.4	24.6	54	30
26/01/02	4:30a	23.3	22.1	20.7	22.2	22.0	81	18.7	11.3	24.1	SSE	0.0	758.6	24.6	54	30
26/01/02	5:00a	23.3	22.1	21.4	22.1	22.0	81	18.7	8.0	17.7	SSE	0.0	758.7	24.6	55	30
26/01/02	5:30a	23.3	21.9	21.3	22.0	21.8	81	18.6	8.0	17.7	SSE	0.0	758.7	24.5	55	30
26/01/02	6:00a	22.8	21.9	20.9	22.0	21.8	80	18.3	9.7	19.3	SSE	0.0	758.8	24.5	55	30
26/01/02	6:30a	23.2	22.3	21.3	22.6	22.0	79	18.4	9.7	19.3	SSE	0.0	758.9	24.5	56	30
26/01/02	7:00a	24.4	23.2	21.9	23.9	22.6	76	18.8	11.3	22.5	SSE	0.0	759.0	24.6	56	30
26/01/02	7:30a	26.0	24.8	22.8	25.5	23.9	69	18.7	16.1	27.4	SSE	0.0	759.2	24.7	55	30
26/01/02	8:00a	27.2	26.0	24.3	26.5	25.5	66	19.2	16.1	27.4	SSE	0.0	759.1	24.7	55	30
26/01/02	8:30a	28.7	27.0	25.4	27.7	26.4	63	19.4	17.7	30.6	SSE	0.0	759.3	25.1	55	30
26/01/02	9:00a	28.9	28.0	26.6	28.7	27.7	60	19.5	19.3	32.2	SE	0.0	759.1	25.3	56	30
26/01/02	9:30a	30.3	29.0	27.9	29.5	28.7	56	19.3	17.7	37.0	SSE	0.0	759.0	25.6	56	30
26/01/02	10:00a	31.6	29.9	29.2	30.3	29.5	53	19.3	17.7	33.8	SSE	0.0	758.8	25.9	56	30
26/01/02	10:30a	32.7	30.4	29.8	30.9	29.9	53	19.8	17.7	37.0	SSE	0.0	758.7	26.3	56	30
26/01/02	11:00a	32.2	30.3	29.7	31.2	29.7	50	18.7	14.5	30.6	SSE	0.0	758.6	26.6	55	30
26/01/02	11:30a	32.9	31.0	30.5	31.7	30.6	48	18.7	17.7	32.2	SE	0.0	758.4	26.9	55	30
26/01/02	12:00p	34.9	32.6	32.4	33.4	31.6	46	19.4	16.1	32.2	ESE	0.0	758.2	27.2	55	30
26/01/02	12:30p	35.6	33.6	33.6	34.2	32.8	45	20.0	17.7	32.2	SSE	0.0	758.1	27.6	55	30
26/01/02	1:00p	35.1	33.2	33.2	33.9	32.7	43	18.9	16.1	30.6	ESE	0.0	757.8	27.9	54	30
26/01/02	1:30p	35.1	33.1	33.1	33.9	32.6	43	18.9	16.1	32.2	ESE	0.0	757.6	28.3	54	30
26/01/02	2:00p	36.9	34.2	34.2	34.5	33.6	41	19.1	16.1	41.8	SSE	0.0	757.3	28.6	53	30
26/01/02	2:30p	36.4	34.3	34.3	34.5	33.4	39	18.3	14.5	29.0	SSE	0.0	757.1	28.9	53	30
26/01/02	3:00p	34.7	33.3	33.3	33.5	32.9	41	18.3	14.5	30.6	SSE	0.0	757.0	29.2	52	30
26/01/02	3:30p	34.7	33.5	33.5	33.8	33.0	41	18.4	17.7	37.0	ESE	0.0	757.0	29.4	52	30
26/01/02	4:00p	34.2	32.8	32.7	33.1	32.1	42	18.2	12.9	24.1	SE	0.0	757.1	29.6	51	30
26/01/02	4:30p	33.1	31.6	31.3	32.2	31.1	44	17.8	14.5	27.4	SE	0.0	757.2	29.7	51	30
26/01/02	5:00p	32.0	31.1	30.7	31.3	30.8	44	17.4	16.1	32.2	ESE	0.0	757.4	29.8	51	30
26/01/02	5:30p	31.7	30.3	29.8	30.8	29.7	47	17.7	12.9	25.0	E	0.0	757.7	29.8	50	30
26/01/02	6:00p	30.3	29.4	28.7	29.7	29.1	48	17.2	14.5	29.0	E	0.0	757.9	29.7	50	30
26/01/02	6:30p	29.9	28.8	28.3	29.1	28.4	49	17.1	11.3	24.1	SE	0.0	758.3	29.7	50	30
26/01/02	7:00p	28.6	28.0	27.3	28.4	27.6	54	17.8	11.3	20.9	ESE	0.0	758.6	29.5	49	30
26/01/02	7:30p	28.0	27.3	26.9	27.6	26.8	57	18.0	8.0	20.9	ESE	0.0	758.9	29.2	49	30
26/01/02	8:00p	27.9	26.4	26.0	26.9	25.9	62	18.6	8.0	22.5	SSE	0.0	759.2	28.9	49	30
26/01/02	8:30p	26.4	25.5	25.1	25.8	25.2	65	18.4	8.0	17.7	SSE	0.0	759.4	28.7	49	30
26/01/02	9:00p	25.7	25.0	25.0	25.2	24.8	66	18.2	6.4	12.9	SSE	0.0	759.5	28.4	49	30
26/01/02	9:30p	25.3	24.7	24.7	24.8	24.4	68	18.4	4.8	11.3	SSE	0.0	759.7	28.2	49	30
26/01/02	10:00p	25.3	24.4	24.4	24.6	24.2	68	18.2	4.8	11.3	SE	0.0	759.7	27.9	49	30
26/01/02	10:30p	24.9	23.9	23.9	24.2	23.7	69	17.8	6.4	11.3	SE	0.0	759.7	27.7	50	30
26/01/02	11:00p	24.9	23.8	23.8	23.8	23.7	69	17.8	3.2	9.7	SE	0.0	759.5	27.4	50	30
26/01/02	11:30p	25.0	23.6	23.6	23.8	23.4	70	17.8	1.6	6.4	SE	0.0	759.4	27.2	50	30
26/01/02	12:00p	24.4	23.2	23.2	23.4	23.1	72	17.9	1.6	4.8	SE	0.0	759.1	27.0	50	30

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
27/01/02	12:00a	24.4	23.2	23.2	23.4	23.1	72	17.9	1.6	4.8	SE	0.0	759.1	27.0	50	30
27/01/02	12:30a	23.6	22.9	22.9	23.1	22.8	74	18.0	1.6	4.8	SE	0.0	758.9	26.8	50	30
27/01/02	1:00a	23.7	22.6	22.6	22.8	22.3	76	18.2	3.2	8.0	SE	0.0	758.9	26.6	50	30
27/01/02	1:30a	23.0	22.3	22.3	22.4	22.3	77	18.1	3.2	9.7	SSE	0.0	758.5	26.3	50	30
27/01/02	2:00a	23.0	22.2	22.2	22.3	22.2	77	18.0	3.2	9.7	SSE	0.0	758.3	26.2	51	30
27/01/02	2:30a	23.0	22.3	22.3	22.4	22.2	77	18.1	3.2	9.7	SE	0.0	758.2	26.0	51	30
27/01/02	3:00a	23.1	22.0	22.0	22.2	21.9	78	18.0	4.8	9.7	SSE	0.0	758.2	25.9	51	30
27/01/02	3:30a	22.7	21.8	21.8	21.9	21.7	79	18.1	6.4	16.1	SE	0.0	758.1	25.7	51	30
27/01/02	4:00a	22.8	21.6	21.6	21.7	21.3	81	18.2	6.4	12.9	SSE	0.0	757.9	25.6	52	30
27/01/02	4:30a	22.2	21.3	21.3	21.4	21.3	81	17.9	6.4	14.5	SSE	0.0	758.2	25.4	52	30
27/01/02	5:00a	22.8	21.4	21.4	21.4	21.3	82	18.2	4.8	9.7	SE	0.0	758.3	25.4	52	30
27/01/02	5:30a	22.2	21.2	21.2	21.3	21.1	82	18.1	3.2	8.0	SSE	0.0	758.4	25.3	52	30
27/01/02	6:00a	22.8	21.4	21.4	21.8	21.2	82	18.2	4.8	9.7	SE	0.0	758.6	25.2	53	30
27/01/02	6:30a	23.3	22.3	21.7	22.9	21.8	80	18.7	8.0	17.7	SSE	0.0	758.8	25.1	53	30
27/01/02	7:00a	24.4	23.5	21.6	24.1	22.9	75	18.8	14.5	29.0	SE	0.0	758.9	25.2	53	30
27/01/02	7:30a	26.1	24.8	22.8	25.3	24.1	70	18.9	16.1	30.6	SE	0.0	758.8	25.3	54	30
27/01/02	8:00a	27.2	26.0	24.1	26.6	25.4	65	18.9	19.3	30.6	SE	0.0	758.7	25.4	54	30
27/01/02	8:30a	28.4	27.1	25.6	27.9	26.6	61	18.9	17.7	33.8	SSE	0.0	758.9	25.6	54	30
27/01/02	9:00a	29.4	28.3	27.1	28.7	27.9	59	19.6	17.7	32.2	SSE	0.0	758.9	25.9	54	30
27/01/02	9:30a	31.1	29.3	28.3	29.9	28.7	55	19.3	17.7	30.6	SSE	0.0	758.7	26.1	54	30
27/01/02	10:00a	32.7	30.4	29.7	30.8	29.9	53	19.7	17.7	32.2	SSE	0.0	758.6	26.1	50	30
27/01/02	10:30a	33.7	31.3	30.8	31.8	30.8	52	20.3	17.7	33.8	SSE	0.0	758.5	25.2	48	30
27/01/02	11:00a	34.6	31.5	31.1	31.8	31.3	51	20.2	20.9	37.0	SSE	0.0	758.3	24.7	48	30
27/01/02	11:30a	35.2	31.9	31.7	32.4	31.6	51	20.6	16.1	30.6	SSE	0.0	757.9	24.4	48	30
27/01/02	12:00p	35.2	32.9	32.9	33.3	32.4	48	20.4	14.5	32.2	SSE	0.0	757.6	24.2	48	30
27/01/02	12:30p	35.2	31.9	31.7	32.8	31.5	51	20.6	17.7	32.2	SSE	0.0	757.4	24.1	48	30
27/01/02	1:00p	34.2	31.9	31.7	32.1	31.8	49	19.8	14.5	30.6	ESE	0.0	757.1	24.0	48	30
27/01/02	1:30p	34.5	32.0	31.7	32.2	31.7	47	19.3	17.7	30.6	SE	0.0	756.9	23.9	47	30
27/01/02	2:00p	34.3	31.9	31.7	32.1	31.8	46	18.9	16.1	33.8	ESE	0.0	757.0	23.8	47	30
27/01/02	2:30p	34.7	32.1	31.8	32.4	31.6	48	19.7	17.7	32.2	SE	0.0	756.9	23.7	47	30
27/01/02	3:00p	34.2	32.3	32.1	32.4	31.8	45	18.8	16.1	32.2	ESE	0.0	756.7	23.7	47	30
27/01/02	3:30p	34.3	31.9	31.7	32.3	31.5	46	18.9	16.1	33.8	SE	0.0	756.7	23.7	47	30
27/01/02	4:00p	33.6	31.4	31.1	31.6	31.3	46	18.4	14.5	25.7	ESE	0.0	756.5	23.9	48	30
27/01/02	4:30p	32.9	31.3	31.0	31.6	30.9	48	18.9	12.9	25.7	SSE	0.0	756.6	25.0	50	30
27/01/02	5:00p	32.1	30.4	29.9	30.9	29.8	49	18.6	14.5	29.0	ESE	0.0	756.9	25.4	48	30
27/01/02	5:30p	30.9	29.2	28.6	29.8	28.7	53	18.7	12.9	29.0	ESE	0.0	757.2	24.7	46	30
27/01/02	6:00p	29.4	28.1	27.1	28.7	27.7	57	18.7	14.5	25.7	SE	0.0	757.5	24.1	46	30
27/01/02	6:30p	28.1	27.3	26.6	27.7	26.8	58	18.3	11.3	24.1	SE	0.0	757.7	23.5	45	30
27/01/02	7:00p	27.2	26.3	25.7	26.8	25.9	62	18.5	9.7	22.5	SE	0.0	757.9	23.6	46	30
27/01/02	7:30p	26.3	25.7	25.7	25.9	25.5	63	18.2	6.4	14.5	SE	0.0	758.2	24.3	47	30
27/01/02	8:00p	26.4	25.3	25.3	25.5	25.1	65	18.3	4.8	12.9	SE	0.0	758.5	24.6	48	30
27/01/02	8:30p	25.8	24.8	24.8	25.2	24.3	67	18.2	3.2	9.7	SE	0.0	758.5	24.7	48	30
27/01/02	9:00p	24.8	24.1	24.1	24.3	23.8	68	17.8	4.8	12.9	SSE	0.0	758.8	24.8	48	30
27/01/02	9:30p	24.9	23.7	23.2	23.8	23.6	69	17.7	8.0	16.1	SSE	0.0	758.8	24.9	49	30
27/01/02	10:00p	24.4	23.6	23.1	23.6	23.4	70	17.8	8.0	16.1	SSE	0.0	758.8	24.9	49	30
27/01/02	10:30p	24.4	23.3	23.3	23.5	23.2	70	17.6	4.8	12.9	SSE	0.0	758.7	24.9	49	30
27/01/02	11:00p	24.3	23.2	23.2	23.3	23.1	69	17.2	3.2	9.7	SSE	0.0	758.7	24.9	50	30
27/01/02	11:30p	23.3	23.0	23.0	23.1	22.8	70	17.2	1.6	8.0	SSE	0.0	758.5	24.9	50	30
27/01/02	12:00p	23.4	22.7	22.7	22.9	22.6	72	17.4	6.4	16.1	SSE	0.0	758.3	24.8	50	30

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
28/01/02	12:00a	23.4	22.7	22.7	22.9	22.6	72	17.4	6.4	16.1	SSE	0.0	758.3	24.8	50	30
28/01/02	12:30a	23.5	22.8	21.9	22.9	22.7	73	17.7	9.7	19.3	SSE	0.0	758.0	24.8	50	30
28/01/02	1:00a	23.6	22.8	22.3	22.9	22.7	74	17.9	8.0	19.3	S	0.0	757.8	24.8	51	30
28/01/02	1:30a	23.6	22.8	21.8	22.9	22.7	75	18.1	9.7	22.5	S	0.0	757.5	24.8	51	30
28/01/02	2:00a	23.7	23.0	21.7	23.1	22.9	77	18.8	11.3	22.5	SSE	0.0	757.3	24.8	52	30
28/01/02	2:30a	23.8	22.7	22.2	22.9	22.6	78	18.7	8.0	19.3	SSE	0.0	757.3	24.8	52	30
28/01/02	3:00a	23.8	22.7	22.1	22.8	22.6	79	18.8	8.0	19.3	SSE	0.0	757.0	24.8	52	30
28/01/02	3:30a	23.8	22.9	22.3	22.9	22.8	78	18.8	8.0	19.3	SSE	0.0	757.1	24.8	53	30
28/01/02	4:00a	23.8	22.7	22.2	22.9	22.5	78	18.7	8.0	17.7	SSE	0.0	757.2	24.8	53	30
28/01/02	4:30a	23.2	22.3	22.3	22.5	22.1	79	18.4	4.8	11.3	SSE	0.0	757.2	24.8	53	30
28/01/02	5:00a	23.3	21.9	21.9	22.1	21.8	80	18.3	6.4	12.9	SSE	0.0	757.2	24.8	54	30
28/01/02	5:30a	22.8	21.8	21.2	21.9	21.7	81	18.4	8.0	14.5	SSE	0.0	757.5	24.7	54	30
28/01/02	6:00a	22.8	21.8	20.8	22.2	21.7	81	18.4	9.7	17.7	SSE	0.0	757.5	24.7	54	30
28/01/02	6:30a	23.8	22.7	21.7	23.3	22.2	78	18.6	9.7	24.1	SSE	0.0	757.6	24.7	54	30
28/01/02	7:00a	25.0	24.1	22.2	24.7	23.3	73	18.9	14.5	27.4	SSE	0.0	757.8	24.7	55	30
28/01/02	7:30a	26.6	25.3	23.4	25.8	24.7	68	18.9	16.1	30.6	SSE	0.0	758.0	24.7	55	30
28/01/02	8:00a	27.2	26.2	24.4	26.7	25.8	65	19.1	17.7	33.8	SSE	0.0	758.0	22.9	48	30
28/01/02	8:30a	28.7	27.0	25.3	27.5	26.7	63	19.4	19.3	35.4	SSE	0.0	758.0	22.5	49	30
28/01/02	9:00a	29.7	28.2	26.9	28.9	27.5	61	19.9	17.7	30.6	SSE	0.0	758.0	23.4	53	30
28/01/02	9:30a	31.4	29.4	28.4	29.7	28.7	58	20.3	17.7	32.2	SSE	0.0	757.8	24.2	55	30
28/01/02	10:00a	32.9	30.6	30.1	31.1	29.9	54	20.3	16.1	30.6	SSE	0.0	757.8	24.5	51	30
28/01/02	10:30a	34.9	31.8	31.5	32.1	31.1	53	21.0	16.1	30.6	SSE	0.0	757.5	24.0	50	30
28/01/02	11:00a	35.6	32.6	32.5	32.9	32.1	50	20.8	16.1	30.6	SE	0.0	757.2	23.9	50	30
28/01/02	11:30a	36.0	33.5	33.5	34.1	32.9	47	20.7	14.5	29.0	SE	0.0	757.0	24.8	51	30
28/01/02	12:00p	38.2	34.2	34.2	34.4	33.9	47	21.3	14.5	30.6	SSE	0.0	756.7	25.4	51	30
28/01/02	12:30p	38.0	34.4	34.4	34.7	34.2	46	21.2	14.5	29.0	S	0.0	756.4	25.2	49	30
28/01/02	1:00p	38.1	35.2	35.2	35.4	34.7	43	20.7	16.1	32.2	SSE	0.0	756.1	24.9	49	30
28/01/02	1:30p	38.3	35.2	35.2	35.3	35.1	44	21.1	12.9	25.7	SSE	0.0	755.7	24.9	49	30
28/01/02	2:00p	37.5	35.1	35.1	35.3	34.7	41	19.8	11.3	25.7	S	0.0	755.2	24.8	49	30
28/01/02	2:30p	38.3	34.8	34.8	35.3	34.2	44	20.8	9.7	25.7	SE	0.0	755.0	25.4	49	30
28/01/02	3:00p	37.1	34.4	34.4	34.7	33.9	42	19.6	11.3	25.7	SSE	0.0	755.0	26.3	50	30
28/01/02	3:30p	36.4	34.1	34.1	34.6	33.6	44	20.1	12.9	25.7	SE	0.0	754.9	26.9	50	30
28/01/02	4:00p	36.4	33.6	33.6	33.9	33.4	44	19.7	12.9	25.7	SSE	0.0	754.8	27.5	51	30
28/01/02	4:30p	35.6	33.3	33.3	33.7	33.0	45	19.8	11.3	24.1	ESE	0.0	754.8	28.0	51	30
28/01/02	5:00p	35.3	33.2	33.2	33.3	33.0	44	19.3	11.3	22.5	E	0.0	754.8	28.4	51	30
28/01/02	5:30p	35.1	32.7	32.6	33.1	32.2	47	19.9	11.3	27.4	ESE	0.0	755.1	28.9	51	30
28/01/02	6:00p	34.4	31.7	31.5	32.2	31.2	50	20.1	12.9	20.9	ESE	0.0	755.5	29.3	51	30
28/01/02	6:30p	33.8	30.9	30.6	31.2	30.4	53	20.2	11.3	20.9	ESE	0.0	755.8	29.5	51	30
28/01/02	7:00p	32.4	29.7	29.6	30.4	28.9	58	20.6	8.0	19.3	SSE	0.0	756.1	29.6	51	30
28/01/02	7:30p	29.7	28.3	28.3	28.9	27.9	61	20.1	6.4	14.5	SSE	0.0	756.5	29.4	51	30
28/01/02	8:00p	29.4	27.6	27.6	27.9	27.3	63	19.9	6.4	12.9	SSE	0.0	756.9	29.2	51	30
28/01/02	8:30p	28.8	27.2	26.9	27.4	27.0	64	19.8	8.0	17.7	ESE	0.0	757.1	29.0	51	30
28/01/02	9:00p	28.2	26.7	26.7	27.0	26.3	67	20.1	4.8	16.1	ESE	0.0	757.4	28.8	51	30
28/01/02	9:30p	27.2	25.9	25.9	26.3	25.7	69	19.8	3.2	11.3	S	0.0	757.5	28.5	51	30
28/01/02	10:00p	26.6	25.6	25.6	25.7	25.4	69	19.4	4.8	12.9	SSE	0.0	757.5	28.3	51	30
28/01/02	10:30p	26.2	25.1	25.1	25.3	24.9	71	19.4	4.8	12.9	SSE	0.0	757.5	28.1	51	30
28/01/02	11:00p	25.7	24.7	24.7	24.9	24.6	72	19.3	3.2	9.7	SSE	0.0	757.4	27.8	52	30
28/01/02	11:30p	25.7	24.5	24.5	24.6	24.4	73	19.3	1.6	6.4	S	0.0	757.3	27.6	52	30
28/01/02	12:00p	25.8	24.3	24.3	24.4	24.2	74	19.3	3.2	9.7	ESE	0.0	757.0	27.4	52	30

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
29/01/02	12:00a	25.8	24.3	24.3	24.4	24.2	74	19.3	3.2	9.7	ESE	0.0	757.0	27.4	52	30
29/01/02	12:30a	25.0	24.0	24.0	24.2	23.8	76	19.5	4.8	17.7	SE	0.0	756.8	27.2	52	30
29/01/02	1:00a	25.0	23.7	23.7	23.9	23.6	77	19.4	6.4	17.7	SSE	0.0	756.6	27.1	52	30
29/01/02	1:30a	24.4	23.6	23.1	23.6	23.4	77	19.3	8.0	20.9	SSE	0.0	756.4	26.8	52	30
29/01/02	2:00a	24.4	23.6	22.7	23.6	23.5	77	19.3	9.7	20.9	SSE	0.0	756.1	26.7	53	30
29/01/02	2:30a	24.4	23.4	22.9	23.6	23.3	78	19.4	8.0	14.5	S	0.0	755.9	26.6	53	30
29/01/02	3:00a	24.4	23.3	22.7	23.4	23.2	79	19.4	8.0	20.9	S	0.0	755.9	26.4	54	30
29/01/02	3:30a	24.4	23.1	23.1	23.2	23.0	80	19.4	6.4	11.3	S	0.0	755.9	26.3	54	30
29/01/02	4:00a	23.9	22.9	22.9	23.0	22.8	80	19.3	4.8	11.3	S	0.0	756.0	26.2	54	30
29/01/02	4:30a	23.9	22.7	22.7	22.8	22.6	81	19.2	4.8	9.7	SSE	0.0	756.1	26.1	54	30
29/01/02	5:00a	23.9	22.5	22.5	22.6	22.5	82	19.3	6.4	12.9	SSE	0.0	756.2	25.9	54	30
29/01/02	5:30a	23.9	22.5	21.6	22.6	22.4	84	19.7	9.7	16.1	SSE	0.0	756.5	25.8	55	30
29/01/02	6:00a	23.9	22.6	22.0	22.9	22.4	84	19.7	8.0	12.9	SSE	0.0	756.8	25.7	55	30
29/01/02	6:30a	24.4	23.1	22.5	23.3	22.9	83	20.0	8.0	14.5	SSE	0.0	757.1	25.7	55	30
29/01/02	7:00a	26.1	24.2	23.3	24.9	23.4	80	20.5	9.7	16.1	SE	0.0	757.4	25.7	56	30
29/01/02	7:30a	27.3	25.3	24.1	26.3	24.9	76	20.8	12.9	20.9	SSE	0.0	757.5	25.8	56	30
29/01/02	8:00a	29.4	27.0	25.8	27.8	26.3	70	21.1	14.5	24.1	SSE	0.0	757.5	26.0	56	30
29/01/02	8:30a	30.8	28.3	27.2	28.7	27.8	66	21.4	16.1	27.4	SSE	0.0	757.4	25.8	52	30
29/01/02	9:00a	32.3	29.4	28.6	29.9	28.7	63	21.7	16.1	25.7	SSE	0.0	757.4	25.2	50	30
29/01/02	9:30a	33.9	30.6	30.0	30.9	29.9	60	21.9	16.1	30.6	SSE	0.0	757.2	25.0	50	30
29/01/02	10:00a	34.7	31.2	30.8	31.6	30.9	58	22.0	16.1	29.0	SSE	0.0	757.2	24.9	49	30
29/01/02	10:30a	35.6	31.8	31.4	32.1	31.4	57	22.2	19.3	33.8	SSE	0.0	757.2	24.9	49	30
29/01/02	11:00a	36.1	32.4	32.3	32.6	32.1	55	22.2	19.3	33.8	SSE	0.0	757.1	24.9	50	30
29/01/02	11:30a	36.9	32.7	32.7	33.1	32.4	55	22.5	16.1	29.0	SSE	0.0	756.8	24.9	50	30
29/01/02	12:00p	37.3	33.6	33.6	33.8	33.1	52	22.3	16.1	30.6	SSE	0.0	756.6	25.1	50	30
29/01/02	12:30p	37.8	33.8	33.8	34.3	33.5	50	21.9	17.7	30.6	SSE	0.0	756.3	25.3	49	30
29/01/02	1:00p	38.7	34.3	34.3	34.6	33.9	49	22.1	16.1	32.2	SSE	0.0	756.1	25.6	49	30
29/01/02	1:30p	38.9	34.3	34.3	34.4	34.1	50	22.4	17.7	35.4	SSE	0.0	755.8	25.6	49	30
29/01/02	2:00p	38.6	34.1	34.1	34.7	33.2	52	22.8	17.7	37.0	ESE	0.0	756.0	25.7	49	30
29/01/02	2:30p	37.3	33.2	33.2	33.4	33.0	52	22.0	11.3	29.0	NE	0.0	755.7	25.8	49	30
29/01/02	3:00p	36.7	32.9	32.9	33.5	32.6	54	22.4	17.7	32.2	SSE	0.0	755.8	25.8	49	30
29/01/02	3:30p	35.9	32.3	32.2	32.7	32.2	54	21.8	14.5	32.2	ESE	0.0	755.9	25.9	49	30
29/01/02	4:00p	35.9	32.1	31.9	32.5	31.5	54	21.6	12.9	32.2	ESE	0.0	755.7	25.9	48	30
29/01/02	4:30p	34.8	31.8	31.5	31.9	31.6	52	20.7	16.1	35.4	SE	0.0	755.8	25.7	48	30
29/01/02	5:00p	34.2	31.3	30.9	31.8	30.9	55	21.2	17.7	38.6	SE	0.0	756.1	25.7	48	30
29/01/02	5:30p	32.7	30.4	29.7	30.9	29.9	53	19.8	20.9	40.2	ESE	0.0	756.4	25.6	48	30
29/01/02	6:00p	31.2	29.5	28.5	29.9	29.1	56	19.8	19.3	35.4	ESE	0.0	756.8	25.4	48	30
29/01/02	6:30p	30.3	28.8	27.8	29.1	28.4	56	19.1	16.1	32.2	SE	0.0	757.1	26.1	49	30
29/01/02	7:00p	29.4	28.1	27.5	28.4	27.7	60	19.6	11.3	30.6	SE	0.0	757.4	26.6	50	30
29/01/02	7:30p	28.7	27.3	27.3	27.7	26.9	63	19.7	6.4	14.5	SE	0.0	757.7	26.7	50	30
29/01/02	8:00p	28.2	26.7	26.7	26.9	26.5	67	20.1	6.4	17.7	SE	0.0	758.0	26.8	50	30
29/01/02	8:30p	27.2	26.3	26.3	26.5	26.2	67	19.7	6.4	19.3	SE	0.0	758.3	26.9	51	30
29/01/02	9:00p	27.2	25.9	25.9	26.2	25.6	70	20.1	4.8	11.3	S	0.0	758.5	26.9	51	30
29/01/02	9:30p	26.9	25.5	25.5	25.7	25.3	72	20.1	4.8	12.9	SSE	0.0	758.7	26.8	52	30
29/01/02	10:00p	27.1	25.3	24.6	25.4	25.2	74	20.4	9.7	22.5	SE	0.0	758.7	26.8	52	30
29/01/02	10:30p	26.8	25.1	25.1	25.2	24.8	76	20.6	6.4	14.5	SSE	0.0	758.6	26.7	52	30
29/01/02	11:00p	26.1	24.4	22.9	24.8	24.1	79	20.5	12.9	24.1	SSE	0.0	758.3	26.7	52	30
29/01/02	11:30p	25.0	23.9	22.7	24.1	23.7	80	20.2	11.3	19.3	SSE	0.0	758.0	26.6	53	30
29/01/02	12:00p	25.0	23.8	23.3	23.9	23.7	80	20.2	8.0	22.5	SE	0.0	757.9	26.5	53	30

PO Box1653
Coorparoo.
Qld 4151

31 January 2002

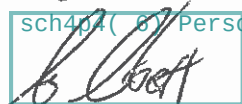
Cameron Smeal
Leiner Davis Gelatin
PO Box 409
Beaudesert
Qld 4285

Dear Cameron Smeal:

Subject: WQ \ Q DATA

Please find enclosed water quality and discharge summaries for 145008A, 145020A, 145024A and 145025A. Included with the tabular data are graphical representations of the data for ease of reference. It should be noted that discontinuities in the graphs usually indicate dry periods.

Best regards,

sch404 (8) Perso


Arran Corbett
Hydrographer
Dept. Natural Resources and Mines

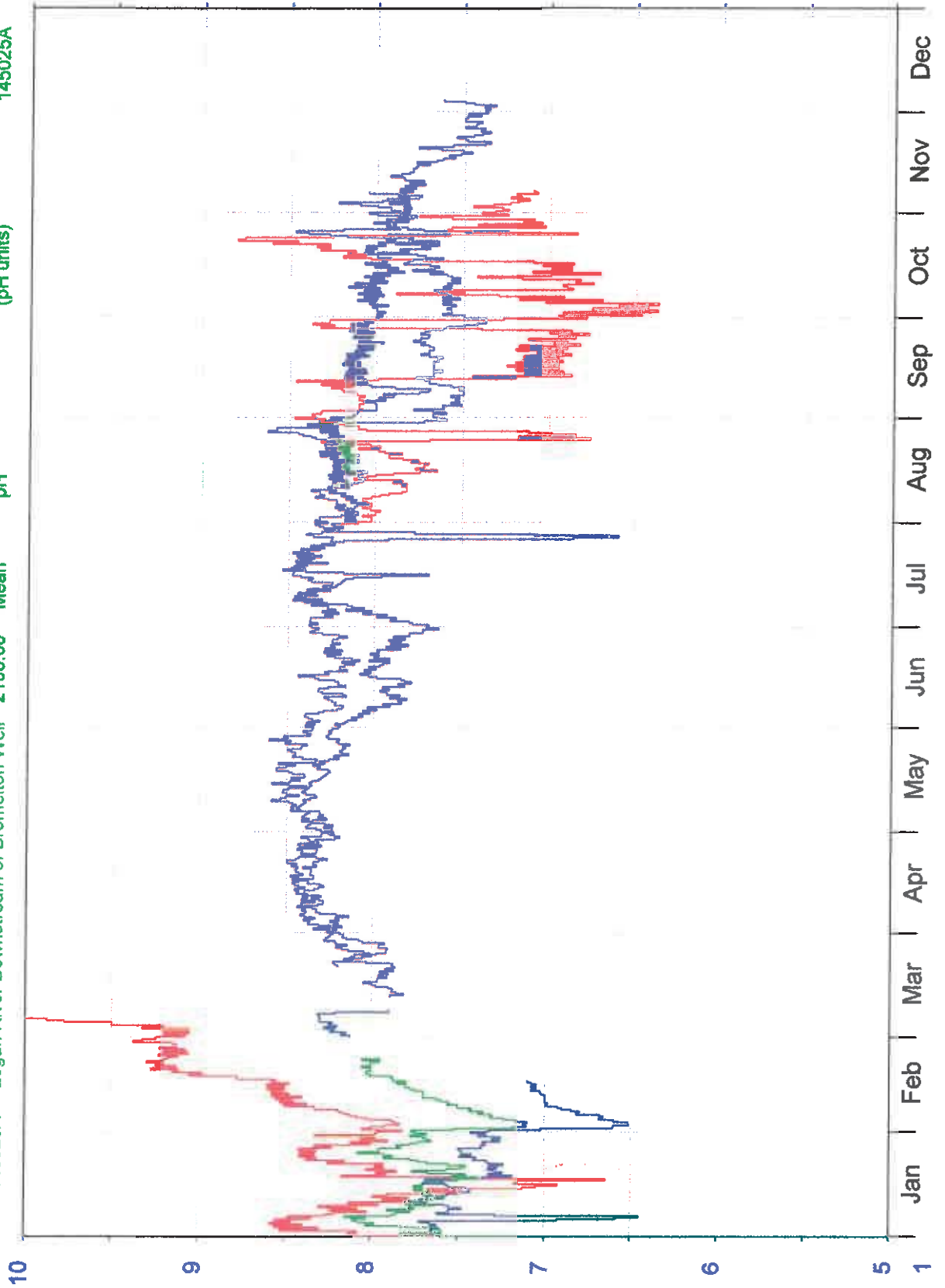
DNR Brisbane hydrographic section

HYPLOT V112 Output 31/01/2002

Period 12 Month Plot Start 00:00_01/01/2001
Interval 12 Hour Plot End 00:00_01/01/2002

2001

1	145008A	Logan River at Round Mountain	2100.00	Mean	pH	(pH units)	145008A
2	145024A	Logan River at Upstream Bromelton Weir	2100.00	Mean	pH	(pH units)	145024A
3	145025A	Logan River Downstream of Bromelton Weir	2100.00	Mean	pH	(pH units)	145025A



Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Table Type	2001 Level
1	7.638?	7.169?	8.150?	8.230?	8.316?	8.208?	7.739?	8.144?	8.129?	7.986?	7.835?	7.374?		1
2	7.646?	6.604?	8.196?	8.292?	8.385?	8.161?	7.856?	8.146?	8.107?	7.978?	7.831?	7.358?		2
3	7.627?	6.514?	8.244?	8.343?	8.358?	8.114?	7.933?	8.150?	8.000?	8.014?	7.877?	7.475?		3
4	7.641?	6.643?	8.225?	8.381?	8.394?	8.077?	7.999?	8.170?	8.000?	7.992?	7.886?			4
5	7.321?	6.674?	8.262?	8.366?	8.405?	8.044?	8.092?	8.114?	8.036?	8.063?	7.853?			5
6	6.517?	6.808?	8.300?	8.406?	8.378?	8.011?	8.098?	8.092?	7.968?	8.038?	7.860?			6
7	7.450?	6.873?	8.308?	8.399?	8.434?	8.011?	8.098?	8.092?	7.968?	8.038?	7.860?			7
8	7.551?	6.959?	8.053?	8.413?	8.426?	7.854?	8.409?	8.168?	7.931?	8.038?	7.839?			8
9	7.512?	6.991?		8.412?	8.399?	7.862?	8.434?	8.222?	7.793?	8.076?	7.776?			9
10	7.670?	7.000?		8.375?	8.385?	7.890?	8.349?	8.248?	8.100?	8.073?	7.794?			10
11	7.699?	7.000?		8.393?	8.333?	7.947?	8.390?	8.178?	8.121?	7.993?	7.891?			11
12	7.669?	7.023?		8.408?	8.401?	7.933?	8.244?	8.192?	8.125?	7.933?	7.891?			12
13	7.595?	7.063?		8.442?	8.392?	7.844?	8.207?	8.213?	8.131?	8.020?	7.844?			13
14	7.431?	7.063?		8.413?	8.366?	7.806?	8.180?	8.233?	8.112?	7.895?	7.782?			14
15	7.501?	7.088?		8.459?	8.364?	7.916?	8.044?	8.184?	8.109?	7.949?	7.743?			15
16	7.631?			8.447?	8.312?	8.058?	7.937?	8.203?	8.147?	8.023?	7.648?			16
17	7.630?			8.454?	8.286?	8.039?	8.469?	8.213?	8.139?	7.962?	7.577?			17
18	7.269?			8.419?	8.259?	8.011?	8.439?	8.206?	8.136?	7.962?	7.577?			18
19	7.282?			8.447?	8.296?	7.958?	8.333?	8.200?	8.106?	8.039?	7.575?			19
20	7.306?			8.454?	8.331?	7.971?	8.453?	8.274?	8.096?	8.047?	7.670?			20
21	7.293?			8.469?	8.300?	7.959?	8.404?	8.263?	8.062?	8.037?	7.370?			21
22	7.278?			8.471?	8.231?	7.998?	8.424?	8.228?	8.065?	7.976?	7.493?			22
23	7.371?			8.386?	8.188?	7.979?	8.421?	8.242?	8.034?	7.925?	7.500?			23
24	7.439?			8.141?	8.188?	7.891?	8.355?	8.262?	8.085?	7.900?	7.378?			24
25	7.447?			8.057?	8.424?	7.856?	8.244?	8.255?	8.071?	7.722?	7.400?			25
26	7.486?			8.093?	8.401?	7.884?	8.054?	8.228?	8.088?	7.494?	7.469?			26
27	7.363?			8.192?	8.375?	7.858?	6.724?	8.273?	8.100?	7.891?	7.420?			27
28	7.345?			8.177?	8.277?	7.801?	7.427?	8.275?	8.100?	7.925?	7.502?			28
29	7.278?			8.246?	8.267?	7.726?	8.264?	8.278?	8.049?	7.865?	7.450?			29
30	7.315?			8.262?	8.253?	7.670?	8.213?	8.277?	8.000?	7.843?	7.430?			30
31	7.379?			8.235?	8.224?		8.213?	8.232?		7.846?				31
Mean	7.436?	6.898?	8.195?	8.387?	8.311?	7.942?	8.149?	8.210?	8.056?	7.953?	7.660?	7.402?		
Median	7.447?	6.991?	8.202?	8.407?	8.316?	7.940?	8.219?	8.219?	8.092?	7.978?	7.707?	7.374?		
Max.Daily Mean	7.699?	7.169?	8.308?	8.471?	8.431?	8.208?	8.469?	8.219?	8.092?	7.978?	7.707?	7.374?		
Min.Daily Mean	6.517?	6.514?	8.053?	8.208?	8.159?	7.670?	6.724?	8.092?	8.147?	8.076?	7.891?	7.475?		
Inst.Max	8.000?	7.400?	8.400?	8.572?	8.477?	8.281?	8.686?	8.400?	8.300?	7.994?	7.370?	7.358?		
Inst.Min	6.300?	6.400?	7.760?	8.162?	8.126?	7.617?	6.493?	8.000?	7.600?	8.200?	8.000?	7.600?		
Missing Days	0	13	13	0	0	0	0	0	0	0	0	28		

Summaries ----- Notes -----
All recorded data is continuous and reliable
except where the following tags are used...
? ... Data not Quality Coded

Annual Mean	7.963?
Ann. Median	8.063?
Missing Days	54
Daily Mean	Maximum
Instant	8.471?
	6.514?
	Minimum
	6.300?

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Table Type	2001 Level
1	8.113?	7.934?	9.138?					8.025?	8.366?	6.711?	7.286?			1
2	8.300?	7.960?	9.125?					8.050?	8.321?	6.652?	7.366?			2
3	8.428?	7.847?	9.187?					8.000?	8.092?	6.593?	7.286?			3
4	8.489?	7.952?	9.350?					8.000?	8.100?	6.486?	7.159?			4
5	8.508?	8.097?	9.637?					8.050?	8.075?	6.861?	7.205?			5
6	8.409?	8.159?	10.100?					8.038?	8.100?	7.048?	7.140?			6
7	8.236?	8.257?	10.275?					8.075?	8.091?	7.596?				7
8	8.126?	8.413?	10.558?					8.000?	8.158?	7.580?				8
9	8.188?	8.450?	11.072?					7.887?	8.333?	6.885?				9
10	8.037?	8.500?	11.160?					7.825?	8.229?	6.837?				10
11	7.855?	8.487?	11.461?					7.839?	8.301?	6.837?				11
12	7.882?	8.525?						7.863?	7.596?	7.295?				12
13	7.790?	8.550?						7.988?	7.162?	6.852?				13
14	7.575?	8.525?						8.025?	7.035?	6.989?				14
15	7.087?	8.550?						7.825?	7.075?	6.931?				15
16	7.049?	8.662?						7.712?	7.100?	6.953?				16
17	6.900?	8.913?						7.725?	7.063?	7.419?				17
18	7.846?	9.062?						7.750?	7.051?	8.120?				18
19	7.937?	9.194?						7.802?	7.013?	8.120?				19
20	7.938?	9.188?						7.925?	7.000?	8.229?				20
21	7.950?	9.250?						7.900?	7.050?	8.312?				21
22	8.087?	9.188?						8.042?	7.000?	8.443?				22
23	8.263?	9.173?						8.003?	6.938?	8.636?				23
24	8.363?	9.128?						8.218?	6.988?	8.513?				24
25	8.369?	9.150?						7.230?	6.862?	7.215?				25
26	8.365?	9.125?						7.012?	6.938?	7.531?				26
27	8.276?	9.263?						7.054?	7.863?	7.302?				27
28	8.058?	9.287?						8.075?	8.313?	7.237?				28
29	7.977?							8.140?	8.275?	7.128?				29
30	8.148?							8.275?	7.030?	7.687?				30
31	7.966?						8.150?	8.388?	7.325?					31
Mean	8.017?	8.671?	10.097?					7.895?	7.580?	7.365?	7.241?			
Median	8.087?	8.550?	10.100?					8.000?	7.379?	7.277?	7.248?			
Max.Daily Mean	8.508?	9.287?	11.461?					8.388?	8.366?	8.636?	7.366?			
Min.Daily Mean	6.900?	7.847?	9.125?					7.012?	6.862?	6.486?	7.140?			
Inst.Max	8.800?	9.500?	12.000?					8.200?	8.600?	8.900?	7.600?			
Inst.Min	6.000?	7.600?	8.900?					6.500?	6.400?	6.000?	6.900?			
Missing Days	0	0	20	30	31	30	30	0	0	0	24	31		

Summaries ----- Notes -----
All recorded data is continuous and reliable except where the following tags are used...
? ... Data not Quality Coded

Annual Mean	8.014?
Ann. Median	8.025?
Missing Days	196
Daily Mean	Maximum
Instant	11.461?
	Minimum
	6.486?
	6.000?

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Day
1	7.713?	7.640?	[]	8.236?	8.240?	8.372?	8.355?	8.337?	7.675?	7.563?	7.900?	[]	1
2	7.594?	7.141?	[]	8.205?	8.259?	8.352?	8.376?	8.262?	7.639?	7.575?	7.963?	[]	2
3	7.737?	7.112?	[]	8.212?	8.316?	8.371?	8.306?	8.100?	7.700?	7.588?	7.913?	[]	3
4	8.000?	7.193?	[]	8.219?	8.310?	8.401?	8.249?	8.163?	7.566?	7.588?	7.913?	[]	4
5	8.088?	7.305?	[]	8.176?	8.304?	8.306?	8.267?	8.204?	7.550?	7.600?	7.758?	[]	5
6	8.087?	7.367?	[]	8.257?	8.311?	8.199?	8.272?	8.225?	7.538?	7.538?	7.962?	[]	6
7	7.862?	7.426?	[]	8.327?	8.470?	8.204?	8.327?	8.250?	7.538?	7.588?	[]	[]	7
8	7.834?	7.500?	[]	8.371?	8.463?	8.234?	8.358?	8.325?	7.500?	7.663?	[]	[]	8
9	7.763?	7.554?	[]	8.303?	8.481?	8.278?	8.413?	8.325?	7.500?	7.600?	[]	[]	9
10	7.713?	7.613?	[]	8.297?	8.563?	8.170?	8.313?	8.132?	7.613?	7.588?	[]	[]	10
11	7.713?	7.700?	[]	8.329?	8.470?	8.313?	8.324?	8.262?	7.700?	7.500?	[]	[]	11
12	7.600?	7.700?	[]	8.366?	8.514?	8.294?	8.291?	8.163?	7.750?	7.500?	[]	[]	12
13	7.675?	7.763?	7.857?	8.368?	8.508?	8.186?	8.247?	8.075?	7.675?	7.650?	[]	[]	13
14	7.725?	7.800?	7.877?	8.299?	8.440?	8.217?	8.377?	8.100?	7.650?	7.712?	[]	[]	14
15	7.725?	7.825?	7.896?	8.344?	8.434?	8.335?	8.395?	8.063?	7.675?	7.663?	[]	[]	15
16	7.687?	7.875?	7.990?	8.400?	8.454?	8.353?	8.475?	8.175?	7.675?	7.775?	[]	[]	16
17	7.538?	7.940?	8.009?	8.345?	8.402?	8.220?	8.443?	8.175?	7.663?	7.813?	[]	[]	17
18	7.450?	8.025?	7.941?	8.364?	8.479?	8.201?	8.461?	8.132?	7.638?	7.675?	[]	[]	18
19	7.560?	8.000?	7.935?	8.358?	8.562?	8.143?	8.404?	8.125?	7.725?	7.888?	[]	[]	19
20	7.662?	8.025?	7.917?	8.365?	8.481?	8.136?	8.409?	8.138?	7.700?	7.850?	[]	[]	20
21	7.462?	7.975?	7.899?	8.347?	8.445?	8.179?	8.365?	8.175?	7.675?	7.725?	[]	[]	21
22	7.613?	8.000?	7.885?	8.289?	8.370?	8.235?	8.370?	8.188?	7.725?	7.775?	[]	[]	22
23	7.750?	[]	8.073?	8.343?	8.462?	8.240?	8.370?	8.175?	7.759?	7.737?	[]	[]	23
24	7.900?	[]	8.082?	8.367?	8.467?	8.258?	8.331?	8.193?	7.728?	7.987?	[]	[]	24
25	8.000?	[]	7.989?	8.324?	8.460?	8.226?	8.274?	8.275?	7.725?	8.337?	[]	[]	25
26	7.950?	[]	7.920?	8.335?	8.403?	8.243?	8.254?	8.400?	7.713?	8.338?	[]	[]	26
27	7.837?	[]	7.940?	8.364?	8.496?	8.186?	8.304?	8.538?	7.613?	7.900?	[]	[]	27
28	7.750?	[]	7.947?	8.373?	8.551?	8.254?	8.356?	8.575?	7.462?	7.975?	[]	[]	28
29	7.683?	[]	8.066?	8.358?	8.444?	8.360?	8.212?	8.362?	7.375?	7.938?	[]	[]	29
30	7.737?	8.160?	8.160?	8.270?	8.399?	8.343?	8.314?	7.975?	7.438?	7.825?	[]	[]	30
31	7.716?	8.179?	8.179?		8.354?		8.312?	7.625?	8.025?		[]	[]	31

Mean	7.745?	7.658?	7.977?	8.318?	8.433?	8.260?	8.342?	8.206?	7.630?	7.762?	7.943?	[]
Median	7.725?	7.700?	7.941?	8.339?	8.460?	8.242?	8.355?	8.188?	7.669?	7.712?	7.938?	[]
Max.Daily Mean	8.088?	8.025?	8.179?	8.400?	8.563?	8.401?	8.475?	8.575?	7.759?	8.338?	8.163?	[]
Min.Daily Mean	7.450?	7.112?	7.857?	8.176?	8.240?	8.136?	8.212?	7.625?	7.375?	7.550?	7.758?	[]
Inst.Max	8.300?	8.100?	8.289?	8.499?	8.665?	8.517?	8.503?	8.700?	7.800?	8.500?	8.300?	[]
Inst.Min	7.300?	7.100?	7.792?	8.063?	8.088?	7.983?	8.178?	7.600?	7.300?	7.400?	7.600?	[]
Missing Days	0	6	12	0	0	0	0	0	0	0	24	31

Summaries

All recorded data is continuous and reliable
except where the following tags are used...
? ... Data not Quality Coded

Daily Mean	8.045?
Instant	8.161?
Maximum	8.700?
Minimum	7.112?

DNR Brisbane hydrographic section

HYPLOT V112 Output 31/01/2002 2001

Period 12 Month Plot Start 00:00_01/01/2001
Interval 12 Hour Plot End 00:00_01/01/2002

1	145020A	Logan River at Rathdowney	140.00	Mean	Discharge	(Cumecs)	145020A
2	145025A	Logan River Downstream of Bromelton Weir	140.00	Mean	Discharge	(Cumecs)	145025A
3	145008A	Logan River at Round Mountain	140.00	Mean	Discharge	(Cumecs)	145008A



Figures are for period ending 2400 hours.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Day
1	0.875	32.89 *	[]	3.233	2.525	0.941	0.540	0.719	0.514	0.449	0.402	[]	1
2	0.592	422.5 *	[]	3.012	2.135	0.874	0.548	0.611	0.521	0.444	0.381	[]	2
3	0.525	544.2 *	[]	2.564	1.857	0.796	0.547	0.523	2.749	0.432	0.369	[]	3
4	0.498	117.9 *	[]	2.349	1.727	0.868	0.542	0.542	1.391	0.406	0.343	[]	4
5	0.479	42.20 *	[]	2.226	1.718	1.020	0.550	0.847	0.718	0.403	0.384	[]	5
6	0.462	23.99	[]	2.073	1.913	0.970	0.547	0.575	0.564	0.428	0.407	[]	6
7	0.425	15.35	[]	1.842	2.469	0.950	0.529	0.525	0.541	0.468	[]	[]	7
8	0.479	12.42	[]	1.810	2.347	1.059	0.524	0.495	0.536	0.470	[]	[]	8
9	0.545	10.20	[]	1.965	1.963	1.079	0.604	0.471	0.533	0.443	[]	[]	9
10	0.540	8.375	[]	1.954	1.683	1.014	0.560	0.462	0.498	0.443	[]	[]	10
11	0.531	7.035	[]	1.794	1.405	0.548	0.548	0.462	0.485	0.475	[]	[]	11
12	0.512	6.185	[]	1.792	1.339	0.949	0.553	0.460	0.458	0.485	[]	[]	12
13	0.509	5.511	10.54	1.508	1.255	1.003	0.549	0.453	0.447	0.481	[]	[]	13
14	0.489	4.971	8.649	1.442	1.196	0.877	0.537	0.457	0.457	0.482	[]	[]	14
15	0.481	4.488	7.427	1.558	1.115	0.817	0.520	0.450	0.424	0.483	[]	[]	15
16	0.476	4.092	6.603	1.536	1.019	0.773	0.514	0.435	0.407	0.528	[]	[]	16
17	0.465	4.237	6.003	1.512	1.036	0.717	0.489	0.459	0.399	0.539	[]	[]	17
18	0.514	4.359	5.574	1.406	1.084	0.748	0.474	0.505	0.415	0.559	[]	[]	18
19	0.637	4.976	5.177	1.339	1.099	0.731	0.469	0.503	0.419	0.563	[]	[]	19
20	1.337	5.000	4.740	1.278	1.108	0.677	0.486	0.483	0.422	0.564	[]	[]	20
21	0.889	4.920	4.400	1.150	1.238	0.628	0.521	0.475	0.453	0.534	[]	[]	21
22	0.970	4.452	5.796	1.667	2.272	0.628	0.507	0.451	0.452	0.507	[]	[]	22
23	0.653	[]	5.743	3.049	4.153	0.610	0.506	0.441	0.465	0.492	[]	[]	23
24	0.572	[]	4.403	2.983	3.234	0.572	0.510	0.439	0.468	0.459	[]	[]	24
25	0.559	[]	3.931	2.438	2.657	0.577	0.516	0.461	0.490	0.446	[]	[]	25
26	0.556	[]	3.581	1.953	2.081	0.576	0.534	0.462	0.484	0.404	[]	[]	26
27	0.529	[]	3.305	2.800	1.715	0.561	0.550*	0.461	0.484	0.390	[]	[]	27
28	0.537	[]	3.177	9.653	1.500	0.564	3.278*	0.479	0.482	0.398	[]	[]	28
29	0.573	[]	2.856	5.648	1.329	0.559	2.475	0.499	0.480	0.434	[]	[]	29
30	0.615	[]	2.670	3.352	1.181	0.560	1.369	0.512	0.470	0.446	[]	[]	30
31	0.631	[]	2.782	[]	1.046	[]	0.940	0.513	0.423	[]	[]	[]	31
Mean	0.595	58.65 *	5.124	2.430	1.758	0.790	0.721*	0.504	0.588	0.467	0.381	[]	
Median	0.537	6.610*	4.740	1.953	1.683	0.784	0.540*	0.475	0.481	0.459	0.383	[]	
Max.Daily Mean	1.337	544.2 *	10.54	9.653	4.153	1.079	3.278*	0.847	2.749	0.564	0.407	[]	
Min.Daily Mean	0.425	4.092*	2.670	1.150	1.019	0.559	0.469*	0.435	0.399	0.390	0.343	[]	
Inst.Max	1.642	712.0 *	11.88	15.72	4.650	1.137	4.559*	0.956	3.655	0.586	0.432	[]	
Inst.Min	0.320	0.639*	2.638	1.099	0.915	0.522	0.412*	0.383	0.379	0.364	0.316	[]	
Missing Days	0	6	12	0	0	0	0	0	0	0	24	31	

Summaries ----- Notes -----
All recorded data is continuous and reliable except where the following tags are used...
* ... Estimated Data

Annual Mean 5.581*
Ann. Median 0.577*
Missing Days 73

Daily Mean Maximum Minimum
Instant 544.2 * 0.343*
712.0 * 0.316*

Figures are for period ending 2400 hours.

Station 145008A Logan River at Round Mountain
VarFrom 100.00 Stream Water Level in Metres
VarTo 140.00 Stream Discharge in Cumecs

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	2001
													Table Type	Rate
1	0.905	32.51	1.964	2.489*	1.992	0.930	0.656	0.823	0.464	0.409	0.273	1.464		1
2	0.711	367.7	1.936	2.408*	1.770	0.894	0.738	0.730	2.008	0.326	0.431	1.090		2
3	0.446	445.5	1.926	2.115	1.622	0.810	0.605	0.629	2.618	0.323	0.263	0.844		3
4	0.294	114.6	1.794	2.015	1.524	0.893	0.668	0.629	1.390	0.308	0.227			4
5	0.165	39.37	1.698	1.931	1.569	0.989	0.574	0.913	0.747	0.328	0.316			5
6	0.136	20.94	1.696	1.788	1.621	0.950	0.573	0.683	0.614	0.311	0.335			6
7	0.475	13.88	2.140	1.634	2.178	0.973	0.644	0.634	0.460	0.480	0.503			7
8	0.791	11.02	10.38 *	1.678	1.890	1.034	0.731	0.538	0.389	0.658	0.514			8
9	0.751	8.647	128.2 *	1.847	1.685	1.027	0.751	0.518	0.445	0.588	0.593			9
10	0.745	6.931	32.76 *	1.668	1.531	1.003	0.643	0.405	0.468	0.605	1.005			10
11	0.467	5.843	14.78 *	1.669	1.351	0.952	0.607	0.422	0.521	0.499	1.630			11
12	0.391	5.048	9.510 *	1.660	1.246	0.942	0.545	0.492	0.581	0.546	2.823			12
13	0.369	4.443	7.686 *	1.412	1.163	0.932	0.617	0.564	0.675	0.400	1.663			13
14	0.493	3.965	6.591 *	1.434	1.102	0.881	0.467	0.538	0.489	0.510	1.020			14
15	0.532	3.587	5.926 *	1.475	1.065	0.938	0.504	0.583	0.519	0.748	0.698			15
16	0.513	3.248	5.112 *	1.450	0.953	0.785	0.556	0.571	0.605	0.775	0.528			16
17	0.721	3.615	4.645 *	1.411	0.982	0.766	0.541	0.697	0.571	0.568	0.505			17
18	1.951	3.620	4.508 *	1.352	1.077	0.772	0.509	0.571	0.598	0.625	0.475			18
19	1.838	4.372	4.248 *	1.286	1.107	0.636	0.443	0.493	0.510	0.657	0.642			19
20	1.214	4.294	3.988 *	1.210	1.092	0.677	0.522	0.584	0.564	0.747	1.411			20
21	0.969	4.081	3.676 *	1.058	1.264	0.605	0.594	0.534	0.821	0.513	1.050			21
22	0.965	3.535	5.459	1.610	2.290	0.668	0.610	0.478	0.635	0.356	0.730			22
23	0.588	3.168	4.755	2.438	3.281	0.603	0.605	0.457	0.593	0.231	0.587			23
24	0.300	2.772	3.645	2.367	2.481	0.581	0.599	0.450	0.670	0.170	0.451			24
25	0.237	2.594 *	3.152	1.911	2.140	0.622	0.711	0.429	0.687	0.097	1.973			25
26	0.145	2.394 *	2.852	1.644	1.778	0.650	0.821	0.542	0.585	0.150	2.301			26
27	0.471	2.241 *	2.722	2.472	1.567	0.540	1.207	0.829	0.521	0.434	2.475			27
28	0.657	2.104 *	2.724	9.101	1.404	0.513	3.210	1.006	0.582	0.589	13.88			28
29	1.095		2.531	3.930	1.258	0.551	1.961	0.873	0.515	0.497	4.363			29
30	0.800		2.432	2.413	1.121	0.549	1.306	0.655	0.425	0.455	2.211			30
31	0.849		2.492		0.983		0.985	0.608	0.358					31

Mean
Median
Max.Daily Mean
Min.Daily Mean
Inst.Max
Inst.Min
Missing Days

Summaries

Annual Mean 5.040*
Ann. Median 0.844*
Missing Days 28

Daily Mean 445.5 *
Instant 575.2 *
Maximum 575.2 *
Minimum 0.097*
0.057*

Notes

All recorded data is continuous and reliable except where the following tags are used.
* ... Estimated Data

Figures are for period ending 2400 hours.

Station 145020A Logan River at Rathdowney
VarFrom 100.00 Stream Water Level in Metres
VarTo 140.00 Stream Discharge in Cumecs

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Day
1	0.244	33.62	0.462	0.495	0.465	0.315	0.314	0.319	0.417	0.505	0.654	0.771	1
2	0.167	162.4	0.452	0.482	0.406	0.306	0.305	0.266	0.877	0.481	0.529	0.574	2
3	0.087	180.4	0.405	0.436	0.390	0.366	0.381	0.394	0.811	0.508	0.501	0.442	3
4	0.073	35.38	0.395	0.413	0.390	0.430	0.325	0.812	0.406	0.524	0.471	[]	4
5	0.047	15.89	0.385	0.408	0.366	0.427	0.347	0.429	0.236	0.596	0.567	[]	5
6	0.544	8.134	0.376	0.400	0.440	0.416	0.402	0.369	0.172	0.760	0.685	[]	6
7	0.755	4.964	0.397	0.384	0.466	0.422	0.410	0.359	0.168	0.789	0.718	[]	7
8	0.762	3.560	2.034	0.376	0.496	0.439	0.391	0.337	0.213	0.786	0.714	[]	8
9	0.794	2.639	41.16	0.365	0.410	0.442	0.376	0.337	0.275	0.806	0.749	[]	9
10	0.607	1.977	11.05	0.402	0.378	0.436	0.376	0.359	0.318	0.814	0.727	[]	10
11	0.575	1.644	5.960	0.372	0.340	0.420	0.381	0.477	0.410	0.702	0.630	[]	11
12	0.606	1.419	4.851	0.354	0.303	0.430	0.379	0.505	0.419	0.695	0.434	[]	12
13	0.850	1.208	3.480	0.345	0.286	0.414	0.340	0.507	0.474	0.684	0.268	[]	13
14	0.831	1.034	2.451	0.294	0.269	0.404	0.387	0.507	0.474	0.684	0.268	[]	14
15	0.852	0.881	1.928	0.316	0.258	0.363	0.405	0.526	0.521	0.608	0.186	[]	15
16	0.915	0.757	1.602	0.376	0.287	0.363	0.434	0.613	0.540	0.597	0.169	[]	16
17	1.305	0.754	1.404	0.307	0.366	0.375	0.443	0.510	0.540	0.507	0.091	[]	17
18	1.194	0.864	1.223	0.287	0.382	0.374	0.390	0.520	0.537	0.439	0.128	[]	18
19	0.990	1.084	1.039	0.283	0.395	0.376	0.423	0.509	0.617	0.569	0.772	[]	19
20	0.430	1.194	0.892	0.279	0.417	0.351	0.479	0.503	0.691	0.384	0.609	[]	20
21	0.310	1.157	0.881	0.285	0.436	0.367	0.453	0.481	0.711	0.252	0.266	[]	21
22	0.277	1.082	1.287	0.363	1.221	0.341	0.448	0.464	0.670	0.219	0.204	[]	22
23	0.265	0.920	1.038	0.715	1.464	0.337	0.457	0.464	0.624	0.194	0.118	[]	23
24	0.273	0.839	0.796	0.800	1.067	0.334	0.474	0.476	0.642	0.184	0.248	[]	24
25	0.311	0.769	0.679	0.571	0.829	0.339	0.519	0.494	0.621	0.200	0.454	[]	25
26	0.866	0.628	0.622	0.471	0.670	0.334	0.526	0.558	0.647	0.285	0.955	[]	26
27	1.076	0.530	0.643	0.473	0.556	0.337	1.607	0.546	0.639	0.450	4.550	[]	27
28	1.410	0.480	0.609	1.160	0.479	0.332	1.627	0.563	0.646	0.280	6.025	[]	28
29	1.202		0.546	0.724	0.421	0.330	0.807	0.540	0.590	0.374	1.876	[]	29
30	1.141		0.513	0.501	0.370	0.335	0.551	0.471	0.520	0.476	1.137	[]	30
31	1.056		0.504		0.336		0.414	0.398		0.419		[]	31

Mean 0.671 16.65
Median 0.755 1.175
Max.Daily Mean 1.410 180.4
Min.Daily Mean 0.047 0.480
Inst.Max 4.081 276.2
Inst.Min 0.030 0.459
Missing Days 0 0

Summaries

----- Notes -----
All recorded data is continuous and reliable
except where the following tags are used...

Annual Mean 2.097
Ann. Median 0.476
Missing Days 28

Daily Mean Maximum
Instant 180.4 0.047
276.2 0.030

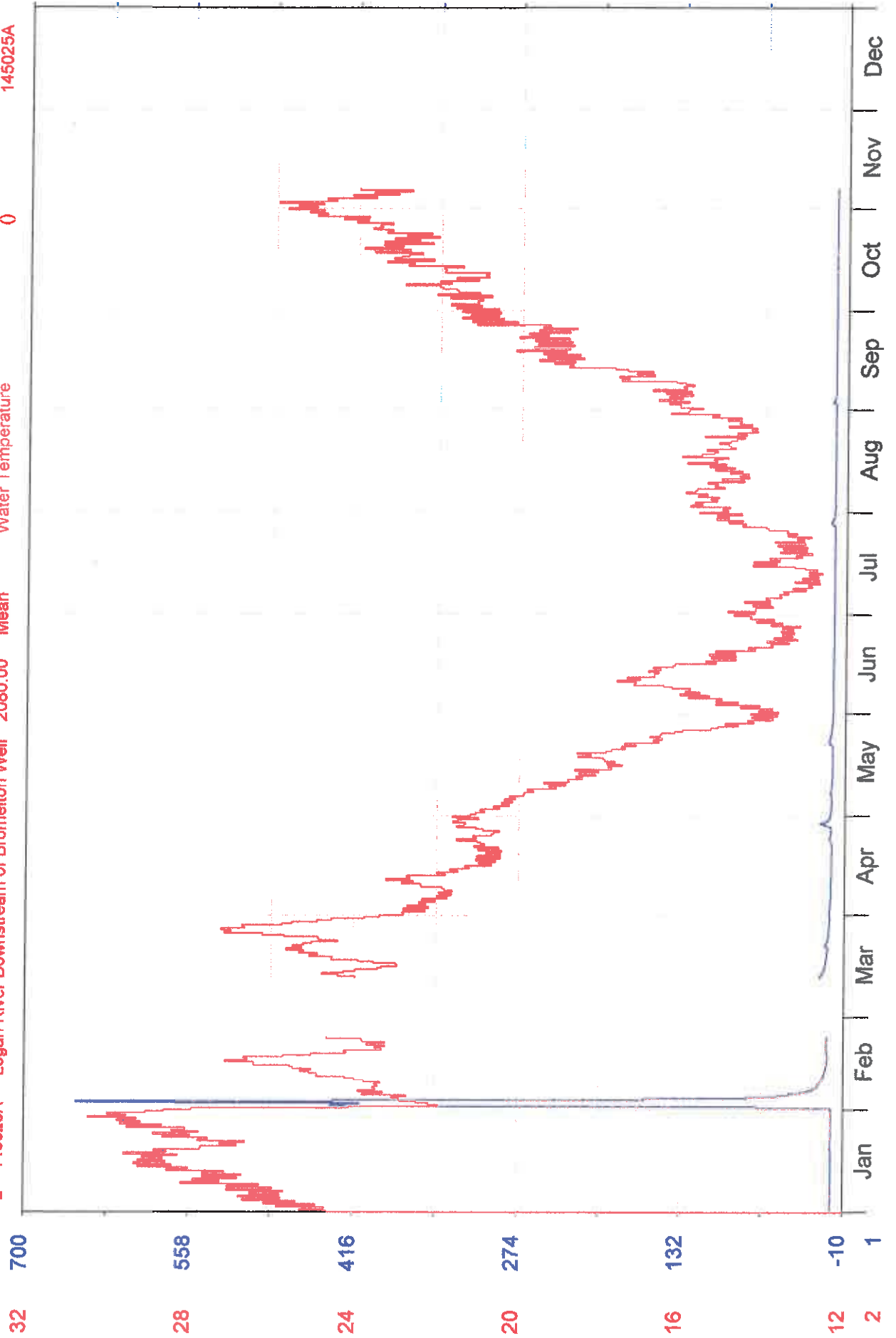
DNR Brisbane hydrographic section

HYPLOT V112 Output 31/01/2002

2001

Period 12 Month Plot Start 00:00_01/01/2001
Interval 12 Hour Plot End 00:00_01/01/2002

1	145025A	Logan River Downstream of Bromelton Weir	140.00	Mean	Discharge	(Cumecs)	145025A
2	145025A	Logan River Downstream of Bromelton Weir	2080.00	Mean	Water Temperature	0	145025A



Figures are for period ending 2400 hours.

Station 145025A Logan River Downstream of Bromelton Weir
 VarFrom 100.00 Stream Water Level in Metres
 VarTo 140.00 Stream Discharge in Cumecs

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Table Type	2001 Rate
1	0.875	32.89 *	[]	3.233	2.525	0.941	0.540	0.719	0.514	0.449	0.402	[]	[]	1
2	0.592	422.5 *	[]	3.012	2.435	0.874	0.548	0.611	0.521	0.444	0.381	[]	[]	2
3	0.525	544.2 *	[]	2.564	1.857	0.796	0.547	0.523	2.749	0.432	0.369	[]	[]	3
4	0.498	117.9 *	[]	2.349	1.727	0.868	0.542	0.542	1.391	0.406	0.343	[]	[]	4
5	0.479	42.20 *	[]	2.226	1.718	1.020	0.550	0.847	0.718	0.403	0.384	[]	[]	5
6	0.462	23.99 *	[]	2.073	1.913	0.970	0.547	0.575	0.564	0.428	0.407	[]	[]	6
7	0.425	15.35	[]	1.842	2.469	0.950	0.529	0.525	0.541	0.468	[]	[]	[]	7
8	0.479	12.42	[]	1.810	2.347	1.059	0.524	0.495	0.536	0.470	[]	[]	[]	8
9	0.545	10.20	[]	1.965	1.969	1.079	0.604	0.471	0.533	0.443	[]	[]	[]	9
10	0.540	8.375	[]	1.954	1.683	1.074	0.560	0.462	0.498	0.443	[]	[]	[]	10
11	0.531	7.035	[]	1.794	1.486	1.005	0.548	0.462	0.485	0.475	[]	[]	[]	11
12	0.512	6.185	[]	1.792	1.339	0.949	0.553	0.460	0.458	0.485	[]	[]	[]	12
13	0.509	5.511	10.54	1.508	1.255	1.003	0.549	0.453	0.447	0.481	[]	[]	[]	13
14	0.489	4.971	8.649	1.442	1.196	0.877	0.537	0.457	0.457	0.482	[]	[]	[]	14
15	0.481	4.488	7.427	1.558	1.115	0.817	0.520	0.450	0.424	0.483	[]	[]	[]	15
16	0.476	4.092	6.603	1.536	1.039	0.773	0.514	0.435	0.407	0.528	[]	[]	[]	16
17	0.465	4.237	6.003	1.512	1.036	0.717	0.489	0.459	0.399	0.539	[]	[]	[]	17
18	0.514	4.359	5.574	1.406	1.084	0.748	0.474	0.505	0.415	0.559	[]	[]	[]	18
19	0.637	4.976	5.177	1.339	1.099	0.731	0.469	0.503	0.419	0.563	[]	[]	[]	19
20	1.337	5.000	4.740	1.278	1.108	0.677	0.486	0.483	0.422	0.564	[]	[]	[]	20
21	0.889	4.920	4.400	1.150	1.238	0.628	0.521	0.475	0.453	0.534	[]	[]	[]	21
22	0.970	4.452	5.796	1.667	2.272	0.628	0.507	0.451	0.452	0.507	[]	[]	[]	22
23	0.653	[]	5.743	3.049	4.153	0.610	0.506	0.441	0.465	0.492	[]	[]	[]	23
24	0.572	[]	4.403	2.983	3.234	0.572	0.510	0.439	0.468	0.459	[]	[]	[]	24
25	0.559	[]	3.931	2.438	2.657	0.577	0.516	0.461	0.490	0.446	[]	[]	[]	25
26	0.556	[]	3.581	1.953	2.081	0.576	0.534	0.462	0.488	0.404	[]	[]	[]	26
27	0.529	[]	3.305	2.800	1.715	0.561	0.550*	0.461	0.484	0.390	[]	[]	[]	27
28	0.537	[]	3.177	9.653	1.500	0.564	3.278*	0.479	0.482	0.398	[]	[]	[]	28
29	0.573	[]	2.856	5.648	1.329	0.559	2.475	0.499	0.480	0.434	[]	[]	[]	29
30	0.615	[]	2.670	3.352	1.181	0.560	1.369	0.512	0.470	0.446	[]	[]	[]	30
31	0.631	[]	2.782	[]	1.046	[]	0.940	0.513	0.423	0.423	[]	[]	[]	31
Mean	0.595	58.65 *	5.124	2.430	1.758	0.790	0.721*	0.504	0.588	0.467	0.381	[]	[]	
Median	0.537	6.610*	4.740	1.953	1.683	0.784	0.540*	0.475	0.481	0.459	0.383	[]	[]	
Max.Daily Mean	1.337	544.2 *	10.54	9.653	4.153	1.079	3.278*	0.847	2.749	0.564	0.407	[]	[]	
Min.Daily Mean	0.425	4.092*	2.670	1.150	1.019	0.559	0.469*	0.435	0.399	0.390	0.343	[]	[]	
Inst.Max	1.642	712.0 *	11.88	15.72	4.650	1.137	4.559*	0.956	3.655	0.586	0.432	[]	[]	
Inst.Min	0.320	0.639*	2.638	1.099	0.915	0.522	0.412*	0.383	0.379	0.364	0.316	[]	[]	
Missing Days	0	6	12	0	0	0	0	0	0	0	24	31		

Summaries ----- Notes -----
 All recorded data is continuous and reliable
 except where the following tags are used...
 * ... Estimated Data

Annual Mean 5.581*
 Ann. Median 0.577*
 Missing Days 73

Daily Mean Maximum Minimum
 Instant 544.2 * 0.343*
 712.0 * 0.316*

Figures are for period ending 2400 hours.

VarTo 2080.00 Water Temperature in Degrees celcius

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Table Type	2001 Level
1	24.950?	26.017?	[]	22.813?	21.137?	13.912?	14.600?	15.012?	15.850?	21.125?	25.275?	[]	[]	1
2	25.268?	22.044?	[]	22.537?	20.900?	14.208?	14.250?	15.388?	16.262?	21.400?	25.438?	[]	[]	2
3	25.525?	22.662?	[]	22.450?	20.550?	14.663?	14.075?	15.662?	16.284?	21.113?	24.688?	[]	[]	3
4	26.025?	22.970?	[]	22.350?	20.338?	14.928?	14.212?	15.294?	16.233?	21.400?	23.887?	[]	[]	4
5	26.263?	23.234?	[]	22.200?	20.263?	15.462?	13.950?	15.421?	16.148?	21.438?	23.354?	[]	[]	5
6	26.138?	23.579?	[]	21.875?	20.163?	15.725?	13.850?	15.712?	16.325?	21.338?	23.363?	[]	[]	6
7	26.362?	23.489?	[]	21.800?	19.882?	15.775?	13.513?	15.725?	16.012?	21.812?	[]	[]	[]	7
8	26.502?	23.438?	[]	21.725?	19.722?	16.050?	13.188?	15.150?	15.900?	22.462?	[]	[]	[]	8
9	27.225?	23.542?	[]	22.125?	19.188?	16.837?	12.925?	15.325?	16.900?	21.913?	[]	[]	[]	9
10	27.550?	24.088?	[]	22.625?	19.137?	17.387?	12.987?	15.388?	17.500?	21.375?	[]	[]	[]	10
11	27.225?	24.888?	[]	22.900?	18.813?	17.212?	12.912?	14.538?	16.978?	20.888?	[]	[]	[]	11
12	27.175?	25.187?	[]	22.688?	18.550?	16.700?	12.838?	14.675?	17.112?	21.388?	[]	[]	[]	12
13	27.825?	25.250?	24.172?	21.900?	18.337?	16.725?	12.787?	14.938?	18.300?	21.925?	[]	[]	[]	13
14	28.612?	25.987?	24.512?	21.587?	18.350?	16.637?	12.900?	15.088?	19.000?	22.138?	[]	[]	[]	14
15	28.863?	26.775?	23.700?	21.275?	17.788?	16.225?	13.813?	15.475?	19.162?	23.000?	[]	[]	[]	15
16	28.887?	26.625?	23.138?	20.825?	17.683?	15.325?	14.025?	15.262?	18.950?	22.675?	[]	[]	[]	16
17	28.875?	25.370?	23.250?	20.813?	17.782?	15.025?	13.800?	15.513?	19.050?	22.888?	[]	[]	[]	17
18	28.913?	24.200?	24.225?	20.738?	18.262?	15.046?	13.200?	15.448?	19.550?	23.050?	[]	[]	[]	18
19	28.680?	23.394?	24.800?	20.625?	18.425?	14.975?	13.275?	15.338?	19.287?	23.325?	[]	[]	[]	19
20	27.704?	23.450?	25.100?	20.713?	17.813?	14.338?	13.304?	14.837?	19.188?	23.175?	[]	[]	[]	20
21	27.025?	23.500?	25.438?	20.800?	17.447?	13.850?	13.363?	15.063?	19.250?	22.813?	[]	[]	[]	21
22	27.193?	24.225?	25.377?	20.899?	17.279?	13.700?	13.425?	14.825?	19.475?	22.850?	[]	[]	[]	22
23	28.075?	[]	25.125?	21.277?	16.654?	13.513?	13.162?	15.038?	19.612?	22.462?	[]	[]	[]	23
24	28.400?	[]	24.625?	21.087?	16.650?	13.475?	13.188?	14.614?	19.225?	22.787?	[]	[]	[]	24
25	28.075?	[]	25.287?	20.650?	16.537?	13.463?	13.375?	14.300?	19.087?	23.437?	[]	[]	[]	25
26	28.787?	[]	26.688?	20.675?	16.100?	13.463?	13.712?	14.600?	20.225?	23.475?	[]	[]	[]	26
27	29.163?	[]	27.113?	21.294?	15.238?	13.513?	14.289?	14.525?	20.687?	23.638?	[]	[]	[]	27
28	29.463?	[]	26.700?	21.330?	14.813?	13.912?	14.714?	14.800?	20.987?	24.100?	[]	[]	[]	28
29	29.862?	[]	25.625?	21.560?	14.350?	14.088?	14.903?	14.987?	20.937?	24.400?	[]	[]	[]	29
30	29.750?	[]	24.725?	21.311?	14.062?	14.563?	15.067?	15.762?	21.025?	25.012?	[]	[]	[]	30
31	28.825?	[]	23.563?	[]	14.025?	15.125?	15.913?	[]	25.313?	[]	[]	[]	[]	31

Mean
Median
Max.Daily Mean
Min.Daily Mean
Inst.Max
Inst.Min
Missing Days

27.716?	24.269?	24.903?	21.581?	17.942?	15.023?	13.694?	15.131?	18.350?	22.584?	24.334?	[]
27.825?	23.833?	24.800?	21.445?	18.262?	14.951?	13.513?	15.088?	19.025?	22.675?	24.287?	[]
29.862?	26.775?	27.113?	22.900?	21.137?	17.387?	15.125?	15.913?	21.025?	25.313?	25.438?	[]
24.950?	22.044?	23.138?	20.625?	14.025?	13.463?	12.787?	14.300?	15.850?	20.888?	23.354?	[]
31.000?	28.200?	27.400?	23.500?	21.400?	17.800?	16.100?	16.800?	22.000?	25.900?	26.300?	[]
24.300?	21.400?	22.600?	20.100?	13.400?	12.900?	12.400?	13.900?	15.300?	20.100?	22.100?	[]
0	6	12	0	0	0	0	0	0	0	24	31

Summaries

----- Notes -----
All recorded data is continuous and reliable
except where the following tags are used ...
? ... Data not Quality Coded

Annual Mean
Ann. Median
Missing Days

19.900?	20.444?	73
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Daily Mean
Instant

Maximum	Minimum
29.862?	12.787?
31.000?	12.400?

DNR Brisbane hydrographic section

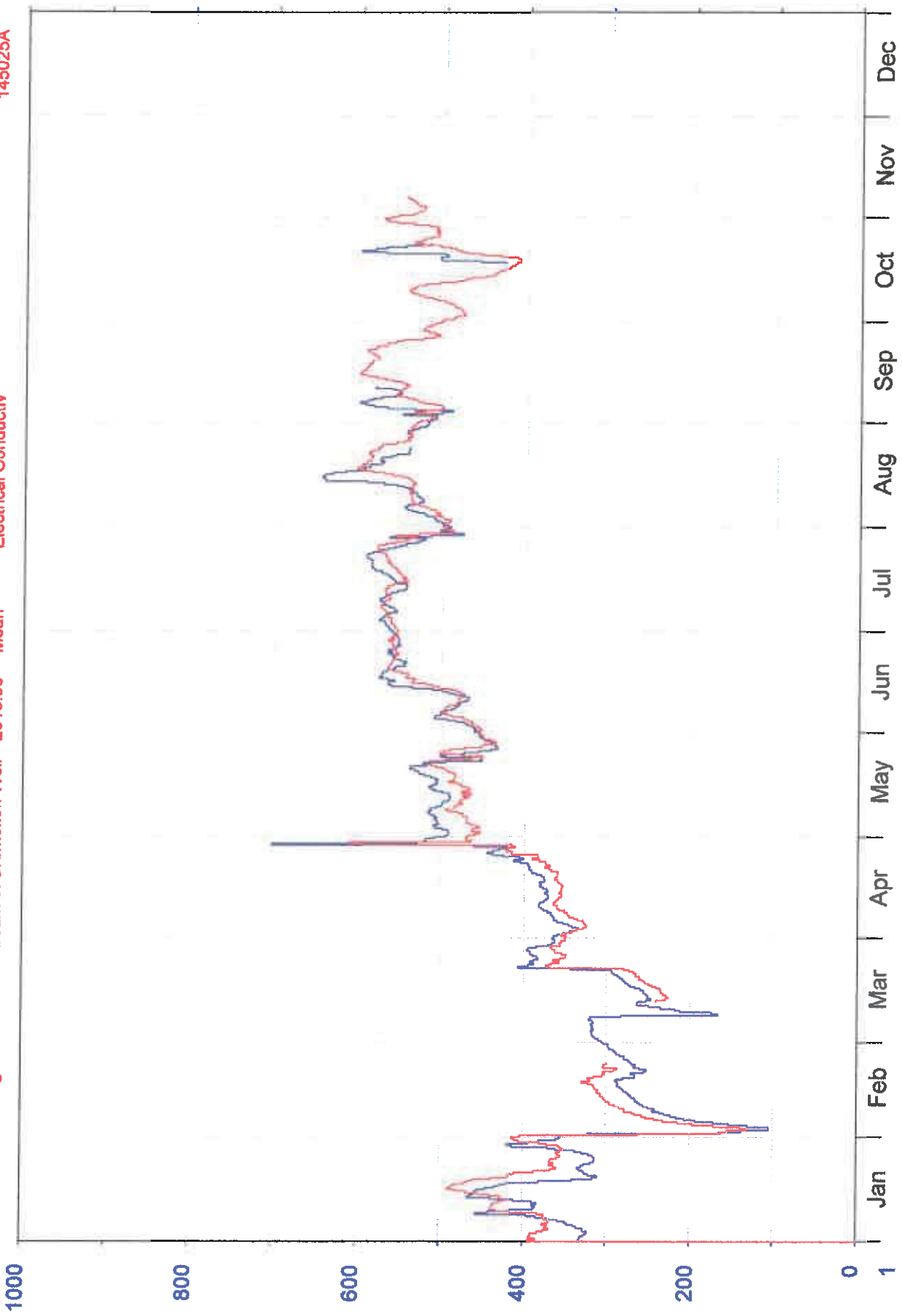
HYPLOT V112 Output 31/01/2002

Period 12 Month Plot Start 00:00_01/01/2001
Interval 12 Hour Plot End 00:00_01/01/2002

1 145024A Logan River at Upstream Bromelton Weir 2010.00 Mean
2 145025A Logan River Downstream of Bromelton Weir 2010.00 Mean

Electrical Conductivity
Electrical Conductivity

145024A
145025A



Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Table Type	2001 Level
1	389.250?	332.807?	[]	352.881?	463.754?	454.286?	554.531?	499.375?	522.500?	496.000?	547.250?	[]	[]	1
2	391.453?	159.260?	[]	346.406?	458.277?	456.313?	557.684?	491.875?	513.875?	481.750?	530.250?	[]	[]	2
3	386.250?	135.995?	[]	333.557?	458.053?	463.838?	561.332?	500.000?	523.016?	478.625?	524.750?	[]	[]	3
4	371.875?	184.260?	[]	325.957?	461.828?	469.775?	560.370?	506.000?	513.781?	481.000?	532.125?	[]	[]	4
5	371.750?	222.964?	[]	329.355?	469.479?	481.387?	564.754?	509.219?	501.979?	488.875?	537.104?	[]	[]	5
6	372.625?	247.266?	[]	338.506?	469.129?	496.412?	566.031?	518.250?	518.125?	497.625?	543.875?	[]	[]	6
7	371.500?	261.089?	[]	347.406?	474.538?	497.563?	571.309?	531.125?	533.750?	512.750?	[]	[]	[]	7
8	374.896?	273.375?	[]	350.432?	486.459?	493.709?	572.582?	537.375?	549.250?	538.500?	[]	[]	[]	8
9	398.875?	281.104?	[]	359.582?	489.824?	482.109?	568.980?	537.875?	555.000?	539.375?	[]	[]	[]	9
10	435.125?	292.625?	[]	362.855?	477.850?	480.510?	563.004?	538.625?	551.375?	539.375?	[]	[]	[]	10
11	437.125?	298.375?	[]	363.506?	477.875?	475.285?	565.281?	539.625?	544.000?	538.500?	[]	[]	[]	11
12	431.625?	302.875?	[]	359.152?	470.025?	476.684?	567.684?	537.750?	548.250?	497.125?	[]	[]	[]	12
13	424.000?	307.000?	235.298?	355.428?	469.551?	486.334?	567.082?	534.500?	565.875?	472.625?	[]	[]	[]	13
14	433.250?	310.625?	227.808?	356.703?	472.199?	507.363?	561.855?	537.375?	587.625?	446.750?	[]	[]	[]	14
15	460.750?	314.375?	233.708?	355.479?	468.600?	527.254?	547.500?	545.500?	600.375?	437.500?	[]	[]	[]	15
16	485.250?	319.500?	235.608?	355.254?	478.625?	532.781?	545.277?	565.750?	595.250?	427.000?	[]	[]	[]	16
17	484.125?	325.313?	243.383?	359.652?	488.759?	541.934?	548.551?	591.750?	591.125?	419.500?	[]	[]	[]	17
18	468.750?	319.000?	251.782?	362.678?	483.926?	544.874?	552.949?	599.589?	587.625?	412.875?	[]	[]	[]	18
19	449.380?	302.948?	258.684?	360.453?	484.324?	560.105?	555.848?	595.125?	581.875?	412.500?	[]	[]	[]	19
20	417.245?	297.000?	262.707?	363.854?	492.725?	561.629?	561.104?	589.125?	580.250?	446.000?	[]	[]	[]	20
21	398.250?	295.250?	266.105?	372.629?	502.090?	560.281?	564.152?	585.375?	587.375?	478.500?	[]	[]	[]	21
22	363.333?	301.000?	276.188?	371.793?	513.951?	556.809?	566.051?	588.000?	587.625?	491.500?	[]	[]	[]	22
23	365.625?	[]	371.739?	378.281?	505.206?	555.207?	568.324?	582.750?	574.375?	516.375?	[]	[]	[]	23
24	365.625?	[]	362.432?	387.078?	457.463?	553.480?	573.473?	576.063?	562.625?	533.000?	[]	[]	[]	24
25	363.250?	[]	360.707?	399.729?	489.613?	556.629?	578.000?	565.375?	537.500?	521.250?	[]	[]	[]	25
26	356.875?	[]	350.230?	418.379?	493.637?	557.906?	572.652?	543.625?	508.500?	507.750?	[]	[]	[]	26
27	357.625?	[]	359.006?	415.408?	462.662?	559.309?	550.426?	540.125?	515.000?	508.625?	[]	[]	[]	27
28	353.875?	[]	364.906?	505.448?	442.063?	560.457?	536.103?	539.375?	525.000?	509.875?	[]	[]	[]	28
29	364.250?	[]	362.557?	537.129?	439.463?	556.480?	543.010?	539.250?	518.375?	528.500?	[]	[]	[]	29
30	392.375?	[]	356.332?	470.046?	450.363?	552.754?	489.846?	537.250?	507.375?	562.375?	[]	[]	[]	30
31	411.500?	[]	350.855?	[]	454.637?	[]	496.875?	532.625?	[]	568.750?	[]	[]	[]	31
Mean	401.538?	276.546?	301.561?	376.501?	474.418?	518.715?	556.548?	546.313?	549.622?	492.605?	535.892?	[]	[]	
Median	391.453?	297.688?	276.188?	360.053?	472.199?	530.018?	561.855?	539.250?	548.750?	437.125?	534.615?	[]	[]	
Max.Daily Mean	485.250?	332.807?	371.739?	537.139?	513.951?	563.629?	578.000?	599.589?	600.375?	568.750?	547.250?	[]	[]	
Min.Daily Mean	353.875?	135.995?	227.808?	325.957?	439.463?	454.286?	489.846?	491.875?	501.979?	412.500?	524.750?	[]	[]	
Inst.Max	491.000?	409.000?	422.938?	696.281?	520.875?	567.219?	580.531?	613.000?	603.000?	574.000?	560.000?	[]	[]	
Inst.Min	351.000?	123.000?	226.805?	322.734?	432.281?	450.906?	484.000?	489.000?	496.000?	409.000?	522.000?	[]	[]	
Missing Days	0	0	12	0	0	0	0	0	0	0	24	31	[]	

Summaries

 All recorded data is continuous and reliable
 except where the following tags are used.
 ? ... Data not Quality Coded

Annual Mean	462.290?
Ann. Median	488.817?
Missing Days	73
Daily Mean	Maximum
Instant	600.375?
	135.995?
	123.000?

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Table Type	2001 Level
1	332.459?	339.657?	307.500?	362.125?	493.125?	459.959?	562.458?	495.875?	515.979?	0.000?	0.000?	[]	[]	1
2	329.318?	151.737?	314.875?	349.500?	491.625?	462.703?	566.094?	505.500?	509.049?	0.000?	0.000?	[]	[]	2
3	323.554?	104.965?	317.750?	336.375?	502.375?	471.203?	568.594?	510.625?	525.726?	0.000?	0.000?	[]	[]	3
4	327.796?	142.434?	317.625?	345.000?	506.125?	488.453?	573.963?	521.264?	511.875?	0.000?	0.000?	[]	[]	4
5	337.473?	182.768?	317.875?	357.125?	504.875?	507.822?	569.094?	534.000?	576.000?	0.000?	0.000?	[]	[]	5
6	348.252?	211.566?	317.625?	364.250?	506.875?	501.563?	558.719?	544.750?	597.167?	0.000?	0.000?	[]	[]	6
7	364.159?	226.684?	319.625?	366.875?	510.875?	492.188?	557.469?	535.875?	588.938?	0.000?	0.000?	[]	[]	7
8	389.221?	240.130?	301.066?	369.875?	514.000?	482.813?	566.085?	524.000?	566.767?	0.000?	0.000?	[]	[]	8
9	448.266?	245.729?	170.920?	378.250?	509.500?	479.063?	572.188?	527.250?	551.222?	0.000?	0.000?	[]	[]	9
10	401.115?	257.207?	215.556?	382.125?	499.500?	470.299?	573.188?	531.743?	556.403?	0.000?	0.000?	[]	[]	10
11	386.596?	263.303?	242.674?	378.500?	494.500?	471.047?	565.813?	536.007?	494.587?	0.000?	0.000?	[]	[]	11
12	385.745?	267.402?	263.069?	372.500?	489.625?	488.672?	557.533?	543.628?	0.000?	0.000?	0.000?	[]	[]	12
13	424.486?	271.754?	249.750?	372.000?	490.875?	505.166?	543.813?	563.500?	0.000?	0.000?	0.000?	[]	[]	13
14	463.943?	276.979?	251.000?	373.500?	502.500?	547.406?	542.562?	616.375?	0.000?	0.000?	0.000?	[]	[]	14
15	457.064?	282.078?	254.500?	375.500?	512.375?	563.656?	554.563?	643.750?	0.000?	0.000?	0.000?	[]	[]	15
16	449.206?	286.303?	257.750?	380.500?	507.500?	560.906?	559.688?	637.000?	0.000?	0.000?	0.000?	[]	[]	16
17	430.233?	287.777?	268.750?	379.000?	505.250?	573.406?	564.668?	605.875?	0.000?	108.899?	0.000?	[]	[]	17
18	399.519?	272.504?	275.375?	376.375?	509.625?	571.531?	572.656?	591.875?	0.000?	443.097?	0.000?	[]	[]	18
19	328.911?	267.813?	280.250?	382.250?	522.875?	562.281?	582.392?	581.233?	0.000?	505.625?	0.000?	[]	[]	19
20	315.988?	253.328?	285.625?	391.000?	529.375?	550.281?	584.941?	573.250?	0.000?	498.219?	0.000?	[]	[]	20
21	326.963?	263.551?	292.000?	393.750?	536.734?	544.379?	584.031?	568.750?	0.000?	585.125?	0.000?	[]	[]	21
22	333.688?	266.775?	319.181?	395.375?	519.710?	551.875?	586.531?	548.521?	0.000?	576.844?	0.000?	[]	[]	22
23	328.535?	272.156?	400.438?	408.625?	473.619?	557.875?	590.406?	541.583?	0.000?	531.899?	0.000?	[]	[]	23
24	316.809?	278.250?	390.250?	403.625?	477.236?	562.250?	579.781?	368.604?	0.000?	443.382?	0.000?	[]	[]	24
25	313.695?	285.500?	385.625?	431.750?	483.986?	559.750?	561.649?	0.000?	0.000?	148.205?	0.000?	[]	[]	25
26	318.755?	290.500?	386.875?	441.000?	448.609?	552.625?	547.293?	0.000?	0.000?	0.000?	0.000?	[]	[]	26
27	333.621?	297.250?	392.500?	425.281?	434.609?	552.625?	528.807?	49.365?	67.375?	0.000?	0.000?	[]	[]	27
28	365.494?	300.250?	395.500?	581.372?	437.471?	551.875?	542.244?	541.528?	421.750?	0.000?	0.000?	[]	[]	28
29	416.164?	377.750?	524.021?	445.219?	445.496?	495.000?	539.368?	315.875?	0.000?	0.000?	0.000?	[]	[]	29
30	387.016?	364.875?	512.625?	453.469?	557.844?	496.972?	525.875?	0.000?	0.000?	0.000?	0.000?	[]	[]	30
31	358.143?	364.875?		454.094?		493.211?	518.375?			0.000?		[]	[]	31

Summaries ----- Notes -----
All recorded data is continuous and reliable
except where the following tags are used...
? ... Data not Quality Coded

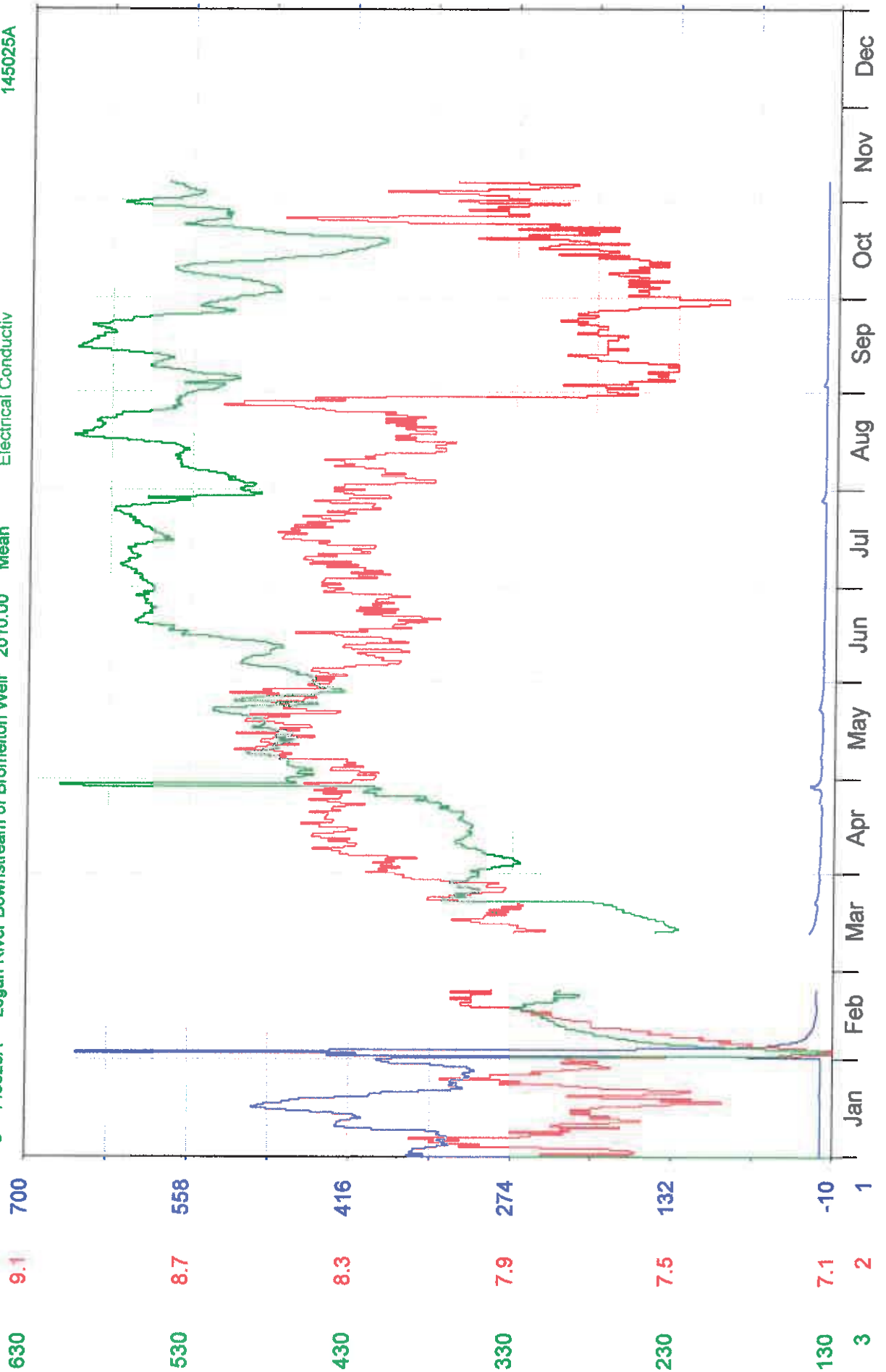
Annual Mean	368.812?
Ann. Median	399.978?
Missing Days	55
Maximum	
Minimum	
Daily Mean	643.750?
Instant	0.000?
	0.000?

DNR Brisbane Hydrographic section

HYPLOT V112 Output 31/01/2002 2001

Period 12 Month Plot Start 00:00_01/01/2001
Interval 12 Hour Plot End 00:00_01/01/2002

- | | | | | | | | |
|---|---------|--|---------|------|-------------------------|------------|---------|
| 1 | 145025A | Logan River Downstream of Bromelton Weir | 140.00 | Mean | Discharge | (Curnecs) | 145025A |
| 2 | 145025A | Logan River Downstream of Bromelton Weir | 2100.00 | Mean | pH | (pH units) | 145025A |
| 3 | 145025A | Logan River Downstream of Bromelton Weir | 2010.00 | Mean | Electrical Conductivity | | 145025A |



DNR Brisbane hydrographic secti

HYDAY V61 Output 31/01/2002

Station 145025A Logan River Downstream of Bromelton Weir

VarFrom 100.00 Stream Water Level in Metres

VarTo 140.00 Stream Discharge in Cumecs

Figures are for period ending 2400 hours.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Day
1	0.875	32.89 *	[]	3.233	2.525	0.941	0.540	0.719	0.514	0.449	0.402	[]	1
2	0.592	422.5 *	[]	3.012	2.135	0.874	0.548	0.611	0.521	0.444	0.381	[]	2
3	0.525	544.2 *	[]	2.564	1.857	0.796	0.547	0.523	2.749	0.432	0.369	[]	3
4	0.498	117.9 *	[]	2.349	1.727	0.868	0.542	0.523	1.391	0.406	0.343	[]	4
5	0.479	42.20 *	[]	2.226	1.718	1.020	0.550	0.847	0.718	0.403	0.384	[]	5
6	0.462	23.99 *	[]	2.073	1.913	0.970	0.547	0.575	0.564	0.428	0.407	[]	6
7	0.425	15.35	[]	1.842	2.469	0.950	0.529	0.525	0.541	0.468	[]	[]	7
8	0.479	12.42	[]	1.810	2.347	1.059	0.524	0.495	0.536	0.470	[]	[]	8
9	0.545	10.20	[]	1.965	1.969	1.079	0.604	0.471	0.533	0.443	[]	[]	9
10	0.540	8.375	[]	1.954	1.883	1.014	0.560	0.462	0.498	0.443	[]	[]	10
11	0.531	7.035	[]	1.794	1.486	1.005	0.548	0.462	0.485	0.475	[]	[]	11
12	0.512	6.185	[]	1.792	1.339	0.949	0.553	0.460	0.458	0.481	[]	[]	12
13	0.509	5.511	10.54	1.508	1.255	1.003	0.549	0.453	0.447	0.482	[]	[]	13
14	0.489	4.971	8.649	1.442	1.196	0.877	0.537	0.457	0.457	0.482	[]	[]	14
15	0.481	4.488	7.427	1.558	1.115	0.817	0.520	0.450	0.424	0.483	[]	[]	15
16	0.476	4.092	6.603	1.536	1.019	0.773	0.514	0.435	0.407	0.528	[]	[]	16
17	0.465	4.237	6.003	1.512	1.036	0.717	0.489	0.459	0.399	0.539	[]	[]	17
18	0.514	4.359	5.574	1.406	1.084	0.748	0.474	0.505	0.415	0.559	[]	[]	18
19	0.637	4.976	5.177	1.339	1.099	0.731	0.469	0.503	0.419	0.563	[]	[]	19
20	1.337	5.000	4.740	1.278	1.108	0.677	0.486	0.483	0.422	0.564	[]	[]	20
21	0.889	4.920	4.400	1.150	1.238	0.628	0.521	0.475	0.453	0.534	[]	[]	21
22	0.970	4.452	5.796	1.667	2.272	0.628	0.507	0.451	0.452	0.507	[]	[]	22
23	0.653	[]	5.743	3.049	4.153	0.610	0.506	0.441	0.465	0.492	[]	[]	23
24	0.572	[]	4.403	2.983	3.234	0.572	0.510	0.439	0.468	0.459	[]	[]	24
25	0.559	[]	3.931	2.438	2.657	0.577	0.516	0.461	0.490	0.446	[]	[]	25
26	0.556	[]	3.581	1.953	2.081	0.576	0.534	0.462	0.488	0.404	[]	[]	26
27	0.529	[]	3.305	2.800	1.715	0.561	0.559*	0.461	0.484	0.390	[]	[]	27
28	0.537	[]	3.177	9.653	1.500	0.564	3.278*	0.479	0.482	0.398	[]	[]	28
29	0.573	[]	2.856	5.648	1.329	0.559	2.475	0.499	0.480	0.434	[]	[]	29
30	0.615	[]	2.670	3.352	1.181	0.560	1.369	0.512	0.470	0.446	[]	[]	30
31	0.631	[]	2.782	[]	1.046	[]	0.940	0.513	0.423	0.423	[]	[]	31
Mean	0.595	58.65 *	5.124	2.430	1.758	0.790	0.721*	0.504	0.588	0.467	0.381	[]	
Median	0.537	6.610*	4.740	1.953	1.683	0.794	0.540*	0.475	0.481	0.459	0.383	[]	
Max.Daily Mean	1.337	544.2 *	10.54	9.653	4.153	1.079	3.278*	0.847	2.749	0.564	0.407	[]	
Min.Daily Mean	0.425	4.092*	2.670	1.150	1.019	0.559	0.469*	0.435	0.399	0.390	0.343	[]	
Inst.Max	1.642	712.0 *	11.88	15.72	4.650	1.137	4.559*	0.956	3.655	0.586	0.432	[]	
Inst.Min	0.320	0.639*	2.638	1.099	0.915	0.522	0.412*	0.383	0.379	0.364	0.316	[]	
Missing Days	0	6	12	0	0	0	0	0	0	0	24	31	

Summaries

----- Notes -----
All recorded data is continuous and reliable
except where the following tags are used...
* ... Estimated Data

Annual Mean 5.581*
Ann. Median 0.577*
Missing Days 73

Daily Mean Maximum Minimum
Instant 544.2 * 0.343*
712.0 * 0.316*

Station 145025A Logan River Downstream of Bromelton Weir

VarTo 2100.00 pH in pH units

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Table Type	2001 Level
1	7.713?	7.640?	[]	8.236?	8.240?	8.372?	8.355?	8.337?	7.675?	7.563?	7.900?	[]	[]	1
2	7.594?	7.141?	[]	8.205?	8.259?	8.352?	8.376?	8.262?	7.639?	7.575?	7.963?	[]	[]	2
3	7.737?	7.112?	[]	8.212?	8.316?	8.371?	8.306?	8.100?	7.700?	7.588?	8.163?	[]	[]	3
4	8.000?	7.199?	[]	8.219?	8.310?	8.401?	8.249?	8.163?	7.566?	7.588?	7.913?	[]	[]	4
5	8.088?	7.305?	[]	8.176?	8.304?	8.306?	8.267?	8.204?	7.550?	7.600?	7.758?	[]	[]	5
6	8.087?	7.367?	[]	8.257?	8.311?	8.199?	8.272?	8.222?	7.538?	7.575?	7.962?	[]	[]	6
7	7.862?	7.426?	[]	8.327?	8.470?	8.204?	8.327?	8.250?	7.538?	7.588?	[]	[]	[]	7
8	7.834?	7.500?	[]	8.371?	8.463?	8.234?	8.358?	8.325?	7.500?	7.663?	[]	[]	[]	8
9	7.763?	7.554?	[]	8.303?	8.481?	8.278?	8.413?	8.325?	7.513?	7.600?	[]	[]	[]	9
10	7.713?	7.613?	[]	8.297?	8.563?	8.170?	8.313?	8.132?	7.613?	7.588?	[]	[]	[]	10
11	7.713?	7.700?	[]	8.329?	8.514?	8.133?	8.324?	8.262?	7.700?	7.550?	[]	[]	[]	11
12	7.600?	7.700?	[]	8.386?	8.514?	8.294?	8.347?	8.163?	7.750?	7.550?	[]	[]	[]	12
13	7.675?	7.763?	7.857?	8.368?	8.508?	8.186?	8.247?	8.075?	7.675?	7.500?	[]	[]	[]	13
14	7.725?	7.800?	7.877?	8.299?	8.440?	8.217?	8.377?	8.100?	7.650?	7.712?	[]	[]	[]	14
15	7.725?	7.825?	7.896?	8.344?	8.534?	8.335?	8.395?	8.063?	7.675?	7.663?	[]	[]	[]	15
16	7.687?	7.875?	7.990?	8.400?	8.454?	8.353?	8.475?	8.175?	7.675?	7.775?	[]	[]	[]	16
17	7.538?	7.940?	8.009?	8.345?	8.402?	8.220?	8.443?	8.175?	7.663?	7.813?	[]	[]	[]	17
18	7.450?	8.025?	7.941?	8.364?	8.479?	8.201?	8.461?	8.132?	7.638?	7.675?	[]	[]	[]	18
19	7.560?	8.000?	7.935?	8.358?	8.562?	8.143?	8.404?	8.125?	7.725?	7.888?	[]	[]	[]	19
20	7.662?	8.025?	7.917?	8.365?	8.481?	8.136?	8.409?	8.138?	7.700?	7.850?	[]	[]	[]	20
21	7.462?	7.975?	7.899?	8.347?	8.445?	8.179?	8.365?	8.175?	7.675?	7.725?	[]	[]	[]	21
22	7.613?	8.000?	7.885?	8.289?	8.370?	8.235?	8.370?	8.188?	7.725?	7.775?	[]	[]	[]	22
23	7.750?	[]	8.073?	8.343?	8.462?	8.240?	8.375?	8.175?	7.759?	7.737?	[]	[]	[]	23
24	7.900?	[]	8.082?	8.367?	8.467?	8.258?	8.331?	8.193?	7.728?	7.987?	[]	[]	[]	24
25	8.000?	[]	7.989?	8.324?	8.460?	8.226?	8.274?	8.275?	7.725?	8.337?	[]	[]	[]	25
26	7.950?	[]	7.920?	8.335?	8.403?	8.243?	8.254?	8.400?	7.713?	8.338?	[]	[]	[]	26
27	7.837?	[]	7.940?	8.354?	8.496?	8.186?	8.304?	8.538?	7.613?	7.900?	[]	[]	[]	27
28	7.750?	[]	7.947?	8.373?	8.551?	8.254?	8.356?	8.575?	7.462?	7.975?	[]	[]	[]	28
29	7.653?	[]	8.066?	8.358?	8.444?	8.360?	8.212?	8.362?	7.375?	7.938?	[]	[]	[]	29
30	7.737?	8.160?	8.160?	8.270?	8.399?	8.343?	8.314?	7.975?	7.438?	7.825?	[]	[]	[]	30
31	7.716?	8.179?	8.179?	8.270?	8.354?	8.312?	8.312?	7.625?	8.025?	8.025?	[]	[]	[]	31
Mean	7.745?	7.658?	7.977?	8.318?	8.433?	8.260?	8.342?	8.206?	7.630?	7.762?	7.943?	[]	[]	
Median	7.725?	7.700?	7.941?	8.339?	8.460?	8.242?	8.355?	8.188?	7.669?	7.712?	7.938?	[]	[]	
Max.Daily Mean	8.088?	8.025?	8.179?	8.400?	8.563?	8.401?	8.475?	8.575?	7.759?	7.759?	8.163?	[]	[]	
Min.Daily Mean	7.450?	7.112?	7.857?	8.176?	8.240?	8.136?	8.212?	7.625?	7.375?	7.550?	7.758?	[]	[]	
Inst.Max	8.300?	8.100?	8.289?	8.499?	8.665?	8.517?	8.503?	8.700?	7.800?	8.500?	8.300?	[]	[]	
Inst.Min	7.300?	7.100?	7.792?	8.063?	8.085?	7.983?	8.178?	7.600?	7.300?	7.400?	7.600?	[]	[]	
Missing Days	0	6	12	0	0	0	0	0	0	0	24	31		

Summaries ----- Notes -----
All recorded data is continuous and reliable
except where the following tags are used.
? ... Data not Quality Coded

Annual Mean	8.045?
Ann. Median	8.161?
Missing Days	73
Daily Mean	Maximum
Instant	Minimum
	7.112?
	7.100?

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Table Type	2001 Level
1	389.250?	332.807?	[]	352.881?	463.754?	454.286?	554.531?	499.375?	522.500?	496.000?	547.250?	[]	[]	1
2	391.453?	159.260?	[]	346.406?	458.277?	456.313?	557.684?	491.875?	513.875?	481.750?	530.250?	[]	[]	2
3	386.250?	135.995?	[]	333.557?	458.053?	463.838?	561.332?	500.000?	523.016?	478.625?	524.750?	[]	[]	3
4	371.875?	184.260?	[]	325.957?	461.828?	469.775?	560.730?	506.063?	513.781?	481.000?	532.125?	[]	[]	4
5	371.750?	222.964?	[]	323.355?	469.479?	481.387?	564.754?	509.219?	501.979?	488.875?	537.104?	[]	[]	5
6	372.625?	247.266?	[]	338.506?	469.129?	496.412?	566.031?	518.250?	518.125?	497.625?	543.875?	[]	[]	6
7	371.500?	261.089?	[]	347.406?	474.538?	497.563?	571.309?	531.125?	533.750?	512.750?	[]	[]	[]	7
8	374.896?	273.375?	[]	350.432?	485.459?	493.709?	572.582?	537.375?	549.250?	528.500?	[]	[]	[]	8
9	398.875?	281.104?	[]	359.582?	489.824?	482.109?	568.980?	537.875?	555.000?	539.375?	[]	[]	[]	9
10	435.125?	292.625?	[]	362.855?	477.850?	480.510?	563.004?	538.625?	551.375?	539.375?	[]	[]	[]	10
11	437.125?	298.375?	[]	363.506?	477.875?	475.285?	565.281?	539.625?	544.000?	528.500?	[]	[]	[]	11
12	431.625?	302.875?	[]	359.152?	470.025?	476.684?	567.684?	537.750?	548.250?	497.125?	[]	[]	[]	12
13	424.000?	307.000?	235.298?	355.428?	469.551?	486.334?	567.882?	537.500?	565.875?	472.625?	[]	[]	[]	13
14	433.250?	310.625?	227.808?	356.703?	472.199?	507.363?	561.855?	537.375?	587.625?	446.750?	[]	[]	[]	14
15	460.750?	314.375?	233.708?	355.479?	468.600?	527.254?	547.500?	545.500?	595.250?	427.000?	[]	[]	[]	15
16	485.250?	319.500?	235.608?	355.254?	478.625?	532.781?	545.277?	565.750?	595.250?	427.000?	[]	[]	[]	16
17	484.125?	325.313?	243.383?	359.652?	488.759?	541.934?	548.551?	591.750?	591.125?	419.500?	[]	[]	[]	17
18	468.750?	319.000?	251.782?	362.678?	483.926?	544.874?	552.949?	599.589?	587.625?	412.875?	[]	[]	[]	18
19	449.380?	302.948?	258.684?	360.453?	484.324?	560.105?	555.848?	595.125?	581.875?	412.500?	[]	[]	[]	19
20	417.245?	297.000?	262.707?	363.854?	492.725?	563.629?	561.104?	589.125?	580.250?	446.000?	[]	[]	[]	20
21	398.250?	295.250?	266.105?	372.629?	502.090?	560.281?	564.152?	585.375?	587.375?	478.500?	[]	[]	[]	21
22	363.333?	301.000?	276.188?	371.793?	513.951?	556.809?	566.051?	588.000?	587.625?	491.500?	[]	[]	[]	22
23	365.625?	[]	371.739?	378.281?	505.206?	555.207?	568.324?	582.750?	574.375?	516.375?	[]	[]	[]	23
24	365.625?	[]	362.432?	387.078?	457.463?	553.480?	573.473?	576.063?	562.625?	533.000?	[]	[]	[]	24
25	363.250?	[]	360.707?	399.729?	489.613?	556.629?	578.000?	565.375?	537.500?	521.250?	[]	[]	[]	25
26	356.875?	[]	350.230?	418.379?	493.637?	557.906?	572.652?	543.625?	508.500?	507.750?	[]	[]	[]	26
27	357.625?	[]	359.006?	415.408?	462.662?	559.309?	550.426?	540.125?	515.000?	508.625?	[]	[]	[]	27
28	353.875?	[]	364.906?	505.448?	442.063?	560.457?	536.103?	539.375?	525.000?	509.875?	[]	[]	[]	28
29	364.250?	[]	362.557?	537.129?	439.463?	556.480?	543.010?	539.350?	518.375?	528.500?	[]	[]	[]	29
30	392.375?	[]	356.332?	470.046?	450.363?	552.754?	489.846?	537.250?	507.375?	562.375?	[]	[]	[]	30
31	411.500?	[]	350.855?	454.637?	[]	[]	496.875?	532.625?	[]	568.750?	[]	[]	[]	31

Mean	401.538?	276.546?	301.581?	376.501?	474.418?	518.715?	556.548?	546.312?	549.622?	492.605?	535.892?	[]	[]	
Median	391.453?	297.688?	276.188?	360.053?	472.199?	530.018?	561.855?	539.350?	548.750?	497.125?	534.615?	[]	[]	
Max.Daily Mean	485.250?	332.807?	371.739?	537.129?	513.951?	563.629?	578.000?	599.589?	600.375?	568.750?	547.250?	[]	[]	
Min.Daily Mean	353.875?	135.995?	227.808?	325.957?	439.463?	454.286?	489.846?	491.875?	501.979?	412.500?	524.750?	[]	[]	
Inst.Max	491.000?	409.000?	422.938?	696.281?	520.875?	567.219?	580.531?	613.000?	603.000?	574.000?	560.000?	[]	[]	
Inst.Min	351.000?	123.000?	226.805?	322.734?	432.281?	450.906?	484.000?	489.000?	496.000?	409.000?	522.000?	[]	[]	
Missing Days	0	6	12	0	0	0	0	0	0	0	24	[]	[]	31

Summaries ----- Notes -----

All recorded data is continuous and reliable except where the following tags are used...

? ... Data not Quality Coded

Annual Mean	462.290?
Ann. Median	488.817?
Missing Days	73
Maximum	Minimum
Daily Mean	600.375?
Instant	696.281?
	135.995?
	123.000?

DNR Brisbane hydrographic section

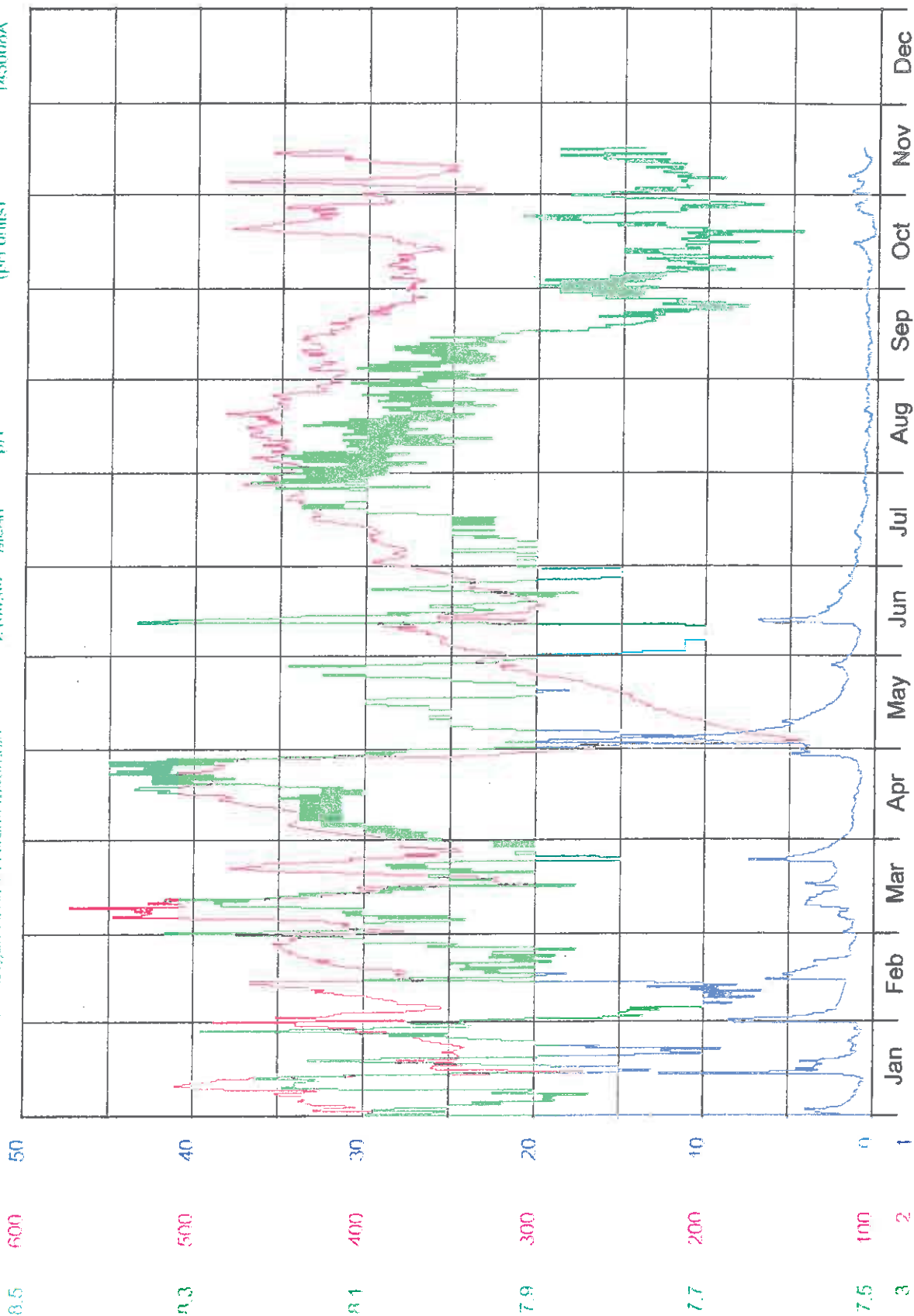
HYPLOT V112 Output 13/02/2001

2000

Period 1 Year Plot Start 00:00_01/01/2000

Interval 12 Hour Plot End 00:00_01/01/2001

1	145008A	Logan River at Round Mountain	140.00	Mean	Discharge	(Cumecs)	145008A
2	145008A	Logan River at Round Mountain	2010.00	Mean	Electrical Conductivity		145008A
3	145008A	Logan River at Round Mountain	2100.00	Mean	pH	(pH units)	145008A

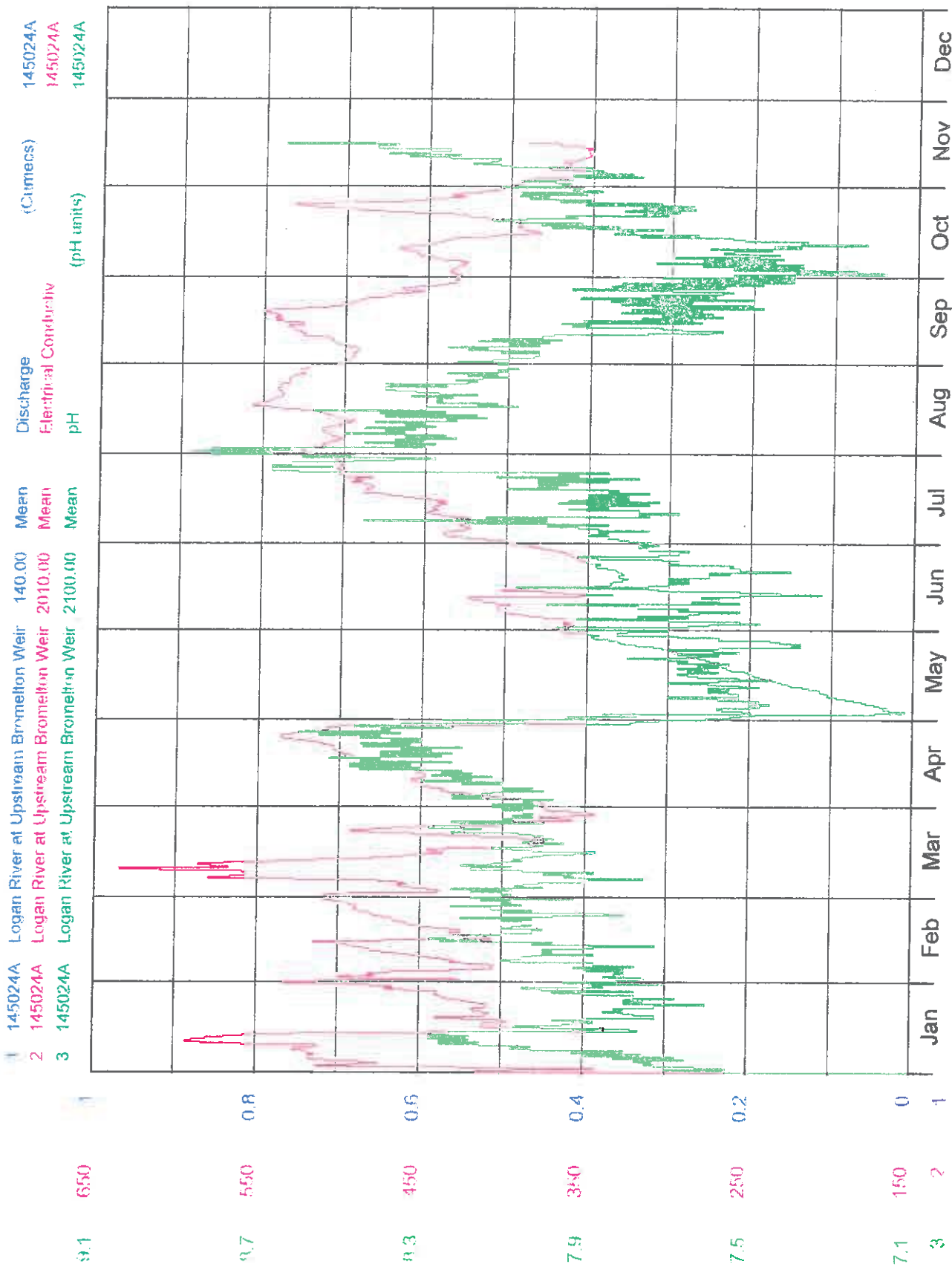


DNR Brisbane hydrographic section

HYPLOT V112 Output 13/02/2001

Period 1 Year Plot Start 00:00_01/01/2000 2000

Interval 12 Hour Plot End 00:00_01/01/2001



DNR Brisbane Hydrographic section

HYPLOT V112 Output 13/02/2001

2000

Period 1 Year Plot Start 00:00_01/01/2000
Interval 12 Hour Plot End 00:00_01/01/2001

- 1 145025A Logan River Downstream of Brommelton Weir 140.00 Mean
- 2 145025A Logan River Downstream of Brommelton Weir 10.00 Mean
- 3 145025A Logan River Downstream of Brommelton Weir 100.00 Mean

Discharge (Cumecs)

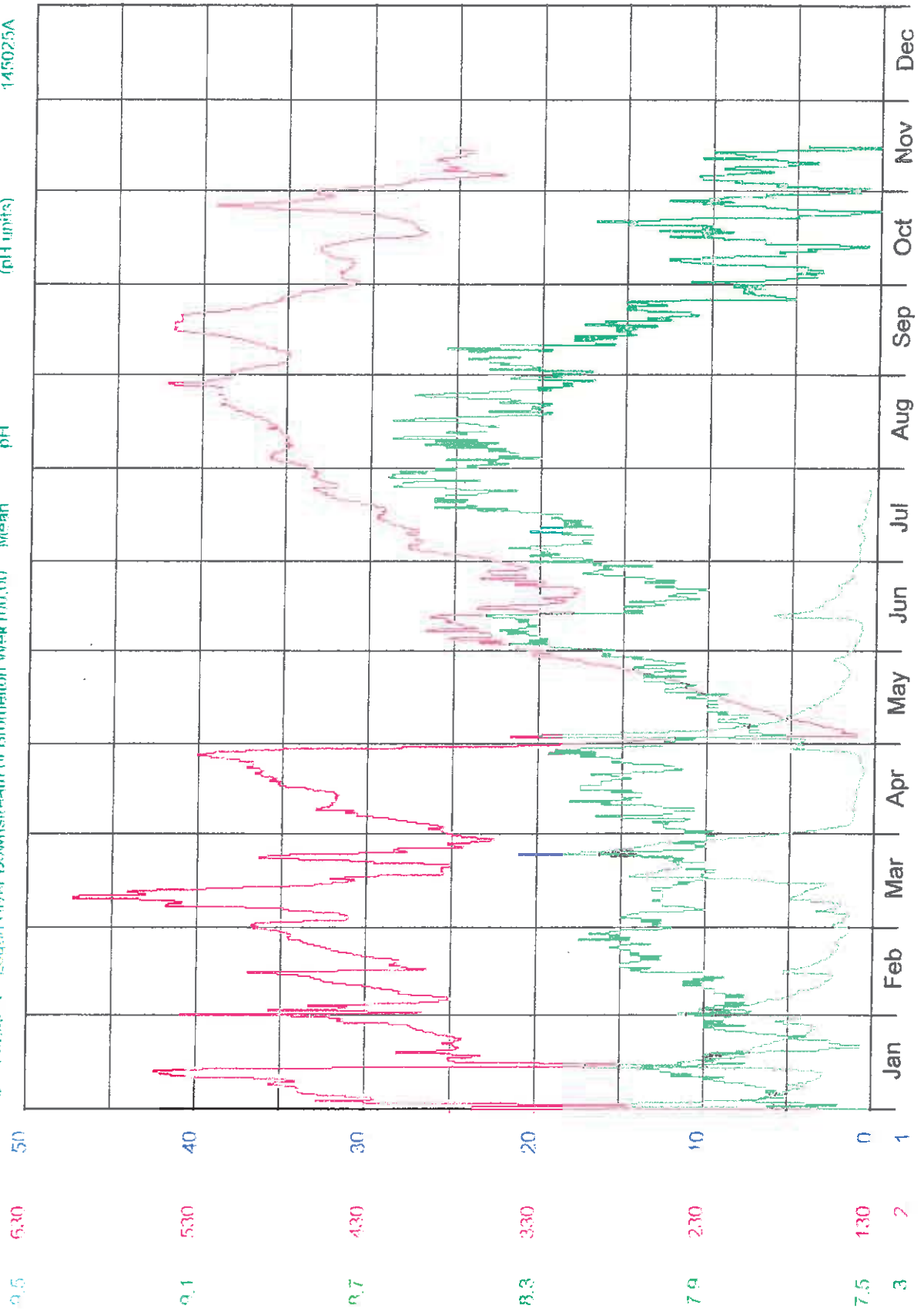
Electrical Conductivity

pH

145025A

145025A

145025A



Irrigation zone above trap dam



Overflow area of trap dam



Gully immediately below
trap dam





Gully closer to river ^{5/8}
(close up)



Same as previous



7/8
Fence line before river



Gully into river





Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference
Our reference STH495\5\SR0722

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

25 October 2002

Mr R C Wearne
General Manager
Davis Gelatine Australia Pty Limited
PO Box 409
BEAUDESERT QLD 4285

Dear Mr Wearne

Re: Compliance Audit Response for Environmental Authority SR0722.

I refer to the inspection of the rendering operation (extracting gelatine) of Davis Gelatine Australia Pty Limited located at Flood Road, Josephville via Beaudesert on 15 October 2002 by Environmental Protection Agency (EPA) Officers Don Shackel and Adam Burt.

The purpose of the audit was to assess site compliance with conditions of Environmental Authority SR0722, assess compliance with general provisions of the *Environmental Protection Act 1994* (the Act) and associated policies and to develop an action plan to address any non-compliances.

The audit and site inspection identified a number of non-complying bunding matters requiring attention at your Josephville operation.

In particular, the following repair / upgrading works were indicated for action:

1. The external, bulk Sulphuric Acid storage tank bund, associated drainage outlet and service surrounds, including the roll-over bunded vehicle unloading bay / pad were observed to be in an eroded condition requiring repair work, as soon as practicable; and
2. The vehicle discharge / unloading approach area to the small, above-ground diesel storage tank located in a bunded area within the "old stables" fuel store requires bunding and sealing with impervious material, to obviate contamination of soil in the area, due to fuel spillage.

During post-audit discussions, Davis Gelatine gave an undertaking that the bunding works documented above could be completed by 1 December 2002.

I recall that these bunding issues were raised in my letter to you of 20 February 2002, following which your response of 12 March 2002 indicated completion dates for these works. However, while I understand that these upgrades now constitute "works-in-progress", the previous timelines were not met.

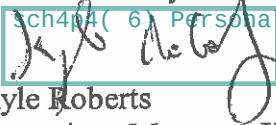
While a number of non-compliant parameters have been previously identified and reconfirmed with regard to the quality of treated wastewater irrigated to land, it is acknowledged that approved Environmental Management Program (EMP) No.1157, concerned with "Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner", due for completion on or before 30 September 2003, is expected to resolve these issues and hence such non-compliances will not be pursued at this time.

It is expected that outcomes generated by completion of the EMP will provide significant worthwhile options for the sustainable disposal of treated wastewater on site.

On behalf of the EPA Officers involved, I wish to thank you for your cooperation during the recent audit and look forward to our continued association in further promoting and supporting environmental improvement projects initiated by your company.

Should you have any questions concerning the above matters, please feel free to contact Don Shackel on telephone (07) 3225 1040.

Yours sincerely

 sch4p4 (6) Personal

Kyle Roberts
Operations Manager, Heavy Industry Group
Environmental Operations
Southern Region

11

Compliance Inspection Report

COMPLIANCE INSPECTION REPORT FOR DAVIS GELATINE AUSTRALIA PTY LIMITED

Environmental Authority No: SR0722

Date of compliance inspection: 15/10/2002

Environmentally relevant activity (name and number): ERA 50(b) – Rendering operation
(processing or extracting proteinaceous matter from animal wastes or by-products)

1. Licence holder details or Company details

Name of licence holder/Company name: Davis Gelatine Australia Pty Limited

Address of Registered Office: "Sunny Hills"
Flood Road
JOSEPHVILLE via BEAUDESERT
QLD 4285

Address of licensed place/Site address: "Sunny Hills"
Flood Road
JOSEPHVILLE via BEAUDESERT
QLD 4285

Name and position of contact person(s) during inspection: Mr Bob Wearne, General Manager
Mr Cameron Smeal, Environmental Officer

2. General description of the site

"Sunny Hills" was a former dairy farm located within the Beaudesert Shire, being defined by the Logan River on the southern boundary, the NSW / QLD interstate rail line / corridor on the western boundary, additional private farm land on the eastern boundary and Flood / Tally-Ho Roads on the northern boundary.

The site consists of alluvial flats adjacent to the Logan River (deep sandy loams), leading upwards via rolling ridges (degraded Walloons) and shallow gullies to a high-point hill situated in the north-eastern corner of the property.

3. History of ERA at site

Leiner Davis Gelatin International Limited trading as Leiner Davis Gelatin (Australia) Pty Limited (now Davis Gelatine Australia Pty Limited) established Australia's only gelatine processing operation on the "Sunny Hills" homestead dairy farm site in 1992, following relocation of the activity from Botany, NSW.

4. Process descriptions

Extraction, purification, drying and packaging of gelatine processed from abattoir waste materials, including treatment of liquid gelatine processing effluents / wastewaters prior to irrigation to land and composting of solid gelatine processing and associated wastes.

5. Non-compliances

A number of bunding non-compliances were observed during the inspection.

6. Required actions

Required bunding repair / extension actions have been documented, together with completion timelines and advised to Davis Gelatine by letter as a result of the site audit conducted on 15/10/2002.

7. Recommendations

It is RECOMMENDED that Davis Gelatine be requested to upgrade / provide bunding facilities, within a reasonable timeframe, as documented following the site audit conducted on 15/10/2002.

Report completed by investigating officer:

sch4p4(6) Pers



Don Shackel
Senior Inspector
Environmental Operations
Southern Region

Report reviewed by:

sch4p4(6) Pers



Doug Carey
Compliance Co-ordinator, Heavy Industry Group
Environmental Operations
Southern Region

24/10/02

Checklist

Compliance

Compliance program — inspection checklist

Instructions for use

Where an Agency issue is determined to be relevant, note appropriate detail in the observations section.

Where there is any non-compliance, discuss with the company representative and note any required action.

Where the assessment will include licence conditions, use the licence condition compliance section of the checklist.

This checklist is to be used for all inspections. Refer to the procedural guide for guidance.

Cover sheet module

Company Name: Davis Gelatine Australia Pty Limited		Date of Inspection: 15/10/2002
Trading as: GELITA – The Gelatine Group		EA No.: SR0722
Description of Business Activity: ERA 50(b) – Rendering operation		
Site street address: Flood Road		
Suburb: Josephville	City/Town: Beaudesert	Post Code: 4285
Registered Office address (if different to site address): "Sunny Hills", Flood Road, JOSEPHVILLE via BEAUDESERT QLD 4285		
Suburb: JOSEPHVILLE	City/Town: BEAUDESERT	Post Code: 4285
Site representative: Cameron Smeal	Position: Environmental Officer	Contact phone: (07) 5541 9442

Inspection type	☐ Catchment	☐ Industry Sector	☐ Complaint	☒ Compliance
Compliance level	☐ 1	☐ 2	☒ 3	Inspection type ☐ A ☐ B ☒ C
Audit focus is the following relevant Agency interests:				
☒ Water issues ¹	☒ Air issues ¹	☒ Noise issues ¹	☐ National and international	
☒ Land issues ¹	☒ Waste issues ¹	☒ Social issues	☒ Impacts on surrounds	
☐ Coastal issues	☐ Heritage issues	☐ Biodiversity		
☒ Resource allocation	☐ Tenure issues	☐ Other issues		

¹ Main issues to consider for *Environmental Protection Act 1994* focus.

Details of Scope or Particular Focus:

Davis Gelatine Australia Pty Limited, recently acquired by German private business interests from Goodman Fielder, remains committed to completion of **EMP No.1157** concerned with, "Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner", which is in year three (3+) of a four (4+) year term due for completion on 30 September 2003. Consequently, licence limits requirements for treated wastewater parameters such as Total Nitrogen and Total Dissolved Solids observed as not achieving compliance, on an on-going basis, is being addressed by this process and hence has not been flagged by this audit as requiring immediate corrective action by the company. The company has regularly provided progress reports for EMP No.1157 to the EPA for assessment and information, indicating milestones towards achieving compliance by 30/09/2003. Outcomes of EMP No.1157 may indicate a need to reassess, amend or delete some or all treated wastewater limits from SR0722.

Sustainability of application of treated wastewater to on-site land will be achieved through a mix of options including; pasture / grazing systems, cropping (cutting & exporting hay products) and agro-forestry, which plant products will / may become a raw material source (green waste) for **on-site compost-making**, utilising all processing wastes generated by gelatine manufacturing ("skutch", belt-press sludge, boiler ash) for total on-site soil conditioning purposes. To this end, the EPA has recently approved an initial 12 month waste composting project period (September 2002-September 2003) to trial processing methodology and assess outcomes (an odour control plan is in place), with a view to long term, on-going total waste utilisation / recycling on site. Davis Gelatine Australia Pty Limited holds DA7 (with conditions) and SR1114 for ERA 53, relevant to "soil conditioner manufacturing". The company has contracted part-time consultancy services from Johannes Biala of "The Organic Force", to assist with the composting project.

Review of SR0722 and a subsequent site inspection was undertaken by the company Environmental Officer, Mr Cameron Smeal, while General Manager, Mr Bob Wearne was involved in initial and exit discussions.

A series of 22 digital photographs taken during the site audit on 15/10/2002 indicate the current environmental status of the site, particularly with regard to EMP No.1157 aspects, together with a limited number of records of processing plant surrounds issues (unsatisfactory bund condition).

A review of Chuckle and STH495 records for 2002 indicated that any complaints received by the company had been actioned and reports provided to the EPA, in each instance.

Agency interests module

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ☐

Assessments & Observations:

Administrative: Both the company business and activity location addresses were confirmed CORRECT. The anniversary date of SR0722 of 4 November 2002 for submission of the company annual return for 2002 was drawn to the attention of Cameron Smeal, Environmental Officer.
In regard to ERA 50(b) – Rendering operation, Cameron Smeal indicated that he did not consider gelatine manufacture a rendering process. These comments were acknowledged by EPA Officer Don Shackel who considered / indicated that wording in the ERA definition including, "processing or extracting substances, including, for example, ----- proteinaceous matter, from animal wastes or by-products", were relevant to the Davis Gelatine operation.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ☐**Schedule A - General Conditions:****A2, A3, A4** – In-Compliance**A5** – No change – annual gelatine production remains around 2200 MT.**A6** – Viewed calibration records file – In-Compliance.**A8, A9, A10, A11, A12, A13, A14** – IEMS – Updating / amendment of the documentation is linked to company progress towards ISO 14000 certification [A14], running around six (6) months behind schedule and now due for action about March 2003. Company training matrix was viewed [A9(iii)]. Environmental performance and energy audits / reviews will be provided to the EPA with the 2002 annual return due for submission by 4/11/2002 [A9(iv), A10, A11]. On-site gelatine processing waste utilisation / composting trials have commenced with a view to achieving total internal recycling of nutrients [A9(v)].**A15** – Community Liaison Committee is in place and operating – most recent meeting completed on 19/06/2002 – membership is being updated to include site surrounding residential changes. An annual site Review Committee (earlier Court Case requirement) meeting is planned for April 2003.**Schedule B - AIR:****B3-B7** – Boiler stack emissions testing due “biennially from 2001” [Schedule H – Table1], hence scheduled for completion in Jan/Feb 2003.**B9, B10, B11** – Co-generation project remains on the “back-burner”, however sufficient biogas can now be collected and held to fuel a trial / short production run.**B12, B13, B14** – In-Compliance during audit inspection - advised that the raw materials building ventilation air volume / changes have been recently improved / upgraded.**B15** – In-Compliance – large biofilter serviced during 2002.**B16** – In-Compliance – small biofilter serviced during 2002 and odour attenuation efficiency and untreated leakages significantly minimised, compared to previous assessments.**B17** – In-Compliance – ambient air odour levels will be assessed Jan/Feb 2003, at the same time as boiler emissions testing.**B18** – In-Compliance – biogas is flared / Co-generation project remains “on hold”.**B19, B20** – In-Compliance - regular system checks are in place.**Schedule C - Water:****C1** – In-Compliance – DNR Logan River monitoring stations above and immediately below the Davis Gelatine property boundary continuously trace a range of indicator parameters on river water passing these points. Cameron Smeal indicated that these plots have not indicated any significant deviations from expected ranges. Data will be included with the up-coming annual return for 2002, due by 4/11/2002.**C2-C8 – Ponds conditions** – In-Compliance – “free-board” requirements confirmed, ponds integrity maintained, stormwater impacts minimised.**Schedule D – Stormwater Management:****D5, D6** – Staff are expected to effectively capture / contain / clean-up any spillages to the sealed surrounds to the processing facility. However, any liquid discharges to the formed drainage system and roadways located immediately adjacent to all areas surrounding the production buildings and associated plant installations, drain to a double trap-dam system, situated in a gully below the belt-press shed. Any material collected in these dams is pumped to the wastewater treatment plant for processing. It was noted during the audit that the second trap dam in the series was empty, while the first catchment dam appeared to be at around 50% of capacity.**D7, D8** – In consideration of the Sulphuric Acid external storage tank bund and the small, above-ground fuel storage tank located in the “old stables” shed, both these situations are considered to be in **NON-COMPLIANCE**, as far as effective bunding is concerned. Both these issues will be addressed in a letter to the company in due course, seeking timelines for completion of corrective actions. Cameron Smeal indicated that these bunding issues are considered, by the company, to be “work-in-progress”. Discussions with company management indicated that appropriate works should be completed to a satisfactory standard by 1/12/2002.**D9-D14** – Apart from the bunding deficiencies indicated above, requirements in regard to these conditions are essentially in-compliance.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review

Non-compliant

**Schedule E – Land Application:****E1** – Treated wastewater release sources – In-Compliance.**E2** – Confirmed on file 961EA472\1, documentation, “Leiner Davis Gelatine Sunny Hills Irrigation Farm”, site plan. A copy will be forwarded to Davis Gelatine for confirmation / updating purposes, as necessary.**E3, E4** – no off-site disposal of treated wastewater has been undertaken to date.**E5** – Approximately 121 hectares of land comprises the treated wastewater disposal areas – In-Compliance.**E6-E9** – Irrigation practices for treated wastewater applications provide effective controls and will be included in an updated Irrigation Management Plan (IMP) due for completion around January / February 2003, which is planned to include data / information arising from the on-going projects driving EMP No.1157 towards a conclusion by 30/09/2003 (current procedures reference documents include company EM Plan of 1994 and IEMS of 1997).**E10** – The total quantity of contaminants released to the irrigation areas on any day remains below 3ML of final treated wastewater – records are maintained – In-Compliance.**E11, E12, E13, E14** – Land application practices are in place and will be included in an updated IMP due for completion around January / February 2003 (current procedures reference documents include company EM Plan of 1994 and IEMS of 1997).**E15, E16, E17** – Sewage effluent disposal – observed restricted access / signage in place / valving in place – In-Compliance.**E18-E23** – IMP – Due for completion around January / February 2003, which is planned to include data / information arising from the on-going projects driving EMP No.1157, towards a conclusion by 30/09/2003. The 15 requirements included under condition E19 are being addressed by EMP No.1157, which includes data / projects operated by both the company, UQ and DNR.**E24, E25** – Viewed and discussed monthly contaminant release monitoring results, which will be provided with the company annual return for 2002, due to be forwarded to the EPA by November 2002. EMP No.1157 covers any non-compliances in this regard, viz; Total Nitrogen and Total Dissolved Solids.**Schedule F – Noise:****F1** – Company indicated that no noise complaints had been received for 2002 and hence no noise assessments had been undertaken on site.**F2, F3** – Vehicle curfews remain in place and are actioned – In-Compliance.**Schedule G – Waste Management:****G1, G2** – No burning of waste is undertaken on site – In-Compliance.**G3, G4** – Appropriate recycling of waste materials is undertaken, viz; paper and “skutch”, belt-press sludge, boiler ash [currently composted by Moreshost P/L / on-site trials underway].**G5, G6, G7** – Regulated wastes, viz; “skutch”, belt-press sludge, boiler ash are transported to Moreshost P/L for garden mix / composting purposes by J J Richards. Davis Gelatine waste tracking database viewed – In-Compliance.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ☐

Schedule H – Self Monitoring & Reporting:

H1-H8 – Records are in place / viewed. Complaints and incidents are actioned / followed-up as required (H7) and reported to the EPA. A complaints summary for 2002 will be included in the company annual return due to be provided to the EPA early November 2002.

H9-H12 - Boiler and Biofilter emissions monitoring due January / February 2003 (testing "Frequency" as Schedule H, Table 1 – "Biennially from 2001") or on an odour complaints-driven basis (no specific complaints identified from known on-site point sources).

H13-H17 – No noise complaints received during 2002 and hence no noise monitoring undertaken.

H18-H23 - Viewed and discussed monthly contaminant release monitoring results, which will be provided with the company annual return for 2002, due to be forwarded to the EPA by November 2002. EMP No.1157 covers any non-compliances in this regard, viz; Total Nitrogen, Total Dissolved Solids. EMP No.1157, which includes data / projects operated by both the company and UQ is moving towards finality on 30/09/2003 (See also comments under "Details of Scope or Particular Focus" above). NOTE: Due to workplace health and safety concerns by the company, SMP 1 equivalent material is now collected from the "Reticulation Pump" in-lieu of, "the overflow from the final effluent balancing storage dam" (H19). A number of NATA Registered Laboratories are used by Davis Gelatine for monitoring / interpreting sample analyses; Brisbane Water, FALA, QG Health (H21, H27 & H31).

H24-H28 – Daily **Logan River monitoring** is carried out by DNR automatic recording stations within the river, both above and also immediately below the property downstream boundary. These recordings for 2002 will be attached to the current annual return, due to be provided to the EPA by November 2002. Parameters are confirmed as those included in the company EM Plan of 1994, due for review in early 2003, as part of the IMP update.

H29-H32 – **Soils monitoring** - Monitoring results, which will be provided with the company annual return for 2002, due to be forwarded to the EPA by November 2002, are covered by EMP No.1157, that includes data / projects operated by both the company and UQ, which is moving towards finality on 30/09/2003. Cropping trials to ascertain nutrient utilisation in soils irrigated with treated wastewater, form a number of projects associated with EMP No.1157.

H33-H35 – **Groundwater monitoring** – Results of bimonthly standing water levels and contents analyses of 31 bore-holes over the site will be provided with the company 2002 annual return due to be provided to the EPA by November 2002. Discussions and review of results for the current period did not indicate nutrient transfer / leakage to the groundwater systems on site. In many areas of the "farm", shallow top-soil cover, over a deep clay base, precludes transfer of irrigated treated wastewater to groundwater (See Figures 15-18). In the light of data accumulating from EMP No.1157, the value of retaining a number of the parameters included in condition H34(d) will warrant reassessment, at conclusion of the process.

E36 – Davis Gelatine seeks expert advice from a variety of sources regarding results emanating from the site monitoring programs, viz; Consulting NATA Laboratories, Air, Noise Environment, UQ Project Team, Soil Consultant Dr Brian Schafer and Ted Gardner of DNR (soil / plant systems [particularly Vetiver grass applications / hydrology issues]).

H37, H38 – Licence limit(s) exceedances arising with the irrigated disposal of treated wastewater to land on site are covered by EMP No.1157 and hence have not been advised to the EPA.

Required Actions: Davis Gelatine Australia Pty Limited is to be forwarded a written request to indicate timeframes for completion of nominated bunding improvements.

Licence conditions module

Condition Number(s)	Details of non-compliance(s)
D7, D8 & D9, D10, D11, D12, D13, D14	The bulk Sulphuric Acid tank bund, drain outlet and external surrounds, including the roll-over bunded vehicle unloading area / pad were observed to be in a poor state of repair requiring upgrading as soon as practicable (Figures 5 & 6). The vehicle unloading approach area to the small diesel above-ground tank located in a bunded area within the "old stables" shed requires upgrading to a bunded pad to obviate spillage to / contamination of soil in this area.

Recommendation (consider what is being emitted, the activity's impact and the adequacy of the EA)**NO RECOMMENDATIONS OFFERED AS CONDITIONS INCLUDED IN EA SR0722 ADEQUATELY ENSURE SUSTAINABILITY OF THE ACTIVITIES CARRIED OUT ON SITE.**

Signoff Sheet

Additional Comments:NIL**Recommendation:**NIL**Adoption of Report (sign below and initial every page)**

This report accurately represents the issues and outcomes of this site inspection.

Inspecting officer

sch4p4(6) Personal in



Signed

Don Shackel

24/10/2002

Date

Inspecting officer

Signed

Date

Comments and Recommendation:

sch4p4(6) Personal in



Signed

Supervisor

24/10/2002

Date



Figure 1: Davis Gelatine production facility Beaudesert



Figure 2: Water storage. It is also possible to make out the limit of the irrigation area. Note irrigation system in operation (marked)



Figure 3: Compost heaps. There was a noticeable odour from parts of the heaps but generally odour is acceptable. These heaps have been identified in the past as an odour source.



Figure 4: Belt press facility. There was a significant odour emitted sporadically from this activity.



Figure 5: Leaking acid has caused some erosion of the concrete bunding material resulting in the destruction of the steel reinforcing material within the concrete. Davis Gelatine is currently investigating this issue.



Figure 6: Drain for Sulphuric acid bund. The seal (marked) has deteriorated and it is possible to move the drain around in the direction shown.



Figure 7: Wastewater treatment facility.



Figure 8: Trial patch of vetiver grass currently being investigated in conjunction with disposal of wastewater to land.



Figure 9: Automated weather recording station.



Figure 10: Paddock irrigated with wastewater and partially top-dressed with balancing storage dam sludge. The grass has shown an improved growth rate in areas treated with the sludge. It is possible to see this impact by the colour and height of the grass



Figure 11: On-site application of compost. No odour was detected.



Figure 12: Detail of applied compost



Figure 13: On-site compost containing a high volume of ash.



Figure 14: Irrigation system in use. Also visible are access tubes for the neutron moisture meters. (marked) Used to measure effectiveness of irrigation on this particular paddock.



Figure 15: Cross-section of soil at bottom of paddock 1. Dense grass root mat 1. Nearly impermeable clay 2.



Figure 16: Show contour drains on hill site marked



Figure 17: Cross section of soil at top of paddock. Collected water shows impermeability of the soil.



Figure 18: Tilled section of soil. It is also possible to see the cross section of the soil at the top of the hill.



Figure 19: Looking across Logan River from bottom paddock towards production site.



Figure 20: Various trap dams such as this are located around site

32573455

RECEIVED 17/10/2002

LEINER DAVIS GELATIN ENVIRONMENTAL RESPONSE FORM

PHONE LINE: 0732180518

DATE: 13 / 10 / 01	TIME: 1435	EPA SOU OPERATOR: Charles
COMPLAINT - NAME: Lis Richards		Correspondence No.
IF SUPPLIED - PHONE: 55442142	Personal	5120017944
IF SUPPLIED - ADDRESS: Sandy Creek Road		File No. 51495
DETAILS OF COMPLAINT:		Action Officer
Bad Smell on + off for last week. Particularly bad today.		Don Shackle

WEEKDAYS: 0600 - 1800

MUST CONTACT:

BRAD PETERSON

LEINER DAVIS (AFTER 0800)

☐

0755419421

MUST FAX COPY TO:

BRAD PETERSON

LEINER DAVIS

☐

0755413612

JOHN FRASER

DEPARTMENT OF ENVIRONMENT

☐

32258723

AFTER HOURS: 1800 - 0600

MUST CONTACT:

BEAUDESERT SECURITY SERVICES

☒

0755414616

MUST FAX COPY TO:

BRAD PETERSON

LEINER DAVIS

☒

0755413612

BEAUDESERT SECURITY SERVICES

☒

0755414711

JOHN FRASER

DEPARTMENT OF ENVIRONMENT

☐

32258723

FAX ALL RESPONSES TO SECURITY 2000

☐

0755005033

Groundwater analysis results for Leiner Davis

9 Oct 02

Samples dated September 02

Samples analysed as per the methods used in previous batches.

Sample	pH	EC mS/cm	NH4 mg/L	NO3 mg/L	Cl mg/L	Al mg/L	C mg/L	Ca mg/L	Cu mg/L	Fe mg/L	K mg/L	Mg mg/L	Mn mg/L	Na mg/L	P mg/L	S mg/L	Zn mg/L	alkalinity mg/L CaCO3
2	6.65	1.04	0.21	46	207	0.046	20.9	105	0.034	0.275	3.0	45	0.061	49	0.189	16	0.146	199
3	6.76	1.14	0.28	48	225	0.015	20.2	120	0.036	0.088	3.3	49	0.057	49	0.204	18	0.160	210
4	6.51	0.92	0.75	3	238	0.006	21.6	91	0.046	2.507	3.0	39	4.997	35	0.019	2	0.128	177
8	6.32	3.74	0.58	285	656	0.010	18.5	531	0.009	0.078	8.0	119	0.317	197	0.070	255	0.497	44
9	6.76	1.45	0.42	38	307	0.012	21.3	171	0.059	0.039	4.4	52	0.046	63	0.221	39	0.213	198
13	6.56	3.10	0.58	202	669	0.006	20.0	426	0.043	0.029	6.6	105	0.101	116	0.302	173	0.426	99
14	7.10	0.99	0.30	33	141	0.000	19.3	64	0.078	0.028	4.4	41	0.022	79	0.078	8	0.115	298
16	6.69	4.62	0.70	313	1012	0.006	22.0	472	0.011	0.037	14.2	141	0.030	394	0.262	245	0.515	110
18	6.93	1.56	0.59	9	400	0.003	21.6	98	0.070	0.022	7.6	54	0.463	136	0.055	6	0.176	238
19	6.94	2.60	5.92	27	686	0.002	25.2	122	0.011	0.002	12.7	42	1.698	255	0.007	44	0.169	247
20	7.19	2.86	1.22	17	812	0.003	21.9	106	0.032	0.009	11.6	61	0.196	440	0.065	42	0.231	276
22	7.09	5.06	5.77	63	1470	0.004	22.4	198	0.006	0.003	26.9	102	4.123	859	0.060	179	0.500	166
31	7.55	2.82	0.27	36	602	0.019	23.8	157	0.029	0.015	10.1	101	0.271	336	0.163	92	0.273	232

QC sample analysis results

Sample	pH	EC mS/cm	NH4 mg/L	NO3 mg/L	Cl mg/L	Al mg/L	C mg/L	Ca mg/L	Cu mg/L	Fe mg/L	K mg/L	Mg mg/L	Mn mg/L	Na mg/L	P mg/L	S mg/L	Zn mg/L	alkalinity mg/L CaCO3
AS water			22.3	23.6	645	0.015	13.5	148	0.082	0.219	57.3	96	0.22	247	0.189	145	0.113	
expected			20	20	651			150	0.100	0.200	56.3	100	0.200	250	0.200	155	0.100	

TRIAL ID	1A Vetter	Desirable	2B Vetter	Desirable	3C Vetter	Desirable	3A Ryegrass	Desirable	5B Ryegrass	Desirable
pH	3.7	5.5-7.5	3.7	5.5-7.5	3.8	5.5-7.5	3.8	5.5-7.5	3.7	5.5-7.5
Electrical Conductivity	1608	<300	1608	<300	1742	<300	1825	<300	1466	<300
Total Soluble Salt	6352.4	<990	5306.4	<990	5748.6	<990	6022.5	<990	4637.8	<990
Available Calcium	3570	595.4	3056	5587	3314	555.4	3426	5497	2936	541.4
Available Mag	404.8	630	360	592	483.6	588	472.8	582	163.2	573
Available Sodium	945.3	<503	848.7	<472	782	<473	811.9	<465	742.9	<458
Available Hydrogen	176	88	184	82	190	82	154	81	170	80
Available Nitrogen	191.4	25	79.8	25	63.8	25	15.2	25	44.1	25
Available Potassium	265.2	190	276.9	190	327.6	190	163.8	190	171.8	270
Total Organic Matter	7.5	6.0-10.0	8	6.0-10.0	7.6	6.0-10.0	7.1	6.0-10.0	6.2	>19
Exchangeable Calcium	9.2	11.20	8.7	11.63	8.6	10.67	8.62	10.07	8.73	12.35
Exchangeable Magnesium	1.83	2.82	1.71	2.91	2.14	2.87	1.98	2.52	2.3	3.09
Exchangeable Sodium	2.12	<0.94	2.1	<0.97	1.8	<0.89	1.78	<0.84	1.82	<1.03
Exchangeable Potassium	0.35	0.94	0.4	0.97	0.45	0.89	0.21	0.84	0.26	1.03
Exchangeable Hydrogen	9.07	<2.62	10.48	<2.91	8.49	<2.67	7.75	<2.52	10.47	<3.09
Adj. Exchang. Hydrogen	5.32		6.48		4.59		4.2		7.37	
Cation Exchange Capacity	22.57		23.39		21.68		20.35		23.86	
Adjusted CEC	16.82		19.39		17.78		16.79		20.58	
Exch. Sodium Percentage	9.36	<5	8.97	<5	8.3	<5	8.74	<5	6.1	<5
Calcium/Magnesium Ratio	5.04	2.0-4.0	5.09	2.0-4.0	4.11	2.0-4.0	4.35	2.0-4.0	3.8	2.0-4.0

TRIAL ID	11B Rape	Desirable	12A Plantain	Desirable	13B Plantain	Desirable	14A Levee	Desirable	15B Levee	Desirable
pH	3.8	6.0-7.5	4	5.5-7.5	3.8	5.5-7.5	3.7	5.5-7.5	4.2	5.5-7.5
Electrical Conductivity	1985	<1250	2067	<300	1990	<300	720	<300	777	<300
Total Soluble Salt	6550.5	<4125	6821.1	<990	8402	<990	2376	<990	2564.1	<990
Available Calcium	3766	5371	3138	5258	3144	5421	764	2304	980	2504
Available Mag	574.8	572	518.4	587	505.2	574	127.2	244	128.4	265
Available Sodium	880.3	<495	970.6	<453	841.8	<453	328.9	<195	368	<212
Available Hydrogen	152	88	146	79	158	80	96	34	98	37
Available Nitrogen	38.6	80	77.7	25	88	25	87.3	20	94.6	20
Available Potassium	171.0	350	222.3	150	183.3	180	401.7	110	405.8	110
Total Organic Matter	6.8	6.0-10.0	6.3	4.0-6.0	6.3	6.0-10.0	4.2	3.0-4.0	5.3	3.0-4.0
Exchangeable Calcium	9.31	10.76	6.64	8.11	7.3	9.22	2.03	4.15	2.63	4.33
Exchangeable Magnesium	2.37	2.69	1.83	2.03	1.86	2.31	0.56	1.04	0.57	1.06
Exchangeable Sodium	1.83	<0.90	1.78	<0.88	1.7	<0.77	0.76	<0.35	0.89	<0.36
Exchangeable Potassium	0.22	0.9	0.24	0.88	0.22	0.77	0.55	0.35	0.59	0.36
Exchangeable Hydrogen	7.51	<2.89	6.17	<2.03	7.34	<2.31	5.11	<1.04	9.25	<1.09
Adj. Exchang. Hydrogen	4.11		3.02		4.19		3.01		2.8	
Cation Exchange Capacity	21.34		16.66		18.52		9.02		9.88	
Adjusted CEC	17.94		13.51		15.37		6.91		7.22	
Exch. Sodium Percentage	9.04	<5	10.6	<5	9.17	<5	8.42	<5	8.71	<5
Calcium/Magnesium Ratio	3.93	2.0-4.0	3.63	2.0-4.0	3.73	2.0-4.0	3.6	2.0-4.0	4.58	2.0-4.0

TRIAL ID	6 Oats	Desirable	7 Barley	Desirable	8A Rape & Lucerne	Desirable	9B Rape & Lucerne	Desirable	10A Rape	Desirable
pH	3.8	5.5-7.5	4.1	6.5-8.0	3.8	6.0-7.5	3.9	6.0-7.5	3.8	6.0-7.5
Electrical Conductivity	1653	<825	1689	<250	1945	<1250	1489	<1250	1933	<1250
Total Soluble Salt	5454.9	<2063	5573.7	<825	6416.5	<4125	4913.7	<4125	6378.9	<4125
Available Calcium	3298	5562	3774	5557	3542	5250	3386	5260	3456	5410
Available Mag	453.5	589	484.8	588	372	557	478.8	557	441.8	573
Available Sodium	793.5	<470	754.4	<470	898.3	<444	673.9	<445	759	<457
Available Hydrogen	166	52	142	82	134	77	144	77	150	80
Available Nitrogen	108.6	30	66.3	30	70.7	70	59.6	80	45.4	60
Available Potassium	245.7	270	183.3	270	206.7	325	167.7	350	202.8	350
Total Organic Matter	7.4	6.0-10.0	6.3	6.0-10.0	7.1	4.0-8.0	6	6.0-10.0	8.3	6.0-10.0
Exchangeable Calcium	9.13	11.41	10.29	11.48	7.81	8.23	9.76	11.58	8.04	9.22
Exchangeable Magnesium	2.1	2.85	2.2	2.87	1.36	2.06	2.3	2.9	1.71	2.3
Exchangeable Sodium	1.62	<0.95	1.79	<0.96	1.75	<0.69	1.69	<0.97	1.54	<0.77
Exchangeable Potassium	0.35	0.95	0.26	0.96	0.24	0.89	0.25	0.97	0.24	0.77
Exchangeable Hydrogen	9.22	<2.85	7.74	<2.87	5.98	<2.06	8.3	<2.90	6.98	<2.30
Adj. Exchang. Hydrogen	5.59		4.59		2.43		5.3		3.83	
Cation Exchange Capacity	22.72		22.28		17.26		22.3		18.52	
Adjusted CEC	19.02		19.13		13.71		19.3		15.36	
Exch. Sodium Percentage	8.45	<5	8.03	<5	16.1	<5	7.57	<5	8.31	<5
Calcium/Magnesium Ratio	4.35	2.0-4.0	4.67	2.0-4.0	5.7	2.0-4.0	4.24	2.0-4.0	4.7	2.0-4.0

Monthly Energy Report

Division:
Site:
Period:
Working Days:
Production Units:
Site Contact:

LDG Australia
Beauesert
12 mths ended June 02
335

Rate c/kWh		Electricity									
Peak	Off Peak	kWh Peak	\$	Days	Ave khr per day	kWh Off Peak	\$	Standing Charge \$	Total kWh	Total \$	\$ per day
0.05042	0.02692	509733	25700.74	31	38912	696533	18750.67	23934.30	1206266	68385.71	2206
0.05042	0.02692	510597	25744.30	31	37288	645280	17370.94	23369.68	1155877	66484.92	2145
0.05042	0.02692	489249	24667.93	30	41587	758356	20414.94	24466.18	1247605	69549.06	2318
0.05042	0.02692	593399	29919.18	31	43873	766664	20638.59	26384.65	1360063	76942.42	2482
0.05042	0.02692	582997	29394.71	30	45253	774607	20852.42	26363.79	1357604	76610.92	2554
0.05042	0.02692	563632	28418.33	31	49443	969091	26087.93	28496.58	1532723	83002.84	2678
0.05042	0.02692	508297	25628.33	31	43632	844304	22728.66	26445.68	1352601	74802.67	2413
0.05042	0.02692	549670	27714.36	28	46739	759017	20432.74	25566.33	1308687	73713.43	2633
0.05042	0.02692	553590	27912.01	31	46485	887445	23890.02	26941.94	1441035	78743.97	2540
0.05042	0.02692	500112	25215.65	30	43088	792523	21334.72	24738.58	1292635	71288.95	2376
0.05042	0.02692	512738	25852.25	31	40027	728100	19600.45	23954.85	1240838	69407.55	2239
#DIV/0!	#DIV/0!				#DIV/0!				0	0.00	

(24)

Don Shackel

From: Don Shackel [don.shackel@epa.qld.gov.au]
Sent: Wednesday, 12 February 2003 12:44 PM
To: 'kyle.roberts@epa.qld.gov.au'
Subject: FW: RAINFALL

KYLE:

F. Y. I. and response concerning a suitable date in late March / early April 2003, to attend a combined site visit and Company Consultative Committee meeting (12m/d meeting suggested) for introductions to the "new" Josephville Davis Gelatine management staff and to farewell Bob Wearne.

Don S.

12/02/2003

Don Shackel

From: Cameron.Smeal@gelita.com
Sent: Wednesday, 12 February 2003 9:26 AM
To: don.shackel@epa.qld.gov.au
Subject: Re: RAINFALL

Dear Don

With regards to the recent rain we were on the receiving end of about 25-30 mm, nice but not enough. Logan River is currently being fed by a rejuvenated Running Creek but that is not expected to last more than 5-10 more days. Irrigators were given a short reprieve and were allowed to draw on the river up to the 11th February. If you would like to access the "Oracle" itself, (excuse the sarcasm, I am not a big fan of Sunwater), updates on permitted irrigation can be obtained from the dam by ringing 5463 6161. Any more specific enquiries you may have can be dealt with by Sunwater officers (Rob Keogh etc) in Ipswich who can be contacted on 3884 5306.

On a related subject, I am curious as to whether Sunwater require EPA license for their operations? Surely the supply (or non-supply), of water is a major ERA? Environmental flows etc, or does the Water Act override the EP Act?

Thanks for the comment from Kyle. It is reassuring to receive such feedback and I appreciate it. Would it be presumptuous to assume that our endeavours are progressing our operations toward best regional practise?

I am still working through the reports submitted from UQ regarding the irrigation management scheduling and am not fully satisfied that this material is of a standard that should be referred to you on any other basis than general interest. I will only submit the report subject to the understanding that it is a students work and to be granted a generous degree of latitude in appraisal.

I look forward to our next meeting with our new manager, CCC and Bob. Have we confirmed with Kyle and yourself for a specific time and date as yet? I do not have a firm entry in my diary.

Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442



Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference
Our reference STH4955\SR0722

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

25 October 2002

Mr R C Wearne
General Manager
Davis Gelatine Australia Pty Limited
PO Box 409
BEAUDESERT QLD 4285

COPY

Dear Mr Wearne

Re: Compliance Audit Response for Environmental Authority SR0722.

I refer to the inspection of the rendering operation (extracting gelatine) of Davis Gelatine Australia Pty Limited located at Flood Road, Josephville via Beaudesert on 15 October 2002 by Environmental Protection Agency (EPA) Officers Don Shackel and Adam Burt.

The purpose of the audit was to assess site compliance with conditions of Environmental Authority SR0722, assess compliance with general provisions of the *Environmental Protection Act 1994* (the Act) and associated policies and to develop an action plan to address any non-compliances.

The audit and site inspection identified a number of non-complying bunding matters requiring attention at your Josephville operation.

In particular, the following repair / upgrading works were indicated for action:

1. The external, bulk Sulphuric Acid storage tank bund, associated drainage outlet and service surrounds, including the roll-over bunded vehicle unloading bay / pad were observed to be in an eroded condition requiring repair work, as soon as practicable; and
2. The vehicle discharge / unloading approach area to the small, above-ground diesel storage tank located in a bunded area within the "old stables" fuel store requires bunding and sealing with impervious material, to obviate contamination of soil in the area, due to fuel spillage.

During post-audit discussions, Davis Gelatine gave an undertaking that the bunding works documented above could be completed by 1 December 2002.

I recall that these bunding issues were raised in my letter to you of 20 February 2002, following which your response of 12 March 2002 indicated completion dates for these works. However, while I understand that these upgrades now constitute "works-in-progress", the previous timelines were not met.

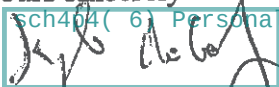
While a number of non-compliant parameters have been previously identified and reconfirmed with regard to the quality of treated wastewater irrigated to land, it is acknowledged that approved Environmental Management Program (EMP) No.1157, concerned with "Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner", due for completion on or before 30 September 2003, is expected to resolve these issues and hence such non-compliances will not be pursued at this time.

It is expected that outcomes generated by completion of the EMP will provide significant worthwhile options for the sustainable disposal of treated wastewater on site.

On behalf of the EPA Officers involved, I wish to thank you for your cooperation during the recent audit and look forward to our continued association in further promoting and supporting environmental improvement projects initiated by your company.

Should you have any questions concerning the above matters, please feel free to contact Don Shackel on telephone (07) 3225 1040.

Yours sincerely

 sch464(6) Persona

Kyle Roberts
Operations Manager, Heavy Industry Group
Environmental Operations
Southern Region

COPY



9
**Queensland
Government**

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference
Our reference STH495-7-SR0722

POSTED 19/11/2003

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

19 November 2003

Mr R Seach
General Manager
GELITA Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

Attention: Mr Cameron Smeal, Environmental Officer

Re: Report of Annual Compliance Audit for Licence SR0722, on behalf of GELITA Australia Pty Ltd, located at "Sunny Hills", Flood Road, Josephville via Beaudesert, Qld 4285.

Environmental Protection Agency (EPA) Officers Don Shackel and Adam Burt conducted a compliance audit inspection on 29 October 2003, in respect of the rendering operation (extraction of gelatine) carried out by GELITA Australia Pty Ltd, at the above address.

The inspection was undertaken as part of an EPA program to complete regular inspections of premises holding environmental authorities with the EPA.

The purpose of the inspection was to evaluate the compliance of activities being conducted on your site with conditions prescribed in Environmental Authority SR0722, assess compliance with general provisions of the *Environmental Protection Act 1994* and associated policies and to ensure any areas of non-compliance are dealt with.

It would appear that you were in breach of the following condition of your environmental authority, at the time of the inspection: B7.

The condition, in full, is attached to this letter. You must immediately take all measures necessary to ensure compliance with the condition of your environmental authority, as a breach of licence condition is a serious offence for which there are heavy penalties.

Licence conditions B17 and H10 may need to be amended to reflect the operation of the Biofilters.

I acknowledge the written commitment of GELITA Australia to commence actions to install a Baghouse, early in 2004, to control over-limit Total Solids Particulates discharges from the Finafire coal-fired Boiler.

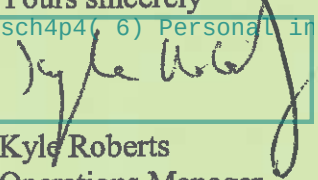
The EPA commends GELITA Australia on embracing a zero-waste policy for the gelatine manufacturing operation, together with the pragmatic approach taken to develop a cost effective new processing sequence for such highly reactive wastes.

As such, the EPA supports the proposed maintenance, improvement and expansion of the established composting facility on site at Josephville.

The EPA thanks you for your co-operation during the audit inspection and looks forward to your continued commitment to the environmental management of the site.

Should you have any questions regarding the above matters, please contact Don Shackel on (07) 3225 1040.

Yours sincerely

sch4p4(6) Personal in


Kyle Roberts
Operations Manager
Heavy Industry Group
Environmental Operations
Southern Region

ATTACHMENT

- (B7) Contaminants must not be released to the atmosphere from a release point at a concentration in excess of that stated in Table 2 of the air schedule.

SCHEDULE B - Table 2

RELEASE POINT NUMBER	CONTAMINANT	RELEASE LIMIT	RELEASE LIMIT UNITS
RP 1	Total Solids Particulates (Adjusted to 12% CO ₂)	250	mg/Nm ³
RP 1	Nitrogen Oxides (expressed as NO ₂)	500	mg/Nm ³

Compliance – Inspection Program

Compliance Inspection Report

Inspection Details:

Date of Compliance Inspection: **29/10/2003**
Compliance Inspection Reason: **Annual Site Compliance Audit**
Compliance Inspection Type: **C**

Compliance Level of Site: **3**

Licence Holder / Operator Details:

Licensee and/or Company Name: **GELITA Australia Pty Ltd**
Site Address: **"Sunny Hills", Flood Road, Josephville via
Beaudesert, QLD 4285**

Environmental Authority No. SR0722:

Environmentally Relevant Activities: **ERA 50(b) – Rendering operation; and
ERA 17 – Fuel burning; and
ERA 15(a) – Sewage treatment**

Name and Position of Contact Person during Inspection: **Mr Cameron Smeal,
Environmental Officer
(07) 5541 9442**

General Description of the Site and Surrounding Environment:

"Sunny Hills" was a former dairy farm located within the Beaudesert Shire, being defined by the Logan River on the southern boundary, the NSW / QLD interstate rail line / corridor on the western boundary, additional private farm land on the eastern boundary and Flood / Tally-Ho Roads on the northern boundary.

The site consists of alluvial flats adjacent to the Logan River (deep sandy loams), leading upwards via rolling ridges (degraded Walloons) and shallow gullies to a high-point hill situated in the north-eastern corner of the property.

History of the Activity/ERA at the Site:

Originally, Leiner Davis Gelatin International Limited trading as Leiner Davis Gelatin (Australia) Pty Limited, subsequently Davis Gelatine Australia Pty Limited and currently GELITA Australia Pty Ltd, established Australia's only gelatine processing operation on the "Sunny Hills" homestead dairy farm site in 1992, following relocation of the activity from Botany, NSW.

GELITA Australia Pty Ltd, which was recently acquired by German private business interests from Goodman Fielder, remains committed to completion of **EMP No.1157** concerned with, ***“Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner”***, which reached full term for completion on 30 September 2003, following a 4.5 year timeframe. E-mail advice from the Company at the due date of the reporting period on 30 October 2003, indicated that EMP No.1157 was completed and written-up, apart from “two final items from external sources for inclusion in the report”, viz; an effluent stream characterisation under the cleaner production section and monitoring schedule from the Company soils consultant. The total report relevant to EMP No.1157 will be provided to the EPA as soon as these outstanding items become available.

Sustainability of application of treated wastewater to on-site land will be achieved through a mix of options including; pasture / grazing systems (including Vetiver grass), cropping (cutting & exporting hay products) and agro-forestry, which plant products will / may become a raw material source (green waste) for **on-site compost-making**, utilising all processing wastes generated by gelatine manufacturing (“skutch”, belt-press sludge, boiler ash) for total on-site soil conditioning purposes.

It is anticipated that adoption of outcomes arising from the recent EMP process will lead, not only to the application of environmentally friendly land disposal applications for industrial treated wastewaters, but also innovative uses of such a resource in environmentally and economically “best practice” farming procedures.

Process Description:

Extraction, purification, drying and packaging of gelatine processed from off-site abattoir waste materials, including treatment of liquid gelatine processing effluents / wastewaters prior to irrigation to land, to support a number of on-site farming options, together with composting of gelatine processing solids and associated wastes, to produce a soil-enhancing composted soil additive.

Non-Compliances and/or new identified issues:

Condition Number(s)	Details of non-compliance(s)
B7 & H9	Over-limit Total Solids Particulates discharged from the Finafire coal-fired Boiler.
E24 & H18-H21, H37, H38	Over-limit treated wastewater release quality characteristics.
B17 & H10	Influence of ambient, fugitive odour levels on Biofilter performance measurement results.

REQUIRED ACTIONS:

B7 & H9: GELITA Australia Pty Limited has made a commitment in writing to commence actions to install a Baghouse to control over-limit Total Solids Particulates discharges from the Finafire coal-fired Boiler early in 2004 (Attached – Company letter of 9/04/2003); and

E24 & H18-H21, H37, H38: GELITA Australia Pty Limited is to forward a written report concerning the outcomes of completed EMP No.1157, “To ensure that the GELITA Australia Pty Ltd [formerly Leiner Davis Gelatin (Aust)] Effluent Disposal System will be operated in a long term environmentally and economically sustainable manner”, together with supporting material, to validate operational and environmental recommendations arising from the EMP process and including any amendments requested to Company Environmental Licence SR0722; and

B17 & H10: GELITA Australia Pty Limited may negotiate with the EPA concerning the wording / intent of Biofilter licence conditions, to take account of ambient, fugitive odour levels present in the immediate surrounds that could impact on results of the equipment performance outcome.

Consultation with Licensee: (including commitments for improvements/required actions)

Since completion of proceedings by the EPA, in the Magistrates Court, in July 1996, against Leiner Davis Gelatin (Australia) Pty Limited, Site Licensing Officer Don Shackel has been closely involved with facilitating environmental improvement on the Josephville site outside Beaudesert.

With the recent completion of a 4.5 year duration, complex Environmental Management Plan (EMP No.1157) concerning, ***"Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner"***, a number of innovative, environmentally friendly "best practice" farming applications for the effective disposal of industrial, treated wastewater are expected to be further developed and refined on site.

RECOMMENDATION:

NIL

Report Completed by:

Name and Position:

Date: 17/11/2003

sch4p4(16) Personal

Don Shackel, Senior Inspector, Heavy Industry Group

Report Reviewed by:

Name and Position:

Group

Date:

sch4p4(16) P

Doug Carey, Principal Environmental Officer, Heavy Industry

Attachments:

- **Reports** – GELITA provided examples of a number of reports, test results, data files and audit findings during the formal audit completed on 29/10/2003 (Attached).
- **Photographs** – A series of 21 digital photographs taken during the site audit on 29/10/2003 indicate the current environmental status of the site, particularly with regard to stormwater protection aspects, together with a limited number of records of processing plant (Attached).

Checklist

Compliance

Compliance program — inspection checklist

Instructions for use

Where an Agency issue is determined to be relevant, note appropriate detail in the observations section.

Where there is any non-compliance, discuss with the company representative and note any required action.

Where the assessment will include licence conditions, use the licence condition compliance section of the checklist.

This checklist is to be used for all inspections. Refer to the procedural guide for guidance.

Cover Sheet Module:

Company Name: GELITA Australia Pty Limited		Date of Inspection: 29/10/2003
Trading as: GELITA – The Gelatine Group		EA No.: SR0722
Description of Business Activity: ERA 50(b) – Rendering operation		
Site Street Address: Flood Road		
Suburb: Josephville	City/Town: Beaudesert	Post Code: 4285
Registered Office Address: "Sunny Hills", Flood Road, JOSEPHVILLE via BEAUDESERT QLD 4285		
Suburb: JOSEPHVILLE	City/Town: BEAUDESERT	Post Code: 4285
Site Representative: Cameron Smeal	Position: Environmental Officer	Contact phone: (07) 5541 9442

Inspection type	☐ Catchment	☐ Industry Sector	☐ Complaint	☒ Compliance				
Compliance level	☐ 1	☐ 2	☒ 3					
<table border="0"> <tr> <td>Inspection type</td> <td>☐ A</td> <td>☐ B</td> <td>☒ C</td> </tr> </table>					Inspection type	☐ A	☐ B	☒ C
Inspection type	☐ A	☐ B	☒ C					
Audit focus is the following relevant Agency interests:								
☒ Water issues ¹	☒ Air issues ¹	☒ Noise issues ¹	☐ National and international					
☒ Land issues ¹	☒ Waste issues ¹	☒ Social issues	☒ Impacts on surrounds					
☐ Coastal issues	☐ Heritage issues	☐ Biodiversity						
☒ Resource allocation	☐ Tenure issues	☐ Other issues						

¹ Main issues to consider for *Environmental Protection Act 1994* focus.

DETAILS OF SCOPE OR PARTICULAR FOCUS:

GELITA Australia Pty Ltd, previously **Davis Gelatine Australia Pty Limited**, recently acquired by German private business interests from Goodman Fielder, remains committed to completion of **EMP No.1157** concerned with, ***"Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner"***, which reached full term for completion on 30 September 2003. E-mail advice from the Company at the due date of the reporting period on 30 October 2003, indicated that EMP No.1157 was completed and written-up, apart from "two final items from external sources for inclusion in the report", viz; an effluent stream characterisation under the cleaner production section and monitoring schedule from the Company soils consultant. The total report relevant to EMP NO.1157 will be forwarded to the EPA as soon as these outstanding items become available.

Subsequently, licence limits requirements for treated wastewater parameters such as Total Nitrogen and Total Dissolved Solids, observed as not achieving compliance on an historic on-going basis, will be addressed by the EMP review process, within a "holistic" context for the site. While non-compliances were flagged by this audit, on-going corrective actions remain in place, relevant and ongoing via EMP No.1157. The company has regularly provided progress reports for EMP No.1157 to the EPA for assessment and information, indicating milestones towards achieving compliance by 30/09/2003. It is expected that outcomes of EMP No.1157 will indicate a need to seriously reassess, amend or delete some or all treated wastewater limits from SR0722.

Sustainability of application of treated wastewater to on-site land will be achieved through a mix of options including; pasture / grazing systems (including Vetiver grass), cropping (cutting & exporting hay products) and agro-forestry, which plant products will / may become a raw material source (green waste) for **on-site compost-making**, utilising all processing wastes generated by gelatine manufacturing ("skutch", belt-press sludge, boiler ash) for total on-site soil conditioning purposes.

To this end, the EPA has recently approved continuation of composting activities on site, following an initial 12 month waste composting project period (September 2002-September 2003) to trial processing methodology and assess outcomes (an odour control plan is in place), with a view to long term, on-going total waste utilisation / recycling on site. Davis Gelatine Australia Pty Limited holds DA7 (with conditions) and SR1114 for ERA 53, relevant to "soil conditioner manufacturing". The company has contracted part-time consultancy services from Johannes Biala of "The Organic Force", to assist with the composting project. The composting consultant Company has prepared a report dated October 2003, titled ***"Assessing the Suitability of Covered Windrow Composting for On-site Processing of Gelatine By-products"***, for GELITA Australia Pty Ltd, which has been made available to the EPA.

SITE CONTACTS:

Review of conditions included in SR0722, together with a subsequent site inspection were undertaken with the company Environmental Officer, Mr Cameron Smeal, while General Manager, Mr Roger Seach was involved in initial and exit discussions.

PHOTOGRAPHS:

A series of 21 digital photographs taken during the site audit on 29/10/2003 indicate the current environmental status of the site, particularly with regard to stormwater protection aspects, together with a limited number of records of processing plant.

CHUCKLE:

A review of Chuckle and Company files, STH495 records for 2003 indicated that any complaints received by the company had been actioned and reports provided to the EPA, in each instance (3 for 2002-2003).

Agency Interests Module:

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓

Assessments & Observations:

ADMINISTRATIVE:

Environmental Licence No. SR0722 (without development approval) (Section 93):
Both the company business and activity location addresses were confirmed **CORRECT**.
ASIC search – See attached printout.
ERA Items – confirmed no changes.
Real Property Description – confirmed no changes.
Licence Effect Date – 27/09/2002.
Licence Anniversary Date – 4 November.

The anniversary date of SR0722 of 4 November 2003 for submission of the company annual return for 2003 was drawn to the attention of Cameron Smeal, Environmental Officer.

In regard to ERA 50(b) – Rendering operation, Cameron Smeal indicated that he did not consider gelatine manufacture a rendering process. These comments were acknowledged by EPA Officer Don Shackel who considered / indicated that wording in the ERA definition including, “processing or extracting substances, including, for example, ----- proteinaceous matter, from animal wastes or by-products”, were relevant to the Davis Gelatine operation.

Schedule A - General Conditions:

A1 – In-Compliance – GELITA operates a standard maintenance card request-advice / corrective-action system which is currently being upgraded to a computer-driven MFG-PRO workshop / preventative maintenance application, together with a MIS accounting / stores system, which is intended to address equipment, plant and building maintenance aspects to reduce / minimise environmental risk.

A2 – In-Compliance – GELITA Environmental Licence SR0722 is displayed in the office foyer on site, while copies are available to staff in the amenity area.

A3, A4 – In-Compliance – The formal audit confirmed that Company environmental records are available as prescribed.

A5 – In-Compliance – GELITA indicated that the Company had achieved up to a 15% increase in gelatine yield over 2-3 years without an “increase in the risk of environmental harm” – annual gelatine production remains around 2200 MT.

A6 – In-Compliance - Perused calibration records file (Copy of “Calibration Master List” provided - Attached).

A7 – In-Compliance – GELITA indicated that no external complaints had been advised / recorded for a number of months.

<p>SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review__Non-compliant ✓</p>
<p>A8, A9, A10, A11, A12, A13, A14 – IEMS – In-Compliance - Updating / amendment of the documentation was linked to company progress towards ISO 14000 certification [A14], which was achieved since the previous formal audit completed on 15/10/2002 (A12, A13, A14). Copies of SGS International Certification Services Pty Ltd documentation, <i>"Environmental Management Systems Preliminary Audit"</i> (28/04-1/05/2002) and <i>"Environmental Management Systems Certification Audit"</i> (4-6/08/2003) of GELITA Australia Pty Ltd to AS/NZS ISO 14001:1996, were provided to the EPA during the formal audit completed on 29/10/2003. An SGS <i>"Audit Status and Itinerary"</i> form listed <i>"Standard Clauses"</i> of the <i>"Document Report Review"</i> for the ISO 14001 Environmental Management System (IEMS) assessment (Attached). See also copy of SGS Certificate AU03/1818 concerning the management system of GELITA Australia Pty Ltd, Flood Road, Josephville, QLD 4285 Australia, that has been assessed and certified as meeting the requirements of ISO 14001:1996, for the following activities, <i>"Management of environmental effects associated with processing plant operations for manufacture of edible grade gelatins as well as the treatment and disposal of wastes."</i> (Certificate valid from 06/08/2003 until 06/08/2006 – Issue 1. Certified since 06/08/2003).</p> <p>The on-going Company training matrix was confirmed [A9(iii)]. Environmental performance and energy audits / reviews were provided to the EPA in the 2002 Annual Return (Copy provided – previously with-held awaiting call-up), [A9(iv), A10, A11].</p> <p>On-site gelatine processing waste utilisation / composting trials have been successfully completed with a view to achieving total internal recycling of nutrients, in due course [A9(v)]. The GELITA Annual Return for 2003 falls due on 4 November 2003, where appropriate reporting will be provided / reviewed [A9(iv)(a)(b), A9(v), A10(i)(ii) & A11]. Energy auditing requirements called-up under Conditions A9(iv)(c), A10(iii) & A11 are not due until the 2004 Annual Return.</p>
<p>A15 – In-Compliance – A Community Liaison Committee is in place and operating – most recent meeting completed in October 2003 – membership remains inclusive of site-surrounding residential persons and Local Government representation. An annual site Review Committee meeting (earlier Court Case requirement), to be arranged by the Company, remains to materialise.</p>
<p>A16 – In-Compliance – GELITA has no problems in meeting this requirement concerning EPA access to the site.</p>
<p>Schedule B - Air:</p>
<p>B1, B2 – In-Compliance – GELITA has measures in place to minimise the release of contaminants to atmosphere (See comments below).</p>
<p>B3-B5 – In-Compliance – Release Points information included in Schedule B – Table 1 remains relevant and correct.</p>
<p>B6, B7 – NON-COMPLIANT - BOILER EMISSIONS TESTING - C Smeal / R Wearne provided a report of February 2003 titled, <i>"Stack Emissions Monitoring and Biofilter Odour Assessment"</i>, prepared by AIR NOISE ENVIRONMENT P/L which indicated that the Finafire coal-fired fluidised-bed Boiler had been found to be in NON-COMPLIANCE with Particulates limits included in SR0722 (Attached). To overcome the ongoing problems associated with the problematic wet-ash removal equipment (Flosep system), GELITA is proposing to "dump" this process and replace it with a baghouse. The Company was requested to provide a timeframe for completion of this project, as soon as practicable. Company letter of 9/04/2003 from R C Wearne, General Manager of Davis Gelatine Australia Pty Limited, at that time, committed to the installation of a Baghouse system to the Finafire Boiler, commencing around February 2004 (Copy attached). This commitment remains the objective of GELITA Australia Pty Ltd. Following Boiler stack testing completed in February 2003, stack emissions testing is a biennial requirement of SR0722, falling due in 2005 (H9).</p>
<p>B8 – In-Compliance – GELITA indicated that during the 2003 annual return period two (2) odour complaints were received, investigated and reported to the EPA – confirmed (12/2002 – dead cow & 3/2003 – compost turning trial). See also comments under H1-H8 below.</p>
<p>B9, B10, B11 – In-Compliance - The Co-generation project remains on the "back-burner", however sufficient biogas can now be collected and held to fuel a trial / short production run. GELITA provided copies of quality analyses, including coal Total Sulphur levels for domestic supply from Jeebropilly Collieries (Attached).</p>

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓
B12, B13, B14 – In-Compliance – During the audit inspection, doors servicing the raw materials receival area were observed to be closed as prescribed by SR0722. GELITA advised that the raw materials building ventilation air volume / changes have been improved / upgraded, with the installation of an additional fan unit since original plant commissioning.
B15 – In-Compliance – The large Biofilter is operating effectively (Comments under B17 apply).
B16 – In-Compliance – The Hybractor Technology Biofilter is scheduled for a fan replacement in January 2004 (Fig.12), to obviate leakage of odorous and corrosive air to atmosphere (Comments under B17 apply). On-going maintenance measures have significantly minimised odour leakage, compared to previous assessments.
B17 – NON-COMPLIANT - BIOFILTER TESTING - C Smeal and Company Consultants have commented on perceived "shortcomings" with the odour assessment process relevant to the on-site biofilters, requesting consideration of amendment to the assessment procedure to account for any background odour levels / impacts. EPA is to consider clarifying the odour assessment process through possible amendment of Condition B17 and H10 included in SR0722 (See Biofilter test results and comments provided by AIR NOISE ENVIRONMENT P/L – attached). Fugitive odour leakage has not impacted beyond the boundaries of the site and generally remains localised.
B18 – In-Compliance – Biogas is flared / Co-generation project remains "on hold".
B19, B20 – In-Compliance – GELITA indicated that regular system leakage checks and plant shutdown SOPs are in place.
Schedule C - Water:
C1 – In-Compliance – DNR maintains Logan River monitoring stations above and immediately below the GELITA property boundary, which continuously trace a range of indicator parameters on river water passing these points. Cameron Smeal indicated that these plots have not indicated any significant deviations from expected ranges. Data will be reviewed in the up-coming annual return for 2003, due by 4/11/2003.
C2-C8 – Ponds Conditions – In-Compliance – The site inspection confirmed; "free-board" requirements as prescribed, ponds integrity maintained, stormwater impacts minimised (diversion banks / drains in place). The contents of Aerobic Pond 1 were noted to be a "healthy brown colour", with an acceptable odour profile.
Schedule D – Stormwater Management:
D1, D2 – In-Compliance – GED Conditions - GELITA has measures in place to minimise the release of contaminants to stormwater, viz; bunding, formed drainage, catch dams, contour banks and drains, variously in place around the site (Figs.1, 2, 3, 5, 6, 7, 8, 9, 10). The concrete-sealed "ring road" surrounding the gelatine processing plant serves as a "first-flush" catchment, with all runoff directed to catch dams for return and treatment in Pond1 (See additional comments below under D6).
D3, D4 – In-Compliance – GED Conditions - GELITA has measures in place to minimise the release of contaminants to stormwater, viz; bunding, formed drainage, catch dams, contour banks and drains, variously in place around the site (Figs.1, 2, 3, 5, 6, 7, 8, 9, 10). A number of "catch dams" located in stormwater runoff gullies / waterways leaving the site obviate any contaminant discharges to the Logan River (See also comments under C1 above concerning independent river monitoring carried out by DNR).
D5 – In-Compliance – Vehicle washing is carried out on a concrete pad, adjacent to the belt-press shed, which drains to the wastewater treatment system.
D6 – In-Compliance – GELITA has SOPs and a number of strategic spill control kits in place around the site (Figs.5, 7). Staff are expected to effectively capture / contain / clean up any spillages to the sealed surrounds of the processing facility. However, any liquid discharges to the formed drainage system and roadways located immediately adjacent to all areas surrounding the production buildings and associated plant installations, drain to a double "trap-dam" system, situated in a gully below the belt-press shed. Any material collected in these dams is pumped to the wastewater treatment plant for processing. It was noted during the audit that the second trap dam in the series was empty, while the first catchment dam appeared to be at around 50% of capacity (recent local rain event).

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓
D7, D8 – In-Compliance – Both bunds servicing the Sulphuric Acid external storage tank and the small, above-ground fuel storage tank located in the “old stables” shed, previously indicated to be defective during the 2002 audit, were effectively rebuilt / reconditioned during 2003 (Fig.8). GELITA previously provided the EPA with photographic records, validating completion of these works. Bund installations on site are generally effectively serviced and maintained (Figs.1, 2, 3, 6, 8, 10).
D9-D14 – In-Compliance – All external bunds were inspected during the formal audit completed on 29/10/2003 and were found to be effective and well maintained (See comments above and Figs.1, 2, 3, 6, 8, 9, 10).
<u>Schedule E – Land Application:</u>
E1 – In-Compliance – Only prescribed contaminant releases were confirmed as irrigated to land during the formal site audit and inspection completed on 29/10/2003.
E2 – In-Compliance - Confirmed on file 961EA47211, documentation, “Leiner Davis Gelatin Sunny Hills Irrigation Farm”, site plan. Cameron Smeal indicated that the “defined contaminant release areas” for the site will require updating / amendment, as an outcome of the recently completed EMP No.1157.
E3, E4 – In-Compliance – GELITA advised that no off-site disposal of treated wastewater had been undertaken or is proposed at this time (“Third party” disposal of treated wastewater).
E5 – In-Compliance - While approximately 120 hectares of land comprises the current treated wastewater disposal areas on site, Cameron Smeal indicated that the “defined contaminant release areas” for the site will require updating / amendment, as an outcome of the recently completed EMP No.1157.
E6-E9 – In-Compliance – Current land irrigation practices for treated wastewater applications continue to provide effective controls (Company EM Plan of 1994 and IEMS of 1997), but will be included in an updated Irrigation Management Plan (IMP), which is planned to include data / information arising from the on-going projects “driving” EMP No.1157, which reached conclusion on 30/09/2003 (Reference documents concerned with the completed EMP No.1157 remain to be fully completed and reviewed, in this regard). The visual effectiveness of land irrigation practices were observed / reviewed during a vehicle tour of the on-site disposal areas on 29/10/2003.
E10 – In-Compliance – GELITA confirmed that records are maintained of the total quantity of programmed contaminants released to the irrigation areas on any day, which remains below 3ML of final treated wastewater (Attachment). Cameron Smeal indicated that reprogramming of treated wastewater discharges to redefined contaminant release areas would be a further consequence of the outcomes of EMP No.1157.
E11, E12, E13, E14 – In-Compliance – GELITA confirmed that land application and wet weather storage practices are in place, as prescribed in SR0722 and will be included in an updated IMP, arising from the completion of EMP No.1157 (current procedures reference documents include company EM Plan of 1994 and IEMS of 1997).
E15, E16, E17 – In-Compliance – The sewage effluent disposal area was inspected – observed restricted access / signage in place / lockable valving in place.
E18-E23 – IMP – In-Compliance - An updated Irrigation Management Plan (IMP), which is planned to include data / information arising from the on-going projects “driving” EMP No.1157, which reached conclusion on 30/09/2003 (Reference documents concerned with the completed EMP No.1157 remain to be fully completed and reviewed, in this regard) also remains to be finalised. The 15 requirements included under condition E19 have been addressed by MEDLI aspects of EMP No.1157, which includes data / projects operated by the Company, UQ and DNR.
E24 – NON-COMPLIANT – Treated wastewater release quality characteristics issues are being addressed through recently completed / ongoing projects “driving” EMP No.1157, which reached conclusion on 30/09/2003. Cameron Smeal indicated that GELITA would be seeking “flow-on” amendment of most parameters included in Schedule E – Table 1 of SR0722, in due course.
E25 – In-Compliance – GELITA indicated that the Company was not aware of any problems concerning environmental nuisance or harm arising from issues prescribed by this condition.
<u>Schedule F – Noise:</u>

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓
F1 – In-Compliance - GELITA indicated that no noise complaints had been received for 2002-2003 and hence no noise assessments had been undertaken by the Company.
F2, F3 – In-Compliance – GELITA indicated that vehicle curfews remain in place and infrequent non-compliances are actioned (one [1] during 2002-2003).
Schedule G – Waste Management:
G1 – In-Compliance – GED Condition – During the formal audit and site inspection of the Josephville operation, completed on 29/10/2003, GELITA was observed to be meeting the requirements of this condition
G2 – In-Compliance - GELITA does not permit the burning of Company waste either on site or off site.
G3, G4 – In-Compliance - Appropriate recycling of waste materials is undertaken, where practicable, viz; paper and cardboard by local collector "Spotty Bins", belt-press sludge removed by licensed soil conditioner manufacturer Moreshost P/L [ERA 53], who was recently issued with a Regulated Waste Transport Licence [ERA 83(b)(i)] and occasionally scrap metal disposal.
G5, G6, G7 – In-Compliance - Regulated waste, viz; belt-press sludge and occasionally boiler ash are transported to EPA licensed operator Moreshost P/L for garden mix / soil conditioner manufacturing purposes. Moreshost P/L has a Regulated Waste Transport Licence with the EPA.
G8 – In-Compliance – GELITA uses EPA licensed operator J J Richards for removal of general waste materials (lift-bins) to local landfill. The GELITA waste-tracking database was confirmed.
Schedule H – Self Monitoring & Reporting:
H1-H8 – In-Compliance – GELITA has a standard recording format in place / viewed, for complaints, incidents and emergencies. Complaints and incidents are actioned / followed-up as required (H7) and reported to the EPA. A complaints summary for 2003 will be included in the company annual return due to be provided to the EPA early November 2003. GELITA indicated that during the 2003 annual return period two (2) odour complaints were received (H1), investigated and reported to the EPA – confirmed (12/2002 – dead cow & 3/2003 – compost early turning trial), while a vehicle curfew violation (F3) was actioned by the Company, with the transport operator. GELITA have SOPs in place to ensure corrective action / feedback loops are completed as prescribed in SR0722. Cameron Smeal flagged a potential odour complaint / incident source over the upcoming New Year shut-down period, when the primary digester vessel of the Hybractor unit will be opened for maintenance work (January 2004), potentially releasing offensive odours to the atmosphere, which may result in nuisance complaints beyond the boundaries of the site. While the repair work may take a number of days, continuous emission of offensive odour is not expected and prevailing weather conditions will be taken into account, at the time.
H9 – NON-COMPLIANT – See comments under B6 and B7 above (Information attached).
H10, H11 – NON-COMPLIANT – See comments under B17 above (Information attached). The foul air fan supplying the wastewater treatment plant Biofilter (Fig.12) is to be replaced during the New Year shut-down period, due to continuing odour leakage problems, resulting in local nuisance odour levels in the surrounding work area, but not beyond the boundaries of the site.
H12 – In-Compliance - Both Boiler and Biofilter emissions monitoring was completed over January / February 2003 (see testing "Frequency" in Schedule H, Table 1 – "Biennially from 2001") and relevant records confirmed in storage for the past seven (7) years. See results appraisal comments under B6, B7 and B17 above.
H13-H17 – In-Compliance – GELITA indicated that no noise complaints had been received during 2002-2003 and hence the Company had not undertaken noise monitoring.

<p>SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review__Non-compliant ✓</p>
<p>H18-H21 – NON-COMPLIANT - Viewed and discussed monthly contaminant release monitoring results with GELITA Environmental Officer, Cameron Smeal. The company annual return for 2003, due to be forwarded to the EPA by early November 2003, will provide this data. An example of weekly ponds sampling results was provided to the EPA during the formal site audit completed on 29/10/2003 (Attached). With the completion of long-term EMP No.1157 on 30/09/2003, "flow-on" recommendations are expected to require amendment of most of the treated wastewater release quality characteristics limits included in SR0722. EMP No.1157, which includes data / projects operated / undertaken by both the Company and UQ was completed on 30/09/2003 (See also comments under "Details of Scope or Particular Focus" above). <u>NOTE:</u> Due to workplace health and safety concerns by the Company regarding the use of SMP 1 as prescribed, equivalent material is now collected from the "Reticulation Pump Line from the BSD", in-lieu of, "the overflow from the final effluent balancing storage dam" (H19). This change will be addressed as part of the upcoming amendment process of SR0722. A number of NATA Registered Laboratories are used by GELITA for monitoring / interpreting sample analyses; Brisbane Water, FALA, QG Health (H21, H27 & H31).</p>
<p>H22, H23 – In-Compliance - GELITA confirmed that "mag" meter records are maintained of the total quantity of programmed contaminants released to the irrigation areas on any day (sighted), which remains below 3ML of final treated wastewater (Attachment). Cameron Smeal indicated that reprogramming of treated wastewater discharges to redefined contaminant release areas would be a further consequence of the outcomes of EMP No.1157.</p>
<p>H24-H28 – Logan River Daily Monitoring – In-Compliance – Daily monitoring is carried out by DNR automatic recording stations within the river, both above and also immediately below the GELITA downstream boundary. These recordings for 2003 were sighted / reviewed, indicating only inherent variations in parameters assessed at the two (2) river sampling points. This extensive chart data is available for call-up for annual return assessment purposes. Parameters were confirmed as those included in the company EM Plan of 1994, due for review in early 2004, as part of the IMP update, flowing from completion of EMP No.1157 on 30/09/2003.</p>
<p>H29-H32 – Soils Monitoring – In-Compliance - Monitoring results completed by UQ are covered by EMP No.1157, that includes data / projects reaching finality around 30/09/2003 and which support material will be provided to the EPA with EMP No.1157, for assessment. Cropping trials, to ascertain nutrient utilisation in soils irrigated with treated wastewater, form a number of projects associated with EMP No.1157.</p>
<p>H33-H35 – Groundwater Monitoring – In-Compliance - Results of bimonthly standing water levels and constituent analyses of the 31 boreholes over the site will be provided to the EPA with EMP No.1157 support material. Discussions and review of results for the current period did not indicate nutrient transfer / leakage to the "deep" groundwater systems on site and hence to the Logan River (See also comments under H24-H28 above). In many areas of the "farm", shallow topsoil cover, over a deep clay base, precludes transfer of irrigated treated wastewater to groundwater. Cameron Smeal indicated that in the light of data accumulated from EMP No.1157, the value of retaining a number of the parameters included in condition H34(d) will warrant reassessment / amendment at conclusion of the EMP review process. GELITA intends to adopt the "Full-Stop" Controller, developed by CSIRO Scientist R Stirzaker (See CSIRO.au) to monitor moisture movement through soil profiles on site, as a measure of irrigated treated wastewater penetration / field capacity / percolation effectiveness.</p>
<p>E36 – In-Compliance - GELITA seeks expert advice from a variety of sources regarding results emanating from the site monitoring programs, viz; Consulting NATA Laboratories, Air, Noise Environment, UQ Project Team, Soil / Agronomy Consultant Dr Brian Schafer, Ted Gardner of DNR (soil / plant systems [particularly Vetiver grass applications / hydrology issues], J Biala of "The Organic Force" for composting guidance and Dr Paul Truong, Vetiver cultivation expert (Attached – "Research, Development and Implementation of the Vetiver System for Wastewater Treatment" by Paul Truong and Cameron Smeal, August 2003, relevant to the GELITA site, where most of the research data used in this Technical Bulletin was generated). Both authors Truong and Smeal co-presented the above paper at the Third International Conference on Vetiver in Guangzhou, China in October 2003.</p>
<p>H37, H38 – NON-COMPLIANT - Licence limit(s) exceedances arising with the irrigated disposal of treated wastewater to land on site have been covered by EMP No.1157, for the past 4.5 years, to 30/09/2003 and hence have not been individually advised to the EPA. However, the EPA has been aware of results achieved over the course of EMP No.1157, following regular and annual reviews of progress of the process.</p>

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓

Schedule I – Definitions: No comments required.

REQUIRED ACTIONS:

B7 & H9: GELITA Australia Pty Limited has made a commitment in writing to commence actions to install a Baghouse to control over-limit Total Solids Particulates discharges from the Finafire coal-fired Boiler early in 2004 (Attached – Company letter of 9/04/2003); and

E24 & H18-H21, H37, H38: GELITA Australia Pty Limited is to forward a written report concerning the outcomes of completed EMP No.1157, "To ensure that the GELITA Australia Pty Ltd [formerly Leiner Davis Gelatin (Aust)] Effluent Disposal System will be operated in a long term environmentally and economically sustainable manner", together with supporting material to validate recommendations arising from the EMP process and including any amendments requested to Company Environmental Licence SR0722; and

B17 & H10: GELITA Australia Pty Limited is to negotiate with the EPA concerning the wording / intent of Biofilter licence conditions, to take account of ambient, fugitive odour levels present in the immediate surrounds that could impact on results of the equipment performance outcome.

Licence Conditions Module:

Condition Number(s)	Details of non-compliance(s)
B7 & H9	Over-limit Total Solids Particulates discharged from Finafire coal-fired Boiler.
E24 & H18-H21, H37, H38	Over-limit treated wastewater release quality characteristics.
B17 & H10	Influence of ambient odour levels on Biofilter performance measurement results.

RECOMMENDATION:

NO RECOMMENDATIONS ARE OFFERED, AS CONDITIONS CURRENTLY INCLUDED IN SR0722 ARE CONSIDERED ADEQUATE TO ENSURE SUSTAINABILITY OF THE GELATINE MANUFACTURING ACTIVITIES CARRIED OUT ON SITE AND TO SAFEGUARD THE ENVIRONMENTAL INTEGRITY OF THE SURROUNDING SENSITIVE RECEPTORS.

Signoff Sheet:

Additional Comments:
<u>NIL</u>
Recommendation:
<u>NIL</u>

Additional Comments:

Adoption of Report:
This report accurately represents the issues and outcomes of this site inspection.

Inspecting officer

sch4p4(6) Personal
Don Shackel

Don Shackel

Signed

17/11/2003

Date

Inspecting officer

N/A

Signed

Date

Comments and Recommendation:

Supervisor

sch4p4(6) Personal
Doug Carey

Doug Carey

Signed

17/11/2003

Date



Fig 1: Bulk corrosive materials storage.



Fig 4: Refrigeration motors are located away from any potential complainant. This area backs onto an incline which assists in controlling noise from these motors.



Fig 2: Shows the interior of the bulk materials storage bund. The interior is lined with a resistant polymer to prevent the material eroding the bund wall.



Fig 5: Receivables area. Shows two spill kits and various dry waste bins used in the area.



Fig 3: Bund drainage / shutoff valve. Permits the release of uncontaminated stormwater.

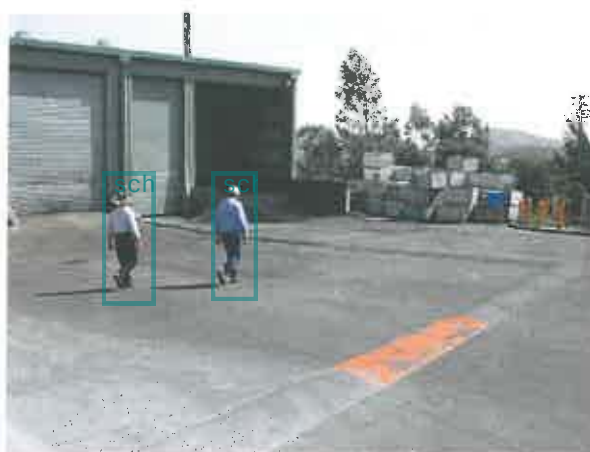


Fig 6: Receivables area. The roll-over bunded area is to prevent contamination of stormwater from the coal receipt / storage and raw materials receipt areas.



Fig 7: A number of these kits are located around the site near stormwater drains. They contain a foam mat that is placed over the drain to prevent contaminated water entering the stormwater drain.



Fig 10: Bunded sodium hydroxide storage for the wastewater treatment plant.



Fig 8: Bulk sulphuric acid storage and bunded area.



Fig 11: Wastewater treatment plant biofilter.



Fig 9: Bunded cleaning chemical storage area and bunded unloading pad.



Fig 12: Biofilter foul air pump.



Fig 13: Sulphur crystals forming on the top of the biofilter media.



Fig 16: Wastewater Clarifier tank.



Fig 14: Aerobic wastewater treatment pond.



Fig 17: Minced skutch being unloaded into temporary dam. This material will then be incorporated into the compost windrows immediately after it has solidified.



Fig 15: Overview of the wastewater treatment plant and Aerobic Pond 1.



Fig 18: New tractor and compost windrow turning attachment.



Fig 19: Compost windrow turner in operation.



Fig 20: The new windrow turner has a number of plasticised canvas sheets that effectively reduce the amount of dust released by this operation.



Fig 21: Shows the effectiveness of the windrow turner – before and after compost texture.

Don Shackel

From: Cameron.Smeal@gelita.com
Sent: Thursday, 30 October 2003 11:09 AM
To: Don Shackel
Subject: EMP

Dear Don
the EMP is complete. I am however, awaiting two final items from external sources for inclusion in the report. An effluent stream characterisation under the cleaner production section and monitoring schedule from Brian Schafer. I will have the complete report delivered immediately these items are available.

Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442

Assessing the Suitability of Covered Windrow Composting for On-site Processing of Gelatine By-products

GELITA Australia Pty Ltd
Beaudesert
Queensland

October 2003

*The Organic
Force*



SITE	APPLICATION RATE (mm/Hr)	DEPTH TO APPLY (mm)	IRRIGATION INTERVAL (days)	TRAVELLER SHIFTS REQUIRED PER EVENT	IRRIGATION EVENTS PER ANNUM	HYDRANT/RUN N	EXISTING RUN (Metres)	PROPOSED RUN (Metres)	TIME TO APPLY PER SHIFT (Hrs)	IRRIGATOR SPEED (Metres/Hr)	TOTAL RUN TIME PER EVENT (Hrs)	VOLUME APPLIED PER EVENT (ML)	VOLUME APPLIED PER ANNUM (ML)
1	12	74	12	6	30	8B	220	400	12.50	32.0	75.00	1.73	51.84
									12.50		75.00	1.73	51.84
2	12.5	72	12	6	30	1A	100	100	3.26	30.7	19.53	0.45	13.5
				6		1B	180	60	1.95	30.7	11.72	0.27	8.1
				6		1C	130	130	4.23	30.7	25.39	0.59	17.55
									9.44		56.64	1.31	39.15
3	16	59	10	4	37	4A	247	170	7.08	24.0	28.33	0.66	24.1536
				4		4B	332	330	13.75	24.0	55.00	1.27	46.8964
				4		5A	270	270	11.25	24.0	45.00	1.04	38.3616
				4		5B	330	330	13.75	24.0	55.00	1.27	46.8964
				4		6A	270	270	11.25	24.0	45.00	1.04	38.3616
				4		6B	200	330	13.75	24.0	55.00	1.27	46.8964
				4		7A	270	270	11.25	24.0	45.00	1.04	38.3616
				4		7B	200	330	13.75	24.0	55.00	1.27	46.8964
									95.83		363.33	8.63	326.76
4	20	51	10	3	37	9A	0	0	0.00	0.0		0.00	0
						9B	0	0	0.00			0.00	0
						10A	0	0	0.00			0.00	0
						10B	0	0	0.00			0.00	0
						11A	0	0	0.00			0.00	0
						11B	0	0	0.00			0.00	0
									0.00		0.00	0.00	0.00
5	16	48	8	3	46	12A	120	120	5.00	24.0	15.00	0.35	15.8976
				3		12B	130	130	5.42	24.0	16.25	0.37	17.2224
				3		12C	210	210	8.75	24.0	26.25	0.60	27.8208
									19.17		57.50	1.32	60.94
TOTALS				65							572	13.19	476.7

Irrigator	Hose Length	Hose Type	Recommended Nozzle	Pressure (psi)	Flow (l/s)	Lane Spacing	Speed for 12.5m/hr	Speed for 16m/hr	Speed for 24m/hr
Trafico	300m (x100m)	4" Hard Hose	1507 6317-080	480	9.81	60m	48.6 m/hr	37.2 m/hr	24 m/hr
Upcon	400m	3" Lay Flat	1507 6317-070	350	6.4	50m	32 m/hr	30.7 m/hr	24 m/hr
Southern Cross	170m	3" Hard Hose	1507 6317-070	350	8.4	50m	32 m/hr	30.7 m/hr	24 m/hr
Manacorn	300m	4" Hard Hose	1507 6317-080	480	9.81	60m	48.6 m/hr	37.2 m/hr	24 m/hr

Site	Precipitation Rate	Total run required	HydrantRun	Length
1	12mm/hr	74mm	8B	400m

Site	Precipitation Rate	Total run required	HydrantRun	Length
2	12.5mm/hr	72mm	1A	100m
			1B	60m
			1C	130m

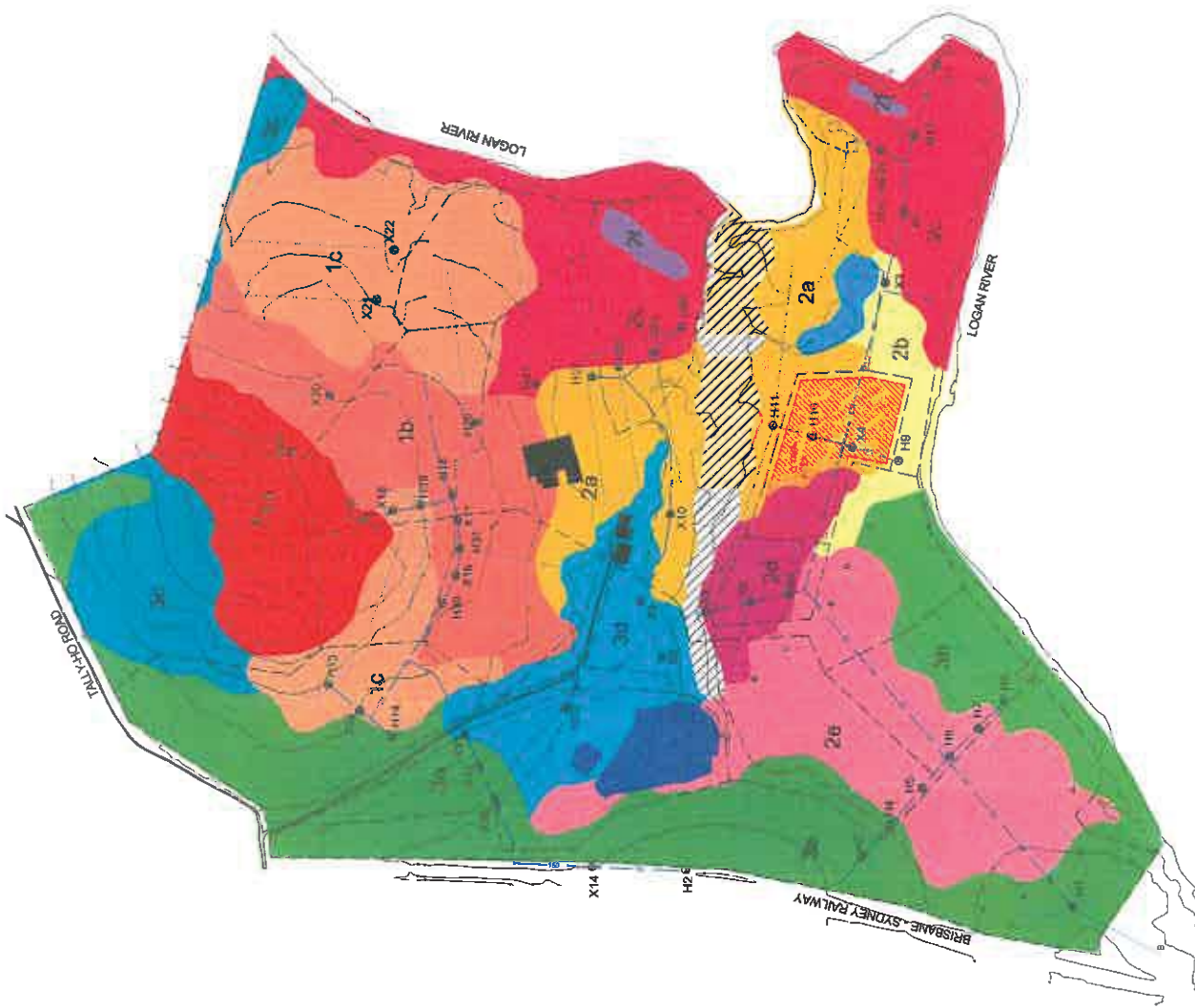
Site	Precipitation Rate	Total run required	HydrantRun	Length
3	18mm/hr	58mm	4A	170m
			4B	330m
			5A	270m
			5B	330m
			6A	270m
			6B	330m
			7A	270m
			7B	330m

Site	Precipitation Rate	Total run required	HydrantRun	Length
5	16mm/hr	48mm	12A	120m
			12B	130m
			12C	210m

Gelita (Australia) Soils Legend

Soil Order	Soil Order	Summary Description	Map Unit
Reduced	Basalt, convex crest	Shallow, stony medium clay	1C
Demised	Basalt, mid-slope shelf	Shallow, stony light clay to silt loam, pH 6.5, CaCO ₃ at 31.5cm	1C
Demised	Basalt, lower slope	Shallow, stony brown medium clay to stony depth	1C
Demised	Aluminum, rill and convex major levels	Deep, sandy loam to sandy clay, pH 6.5 to 7.5, CaCO ₃ at 31.5cm	2a
Demised	Aluminum, dissected levee	Deep, clay loam to sandy clay, pH 6.5 to 7.5, CaCO ₃ at 31.5cm	2a
Demised	Aluminum, back-slope	Deep, sandy clay loam to medium clay, layered, alkaline pH at depth	2a
Vertisol	Basaltic aluminum, closed depression	Black cracking, medium clay, alkaline at depth. Soil mudding surface.	2a
Vertisol	Basaltic aluminum, rill	Dark cracking, medium clay, alkaline at depth. Crusty surface	2a
Demised	Basaltic aluminum, dissected rill	Brown, sandy clay loam	2a
Subsoil	Wellston sandstone, Member, upper convex slopes	Brown clay loam over reddish yellow subsoil, pH neutral to alkaline at depth	2a
Vertisol	Wellston silstone, Member, rill terrace	Brown clay loam over yellowish brown light medium clay, alkaline at depth	2a
Vertisol	Mixed basaltic wellston sandstone, rill gully	Organic black layer over light brown to reddish brown clay, alkaline at depth	2a
Vertisol	Colurian basaltic wellston sandstone, rill gully	Deep, brown light medium clay, alkaline at depth	2a

DO NOT SCALE FROM DRAWING



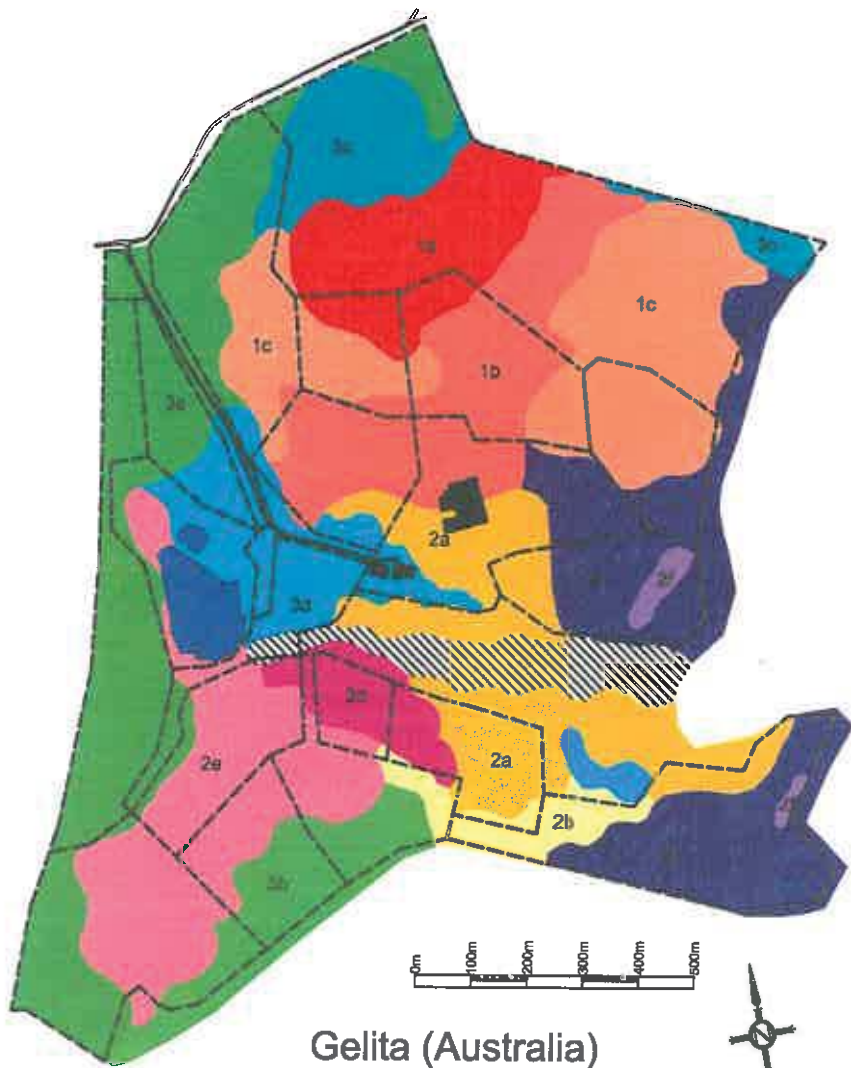
- ① X7 - Hydrant (extra)
- ② H2 - Hydrant in use
- — — — — Irrigation Pipe
- — — — — Fences
- — — — — Ingator runs
- Dam
- Lagoon
- Riparian

HYDROPLAN
IRRIGATION & WATER RESOURCE CONSULTANTS
Ph: 461 (07) 5532 2244 Fax: 461 (07) 5532 3304 Em: info@hydroplan.com.au
PERTH ADELAIDE SYDNEY BRISBANE

REV	DATE	BY	CHKD	PROJ	REVISION DESCRIPTION
00	18/07/03	CSE	DA	DA	ORIGINAL ISSUE
01					
02					
03					

PROJECT	CSE	DA	DA
SCALE	1 : 4000	23/08/03	19/09/03
DATE	23/08/03	19/09/03	1052-1
REVISED	1052-1	1052-1	1052-1

PROJECT	GELITA IRRIGATION
SCALE	1 : 4000
DATE	23/08/03
REVISED	1052-1



Gelita (Australia) Soils Legend

Soil Order	Soil Order	Summary Description	Map Unit
Rudisol	Basalt, convex crest	Shallow, stony medium clay	1a
Dermosol	Basalt, midslope shelf	Shallow, stony light clay to 52cm pH 8.5, CaCO ₃ at 31-52cm	1b
Dermosol	Basalt, lower slope	Shallow, stony brown medium clay to 80cm depth	1c
Dermosol	Alluvium, relic and current major levees	Deep, sandy loam to sandy clay loam, prismatic to polyhedral, pH neutral at depth	2a
Dermosol	Alluvium, dissected levees	Deep, clay loam/sandy clay to medium clay at depth. Neutral pH	2b
Dermosol	Alluvium, backplain	Deep, sandy clay loam to medium clay. Layered. Alkaline pH at depth.	2c
Vertisol	Basaltic alluvium, closed depression	Black cracking, medium clays, alkaline at depth. Self mulching surface.	2d
Vertisol	Basaltic alluvium, relic backplain	Dark cracking, medium clays, alkaline at depth. Crusty surface	2e
Dermosol	Alluvium, dissected relic levee	Brown, sandy clay loam.	2f
Sodosol	Walloon sandstone. Member, upper convex slopes.	Brown clay loam over mottled yellow subsoil, pH neutral to alkaline at depth.	3a
Vertisol	Walloon siltstone. member, relic terrace.	Brown clay loam over yellowish brown light medium clay. Alkaline at depth.	3b
Vertisol	Mixed basalt/walloon sediments, upper/midslopes	Organic black layer over light medium reddish brown clays. Alkaline at depth.	3c
Vertisol	Colluvium basalt/walloon sediments. Retic gully infill.	Deep, brown light medium clay over medium heavy clay. Alkaline at depth.	3d

- Dam
- Lagoon
- Riparian

DO NOT SCALE FROM DRAWING

[illegible]

		BSD																		
		pH	EC	TDS (ppm)	TSS (mg/L)	COD (mg/L)	BOD (mg/L)	Total P (mg/L)	PO ₄ (mg/L)	NOx (mg/L)	TN (mg/L)	EX-TN (mg/L)	S ₂ -T (mg/L)	S ₂ -F (mg/L)						
1/10/03	Wed	5.34	7030	4614	50	204			1.8	15.4	314		0	0						
9/10/03	Thu	5.49	6830	4424	50				1.4	15			0	0						
14/10/03	Tue	5.8	6830	3957	60	237	15	1.3	1.3	15.7	312	310	0	0						
22/10/03	Wed	6.14	6950	4022	70	254			1	21.4	316		0	0						
28/10/03	Tue	6.67	6940		50	244			1.2	18	328		0	0						

Monitoring Requirements For Irrigated Effluent

The existing licence conditions have included soil and water monitoring and the following schedules are a continuation and extended to meet the requirements of the Draft Environmental Management Program (EMP Reference No. 5080001157). The initial monitoring program recommended in the Environmental Impact Statement on soil and water monitoring (GHD, 1992) was implemented as policy in the Company (Leiner Davis Gelatin (Australia) Environmental Management Plan, 1994).

The revised program of irrigation scheduling (Hydroplan report, September 2003) is aimed to sustain soil conditions for productive growth according to soil properties as determined in the Land Management Study Phase 1, Task A- Soil Sampling and Analysis as reported above.

To meet the requirements of the revised licence proposal more detailed sampling will be required to monitor soil conditions according to soil and crop type. The sites for sampling will follow from this report and will be taken from similar locations for comparison over time.

Additional soil and ground water sampling for determining soil behaviour in relation to infiltration and hydraulic conductivity will be also monitored on an annual basis during the five years following establishment of the vetiver/ryegrass production unit. This will be used to validate the recommendations of the MEDLI program upon which the vetiver/ryegrass program is based. Corrective actions will be taken if values are deemed to be outside sustainable limits. This will be affected by modifying the leaching fraction and by deducing salt load in irrigation water by shandyng with bore water.

Element	Sites	Method	Frequency
Soil Salinity	Within soil units 2a, 2b, 2c, 2d, 2e, 3a, 3b,	Soil sampling and analysis for pH (1:5), EC sat, Cl, NO ₃ , SO ₄ , effective CEC, exchangeable Ca, Mg, Na,	annual
Soil infiltration and hydraulic conductivity	Within soil units, 2a, 3b, 2e	Field instrumentation	annual
Nutrient Status	As Above	Soil Sampling and analysis for Total N, NO ₃ -N, NH ₄ -N, Acid extractable P	Bi-annual
Groundwater	Relevant bores with water table within soil units listed above	Tape measurement and EC. Water laboratory analysis	Bi-annual
Effluent	Pump out pond outlet	Water laboratory analysis,	Monthly

These analyses will be used in conjunction with wastewater treatment data to assess compliance with the relevant licence conditions proposed in this submission.

CALIBRATION MASTER LIST

Page 1 of 2

ID CODE	EQUIPMENT	LOCATION	CALIBRATION FREQUENCY	MIN REQUIRED ACCURACY/INCRE MENTS	TESTING RANGE	CALIBRATION METHOD
Q51392A	Gilson pipetman 10ml	Waste Water Laboratory	Yearly	1ml	0 – 1000 u L	External
P61613C	Gilson pipetman 1ml	Waste Water Laboratory	Yearly	1 ml	0 – 100 u L	External
04T6798	Brand transferpipette 1ml	Waste Water Laboratory	Yearly	0.1ml	0 – 100 u L	External
11V6249	Brand Digital Burette 25 ml	Waste Water Laboratory	Yearly	0.1ml	0-25ml	Internal
06T5123	Brand Digital Burette 50 ml	Waste Water Laboratory	Yearly	0.1ml	0-50ml	Internal
04T2009	Brand Digital Burette 50 ml	Waste Water Laboratory	Yearly	0.1ml	0-50ml	Internal
DR/2010	Spectrophotometer	Waste Water Laboratory	Daily with blank	0	As per individual procedure	Internal
70501074	Sartorius Moisture Balance	Waste Water Laboratory	Yearly	0.0000	5.000 – 40.000	External
70501282	Sartorius Moisture Balance	Waste Water Laboratory	Yearly	0.0000	5.000 – 40.000	External
88253	Contherm Drying Oven	Waste Water Laboratory	Yearly	1.0°C	150°C – 200°C	External

Form 008/A

CALIBRATION MASTER LIST

Page 2 of 2

ID CODE	EQUIPMENT	LOCATION	CALIBRATION FREQUENCY	MIN REQUIRED ACCURACY/INCREMENTS	TESTING RANGE	CALIBRATION METHOD
940700011227	COD Reactor	Waste Water Laboratory	Daily with blank and standard	Blank - 0 Std- 300mg/L	50 - 33000+	External
PHM210	PH meter	Waste Water Laboratory	Daily	0.1pH unit	4-7	WWL024
TPS WP-82	Dissolved Oxygen - Temperature meter	Waste Water Laboratory	Prior to use	0.1mg/L O ₂	0-10	WWL028
TPS MC-84	Conductivity - Salinity - Temperature meter	Waste Water Laboratory	3 monthly	100us/cm	3000-10000	WWL027
ARSH - 0125	Drager miniwarn gas monitor	Environmental Office	6 monthly		CH ₄ - 100% SO ₂ - 20 % NH ₄ - 200 % H ₂ S - 50 %	External
020901990	Thermometer 300 series	Environmental Office	Yearly	1.0°C	5°C - 80°C	External

Last updated:

Sign:

Form 008/A



ASIA PACIFIC AFRICA

COPY

9th April 2003

Operations Manager,
Environmental Operations Southern Region,
Environmental Protection Agency,
288 Edward Street,
BRISBANE, 4001.

Attention: Don Shackel

EPA SOUTHERN REGION	
Correspondence No. STH 2003 / 3456	Barcode No.
File No. STH 495	PART FOLIO 6 35
Action Officer Don Shackel	Related Items

RECEIVED / NOTED 14/4/2003
FILED 15/4/2003

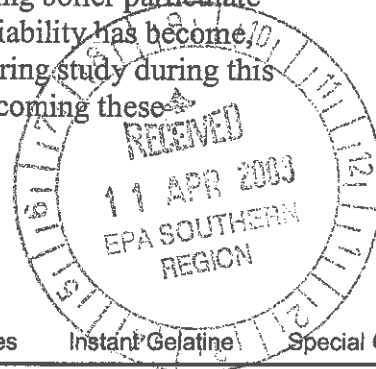
Dear Don,

Following our meeting of Wednesday the second of April, Gelita is pleased to offer for consideration the following proposal for resolution of the boiler particulate discharge issue. The company will undertake to engineer a resolution to the problem associated with isokinetic analysis as quickly as possible, by all reasonable and practicable means.

As discussed, there is significant doubt surrounding the efficacy of isokinetic analysis on a wet stack. In their report, the testing authority commented on the problems of obtaining an accurate sample in a wet flue gas stream. They observed:

"As noted in previous monitoring events and again during this round of emission monitoring, a quantity of condensate was reforming above the sample plane and running down the inside walls of the stack. This will lead to elevated particulate concentrations at the sample location when particulate matter is retained in this condensate and runs down the inside of the walls of the stack and becomes re-entrained in the flue gas stream below the sample plane."

This element of doubt has been a source of concern regarding the reliability of compliance testing for some time. With the latest results indicating boiler particulate discharge license limits may have been exceeded this lack of reliability has become, in our view, untenable. The company has initiated a pre-engineering study during this calendar year to evaluate a Baghouse system as a means of overcoming these methodological errors.



Hydrolysates

Instant Gelatine

Special Gelatine

Davis Gelatine Australia Pty Limited ABN 83 000 010 597

"Sunny Hills" Flood Road Josephville via Beaudesert QLD
PO Box 409, Beaudesert, Queensland 4285 Australia
Telephone 617 5541 3544 Facsimile 617 5541 3612

www.Gelita.com

Should this study validate such an installation as the best available option for overcoming the problems, or prove to offer better than compliance performance, Gelita would follow appropriate internal procedures to recommend such installation take place at the earliest possible time. This proposal has already been forwarded to Senior Regional Management for approval and included in the draft capital budget for the next calendar year, commencing in January 2004.

As we progress with this project we will continue to keep you up to date. If you have any further questions, please call me on 55419411.

Yours faithfully,

sch4p4(6) Personal information



COPY

R. C. Wearne
General Manager
Davis Gelatine Australia Pty Limited

Site Visit Report

Compliance Inspection No: 3151

Responsible Officer: KR/Don Shackel

Licence Number:	Date of Inspection	Inspection Level	Internal Office File No
SR0722	02/04/2003	Annual Return Requirement	STH495/6

Licensee

Gelita Australia Pty Ltd

Did the Licensee Comply?

Yes

Trading As:

not applicable

Work Needs to be Done by?

30/09/2003

If Not Complying Why Not?

Condition prescribed by SR0722:

Community Liaison Committee

(A15) The holder of the environmental authority must, in consultation with the administering authority, co-operate with and service any community environment liaison committee established in respect of either the licensed place specifically or the industrial estate where the licensed place is located.

A Community Consultative Committee meets on a quarterly basis on the licensed site of Davis Gelatine Australia Limited at Josephville, Beaudesert.

What Needs to be Done ?

Completion of Company EMP No.1157 is mandatory by 30/09/2003, with final reporting to the EPA due by 31/10/2003. Technical information concerning this on-site project was made available to CCCM participants on 2/04/2003.

☐ **Infringement notice issued?**☐ **Warning notice issued?**☐ **Field notice issued?****Any Other Comments?**

On Wednesday, 2 April 2003, EPA Officers Kyle Roberts, Operations Manager and Don Shackel, Senior Inspector, Heavy Industry Group, Southern Region attended a scheduled Community Consultative Committee Meeting (CCCM) on the licensed site of Davis Gelatine Australia Limited (now Gelita Australia Pty Ltd) at Josephville via Beaudesert.

The Company had earlier provided electronic copies of an Agenda, together with Minutes of the previous CCCM held on 30/01/2003.

As an opening to the CCCM, each participant introduced themselves, indicating their role / involvement with Davis Gelatine.

AGENDA:

1. Davis Gelatine welcome - Incumbent General Manager Bob Wearne welcomed participants and provided a brief history of the CCCM, as set up following earlier court action against the company in 1995. Bob Wearne also introduced "new" General Manager Roger Seach, who will assume the company role, with the forthcoming retirement of Bob Wearne, early May 2003.
2. Chairman's opening remarks - Chairman Councillor John Mann also discussed the history of the Davis CCCM and progress made by the company in overcoming early problems on site including the reduction of nuisance noise and odour complaints.
3. Previous Minutes - Previous CCCM Minutes of 30/01/2003 were discussed and actioned (copy attached to "hardcopy" material).

Report M01 by Chuckle on: Friday, 7 November 2003**Page: 1**

Site Visit Report

Compliance Inspection No: 3151

Responsible Officer: KR/Don Shackel

4. Environmental performance review - C Smeal, Davis Gelatine Environmental Officer, broadly outlined the current position with determining the sustainable application of treated wastewater to land (EMP No.1157) for various optional uses; Agroforestry, cropping, pasture grass grazing systems (Vetiver grass has performed exceptionally well [cf Kikuyu grass] in achieving the most significant effluent volume uptakes, including effectively capturing and utilising applied effluent / soil Nitrogen). Davis Gelatine provided a number of reports relevant to the issues discussed, for the information of participants:

- a). "Contaminant Release Area Monitoring Program - Background Study" - Irrigated Effluent Management: Davis Gelatine Australia, Beaudesert, "Technical Soils Report" by B M Schafer, Consultant, 31 March 2003.
- b). Draft Interim Report, "Land Disposal as a Final Treatment for Saline Industrial Effluent" - Davis Gelatine Australia, University of Queensland (2003).
- c). "Establishment of soil denitrification through managing an industrial effluent high in nitrates" by L Weier, University of Queensland, School of Land and Food, 2002..
- d). "Composting of Gelatine By-Products" - DRAFT Operations Manual, Gelita Australia, Beaudesert, 2003.

e). REPORT - "Application of the Vetiver System for Effluent Treatment", Davis Gelatine, Beaudesert, Queensland, Veticon Consulting P/L, Brisbane, Qld, 27 March 2003.

5. Complaints received - C Smeal indicated that 1x odour complaint (Compost turning trial) and 1x vehicle curfew non-compliance, were actioned since the CCCM of 30/01/2003.

6. Davis Gelatine complaints actions - Discussed by C Smeal and actions reported to the EPA as required by SR0722 (See note below).

7. General Business:

a). Bob Wearne confirmed a further Company name change from Davis Gelatine Australia Limited to Gelita Australia Pty Ltd, forthwith - same ACN.

b). C Smeal, R Wearne and Cr. Mann discussed the forward scenario of potential limited water availability from the Logan River, without further significant inflows from Running and Christmas Creeks and additions from/to Maroon Dam before the end of 2003. Beaudesert Shire Council has considered water use priorities and possible options and is seeking additional stored water availability both within the Shire (Nindooimba Station dam) and via pipeline from Wivenhoe Dam. Company personnel indicated that in-house water savings of 0.4ML/ day (usage reduced from 1.6 to 1.2ML/ day) had been achieved. Currently the company was extracting around 50% of daily requirements from on-site bores, while the remaining 0.6-0.7ML/day was pumped from the Logan River. Further water saving measures were currently under consideration.

CCCM Chairman Cr. Mann / Bob Warne indicated that plant tours could be arranged at a mutually agreeable time for interested members.

A concluding CCCM group photograph was taken following proceedings.

8. Next CCCM was set down for 4PM on 3/07/2003, on site. The CCCM was concluded around 2PM.

EPA / DAVIS GELATINE DISCUSSIONS:

1. BOILER EMISSIONS TESTING - C Smeal / R Wearne provided a report of February 2003 titled, "Stack Emissions Monitoring and Biofilter Odour Assessment", prepared by AIR NOISE ENVIRONMENT P/L which indicated that the Finafire coal-fired fluidised-bed Boiler had been found to be in NON-COMPLIANCE with Particulates limits included in SR0722. To overcome the ongoing problems associated with the problematic wet-ash removal equipment (Flosep system), Davis Gelatine is proposing to "dump" this process and replace it with a baghouse. The Company was requested to provide a timeframe for completion of this project, as soon as practicable. Additional background information (Letter of 31 March 2003 from HVAC / HPS Queensland P/L - "Subject: Fluid Bed Boiler Emissions") was provided by Davis Gelatine, concerning the Flosep System.

2. BIOFILTER TESTING - C Smeal discussed perceived "shortcomings" with the odour assessment process relevant to the on-site biofilters, requesting consideration of amendment

Site Visit Report

Compliance Inspection No: 3151

Responsible Officer: KR/Don Shackel

to the assessment procedure to account for any background odour levels / impacts. EPA is to consider clarifying the odour assessment process through possible amendment of Condition B17 and I11 included in SR0722.

3. COMPLAINTS FOLLOW-UP:

a). Copies of the company "Environmental Incident Report - Level 1" material for the vehicle Breach-of-Curfew non-compliance of 24/02/2003 and the Bad Odour complaint of 4/03/2003 were provided to the EPA as required by SR0722 (Complaints noted above - Item 5).

b). Copies of Nitrogen (treated wastewater) land application trend charts for the period 1998-2002 were provided for reference by Davis Gelatine.

c). A brief visit was undertaken with C Smeal to the composting trial site via the effluent / wastewater treatment plant (4x photographs taken - 3x effluent treatment & 1x compost manufacture area).

Don Shackel ***** 4/04/2003.

COPY



Davis Gelatin

STACK EMISSIONS MONITORING AND BIOFILTER ODOUR ASSESSMENT

COPY

February 2003

Prepared by:

**AIR NOISE ENVIRONMENT PTY LTD
5/26 Brandl Street, Brisbane Technology Park
Eight Mile Plains, Queensland 4113
07 3341 1811 (ph) 07 3341 2822 (fax)
ane@ane.com.au**



3 RESULTS

COPY

3.1 STACK EMISSIONS TESTING

Results of the stack emissions testing are compared to emission limits in Table 1.

TABLE 1 – RESULTS OF EMISSION TESTING

Compound	Boiler	Licence Limit SR0722
	mg/m ³ *	mg/m ³ *
Particulates (@ 12% CO ₂ reference)	572	250
NOx (as NO ₂) NOx (as NO ₂ corrected to 7% Oxygen)	116 110	500
Sulphur Dioxide	1127	N/A

* - mg/m³ at 0°C at 1 atm Pressure.

The comparison shown in Table 1 confirms that the test data comply with the site environmental licence emission limits as detailed in Environmental Authority # SR0722 for Oxides of Nitrogen, but that total solid particulate matter exceed the specified emission limit.

As noted in previous monitoring events and again during this round of emissions monitoring, a quantity of condensate was reforming above the sample plane and running down the inside walls of the stack. This will lead to elevated particulate concentrations at the sample location when particulate matter is retained in this condensate and runs down the inside wall of the stack and becomes re-entrained in the flue gas stream below the sampling plane.

It is very likely that this effect is occurring along the full length of the stack as visible splatter was observed from the top of the stack. This moisture condensation will be a result of the stack gas cooling and high moisture levels. As noted in Appendix A, the stack gas temperature during the monitoring was quite low (57°C) which is not sufficient to maintain water in the vapour state.

Another contributing factor to the elevated SOx and Particulate concentrations during this round of the stack emissions monitoring, was that the boiler was reported to have been operating at an overfiring condition during the middle of the sample collection run. This has the potential to result in elevated emissions.

Emissions test data sheets are included in Appendix A.

Summary of Results for:

Date: 30/07/08
Client Name: Davis Graham

Job Number: 705

Stack Gas Temp (°C): 57
%CO₂: 8.3
%O₂: 6.3

% Moisture (Dry Basis): 16.1
% Moisture (Wet Basis): 13.9

Av. Velocity of Gas at Sampling Plane (m/s): 18.8
Av. Velocity of Gas at Exit* (m/s): 25.8

Normalised Flowrate (Nm³/hr): 6389
Av. Flowrate (m³/hr): 8957

Stack Diameter at Sampling Plane (m): 0.41
Stack Diameter at Exit (m): 0.35

Sample Period: 10 min

Emission Results (Gaseous)

Parameter	Concentration mg/Nm ³	Concentration mg/Nm ³	Emission Rate g/s
Carbon Monoxide	41	39	0.07
Sulphur Dioxide	1127	1073	2.00
Total NOx (expressed as NO ₂)	116	110	0.21

Emission Results (Solids)

Parameter	Concentration mg/Nm ³	Concentration mg/Nm ³	Emission Rate g/s
Particulates	396	572	0.70

* - Calculated

Air Noise Environment Pty Ltd
705Calc_Boiler.xls

COPY



3.2 ODOUR

Results of the odour samples collected from the biofilters are presented below in Table 2.

TABLE 2 – ODOUR COMPLIANCE

Compound	Hybractor Technology Biofilter	Factory Biofilter	Limit
	OU _{50R}	OU _{50R}	OU
Odour	610	420	100

OU – Odour Units

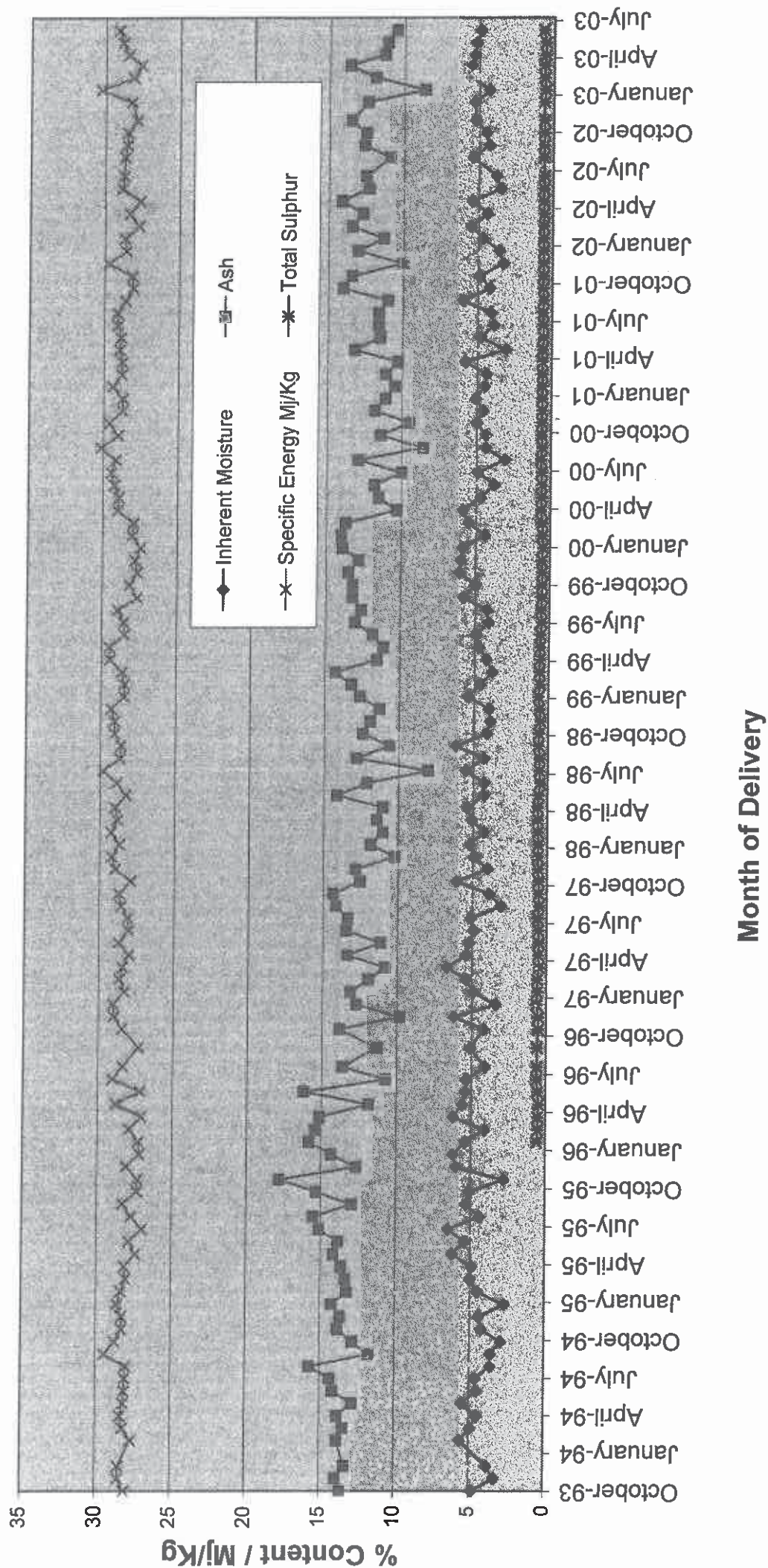
The results of the odour monitoring indicate non-compliance with odour emissions licence criteria from Environmental Authority #SR0722 however it was noted that there was a fresh media present on the Hybractor Technology Biofilter.

The potential for other fugitive odours at this location was also noted as potential structure induced downwash effects may cause interference (ie positive bias) to the collected samples. It was also noted that there was a problem with the aeration of an effluent pond in the close proximity of the Hybractor biofilter before the sampling commenced.

The prevailing wind direction during odour sampling was an east north-easterly direction across the site (away from monitoring location).

Sampling has been completed in accordance with the prescribed condition B17 of the site environmental licence, however there is potential that other odour background may be contributing to the test results at the Bioreactors. The licence criteria is vague in the exact wording suggesting that the odour is measured at 1m from the biofilter surface perimeter, but does not specify that the criteria relates only to odour generated from the biofilter thus inferring that background cannot be subtracted. If it is the case that the criteria is specific to odour generated from the biofilter, then site background odour could be subtracted from the test odour levels. It may be appropriate to seek a licence amendment to reword condition B17 to account for the removal of background to determine the odour generated from the biofilter.

25mm x 6 Coal Qualities Delivered to Domestic Customers



SIZE DOMESTIC COAL QUALITY ANALYSES FROM
25 x 6 JEEBROPILLY COLLIERIES

DATE	I.M.(AD)	ASH (AD)	C.V.(AD)	S.E.(AD)	T.S. (A.D.)
Jan-02	3.6	13.0	6815	28.54	0.6
Feb-02	4.7	11.3	6840	28.64	0.62
Mar-02	5.5	13.4	6620	27.72	0.6
Apr-02	4.4	12.7	6765	28.33	0.59
May-02	5.4	14.1	6600	27.63	0.61
Jun-02	3.5	12.3	6885	28.83	0.63
Jul-02	3.8	12.5	6860	28.73	0.57
Aug-02	5.4	10.9	6850	28.68	0.62
Sep-02	4.3	12.6	6815	28.54	0.61
Oct-02	4.5	12.5	6805	28.49	0.59
Nov-02	5.2	13.5	6655	27.87	0.63
Dec-02	5.3	12.4	6750	28.25	0.62
Jan-03	4.3	8.6	7230	30.27	0.53
Feb-03	5.6	11.9	6720	28.14	0.6
Mar-03	5.5	13.6	6590	27.59	0.63
Apr-03	5.3	11.3	6800	28.47	0.53
May-03	5.2	11.1	6890	28.85	0.54
Jun-03	4.9	10.5	6955	29.11	0.67
Jul-03					

Average last 12 months	4.9	11.8	6827	28.58	0.60
Average last 3 months	5.1	11.0	6882	28.81	0.58
AVERAGE since 1994	4.8	12.6	6797	28.46	0.60

Where:-

I.M.(AD)	=	Inherent Moisture on air dried basis
ASH (AD)	=	Ash on air dried basis
C.V.(AD)	=	Calorific Value on air dried basis
S.E.(AD)	=	Specific Energy on air dried basis
T.S. (A.D.)	=	Total Sulphur on air dried basis

Janet Batten

From: Sinead Donnelly [sinead.donnelly@epa.qld.gov.au]
Sent: Wednesday, 5 May 2004 8:17 AM
To: Damien Brown
Subject: FW: EMP FINAL REPORT

Damien

FYI

Sinead

Level 23 -
Conf room
9-11am
12/5/04

-----Original Message-----

From: Don Shackel [mailto:don.shackel@epa.qld.gov.au]
Sent: Tuesday, 4 May 2004 3:46 PM
To: cameron.smeal@gelita.com
Cc: sinead.donnelly@epa.qld.gov.au
Subject: RE: EMP FINAL REPORT

CAMERON,

Licensing Manager, Damien Brown would like to clarify a number of issues concerning the content of your "Final Report" (Executive Summary) in a meeting agreed for Wednesday, 12/05/2004 from 9-11am at 288 Edward Street, CBD, Brisbane.

A summary of issues to be addressed includes the following:

1. Explain the need for a seven (7) year lifetime to put elements of the EMP in place;
2. Expand and possibly add monitoring limits, i.e. what are the sustainable soil limits (pH etc) to Schedule H - Table 3 (Condition H30);
3. Consider adding "waterlogging" to current Condition E13;
4. Confirm the role of Vetiver Grass in the composting process; ERA 53 Review
5. Discuss groundwater shallow and deep drainage issues concerning "flushing" of salt(s) through soils and possible outcomes, i.e. salt piling and destination of solutes, particularly in regard to the Logan River;
6. Confirm the source(s) of bore-water for soil "flushing rehabilitation purposes" and "extending" of treated wastewater for irrigation purposes.

Please contact myself, should you require any clarification concerning the matters indicated above.

Regards,

Don Shackel
Senior Inspector
Southern Region - Environmental Operations
Environmental Operations Division
Environmental Protection Agency

Ph: (07) 3225 1040
Fax: (07) 3225 8723
E-mail: don.shackel@epa.qld.gov.au

Visit us online at www.epa.qld.gov.au

Don Shackel

From: Sinead Donnelly [sinead.donnelly@epa.qld.gov.au]
Sent: Wednesday, 5 May 2004 9:35 AM
To: janet.batten@epa.qld.gov.au
Cc: Don Shackel
Subject: RE: EMP FINAL REPORT

Janet

Can you please keep the room booking for FL23 conference room. Thanks.

Sinead

-----Original Message-----

From: Janet Batten [mailto:janet.batten@epa.qld.gov.au]
Sent: Wednesday, 5 May 2004 8:48 AM
To: sinead.donnelly@epa.qld.gov.au
Subject: RE: EMP FINAL REPORT

Sinead

I've you booked a conference room for this - too many for Damien's office.
I have booked Level 23 Conference Room just in case. Can you advise if you
want me to keep this booking.

Regards
Janet

> -----Original Message-----

> From: Sinead Donnelly [mailto:sinead.donnelly@epa.qld.gov.au]
> Sent: Wednesday, 5 May 2004 8:17 AM
> To: Damien Brown
> Subject: FW: EMP FINAL REPORT

>

>

> Damien

>

> FYI

>

> Sinead

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> purposes" and "extending" of treated wastewater for
> irrigation purposes.
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> Please contact myself, should you require any clarification
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> matters indicated above.
>
> Regards,
>
> Don Shackel
> Senior Inspector
> Southern Region - Environmental Operations
> Environmental Operations Division
> Environmental Protection Agency
>
> Ph: (07) 3225 1040
> Fax: (07) 3225 8723
> E-mail: don.shackel@epa.qld.gov.au
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SECTION 4 HAVE BEEN DRAINAGE TO 12M GR WATER P 10 REPORT LEACHING SOLUTES TO GR WATER
6. Confirm the source(s) of bore-water for soil "flushing rehabilitation purposes" and "extending" of treated wastewater for irrigation purposes.
RIVER FLOW

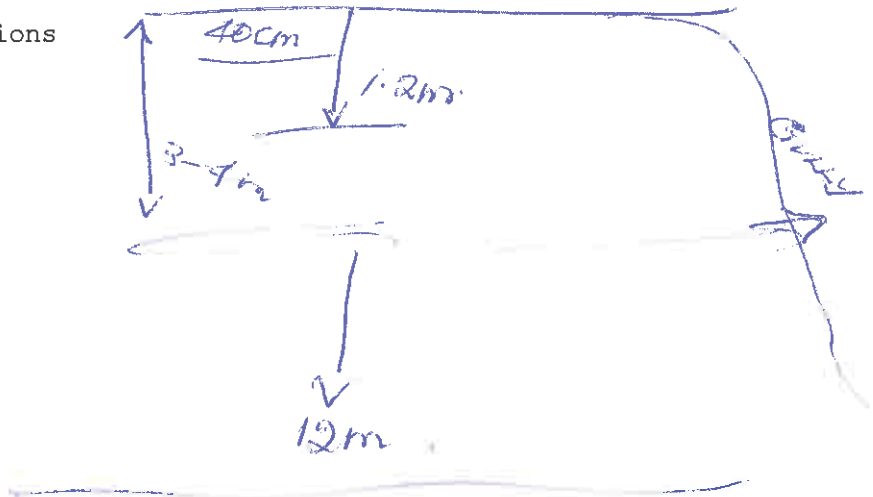
Please contact myself, should you require any clarification concerning the matters indicated above.

Regards,

Don Shackel
Senior Inspector
Southern Region - Environmental Operations
Environmental Operations Division
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Don Shackel

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Don Shackel
Senior Inspector
Southern Region - Environmental Operations
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Ph: (07) 3225 1040
Fax: (07) 3225 8723
E-mail: don.shackel@epa.qld.gov.au

Visit us online at www.epa.qld.gov.au

Memorandum



Queensland Government
Environmental Protection Agency
Incorporating the
Queensland Parks and Wildlife Service

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference EMP001-30031999
Our reference STH495-8-SR0722

27 February 2004

To: Kyle Roberts, Operations Manager - Heavy Industry Group

From: Don Shackel, Senior Inspector – Heavy Industry Group

Subject: **Completion of Environmental Management Program (EMP)**
No.5080001157 (SR1157) - GELITA Australia Pty Ltd.

NOTE: EMP No.SR1157 Original "Date of Certificate of Approval" – 3/05/1999 – Period-in-Force – 33/03/2002
(Period-in-Force: 4.5yrs) Amended "Date of Certificate of Approval" – 1/12/2001 – Period-in-Force – 30/09/2003

1. COMPLIANCE / COMPLETION REPORT ASSESSMENT

Verification:

On 30 October 2003, e-mail advice was received by the EPA from Cameron Smeal, Environmental Officer for GELITA Australia Pty Ltd advising that EMP No.SR1157 and internal reporting requirements were completed, as prescribed, by 30/10/2003, viz; "within 30 days of the final date for completion of the environmental management program as stated on this "Certificate of Approval" (Tuesday, September 30, 2003), the person to which the environmental management program applies must forward a report to the administering authority detailing compliance with the conditions of this "Certificate of Approval" (Copy attached).

In consideration of the Company response to completion of EMP No.SR1157, verification of compliance with mandatory "period-in-force" timelines is confirmed.

Further, "compliance shall be verified in the report (a compliance report) by inclusion of such copies of plans, procedures, photographs, photocopies of purchase receipts, statutory declarations by the person and/or other documentation as may be necessary to demonstrate such compliance." Effective reporting requirements are confirmed

A 35 page "Compliance Report", including 'Executive Summary' and 'Effluent Management Final Report' including outcomes from the 'Gelatine Effluent Land Management Study' and 'Cleaner Production Trials', was received by the EPA on 20/11/2003, due to a delay awaiting two (2) final items from external company sources (consultants) for inclusion in the extensive "Supporting Information" package (Reference - STHR1242). In consideration of the material provided, effective reporting requirements are confirmed.

GELITA Australia has also consistently and diligently provided necessary six (6) monthly and annual reports concerning progressing outcomes associated with EMP No.SR1157.

Page 1 of 7

288 Edward Street Brisbane
Queensland 4001 Australia
GPO Box 2771 Brisbane
Queensland 4001 Australia
Telephone (07) 3224 5641
Facsimile (07) 3225 8723
Website www.epa.qld.gov.au
ABN 87 221 158 786

In consideration of the Company response to completion of EMP No.SR1157, verification of compliance with prescribed reporting requirements is confirmed.

Report Assessment:

The Company “Compliance Report” and “Supporting Information” materials have consumed considerable extra-office commitment to assess the outcomes of this complex, five (5) year, multi-disciplinary project with concurrent investigative strands. Not unexpectedly, the reports and findings associated with EMP No.SR1157 are extensive.

An “Executive Summary” details 18 major outcomes of the project, in dot point form, each of which has been read / reviewed in context, with the appropriate aspect in the “Supporting Information”, from which it was derived.

GELITA Australia submits that the outcomes of the program meet the “General Conditions” of ‘Certificate of Approval No.SR1157 for Environmental Management Program’, in respect of, “Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner”, the stated purpose of the EMP.

In summary, the study has determined that the operation is sustainable in terms of mineral salts but that altered practices to control nitrogen balances are required. Each of the thirteen (13) soil types identified will require individual irrigation treatments to achieve optimal outcomes. Results to date indicate that current licence conditions do not promote the most sustainable approach to site management, viz; outcome based, driven by climatic variations.

Rigorous research has determined that irrigation of treated effluent to specific soil types, using outcome-based criteria, as opposed to application load limits, currently included in site Environmental Licence No.SR0722, is the optimal management philosophy. Such a philosophy demands implementation of a reflexive irrigation model capable of dealing with extreme climatic variations (viz; 2001-2004 prevailing seasons) that is not based on assumptions of “average” conditions. **This requires a fundamental change in management from qualitative control criteria to outcome-based assessment of the operation.**

Based on the improved understanding of the soil dynamics associated with treated effluent irrigation across the farm site, a strategy is proposed to improve the long-term sustainability of the operation. An irrigation management schedule has been devised for the various soils under a forage/agro-forestry production program.

Recommended changes/amendments to Company Environmental Licence No.SR0722 will need to be progressed to allow this outcomes-based model to be effectively applied at “Sunny Hills”.

Revised Treated Effluent Management Program:

A revised management approach has been devised to allow for a robust response to the soil capacities for treated effluent, given a range of climatic conditions. There are four aspects to the proposed management scheme. The concept requires graduated phases of establishment over a seven-year period.

These involve implementation of agro-forestry for limited treated effluent disposal over the less permeable soil types, the progressive establishment of a Vetiver Grass system for maximising nitrogen uptake across soils with higher hydraulic conductivity, early implementation of lateral

drainage of heavy clays and immediate improved wastewater treatment (liquid lime addition as necessary) for nitrogen removal.

The addition of liquid lime at the pump-out facility for treated effluent irrigation will raise the pH value of dosed material to levels where excess nitrogen will be volatilised. Theoretically, up to 80% of ammoniacal nitrogen in the wastewater can be eliminated by this means.

TDS limits included in Company Environmental Licence No.SR0722 will need to be removed to allow this process to be implemented.

In order to implement a disposal system best suited to meeting the criteria of ESD, GELITA Australia has proposed adoption of a seven-year implementation program. This program will be dependent on the realisation of significant changes/amendment to Company Environmental Licence No.SR0722. The core of the program will require the propagation and planting of Vetiver Grass as the key to beneficial reuse of treated effluent. The deep rooting system and high nitrogen requirement of Vetiver Grass are ideal for nutrient removal from site soils.

The harvested material will be utilised in composting trials for pasture improvement in non-irrigated areas over the farm. Supplementary plantings of trees and ephemeral cropping rotations will provide diverse and flexible means of treated effluent use to match climate and treated effluent quality variations.

The central tenets of the proposed system are as follows:

- flushing of “salts” below root zone to maintain healthy soils
- reduced irrigation disposal area to ensure flushing occurs
- crop selection (Vetiver/Rye grasses) to maximise nitrogen uptake
- nitrogen export from irrigated zones
- chemical nitrogen control contingency option
- precise irrigation management plan
- elimination of grazing within irrigated zones
- outcome-based monitoring regime
- annual independent expert assessment

In order to achieve these outcomes (above) a number of amendments to Company Environmental Licence No.SR0722 will be required and ARE SUPPORTED:

- removal of TDS discharge limit
- removal of daily treated effluent discharge volume limit
- removal of irrigation prohibition during rainfall (aids “salts” flushing, while requirements to prevent ponding, run-off will be maintained)
- substitution of altered monitoring program

Within the “Compliance Report” and “Supporting Information”, the Vetiver Grass system has been identified as having the potential to meet ESD criteria. The “Supporting Information” details the outcomes of research on the application of the Vetiver Grass system to date:

- On site R&D conducted at “Sunny Hills” has proved that Vetiver Grass is highly productive, while off-site research projects have confirmed these findings;
- Vetiver Grass has out-yielded other grasses used on site by six (6) fold;
- With this high production capability, Vetiver Grass has the potential of exporting three (3) times the nitrogen of other grass species;
- Based on field experimentation, the potential total land area required to sustainably dispose of all of the gelatine factory treated effluent would be approximately 50 ha;

- After allowing for 15%-20% salt leaching (conservative figures), MEDLI simulation also predicted that the Vetiver Grass planting area can be reduced to 49.5 ha to sustainably dispose of the total treated effluent output;
- Data on growth and nitrogen content of mature plants indicated that the deep and extensive root system of Vetiver Grass could reduce or eliminate nitrogen leaching, maintaining groundwater quality.

Consequently, the Vetiver Grass system will form a critical part of the overall proposal for a sustainable farm and factory treated effluent disposal regime.

Research Conclusions:

The following conclusions are drawn from information gained since 1999, over the lifetime of EMP No.SR1157. Data contained in reports and technical material that are included in the “Support Information”, detail the findings of this research. In summary, the conclusions that are drawn from these works indicate the following:

- *That all nitrogen and salts can be sustainably dealt with on site.*
- *That Exchangeable Sodium Percentages (ESP) have increased over time.*
- *The leaching fraction determined from current actual irrigation practice is double the conservative values used for the MEDLI modelling process (reports sourced from three [3] separate modellers reached similar conclusions).*
- *Current irrigation practice with treated effluent is sustainable on the dermosol (alluvium - Logan River “flats”) soil type in terms of salinity management.*
- *Nitrate is being leached to depth in the dermosol (alluvium – lower slopes, sandy clay/loam levees) soil type but levels are less than the licence limits.*
- *Nitrate levels in the surface soil should be utilised by improved plant growth using the proposed Vetiver/Rye Grass whole year production system.*
- *Nitrate is not accumulating at depth in the vertosol (basaltic alluvium, Walloon siltstone, mixed basaltic/Walloon sediments) and surface concentrations can be utilised for plant growth using the proposed Vetiver/Rye Grass production system.*
- *Cleaner production methods have been achieved.*

Revised Irrigation Schedule According to Soil Type and Production Type:

Based on the improved understanding of the soil dynamics associated with treated effluent irrigation across the farm site, it is the intent of GELITA Australia to ensure that specific soil types receive irrigation to match soil properties.

A strategy is proposed to improve the long-term sustainability of the operation. An irrigation management schedule has been devised for the various soil types under a forage/agro-forestry production program.

Concentrating treated effluent disposal to less than 60 hectares of suitable soils incorporating the proposed production program is recommended to prevent salt build-up to deleterious levels in the soils, under current treated effluent and climate characteristics.

Monitoring of the irrigation (quantity, quality and distribution), rainfall and potential evapo-transpiration allows for the determination of the leaching fraction achieved.

A water (treated effluent) balance model (MEDLI), developed by DNR, is used to assess past and current leaching fractions and will be included as part of the revised monitoring program to determine future leaching fractions.

Maintenance of an appropriate leaching fraction for each soil type will ensure that the concentration of leachate draining below the root zone is at a level not deleterious to productivity of plant biomass. This will provide a more relevant assessment of sustainability of the disposal system.

This program is designed to apply treated effluent according to plant water requirements at 85% of field capacity and is based on soil infiltration and hydraulic conductivity characteristics.

In conjunction with the soil monitoring program, the actual leaching fraction can be altered as required to ensure soil levels of nitrogen and “salts” remain within sustainable levels.

Proposed Amendment of GELITA Environmental Licence No.SR0722:

In order to implement the “**best practice environmental management**” program emanating from completion of EMP No.SR1157, a number of **AMENDMENTS** to Schedule E Conditions included in Company Environmental Licence No.SR0722 will be required.

Amendments sought by GELITA Australia Pty Ltd in respect of Environmental Licence No. SR0722 are set out, together with justifications for such changes, in the attached “**Recommended Licence amendments**”, included on pages 28-32 inclusive of the Company “Compliance Report”.

The proposed amendments to Environmental Licence No.SR0722, are fully supported by Assessment Officer / Site Licensing Officer Don Shackel, in respect of the outcomes emanating from EMP No.SR1157.

Conclusion / Final Comment:

Specific requirements of the EMP have been extensively addressed and in general GELITA Australia has exceeded these requirements in **developing a model** for site Environmentally Sustainable Development (ESD). Comprehensive “Supporting Information” in the form of technical documentation was provided with the “Compliance Report”.

2. ADMINISTRATION

Considering that the **AIM** of EMP No.SR1157 was to manage “Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner”, results emanating from the completed program have demonstrated that this **AIM** has been achieved for all practicable and economic purposes.

At the same time, agreed **OBJECTIVES** and **METHODS OF MEETING OBJECTIVES and TIMEFRAMES**, documented in EMP No.SR1157 have been effectively researched / trialed / actioned over the 4.5 year lifetime of the program.

Hence, the **AIMS** and **OBJECTIVES** of EMP No.SR1157, are considered to have been met by GELITA Australia Pty Ltd.

In order to implement the “**best practice environmental management**” program emanating from completion of EMP No.SR1157, a number of **AMENDMENTS** to Schedule E Conditions included in Company Environmental Licence No.SR0722 will be required. Such amendments will be considered / progressed using the Application Form – Part A – ‘General details of all applications’ and Application Form – Part B – ‘Amend environmental authority’ processes, accompanied by the appropriate Schedule 6 fee of \$150.00.

At the same time, it is considered that GELITA Australia Pty Ltd has **ACHIEVED THE INTENT OF EMP No.SR1157** and hence it is **CONFIRMED THAT EMP No.SR1157 IS CORRECTLY TERMINATED.**

Regulatory Requirements:

In consideration of the information provided by GELITA Australia Pty Ltd through “Progress Reports”, submitted to the Administering Authority over the lifetime of EMP No.SR1157, together with the recent “Compliance Report” and “Supporting Information”, such information is considered to have satisfied the intent of the EMP process and hence **EMP No.SR1157 IS COMPLETED AND NO LONGER IN FORCE.**

Verification aspects of EMP No.SR1157 were considered and assessed at the top of this memorandum.

Fee Assessment / Payment:

Environmental Operations - Operational Policy – “Environmental management program (EMP) fees” indicates that Section 52(1)(b) of the EP Regulation prescribes that the fees for assessing the holders annual return and *monitoring compliance with the program* is the amount that:

- the authority considers to be reasonable; and
- is not more than the reasonable cost of the assessment and monitoring.

Fees for assessment of an EMP annual return and *monitoring of a compliance program* of an EMP are charged at a rate of \$73.40 per hour (includes GST), or part thereof, plus any reasonable cost for analysis and travel. The reasonable cost of travel will be the cost of travel, plus GST.

Fee Assessment:

Monitoring final compliance report of completed EMP No.SR1157:

- 20 hours at \$73.40/hour

Cost of monitoring final compliance report of completed EMP No.SR1157:

- \$1,468.00 (includes GST)

Travel to GELITA Australia Pty Ltd at Josephville to review completed EMP No.SR1157:

- Holden Commodore Wagon - Registration No. QGR 132 (3800cc engine capacity)

Cost of travel to GELITA Australia Pty Ltd at Josephville to review completed EMP No.SR1157:

- 148km (18/02/2004) at 60.0c/km (Directive No.3/03 *Motor Vehicle Allowances* June 2003 – for automobiles 2601cc and over)
- Calculated cost \$88.80 + GST
- Total travel cost \$97.70 (rounded)

Total fee for assessment of completed EMP No.SR1157:

- \$1,468.00 + \$97.70
- **\$1,565.70**

A compliance assessment fee, **considered to be the reasonable cost of assessing final compliance**, for completed EMP No.SR1157 has been determined at \$1,565.70 (above), comprising twenty (20) hours of assessment / reporting time amounting to \$1,468.00, together with travel expenses, to and return from Josephville to review the “Compliance Report”, calculated at \$97.70.

3. RECOMMENDATION

IT IS RECOMMENDED THAT:

1. GELITA Australia Pty Ltd formerly Leiner Davis Gelatin International Limited, the holder of the 'Certificate of Approval', be advised in writing that based on information supplied, the administering authority considers that the Company has **ACHIEVED FULL COMPLIANCE** with the *Environmental Protection Act 1994*, **FOR THE MATTERS DEALT WITH BY THE PROGRAM**; and
2. The Environmental Support Officer, Southern Region – Environmental Operations forward GELITA Australia Pty Ltd an invoice for the \$1,565.70 fee for monitoring / assessing / reporting final compliance with the program.

Assessing Officer:

sch4p4(6) Personal

Shackel

Don Shackel
Senior Inspector
Heavy Industry Group
Environmental Operations
Southern Region

*Don
Thorough assessment
HA noted - supported
11/3/04*

C/c: Cathy Ufer
Environmental Support Officer
Environmental Operations Division
Southern Region

For your information and necessary action concerning Recommendation 2.

DKS.

Site Visit Report

Compliance Inspection No: 3200

Responsible Officer: KR/Don Shackel

Licence Number:	Date of Inspection	Inspection Level	Internal Office File No
SR0722	18/02/2004	EMP	STH495/8

Licensee

Gelita Australia Pty Ltd

Did the Licensee Comply?

Yes

Trading As:

not applicable

Work Needs to be Done by?**If Not Complying Why Not?**

The on-site review concerned consideration of a "Final Report" submitted by GELITA Australia Pty Ltd regarding the outcomes of Environmental Management Program (EMP) No. 5080001157 (1157) meeting requirements of the 'General Conditions of Certificate of Approval' for EMP No. 1157, namely, "Operation of the Effluent Disposal System in a long term Environmentally and Economically Sustainable Manner."

GELITA Australia Pty Ltd has also requested EPA consideration of proposed amendment of Company Environmental Licence SR0722, based on the findings of the five (5) year, multi-disciplinary project, including concurrent investigative strands.

What Needs to be Done ?

1. Complete assessment of the "Final Report" of the outcomes of EMP No. 1157 and prepare a final review memorandum to formally terminate EMP No. 1157.
2. Formally advise GELITA Australia Pty Ltd of the acceptance of termination of EMP No. 1157.
3. Negotiate amendments to Environmental Licence SR0722 with Company.

☐ **Infringement notice issued?**☐ **Warning notice issued?**☐ **Field notice issued?****Any Other Comments?**

Around 8:30AM on Wednesday, 18/02/2004, EPA Site Licensing Officer Don Shackel visited the Josephville operation of GELITA Australia Pty Ltd to review the Company "Final Report" concerning the outcomes derived from completion of EMP No. 1157, with Environmental Officer Cameron Smeal.

EMP No. 1157 was formally completed on 30/09/2003, following which, the Company had submitted the "Final Report" by 31/10/2003, as required.

The Company "Final Report" was exhaustively reviewed, guided by the "Executive Summary" and with extensive reference to the Company "supporting material" (STHR1242 / C1280428). Following the desk review and in-depth discussions (4hr), a mobile site tour was undertaken, when relevant farm treated effluent disposal options were surveyed / noted.

Following the review of the Company "Final Report" of EMP No. 1157, together with surveying the evolving, applied farm outcomes derived from the five (5) year, multi-disciplinary EMP process, termination of EMP No. 1157 can now be progressed.

OTHER ISSUES ADDRESSED DURING THE VISIT:

1. **COMPOSTING OPERATION** - The composting area was visited where the compacted, clay mixing pad base was being cleared of composting material prior to the bitumen sealing (over road-base above the clay pad) of the area which is scheduled to commence on Friday, 20/02/2004. The sealed area will be effectively drained to perimeter "catch drains" directed to a nearby "catch dam" and thence to the effluent treatment system. Such actions / installations further address Company DD/GED commitments with regard to contaminant runoff capture /

Report M01 by Chuckle on: Monday, 23 February 2004

Page: 1

Site Visit Report

Compliance Inspection No: 3200

Responsible Officer: KR/Don Shackel

control and surrounding stormwater protection.

2. FINAFIRE COAL BOILER BAGHOUSE: (Photos. 2, 3, 4)

The new baghouse is now installed, commissioned and operating mechanically effectively. Stack emissions testing of the new system is scheduled for early March 2004, when the EPA will be advised of the results of the \$300,000 upgrade.

3. EARLY 2004 SHUTDOWN UPGRADES: (Photo. 5)

A number of odour leakage sites within the effluent treatment plant were eliminated following maintenance work completed during the recent operational shutdown in early January 2004.

4. AEROBIC POND 1:

A drive-by of Aerobic Pond 1 indicated the contents to be a "healthy" light brown colour, with acceptable, typical pond odour profile.

5. HIDE WASHING: (Photos. 1, 6, 7, 14)

GELITA has undertaken a number of salted hides washing trials on site on a new, dedicated, concreted / bunded area / pad which drains to a new evaporation pond and associated "catch dam". The highly saline washwater will be evaporated, following which saline residues will be removed to landfill, but more probably the saline washwater will be reused, on an ongoing basis, to salt "raw" hides for preservation and storage on site (Report to be provided, in due course).

6. PASTURE & VETIVER CONDITIONS: (Photos. 8, 9, 13, 15)

Pasture and Vetiver growth rates, receiving irrigated treated wastewater, have been dramatic over summer 2003/2004 to date, with Rhodes, Pannicums, Kikuyu and Vetiver Grass swards so thick and tall, making vehicle progress difficult in many of the dedicated, pasture production paddocks. Significant tonnages of good quality hay will be removed from these areas within the next few weeks, for use off-site (effective nutrient export, particularly nitrogen).

7. VISIT TO CLYDE BRITNELL DAIRY FARM: (Photos. 10, 11, 12)

The opportunity was taken to visit the dairy farm of Clyde Britnell at Running Creek, to view and discuss paddock results of "beneficial biosolids" applications of GELITA compost material and controlled applications of beltpress sludge. While grass growth response rates have been outstanding, soil nutrient levels are being regularly monitored, with guidance concerning compost application and soil condition, provided by Johannes Biala of The Organic Force. Such trials prove the commercial benefits associated with the controlled use of "value-added" waste reuse concepts, for both the provider (GELITA) and recipient (Dairy Farmer).

8. AGROFORESTRY PLOTS:

While tree growth has been well maintained to exceptional throughout the ideal summer conditions being experienced over 2003/2004, tree growth rate and nutrient utilisation studies will proceed well beyond the completion of EMP No.1157 and hence the value of the green-waste / timber aspect within the long term mix of disposal options, for treated wastewater, remains to be fully defined / evaluated.

Don Shackel  20/02/2004.

COPY



Customer No.:	---
Document No.:	---

REQUESTING OFFICER DETAILS

Name of Requesting Officer:	CATHY UFER
Position & Division/Region:	ENVIRONMENTAL SUPPORT OFFICER - BRISBANE
Signature of Authorising Officer: (Must be person other than requesting officer)	 <div style="border: 1px solid black; padding: 2px; display: inline-block;">SC 4</div>
Position:	MANAGER (LICENSING)

Description	Qty	Unit price (exl GST) \$	Total price (exl GST) \$	GST amount \$	Total price (inc GST) \$	Funds are to be credited to:	
						G/L account	Cost Centre
ASSESSMENT OF COMPLETION OF EMP 5030001157	1	142335	142335	142-35	1565-70	4049	WBLOO SLOWR
TOTAL:			142335	142-35	1565-70		

☒ Forward invoice to debtor	☐ Mail attached documentation with invoice	☐ Return invoice to requesting officer
---	---	---

Financial Services Unit
13th Floor, 160 Ann Street, Brisbane; or
PO Box 155,
Brisbane Albert Street QLD 4002
Fax: (07) 3227 6536

This request has been examined in accordance with section 4.5.2 of the FMPM.

Date:

FILE

At the same time, it is considered that GELITA Australia Pty Ltd has ACHIEVED THE INTENT OF EMP No.SR1157 and hence it is CONFIRMED THAT EMP No.SR1157 IS CORRECTLY TERMINATED.

Regulatory Requirements:

In consideration of the information provided by GELITA Australia Pty Ltd through "Progress Reports", submitted to the Administering Authority over the lifetime of EMP No.SR1157, together with the recent "Compliance Report" and "Supporting Information", such information is considered to have satisfied the intent of the EMP process and hence EMP No.SR1157 IS COMPLETED AND NO LONGER IN FORCE.

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3. RECOMMENDATION

IT IS RECOMMENDED THAT:

Don Shackel

From: Cameron.Smeal@gelita.com
Sent: Thursday, 30 October 2003 11:09 AM
To: Don Shackel
Subject: EMP

COPY

Dear Don
the EMP is complete. I am however, awaiting two final items from external sources for inclusion in the report. An effluent stream characterisation under the cleaner production section and monitoring schedule from Brian Schafer. I will have the complete report delivered immediately these items are available.

Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442



Certificate of Approval No. SR1157 for Environmental Management Program

Section 339 Environmental Protection Act 1994

COPY

This certificate of approval for an environmental management program is issued in accordance with section 339 of the Environmental Protection Act 1994 (the 'EP Act'). An environmental management program is a specific program that, when approved, achieves compliance with the EP Act for the matters dealt with by the program by reducing environmental harm, or detailing the transition to an environmental standard.

Under the provisions of the *Environmental Protection Act 1994*, this certificate of approval is hereby granted to:

**Leiner Davis Gelatin International Limited
45-47 Green Street
BOTANY NSW 2019**

approving the amended environmental management program; titled "Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner".

for Disposal of Treated Wastewater to Land

at Lot 1 RP 118424, Vol 5805 Folio 198 and Lot 2 RP 118424, Vol 5805 Folio 199 and Lot 3 CP 862699, Vol 8669 Folio 200, Parish of Tamrookum, County of Ward, located at Flood Road, Josephville via Beaudesert, Queensland.

The above mentioned environmental management program, dated 25 October 2001, was received by this office on 29 October 2001.

The amended program is approved as submitted.

This Certificate of Approval is issued subject to the following conditions.

GENERAL CONDITIONS:

- (1) The amended document described as the Draft Environmental Management Program (EMP Reference No.5080001157) has been approved by the administering authority as submitted.
- (2) The holder of this Certificate of Approval shall ensure that all persons engaged in the conduct of the environmental management program (EMP) and the operation of any works and/or control equipment are instructed in procedures necessary to comply with the conditions of this Certificate of Approval.
- (3) The holder of this Certificate of Approval shall install and operate such works and control equipment, take such measures and do such other acts and things as may be necessary to ensure compliance with the conditions of this Certificate of Approval.
- (4) The holder of this Certificate of Approval shall report progress towards achieving the aim of the EMP, to the administering authority, on a six (6) monthly basis from commencement of the effective date of the EMP, taken to be 30 March 1999 for:
 - (a) the Gelatin Effluent Land Management Study; and

(b) the Cleaner Production Trials;

together with and following the completion of each timeframed item listed under the heading "Actions", "2. Cleaner Production Trials", items "a.-k." inclusive, included in the EMP.

VERIFICATION:

- (5) Within 30 days of achieving compliance or within 30 days of the final date for completion of the environmental management program as stated on this Certificate of Approval (Tuesday, September 30, 2003), which ever is the earlier, the person to which the environmental management program applies must forward a report to the administering authority detailing compliance with the conditions of this Certificate of Approval.

Compliance shall be verified in the report (a compliance report) by inclusion of such copies of plans, procedures, photographs, photocopies of purchase receipts, statutory declarations by the person and/or other documentation as may be necessary to demonstrate such compliance.

PERIOD IN FORCE:

The environmental management program remains in force until 30 September 2003.

During the term of the environmental management program, you must submit an annual return about the program to the administering authority. A copy of the 'Annual return for environmental management programs' form is attached for your information.

In any case where conditions are imposed upon a certificate of approval, you may apply to the administering authority for a review of the decision. You may also appeal against the decision to the Planning and Environment Court.

In accordance with the provisions of the *Environmental Protection Act 1994* and *Environmental Protection Regulation 1998*, a fee of \$935.00 is payable (fees for review of EMP are \$220 plus \$71.50 per hour). An invoice will be forwarded to you for this amount.

Information relating to a review of decisions or appeals under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only. You may have other legal rights and obligations.

1 December 2001

.....
Signed

.....
Date

Dr Stephen Skull
Acting Manager (Licensing)
Delegate of Administering Authority
Environmental Protection Act 1994

Extracts from the Act Regarding Reviews and Appeals

Procedure for review

521.

- (1) A dissatisfied person may apply for a review of an original decision.
- (2) The application must-
 - (a) be made in the approved form to the administering authority within-
 - (i) 14 days after the day on which the person receives notice of the original decision or the administering authority is taken to have made the decision (the "review date"); or
 - (ii) the longer period the authority in special circumstances allows not later than the review date; and
 - (b) be supported by enough information to enable the authority to decide the application.
- (3) On or before making the application, the applicant must send the following documents to the other persons who were given notice of the original decision-
 - (a) notice of the application (the "review notice");
 - (b) a copy of the application and supporting documents.
- (4) The review notice must inform the recipient that submission on the application may be made to the administering authority within 7 days after the application is made to the authority.
- (5) If the administering authority is satisfied the applicant has complied with subsection (2) and (3), the authority must, within 14 days after receiving the application-
 - (a) review the original decision;
 - (b) consider any submissions properly made by a recipient of the review notice; and
 - (c) make a decision (the "review decision") to-
 - (i) confirm or revoke the original decision; or
 - (ii) vary the original decision in a way the administering authority considers appropriate.
- (6) The application does not stay the original decision.
- (7) The application must not be dealt with by-
 - (a) the person who made the original decision; or
 - (b) a person in a less senior office than the person who made the original decision.
- (8) Within 14 days after making the decision, the administering authority must give written notice of the decision to the applicant and persons who were given notice of the original decision.
- (9) The notice must-
 - (a) include the reasons for the review decision; and
 - (b) inform the person of their right of appeal against the decision.
- (10) If the administering authority does not comply with subsections (5) or (8), the authority is taken to have made a decision confirming the original decision.
- (11) Subsection (7) applies despite section *Acts Interpretation Act 1954*, section 27A.
- (12) This section does not apply to an original decision made by-
 - (a) for a matter, the administration and enforcement of which has been devolved to a local government, the local government itself or the chief executive officer of the local government personally; or
 - (b) for another matter-the chief executive personally.

Stay of operation of original decisions

522.

- (1) If an application is made for review of an original decision, the applicant may immediately apply for a stay of the decision to-
 - (a) for an original decision mentioned in schedule 1, part 1 - the tribunal; or
 - (b) for an original decision mentioned in schedule 1, part 2 - the Court.
- (2) The tribunal or Court may stay the decision to secure the effectiveness of the review and any later appeal to the tribunal or Court.
- (3) A stay may be given on conditions the tribunal or Court considers appropriate and has effect for the period stated by the tribunal or Court.
- (4) The period of a stay must not extend past the time when the administering authority reviews the decision and any later period the tribunal or Court allows the applicant to appeal against the review decision.

Who may appeal

531.

- (1) A dissatisfied person who is dissatisfied with a review decision, other than a review decision to which subdivision 1 applies, may appeal against the decision to the Court.
- (2) The chief executive may appeal against another administering authority's decision (whether an original or review decision) to the Court.
- (3) A dissatisfied person who is dissatisfied with an original decision to which section 521 does not apply may appeal against the decision to the Court.

COPY



**Queensland
Government**

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference
Our reference LDGAEMPSR1157Amend.LET.doc

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

17 December 2001

Mr R C Wearne
General Manager
Leiner Davis Gelatin (Australia)
PO Box 409
BEAUDESERT QLD 4285

Dear Mr Wearne

Re: Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner.

The request for amendment of Environmental Management Program (EMP No.5080001157) forwarded by you to the Environmental Protection Agency, the administrative authority, on 29 October 2001, has been approved subject to the conditions of the attached 'Certificate of Approval'.

You should also be aware of several other obligations on the holder of an environmental management program under the Queensland *Environmental Protection Act 1994*.

These include:

- (a) The requirement, within 30 days after each anniversary of the day of approval of the program (as relevant), give to the administering authority an annual return in the approved form (Section 345);
- (b) The requirement, before agreeing to dispose of the place or business, the holder must give written notice to the buyer of the existence of the program (Section 347);
- (c) The requirement, within 14 days after ceasing to carry out the activity to which an environmental management program relates, the holder of the approval for the program must give written notice of the ceasing of the activity to the administering authority (Section 348);
- (d) The requirement, the holder of an approval for an environmental management program must achieve full compliance with the Act for the matters dealt with by the program at the end of the period over which the program is carried out (Section 349).

COPY

In accordance with the provisions of the *Environmental Protection Act 1994* and *Environmental Protection Regulation 1998*, a fee of \$935.00 is payable to the Environmental Protection Agency, for review and subsequent approval of the amendment requested to EMP No.5080001157. An invoice will be forwarded for this amount.

For your information, there is also a fee for assessment for monitoring compliance with the program. Where applicable, your company will be invoiced following completion and final review of the approved amended program.

The date for completion of the amended EMP is **30 September 2003**.

The holder of the approved amended EMP must achieve full compliance with the *Environmental Protection Act 1994* for the matters dealt with by the amended EMP at the end of the period over which the program is carried out.

Should you require any assistance in these matters, please do not hesitate to contact Don Shackel on (07) 3225 1040.

Information relating to a review of the decision or appeals under this Act is attached for your information.

Yours faithfully

Dr Stephen Skull
Acting Manager (Licensing)
Southern Region

COPY

Request for Statutory Approval
RSA No.

**AMENDMENT OF APPROVAL FOR ENVIRONMENTAL MANAGEMENT
PROGRAM**

ENVIRONMENTAL PROTECTION ACT 1994 (Reprint No.4)
SECTION – 344 [Division 3]

SUBJECT: Leiner Davis Gelatin International Limited (*the licensee*)
[Trading as Leiner Davis Gelatin (Australia) – “LDGA”]

ADDRESS: “Sunny Hills”, Flood Road, Josephville, via Beaudesert,
QLD 4285.

FILE: **STH495/3** (Previous: 961EA472)

LICENCE No: **SR722**

SUMMARY:

1. History of EMP No.5080001157:

Leiner Davis Gelatin International Limited (*the licensee*), (Trading as Leiner Davis Gelatin [Australia]) submitted a **voluntary** Environmental Management Program (EPA – EMP No.5080001157), which was received at the Southern Regional Office of the Environmental Protection Agency (EPA) on 6 April 1999, under covering letter dated 31 March 1999, signed by Jenny McNamee, Environmental Officer for LDGA, at that time.

The EMP is concerned with, “Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner”.

Environmental Licence-based, treated wastewater monitoring had previously indicated (1997/1998) that effluent characteristics, particularly total dissolved salts and nitrogen, at the levels found, could potentially compromise the long-term sustainability of soil, to maintain an irrigated land-based disposal option, as then employed on the Josephville site.

While seeking to develop sustainable, treated wastewater disposal practices, that would ensure the maintenance of desirable soil characteristics, over the longer term, the company recognised that the simultaneous application of cleaner production techniques in the production area, could also contribute to both nutrients and salts reductions, through the exclusion / reduce use / replacement of such constituent-based materials from the waste stream, where possible, i.e., through in-house cleaner production practices, making use of innovative processing technology and improved “good manufacturing practices” to reduce such “contaminant” levels.

Consequently, EMP No.5080001157 (EMP No.1157) was approached as a two-part (2) process, although being progressed simultaneously both within the plant and on the land, with the view that appropriate measures (as determined by “cleaner production” trials) would be implemented progressively, to ensure that ultimately effluent would be irrigated to land, using a sustainable regime, to be defined /

validated by an expected three (3) year, longer-term effluent / soil / plant management study adopted for the site.

Subsequently, following an administrative review of the "Aim" and "Objectives" of the draft EMP by the EPA, submitted by the company, both the "Gelatin Effluent Land Management Study" and "Cleaner Production Trials" were accepted under the umbrella of EMP No.1157 titled, "Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner", for which a 'Certificate of Approval of Draft Environmental Management Program' was signed by the Delegate of the Administering authority on 13 May 1999, with the final date for completion of the EMP stated as **30 March 2002**.

2. Execution of EMP No.5080001157 (EMP No.1157):

While the company has managed the cleaner production aspects of EMP No.1157, accruing a number of gains in reducing / fine-tuning chemical usages within the plant, with subsequent positive "flow-on" to the wastewater treatment system, these assessment projects were well completed within the original timeline of the initial EMP approved timeframe for completion of 30 March 2002.

With the treated effluent / soil / plant projects being assigned by LDGA to University of Queensland project teams, considerable delays were experienced in initiating progress with the large-scale and often complex planning required to ensure that necessary base monitoring data, particularly to define soil types, composition and characteristics were put in place.

Essentially, this process "stalled" completely during late 2000 and into early 2001, when the company realised that no effective progress was forthcoming and a number of team members withdrew from the project. A total revamp was initiated by LDGA, to the extent that a replacement group of researchers has now taken the projects in hand over the July-September period of 2001.

In effect, this has resulted in EMP No.1157 being delayed (estimated at 18 months overall) and has further resulted in the need for a total restructure of the technical and management protocol of the project content by LDGA.

3. Re-configuration of EMP No.5080001157 (EMP No.1157):

Subsequently, EPA Officers Michael Ronan and Don Shackel attended a presentation by key members of the restructured University of Queensland group on site at Josephville, on 27 September 2001.

To date, the projects flowing from EMP No.1157, have been funded by LDGA with the objective of developing and initiating a research program to clarify the issues of land management by identifying sustainable assimilative capacities for a land treated effluent disposal system and to establish protocols for the long-term monitoring that LDGA can conduct, **to address overall sustainability of the farm disposal system**, viz., "is the system sustainable / if not, how might sustainability be achieved?"

The "new" University team has proposed an overhaul of the "Farm Economic and Environmental Sustainability Project", as previously put in place and approved by EMP No1157.

By letter of 25 October 2001, LDGA advised that the University of Queensland research team running company EMP No.1157 had been successful in gaining Australian Research Council (ARC) funding "to facilitate an extended research program" and as a consequence an additional time requirement of eighteen (18) months to complete "project catch-up" and an "extended" program has been requested by LDGA, taking completion of the EMP to a maximum four (4) years and five (5) months term. Hence, EMP No.1157, with a proposed completion timeframe of less than five [5] years, does not require public notification for the proposed time extension for completion [See S.344(2)].

The overall objectives of the "new" research aspects identified for the LDGA site are:

- (1) to establish a systematic understanding of land disposal systems for highly saline industrial effluent; and
- (2) to develop an appropriate management regime for the land disposal system that includes water quality criteria for groundwater and overland water that meets ANZECC guidelines.

Hence, the ARC funding proposes to extend the original intent of EMP No.1157 to **determine how to manage the farm disposal system to achieve sustainability**, viz., "ability to model the whole system and optimise (the regime) to minimise the effect of treated effluent irrigation on the environment".

An updated work Schedule for the period, August 2001-May 2003, for the 'Gelatin Effluent Land Management Study', prepared by researcher Ross Bigwood, dated 26/10/2001, is appended to this RSA document.

With regard to the application by LDGA for amendment of EMP No.1157, it is considered that approval of the amendment by the administering authority is "reasonably satisfied" under requirements of S.344(3), namely, "it will not result in increased environmental harm being caused by the carrying out of the activity under the amended approval than the environmental harm that would be caused by carrying out the activity if the approval were not granted".

4. **Redefinition of EMP No.5080001157 (EMP No.1157):**

Approved EMP No.1157 consisted of two (2) aspects:

- (1) Cleaner Production Trials – a total of eleven (11) production initiatives have been adequately researched / completed by LDGA by mid 2001; and
- (2) Gelatin Effluent Land Management Study.

Item (2) has been reconfigured as discussed above:

FROM: "to address overall sustainability of the farm disposal system", viz., "is the system sustainable / if not, how might sustainability be achieved"?

TO: "to determine how to manage the farm disposal system to achieve sustainability", viz., "ability to model the whole system and optimise to minimise the effect of treated effluent irrigation on the environment".

Following assessment of the original EMP material provided by LDGA, together with that accompanying the request for amendment / extension of the completion

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timeframe of approved EMP No.1157, received on 29 October 2001 (Letter dated 25 October 2001 refers), this documentation was deemed to contain sufficient information for the company to complete the proposed "extended" program.

REVIEW OF COMPANY DRAFT AMENDED EMP (ADMINISTRATIVE)

1. Assessment of the Content of the Draft Amended Program:

- **Aim: - Satisfactorily indicated within the draft amended EMP.**
- **Comment:** The aim of the EMP is "to determine how to **manage the farm disposal system to achieve sustainability**", viz., "ability to model the whole system and optimise to minimise the effect of treated effluent irrigation on the environment".
- **Objectives: - Satisfactorily indicated within the draft amended EMP.**
- **Comment:** The objectives set to achieve the AIM of the draft amended EMP are indicated in technical / research requirements included in the attachment to this RSA document titled, "Farm Economic and Environmental Sustainability Project", provided by the University of Queensland.
- **Method of Meeting Objectives & Timeframes: - Satisfactorily indicated within the draft amended EMP.**
- **Comment:** Actions, together with projected timeframes to achieve the AIMS and OBJECTIVES of the amended EMP are included in the attachment to this RSA document titled, Schedule 2001-2003, prepared by Ross Bigwood dated 26/10/2001 and University of Queensland Amended Timeline for 2002-2003 concerning "Effluent Impact & Use Investigations" (July 2001).

LDGA have indicated that company Environmental Officer, Cameron Smeal will assume a management role in overseeing progress with the University of Queensland projects early in 2002, in an attempt to ensure that the planned, progressive timelines are consistently met.
- **Performance Indicators: - Satisfactorily indicated within the draft amended EMP and with additional company supervision.**
- **Comment:** Planned completion timeframes of project items are documented in project work Schedule 2001-2003, prepared by researcher Ross Bigwood, dated 26/10/2001 and University of Queensland Amended Timeline for 2002-2003 concerning "Effluent Impact & Use Investigations" (July 2001).
- **Monitoring, Reporting / Responsibility: - Satisfactorily indicated within the draft amended EMP and with additional company supervision.**
- **Comment:** As the completion timeframe for the amended EMP is to be extended by eighteen (18) months from 30 March 2002 to 30

September 2003, company reporting on an annual (S.345 – Annual Return) and a six (6) monthly and/or major achievements / progress basis will be continued, together with strategic site visits by the relevant EPA Officer, as necessary, to validate options taken and ensure maintenance of progress against planned timelines provided.

2 Assessment of the Draft Amended EMP Against the Standard Criteria.

- a) *the principles of ecologically sustainable development as set out in the National Strategy for Ecologically Sustainable Development.*

The applicant has, through the proposed Draft amended EMP, together with the proposed monitoring and reporting provisions through-out the life of the project (prescribed as a condition of the 'Certificate of Approval') demonstrated a commitment to reduce the potential for environmental harm, by undertaking such measures (investigating cleaner production opportunities on site, optimising the operation and effectiveness of the effluent treatment system and ensuring the long term sustainability of treated wastewater irrigation to land), so as to operate the business in a more environmentally responsible manner.

In consideration of the reduced potential risk for contamination of local land, water (Logan River) and groundwater receiving environments, following timely actions taken by LDGA (commencement of early informal cleaner production investigations [November 1998], leading to the submission of a voluntary EMP by the company in 1999), no community consultation was deemed to be necessary, at that time or at this current time, concerning the investigation of the sustainable reuse of treated effluent provided for in the original EMP and the further extended research included in the proposed amendment under consideration.

- b) *any applicable environmental protection policy.*

Relevant Environmental Protection Policies (EPPs) for Water, Air, Noise and Waste have been considered in relation to the amendment of EMP No.1157.

- c) *any applicable Commonwealth, State or Local Government plans, standards, agreements or requirements.*

No plans, standards or agreements of any level of government apply to the amended project, apart from any requirements of the Beaudesert Shire Council, which have been taken into consideration by the company. Any plant and/or operational modifications / changes proposed by amendment of approved EMP No.1157 fall within the boundaries of the premises of the applicant (Licensed place).

- d) *any applicable environmental impact study, assessment or report.*

No environmental impact study was required as operational changes / investigative processes were planned / budgeted by LDGA in association with the University of Queensland (ARC research grant also obtained) over the current and residual period of amended EMP No.1157, to ensure that the treated effluent disposal system on site will be managed and operated in a long term environmentally and economically sustainable manner.

- e) *the character, resilience and values of the receiving environment.*

Steps have been taken by LDGA via the EMP process and further with the current amendment of EMP No.1157, to significantly reduce the potential environmental risk associated with the long-term sustainable application of treated wastewater to land, by defining soil-based characteristics emanating from this long-term practice, together with any resultant groundwater effects.

Grass and tree cultivation and harvesting management research systems have been commenced to further enhance nutrient / contaminant reduction / utilisation from treated wastewater, apart from fulfilling a commercial purpose in the holistic approach to animal / plant systems employed in developing an on-site farm model for the on-going sustainability of the activity.

Cleaner production trials were completed by the company during the 1999-2001 period of EMP No.1157 (one [1] of two [2] of the original "AIMS" of EMP No.1157), achieving some reductions in chemical / nutrient additions to the wastewater treatment system, with resultant improvements in the quality of releases to land.

These previous and on-going actions by LDGA, via the EMP process, will contribute to the maintenance and ultimate improvement in the local "state-of-the-environment" situation both on site and within the wider Josephville rural land and water habitats, but particularly the immediate potential impact areas (notably the Logan River), on and adjacent to the activity.

f) *all submissions made by the applicant and interested parties.*

No consultation was necessary, as no interested parties have come forward or made comments or recent complaints regarding issues addressed by the original or amended EMP No.1157, to the best knowledge of the EPA.

g) *the best practice environmental management for the activity under the authority, program or order.*

In actions taken by LDGA to ensure the long-term sustainability of the treated effluent irrigation system on site, environmental management advice / information will be sourced / generated on an on-going basis from a wide range of commercial and government providers, apart from the in-depth co-operative studies being undertaken between University of Queensland researchers and Leiner Davis Gelatin (Australia) to evaluate past and present land application effects, in addition to identifying "best practice environmental management" models, to ensure the long-term sustainability of the treated wastewater disposal / irrigation system(s) employed.

LDGA have provided an undertaking regarding the timely completion of amended EMP No.1157, in as much as, the company Environmental Officer will assume an overall management role early in 2002, in ensuring progression / achievement of the "new" timeframes developed for completion of projects, including investigation, evaluation and sustainable strategy modelling, to be undertaken by the University of Queensland research team on site, over the next eighteen (18) months, being the extended timeline for EMP No.1157.

h) *the financial implications of the requirements of the authority, program or order as they would relate to the type of activity or industry carried on under the authority, program or order.*

LDGA has indicated, through submission of original EMP No.1157 and recently in seeking amendment of the extension of the completion timeframe for EMP No.1157, that provision of the necessary logistics, consultancy and research team costs have been planned, budgeted and approved by company management for both the current and residual commitments to the completion date of the extended EMP (30 September 2003).

i) *the public interest.*

As no interested parties provided comment, the public interest in the surrounding community is unknown from first hand knowledge. However, it is believed that due to actions taken by the company in recent years to address previous environmental complaint issues emanating from the site, LDGA now enjoys a significant measure of acceptance of their operation by the local, surrounding community.

This is evident from the significant decline to low levels, over some time now, in reported complaints to management and the willingness of local residents to attend the site and discuss any issues of concern with company personnel.

At the same time, it is the responsibility of the administering authority, as a matter of public interest, to ensure that environmental harm is not caused or threatened and that appropriate and reasonable steps are taken by the applicant, to minimise the risk of land and waters contamination, both on site and in the surrounding local, rural agricultural environment and hence contribute to the maintenance / improvement of the local "state-of-the-environment" situation in the Josephville area.

j) *any other matter prescribed by regulation.*

Not applicable.

3. Fee Payment:

Section 334 of the EP Act provides for the administering authority to charge a person or public authority, the fee prescribed by regulation, for submitting a draft EMP for approval.

Section 52(1)(a) of the EP Reg prescribes that the fees for consideration of the draft EMPs is the amount that:

- the authority considers to be reasonable; and
- is not more than the reasonable cost of deciding the application for approval of the program.

The EPA Operational Policy, Licensing – fees, "Environmental Management Program (EMP) fees", states that fees for the assessment of a draft EMP are a minimum of \$220 (includes GST), plus an additional \$71.50 per hour (includes GST) or part thereof, charged after the first hour. The reasonable cost of analysis cost will be the actual cost of the analysis to the Agency, plus GST.

The \$220.00 fee covers the administrative costs incurred by the Agency when assessing that draft amended EMP No.1157 satisfies the criteria set by the *Environmental Protection Act 1994* and the first hour of technical evaluation of the EMP (in effect, consideration of a "draft EMP").

The total review time, apart from the first hour of technical evaluation, amounted to 10 hours, for all EPA personnel involved in the process.

The total amount of \$935.00 payable by LDGA to the EPA comprises \$715.00 for review and subsequent approval of draft amended EMP No.1157, plus the \$220 administrative fee indicated above.

4. Authority of Person Signing the Draft Amended EMP:

The company letter dated 25 October 2001, requesting amendment of approved EMP No.1157 was signed by the Operations Manager for the Josephville site of Leiner Davis Gelatin (Australia) at Beaudesert, R C Wearne.

5. RECOMMENDATION:

IT IS RECOMMENDED THAT: Environmental Management Program No.1157 be amended to extend the completion timeframe by eighteen (18) months, as requested by Leiner Davis Gelatin (Australia), on behalf of Leiner Davis Gelatin International Limited (*the licensee*) from **30 March 2002 to 30 September 2003**, as set out above in this RSA document.

Contact Officer: Don Shackel: (07) 3225 1040

Michael Ronan
Operations Manager - Licensing
Environmental Operations
Southern Region

Attachments:

1. Copy of company letter of 25 October 2001, requesting an extension to the lifetime of SR1157 of 18 months.
2. Copy of a letter to the University of Queensland research leader for the SR1157 farm projects advising of successful ARC funding.
3. Copy of budget estimates for funding of SR1157 farm research projects 2001-2003.
4. Copy of "Gelatin Effluent Land Management Study" work "Schedule 2001/2003.
5. Copy of "Progress Report" of 26 July 2001 for EMP SR1157 including a summary of the completed "Cleaner Production Trials" undertaken as part of SR1157, together with revised timelines for July 2001-October 2003 for conduct of the "Effluent Impact and Use Investigations" proposed by the reconstituted University of Queensland research team.

17.



Queensland
Government

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference EMPNo5080001157
Our reference STH495-8-EMPSR1157

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

2 March 2004

Mr R Seach
General Manager
GELITA Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

Dear Mr Seach

Re: Completion of Environmental Management Program No.5080001157.

The Administering Authority has assessed Progress and "Final Completion" Reports, together with "Supporting Information" provided by GELITA Australia Pty Ltd in relation to Environmental Management Program (EMP) No.5080001157 (SR1157), approved on behalf of the former Leiner Davis Gelatin International Limited, as suitable "Compliance / Completion Reports", in respect of this EMP and considers that the Company has achieved compliance with the matters dealt with by the program.

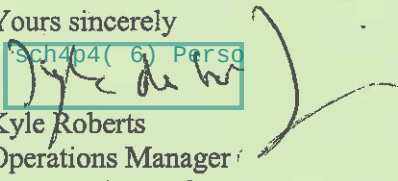
It is noted that full compliance with the approved timeframe of the EMP was achieved.

Section 52(1)(b) of the *Environmental Protection Regulation 1998* allows the Administering Authority to impose a fee for monitoring compliance with the EMP.

This fee has been assessed at \$1,565.70 (includes GST), and hence an invoice for this amount will be forwarded to you, in due course.

Should you have any queries regarding these matters, please contact Don Shackel on (07) 3225 1040.

Yours sincerely


Sch4p4(6) Perso
Kyle Roberts
Operations Manager
Heavy Industry Group
Environmental Operations
Southern Region

C/c Mr Cameron Smeal
Environmental Officer
GELITA Australia Pty Ltd

Site Visit Report

Compliance Inspection No: 3200

Responsible Officer: KR/Don Shackel

Licence Number:	Date of Inspection	Inspection Level	Internal Office File No
SR0722	18/02/2004	EMP	STH495/8

Licensee

Gelita Australia Pty Ltd

Did the Licensee Comply?

Yes

Trading As:

not applicable

Work Needs to be Done by?

If Not Complying Why Not?

The on-site review concerned consideration of a "Final Report" submitted by GELITA Australia Pty Ltd regarding the outcomes of Environmental Management Program (EMP) No. 5080001157 (1157) meeting requirements of the 'General Conditions of Certificate of Approval' for EMP No.1157, namely, "Operation of the Effluent Disposal System in a long term Environmentally and Economically Sustainable Manner."

GELITA Australia Pty Ltd has also requested EPA consideration of proposed amendment of Company Environmental Licence SR0722, based on the findings of the five (5) year, multi-disciplinary project, including concurrent investigative strands.

What Needs to be Done ?

1. Complete assessment of the "Final Report" of the outcomes of EMP No.1157 and prepare a final review memorandum to formally terminate EMP No.1157.
2. Formally advise GELITA Australia Pty Ltd of the acceptance of termination of EMP No.1157.
3. Negotiate amendments to Environmental Licence SR0722 with Company.

☐ **Infringement notice issued?**

☐ **Warning notice issued?**

☐ **Field notice issued?**

Any Other Comments?

Around 8:30AM on Wednesday, 18/02/2004, EPA Site Licensing Officer Don Shackel visited the Josephville operation of GELITA Australia Pty Ltd to review the Company "Final Report" concerning the outcomes derived from completion of EMP No.1157, with Environmental Officer Cameron Smeal.

EMP No.1157 was formally completed on 30/09/2003, following which, the Company had submitted the "Final Report" by 31/10/2003, as required.

The Company "Final Report" was exhaustively reviewed, guided by the "Executive Summary" and with extensive reference to the Company "supporting material" (STHR1242 / C1280428). Following the desk review and in-depth discussions (4hr), a mobile site tour was undertaken, when relevant farm treated effluent disposal options were surveyed / noted.

Following the review of the Company "Final Report" of EMP No.1157, together with surveying the evolving, applied farm outcomes derived from the five (5) year, multi-disciplinary EMP process, termination of EMP No.1157 can now be progressed.

OTHER ISSUES ADDRESSED DURING THE VISIT:

1. **COMPOSTING OPERATION** - The composting area was visited where the compacted, clay mixing pad base was being cleared of composting material prior to the bitumen sealing (over road-base above the clay pad) of the area which is scheduled to commence on Friday, 20/02/2004. The sealed area will be effectively drained to perimeter "catch drains" directed to a nearby "catch dam" and thence to the effluent treatment system. Such actions / installations further address Company DD/GED commitments with regard to contaminant runoff capture /

Report M01 by Chuckle on: Monday, 23 February 2004

Page: 1

Site Visit Report

Compliance Inspection No: 3200

Responsible Officer: KR/Don Shackel

control and surrounding stormwater protection.

2. FINAFIRE COAL BOILER BAGHOUSE: (Photos. 2, 3, 4)

The new baghouse is now installed, commissioned and operating mechanically effectively. Stack emissions testing of the new system is scheduled for early March 2004, when the EPA will be advised of the results of the \$300,000 upgrade.

3. EARLY 2004 SHUTDOWN UPGRADES: (Photo. 5)

A number of odour leakage sites within the effluent treatment plant were eliminated following maintenance work completed during the recent operational shutdown in early January 2004.

4. AEROBIC POND 1:

A drive-by of Aerobic Pond 1 indicated the contents to be a "healthy" light brown colour, with acceptable, typical pond odour profile.

5. HIDE WASHING: (Photos. 1, 6, 7, 14)

GELITA has undertaken a number of salted hides washing trials on site on a new, dedicated, concreted / bunded area / pad which drains to a new evaporation pond and associated "catch dam". The highly saline washwater will be evaporated, following which saline residues will be removed to landfill, but more probably the saline washwater will be reused, on an ongoing basis, to salt "raw" hides for preservation and storage on site (Report to be provided, in due course).

6. PASTURE & VETIVER CONDITIONS: (Photos. 8, 9, 13, 15)

Pasture and Vetiver growth rates, receiving irrigated treated wastewater, have been dramatic over summer 2003/2004 to date, with Rhodes, Pannicums, Kikuyu and Vetiver Grass swards so thick and tall, making vehicle progress difficult in many of the dedicated, pasture production paddocks. Significant tonnages of good quality hay will be removed from these areas within the next few weeks, for use off-site (effective nutrient export, particularly nitrogen).

7. VISIT TO CLYDE BRITNELL DAIRY FARM: (Photos. 10, 11, 12)

The opportunity was taken to visit the dairy farm of Clyde Britnell at Running Creek, to view and discuss paddock results of "beneficial biosolids" applications of GELITA compost material and controlled applications of beltpress sludge. While grass growth response rates have been outstanding, soil nutrient levels are being regularly monitored, with guidance concerning compost application and soil condition, provided by Johannes Biala of The Organic Force. Such trials prove the commercial benefits associated with the controlled use of "value-added" waste reuse concepts, for both the provider (GELITA) and recipient (Dairy Farmer).

8. AGROFORESTRY PLOTS:

While tree growth has been well maintained to exceptional throughout the ideal summer conditions being experienced over 2003/2004, tree growth rate and nutrient utilisation studies will proceed well beyond the completion of EMP No.1157 and hence the value of the green-waste / timber aspect within the long term mix of disposal options, for treated wastewater, remains to be fully defined / evaluated.

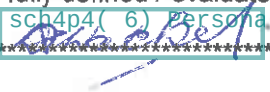
Don Shackel  20/02/2004.



Photo 1- New salted hides washing collection / evaporation pond to contain highly saline wash water prior to reuse for salting "raw" hides.



Photo 2 – New baghouse installed on the Finafire coal-fired Boiler.



Photo 3 – New baghouse installation on the Finafire coal-fired Boiler.



Photo 4 – Connection chamber for the Finafire coal-fired Boiler to the new baghouse installation.



Photo 5 – New, sealed, foul air extraction fan from the Hybractor effluent treatment system to the small Biofilter (odour / control elimination).



Photo 6 – New salted hides washings collection / evaporation pond, some of which highly saline material will be reused for "raw" hides salting purposes.



Photo 7 – New backup "catch dam" adjacent to the salted hides washings collection / storage / evaporation pond.



Photo 8 – General view of dense sward Rhodes Grass pasture growth on the Logan River "flats" at "Sunny Hills" to be cut for "export" hay.



Photo 9 – Vetiver Grass plot showing healthy, vigorous growth.



Photo 10 – Paddock "strip" application of compost material / belt-press sludge on the dairy farm of C Britnell, Running Creek.



Photo 11 – Paddock "strip" application of compost material / belt-press sludge on the dairy farm of C Britnell, Running Creek.



Photo 12 – Paddock "strip" application of belt-press sludge on the dairy farm of C Britnell, Running Creek – note colour difference to adjacent paddocks, particularly foreground.



Photo 13 – General view of current farm paddock conditions at "Sunny Hills", Josephville of GELITA Australia Pty Ltd.



Photo 14 – General view of "Sunny Hills" showing part of the new salted hides washings pond, treated wastewater clarifier and laboratory (left).



Photo 15 - General view of current farm paddock conditions at "Sunny Hills", Josephville of GELITA Australia Pty Ltd.





















GELITA Composting Operation

Compost Quality and Compost Use

The 12-month composting trial (October 2002 – September 2003) demonstrated that the composting process is able to transform gelatine by-products from material that is classified as regulated waste to a valuable product. The composted by-products comply with NSW Biosolids Guideline Grade A product requirements (QLD guidelines are currently being developed) and therefore can be used without restrictions. Heavy metals are below established limits and do not pose an environmental risk. All pathogens and weeds (seeds and viable plant particles) are eliminated during the process, providing a pasteurised product that can be readily used without the risk of spreading disease or weeds.

The fact that GELITA compost is pasteurised and free of pathogens is a major bonus for dairy farmers in the region. Following the death of several cows after ingestion of unpasteurised chicken manure that was applied as top dressing to grazing land, many farmers have stopped using chicken manure for top dressing of pastures. One of the local agricultural contractors sees a ready market for high quality, pasteurised GELITA compost in the dairy industry where it would be used as organic top dressing.

In order to assess the benefits of compost use in the dairy industry, preliminary compost application trials are under way at Mr. C. Bignell's dairy farm in Rathdowny. Compost has been used at a rate of 70 t/ha (fresh matter) as a base application before planting. Compost was applied in mid November. Due to insufficient moisture plant emergence was uneven and patchy. However, rain in December ensured good growth conditions and before Christmas the crop was knee high (Figure 1). Growth was levelling out and the farmer was pleased with the result.

Mr. Bignell had intended to use the fodder for grazing but wet weather in early January prevented this. The crop was still in the field in early February at which point growth was as strong as ever. The dark colour of the crop and the continued growth suggests that the compost is able to provide sufficient nitrogen (Figure 2).

Mr. Bignell was very impressed and satisfied with the results he obtained by using compost. During a visit in early February, the farmer conceded that, initially he was somewhat sceptical about using compost but that the results he had seen on his farm convinced him otherwise.

In late January, Mr. Bignell used compost also to top dress pastures and again he was very pleased with the result. The dark green colour of the paddock that had received compost stood out from surrounding pastures (Figure 3).

The ultimate prove for the beneficial effect of compost use for the Bignell family came when they applied some left-over compost to a dying tree that was planted in front of the family home. Within three weeks the tree had developed new leaves and was looking healthy and vigorous again. The area underneath the tree where compost was applied is clearly visible as the dark green area (Figure 4).

Apart from being pasteurised and therefore free of pathogens and weeds, the main advantage and selling point to farmers is the relatively high nitrogen and sulphur content of GELITA compost. Product characteristics for compost sampled in September 2003 and January 2004 are provided in Table 1.

Table 1 Quality characteristics of GELITA compost

Product characteristic	Unit	Finished GELITA compost		Compost Quality Criteria
		Benchmark 1R	Stockpiled compost	
Approximate age of sampled material	days	102	120	
Sampling date		30/9/03	15/1/ 04	
Ammonium - N	mg / ltr.	270	8317	< 300^
Ammonium + Nitrate - N	mg / ltr.	274	8353	>100^
Boron (Total)	mg / kg	<50	nd	< 200
Total coliforms	cfu/g	4 MPN	nd	-
E. coli	cfu/g	<3 MPN	nd	< 100 MPN/g**
Faecal coliforms	cfu/g	4 MPN	nd	< 1000 MPN/g**
C/N Ratio		13.24	11.72	
Conductivity	dS/m	16.11	8.33	-
Calcium	% dm	2.76	nd	
Magnesium	% dm	0.194	0.225	
Sodium	% dm	0.154	nd	< 1
Potassium	% dm	0.122	0.098	
Phosphorus as P	% (w/w)	0.186	0.258	
Moisture	%	15.2	23.6	> 25
Nitrate - N	mg / ltr.	4.48	nd	
Total nitrogen	% dm	2.46	2.48	> 0.8^
Organic Matter	% dm	56	50	> 25
Organic Carbon	% dm	32.56	29.07	
pH		7.6	7.65	5.0 - 7.5
Phosphorus soluble	mg / ltr	6.3	nd	
Salmonella	in 25 g	Absent	nd	Absent in 50 g
Sulphate-sulphur	% dm	1.37	1.50	
Heavy Metals				
Arsenic (Total)	mg / kg	13.8	nd	20
Cadmium (Total)	mg / kg	0.2	nd	3
Chromium (Total)	mg / kg	25.3	nd	100
Copper (Total)	mg / kg	55.2	nd	100
Lead (Total)	mg / kg	11.1	nd	150
Mercury (Total)	mg / kg	0.04	nd	1
Molybdenum	mg / kg	1.52	nd	
Nickel (Total)	mg / kg	7.6	nd	60
Manganese (Total)	mg / kg	100	nd	-
Zinc (Total)	mg / kg	52.3	nd	200

* pathogen and heavy metal limits represent NSW Biosolids Guideline values for Grade A product

^ if nutritional value is claimed

n.d. = not determined

It can be seen that the nitrogen content and the sulphur content are consistently high at about 2.5% and 1.4% respectively. At 2.5% total nitrogen the compost compares favourably with animal manures, even chicken manure. Other macro nutrients such as phosphorus (P), potassium (K) and magnesium (Mg) are somewhat lower. However a pre-plant application of 70 tonnes fresh matter per ha (t fm/ha) for example, supplies substantial quantities of all plant nutrients. This is demonstrated in Table 2, which was used to estimate the nutrient supply of 70 t fm/ha for pre-plant application at Mr. Bignell's farm.

Table 2 Supply of major plant nutrients (kg/ha) through pre-plant application of 70 t fm/ha GELITA compost

Element	Quantity (kg/ha)
Total nitrogen	1,282.4
Avail. Nitrogen	155.7
Total phosphorus (P)	192.5
Total potassium	51.0
Total magnesium	176.4
Total calcium	1,635.2

Sulphur levels are exceptionally high at 1.37 – 1.50% (dm). This characteristic is particularly welcome as soils in the Beaudesert area seem to be deficient in sulphur.

From a compost users point of view it is particularly valuable if organic soil amendments contain significant plant nutrient concentrations. This fact adds significantly to the value of the product.

Non-conformance of pH and moisture levels with AS 4554 requirements do not pose a problem whatsoever, provided the compost is not applied to alkaline soils. It is of far greater importance that none of the heavy metal limits are exceeded and that the finished compost is virtually free of pathogens.

Ammonium levels in compost sampled in January 04 are very high. This is due to the fact that the compost has been stockpiled for a while before sampling. However, high ammonium levels will have no detrimental effect on plant growth if the compost is used in an agricultural application and if the compost is incorporated with the soil.

The future sales price for GELITA compost has been estimated very conservatively to be \$5 per tonne. It can be assumed that a higher price will be realised, considering that chicken manure currently fetches \$8 – 10/m³ ex chicken shed and is delivered to the farm for \$10 to \$15/m³. Considering its superior quality, GELITA compost should fetch a price that is at least equal to that of chicken manure.

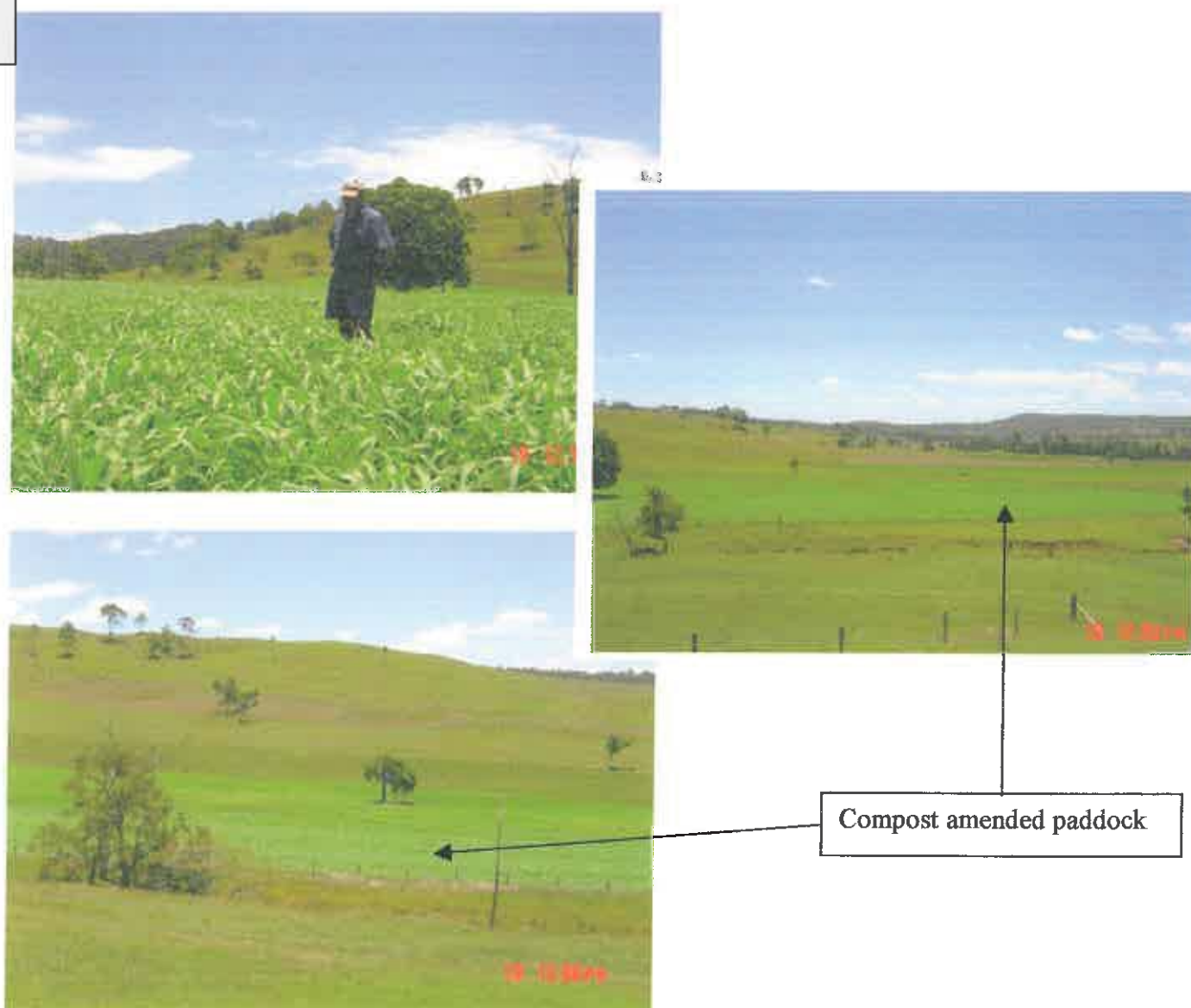


Figure 1 Impressions of compost amended paddock at Bignell Dairy Farm (19. 12. 03)

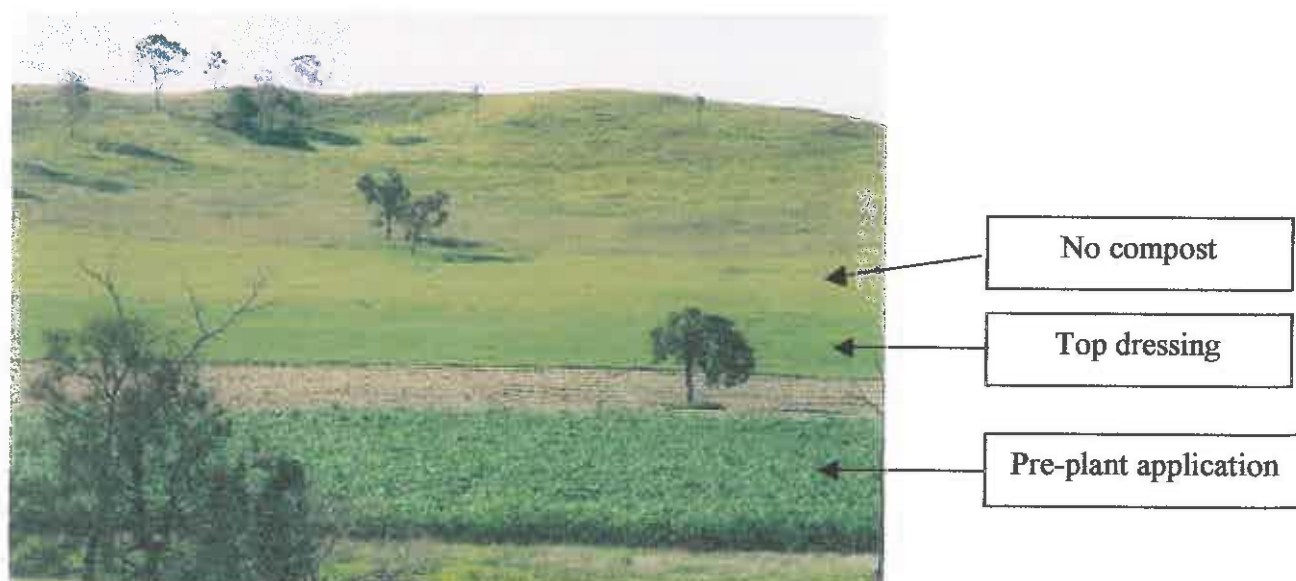


Figure 2 Impression of compost amended paddocks at Bignell Dairy Farm (9. 2. 04)



Top dressing

Figure 3 Impression of top dressed pasture at Bignell Dairy Farm (9. 2. 04)



Figure 4 Effects of compost use (topdressing) on young tree (Bignell Dairy Farm 9. 2. 04)

Assessment of Annual Return – 2003

Licence Holder:	GELITA Australia Pty Ltd
Licence Number:	SR0722
File:	STH495/8
Premises:	"Sunny Hills", Flood Road, Josephville, BEAUDESERT, Q 4285
Date received:	17/10/2003 (Fee) & 5/01/2004 (S316 Form + Supporting material)
Date assessed:	21/01/2004
Assessed by:	Don Shackel
Supervising Officer	Kyle Roberts, Operations Manager, Heavy Industry Group
Time Taken to review	4 hours

Licensed activities:
ERA 17 - Fuel burning - any process involving the use of fuel burning equipment (including, for example, a standby power generator) that is capable of burning (whether alone or in total) 500 kg or more of fuel per hour.
ERA 50(b) - Rendering operation - commercially processing or extracting substances, including, for example, fat, tallow, derivatives of fat or tallow or proteinaceous matter, from animal wastes or by-products (other than an operation using wastes solely derived from an activity mentioned in item 32(a) or 47) in works having a design production capacity of 300 tonnes or more per year.
ERA 15(a) - Sewage treatment - operating a standard sewage treatment works having a peak design capacity to treat sewage of 21 or more equivalent persons but less than 100 equivalent persons.

Assessment of Annual Return	YES	NO	N/A
Is the holder required to complete monitoring / reports as a condition of the licence	X		
Have the required monitoring / reports been completed		(Refer EMP No. 1157 final report)	
Has holder fully complied with licence conditions and environmental duty *Stated and signed Question 7 of 'Annual Return for environmental authorities' form – YES		(Refer EMP No. 1157 final report)	
Correct licence fee lodged (N/A if fee waiver application has been lodged)	X		
Is this annual return for ERA 83 & have applicable forms been returned for licensed vehicles		X	
Notice of regulated waste vehicles registered with administrative authority			X
Has rehabilitation of disturbed land been undertaken			X
Fee Waiver Application Submitted			
Fee waiver risk assessment checklist (3-RIS) completed			X
Fee waiver request for statutory approval (RSA) completed			X
Notice of decision sent			X
Issues identified			X
Application approved			X

H:\HEAVY INDUSTRY\Beaudesert Shire Council\Licence & DA Premises\Davis Gelatine Australia Pty Limited - SR1114 & DA7\Annual Return\2003\GELITAManagerQAAssessmentofAnnualReturn2003SR722.doc

Complaints			
Complaints / incidents registered on Chuckle	X (1 odour)		
All complaints recorded on file	X (2 – odour & transport)		
Are there any outstanding complaints	X (1 odour)		
Do registered complaints indicate a breach of licence conditions	X (B8)		
Compliance			
Have any compliance inspections or environmental audits been carried out on the site in the past 12 months	X (29/10/2003)		
Did the inspection / audit show any breaches of licence conditions	X (Letter 19/11/2003)		
Were any actions required as a result of the inspection/audits	X (Letter 19/11/2003)		
Are there any ongoing compliance issues	X (Refer EMP No. 1157 final report)		
Have any EMP's or EPO's been issued for the site	X (Refer EMP No. 1157 final report)		
Are there any outstanding issues from the EMP	X (Refer EMP No. 1157 final report)		
Are there any outstanding critical dates		X	
Issues:			
Outstanding issues identified: Assessment of EMP No. 1157 final report is currently underway. Details: Outcomes of the assessment of EMP No. 1157 final report will likely require amendment of conditions / limits included in SR0722, in due course.	X		
Letter of request sent			X
Further action: Complete assessment of GELITA EMP No. 1157 final report and supporting documentation, as soon as practicable. Details: Action outcomes of the assessment of EMP No. 1157 in regard to SR0722, in due course.	X		

A recent review of conditions included in SR0722 was completed during a formal environmental audit and site inspection of the Josephville operations of GELITA Australia Pty Ltd on 29/10/2003 (Copy attached – 'Compliance program-inspection checklist' from 29/10/2003), together with relevant comments and required actions. EPA letter of 19/11/2003 to GELITA Australia Pty Ltd refers (Copy attached).

With regard to the outcomes of EMP No.1157, detailed in the Company "final report" currently under assessment, an appreciation of Company expectations, in this regard, can be gained from comments offered on the following pages of "GELITA 2003 Annual Return" documentation; 13, 21, 22 [Table] (Attached).

Of interest, are graphs of cumulative totals of TDS and Nitrogen applied to land for 2003 included on Page 11, which indicate compliance with limit requirements in SR0722 and demonstrate continuous improvement over data traces generated for these parameters since 1998.

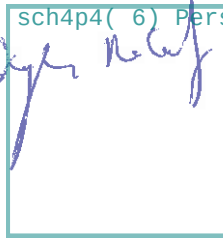
H:\HEAVY INDUSTRY\Beaudesert Shire Council\Licence & DA Premises\Davis Gelatine Australia Pty Limited - SR1114 & DA7\Annual Return\2003\GELITAManagQAAssessmentofAnnualReturn2003SR722.doc

Assessing Officer: Don Shackel
Position: Senior Inspector – Heavy Industry Group
Southern Region

sch4p4(6) Personal 1


Date: 21/01/2004

Supervising Officer: Kyle Roberts
Position: Operations Manager – Heavy Industry
Southern Region

sch4p4(6) Pers


Date: 22 / 1 / 2004



Queensland Government
Environmental Protection Agency
Queensland Parks and Wildlife Service

EP SOUTHERN REGION	
Correspondence No.	Barcode No.
JH2004/169	
File No.	PART FOLIO
STH495	-
Action Officer	Related Items
Sinead Donnelly	

STH495
ABN: 8722 115 8786

Annual return for environmental authorities

Section 316 Environmental Protection Act 1994

COPY

Important information for applicants

- This form must be completed annually by the holders of all licences or integrated authorities under the Environmental Protection Act 1994 (EP Act).
- Please label all attachments alphabetically (e.g. "Attachment A" etc.).
- The guidance information provided on the left side of this document is intended to assist you to complete the form. However, if you experience difficulties completing the form please contact your local Environmental Protection Agency (EPA) office (details provided at the back of this form).

FOR OFFICE USE ONLY		
Date received:	File Ref:	
5/11/03	STH495	
Correct AA	Complete Form	Correct Fee
Yes ☒	Yes ☒	Yes ☒
Entered By (sign):		(date):
[Signature]		6/11/03

The name of the environmental authority holder will be stated on the licence/integrated authority. Enter the full name.

If the environmental authority holder is not an individual, please nominate someone who is authorised to act on behalf of the organisation which holds the environmental authority (e.g. Director, CEO, or Manager). You must prepare all reports required as a condition of your environmental authority. For example, environmental management programs or implementation of a stormwater management plan etc. If you are required to prepare results as a part of the conditions on your environmental authority, please see the back of this form for an example of the preferred method of formatting and presenting that data.

All reports must be held in the same place and be available for inspection by the administering authority during business hours. You must forward the reports to the EPA on request or when the licence has either expired (provisional licence only), been surrendered (licence (without development approval) only) or cancelled.

1 Environmental authority holder

Name
GELITA Australia Pty/Ltd

2 Responsible person

Name
MR Roger Seach

3 Current environmental authority no.

Number
SR722

4 Does a condition of your environmental authority require you to carry out any monitoring and/or prepare report(s) on your environmentally relevant activity?

☒ Yes → Please do not submit the report(s) with this annual return — fill out Table 4.1. If you require more space, attach additional information.

Attachment

☐ No → Go to Question 6.

Table 4.1 - Table of reports

Location of reports and/or monitoring:

Location
"SUNNY HILLS" JOSEPHVILLE

Nature of report and/or monitoring	Prepared by	Dates covered
EMP	Cameron Smeal	Sept 1999 Sept 2003
Licence self monitoring/Annual return	Cameron Smeal	Nov 2002- Nov 2003



If the activity(ies) the subject of your environmental authority have or will be altered since the time your environmental authority was issued, your environmental authority may need to be amended. Contact your local EPA office for advice.

If you wish to submit information about non-compliance incident/s by way of a program notice (section 351 of the EP Act), please contact your local EPA office for the approved form. For information about your general environmental duty, see sections 319 and 320 of the EP Act.

5 Have you completed any monitoring and/or reports as required as a condition of your environmental authority?

☒ Yes

☐ No → Please attach a statement outlining your reasons for not completing all the required reports with this annual return.

Attachment

6 If you choose, you may submit additional information with this annual return.

For example, achievements, capital works, training, monitoring, new pollution controls, consultancy and related costs.

Attachment

7 Since your last annual return, have you fully complied with the conditions of your environmental authority and your general environmental duty?

☒ Yes

☐ No → Please provide a description of the non-compliant incident/s and remedial action undertaken in response to the incident/s. You may wish to submit program notice/s for non-compliant incidents.

Attachment

8 Is this annual return for environmentally relevant activity 83 — Regulated waste transport?

☐ Yes → You will need to complete the EPA form *Details of regulated waste vehicles* and submit it along with this annual return.

Attachment

☒ No



Please read carefully through the certification opposite before signing. Note that this form must be signed by the "responsible person" nominated on the first page of this form.

The annual fees for all ERAs are listed in Schedule 1 of the Environmental Protection Regulation 1998. You can also contact your local EPA office for advice.

The fees and charges associated with this annual return have been excluded from GST by the Commonwealth Government.

You may apply for exemption from disclosing information contained in a document submitted, or proposed to be submitted with this annual return (see section 564 of the EP Act).

For details of EPA administrative access arrangements, please contact the EPA Freedom of Information Unit, PO Box 155 Brisbane Albert Street QLD 4002.

Thank you for the time you have spent completing this form. Please forward your completed form and all attachments to an EPA office near you. A list of offices that accept annual returns is attached to this form for your information.

9 Certification

I / We GELITA Australia Pty Ltd

Printed name of licence holder.

- enclose the prescribed annual fee of **\$6020**.....; and
- understand and agree that all information provided on or with this annual return may be made available upon request, subject to the provisions of the *Freedom of Information Act 1992*, and/or EPA administrative access arrangements.

I, Roger Seach

Printed name of responsible person.

- am authorised or a person authorised to sign on behalf of the current environmental authority holder, and commit the holder in all matters relevant to this annual return. I am aware that under section 480 of the *Environmental Protection Act 1994*, it is an offence to give the administering authority information that I know is false or misleading in any material particular. The maximum penalty for such action is 165 penalty units for an individual, or 825 penalty units where the applicant is a corporation (section 181B (3) of the *Penalties and Sentences Act 1992*).

sch4p4(6) Personal information

Signature of responsible person

01/11/03

Date

General Manager

01/11/03

Position of signatory (e.g. Director, manager, owner, partner, CEO etc.)

Date

COPY

Checklist

Compliance

Compliance program — inspection checklist

Instructions for use

Where an Agency issue is determined to be relevant, note appropriate detail in the observations section.

Where there is any non-compliance, discuss with the company representative and note any required action.

Where the assessment will include licence conditions, use the licence condition compliance section of the checklist.

This checklist is to be used for all inspections. Refer to the procedural guide for guidance.

Cover Sheet Module:

Company Name: GELITA Australia Pty Limited		Date of Inspection: 29/10/2003
Trading as: GELITA – The Gelatine Group		EA No.: SR0722
Description of Business Activity: ERA 50(b) – Rendering operation		
Site Street Address: Flood Road		
Suburb: Josephville	City/Town: Beaudesert	Post Code: 4285
Registered Office Address: "Sunny Hills", Flood Road, JOSEPHVILLE via BEAUDESERT QLD 4285		
Suburb: JOSEPHVILLE	City/Town: BEAUDESERT	Post Code: 4285
Site Representative: Cameron Smeal	Position: Environmental Officer	Contact phone: (07) 5541 9442

Inspection type	☐ Catchment	☐ Industry Sector	☐ Complaint	☒ Compliance
Compliance level	☐ 1	☐ 2	☒ 3	Inspection type ☐ A ☐ B ☒ C
Audit focus is the following relevant Agency interests:				
☒ Water issues ¹	☒ Air issues ¹	☒ Noise issues ¹	☐ National and international	
☒ Land issues ¹	☒ Waste issues ¹	☒ Social issues	☒ Impacts on surrounds	
☐ Coastal issues	☐ Heritage issues	☐ Biodiversity		
☒ Resource allocation	☐ Tenure issues	☐ Other issues		

¹ Main issues to consider for *Environmental Protection Act 1994* focus.

DETAILS OF SCOPE OR PARTICULAR FOCUS:

GELITA Australia Pty Ltd, previously Davis Gelatine Australia Pty Limited, recently acquired by German private business interests from Goodman Fielder, remains committed to completion of **EMP No.1157** concerned with, ***"Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner"***, which reached full term for completion on 30 September 2003. E-mail advice from the Company at the due date of the reporting period on 30 October 2003, indicated that EMP No.1157 was completed and written-up, apart from "two final items from external sources for inclusion in the report", viz; an effluent stream characterisation under the cleaner production section and monitoring schedule from the Company soils consultant. The total report relevant to EMP NO.1157 will be forwarded to the EPA as soon as these outstanding items become available.

Subsequently, licence limits requirements for treated wastewater parameters such as Total Nitrogen and Total Dissolved Solids, observed as not achieving compliance on an historic on-going basis, will be addressed by the EMP review process, within a "holistic" context for the site. While non-compliances were flagged by this audit, on-going corrective actions remain in place, relevant and ongoing via EMP No.1157. The company has regularly provided progress reports for EMP No.1157 to the EPA for assessment and information, indicating milestones towards achieving compliance by 30/09/2003. It is expected that outcomes of EMP No.1157 will indicate a need to seriously reassess, amend or delete some or all treated wastewater limits from SR0722.

Sustainability of application of treated wastewater to on-site land will be achieved through a mix of options including; pasture / grazing systems (including Vetiver grass), cropping (cutting & exporting hay products) and agro-forestry, which plant products will / may become a raw material source (green waste) for **on-site compost-making**, utilising all processing wastes generated by gelatine manufacturing ("skutch", belt-press sludge, boiler ash) for total on-site soil conditioning purposes.

To this end, the EPA has recently approved continuation of composting activities on site, following an initial 12 month waste composting project period (September 2002-September 2003) to trial processing methodology and assess outcomes (an odour control plan is in place), with a view to long term, on-going total waste utilisation / recycling on site. Davis Gelatine Australia Pty Limited holds DA7 (with conditions) and SR1114 for ERA 53, relevant to "soil conditioner manufacturing". The company has contracted part-time consultancy services from Johannes Biala of "The Organic Force", to assist with the composting project. The composting consultant Company has prepared a report dated October 2003, titled ***"Assessing the Suitability of Covered Windrow Composting for On-site Processing of Gelatine By-products"***, for GELITA Australia Pty Ltd, which has been made available to the EPA.

SITE CONTACTS:

Review of conditions included in SR0722, together with a subsequent site inspection were undertaken with the company Environmental Officer, Mr Cameron Smeal, while General Manager, Mr Roger Seach was involved in initial and exit discussions.

PHOTOGRAPHS:

A series of 21 digital photographs taken during the site audit on 29/10/2003 indicate the current environmental status of the site, particularly with regard to stormwater protection aspects, together with a limited number of records of processing plant.

CHUCKLE:

A review of Chuckle and Company files, STH495 records for 2003 indicated that any complaints received by the company had been actioned and reports provided to the EPA, in each instance (3 for 2002-2003).

Agency Interests Module:

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓

Assessments & Observations:

ADMINISTRATIVE:

Environmental Licence No. SR0722 (without development approval) (Section 93):
Both the company business and activity location addresses were confirmed **CORRECT**.
ASIC search – See attached printout.
ERA Items – confirmed no changes.
Real Property Description – confirmed no changes.
Licence Effect Date – 27/09/2002.
Licence Anniversary Date – 4 November.

The anniversary date of SR0722 of 4 November 2003 for submission of the company annual return for 2003 was drawn to the attention of Cameron Smeal, Environmental Officer.

In regard to ERA 50(b) – Rendering operation, Cameron Smeal indicated that he did not consider gelatine manufacture a rendering process. These comments were acknowledged by EPA Officer Don Shackel who considered / indicated that wording in the ERA definition including, "processing or extracting substances, including, for example, ----- proteinaceous matter, from animal wastes or by-products", were relevant to the Davis Gelatine operation.

Schedule A - General Conditions:

A1 – In-Compliance – GELITA operates a standard maintenance card request-advice / corrective-action system which is currently being upgraded to a computer-driven MFG-PRO workshop / preventative maintenance application, together with a MIS accounting / stores system, which is intended to address equipment, plant and building maintenance aspects to reduce / minimise environmental risk.

A2 – In-Compliance – GELITA Environmental Licence SR0722 is displayed in the office foyer on site, while copies are available to staff in the amenity area.

A3, A4 – In-Compliance – The formal audit confirmed that Company environmental records are available as prescribed.

A5 – In-Compliance – GELITA indicated that the Company had achieved up to a 15% increase in gelatine yield over 2-3 years without an "increase in the risk of environmental harm" – annual gelatine production remains around 2200 MT.

A6 – In-Compliance – Perused calibration records file (Copy of "Calibration Master List" provided - Attached).

A7 – In-Compliance – GELITA indicated that no external complaints had been advised / recorded for a number of months.

Y COPY

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓

A8, A9, A10, A11, A12, A13, A14 – IEMS – In-Compliance - Updating / amendment of the documentation was linked to company progress towards ISO 14000 certification [A14], which was achieved since the previous formal audit completed on 15/10/2002 (A12, A13, A14). Copies of SGS International Certification Services Pty Ltd documentation, *"Environmental Management Systems Preliminary Audit"* (28/04-1/05/2002) and *"Environmental Management Systems Certification Audit"* (4-6/08/2003) of GELITA Australia Pty Ltd to AS/NZS ISO 14001:1996, were provided to the EPA during the formal audit completed on 29/10/2003. An SGS *"Audit Status and Itinerary"* form listed *"Standard Clauses"* of the *"Document Report Review"* for the ISO 14001 Environmental Management System (IEMS) assessment (Attached). See also copy of SGS Certificate AU03/1818 concerning the management system of GELITA Australia Pty Ltd, Flood Road, Josephville, QLD 4285 Australia, that has been assessed and certified as meeting the requirements of ISO 14001:1996, for the following activities, *"Management of environmental effects associated with processing plant operations for manufacture of edible grade gelatins as well as the treatment and disposal of wastes."* (Certificate valid from 06/08/2003 until 06/08/2006 – Issue 1. Certified since 06/08/2003).

The on-going Company training matrix was confirmed [A9(iii)]. Environmental performance and energy audits / reviews were provided to the EPA in the 2002 Annual Return (Copy provided – previously with-held awaiting call-up), [A9(iv), A10, A11].

On-site gelatine processing waste utilisation / composting trials have been successfully completed with a view to achieving total internal recycling of nutrients, in due course [A9(v)]. The GELITA Annual Return for 2003 falls due on 4 November 2003, where appropriate reporting will be provided / reviewed [A9(iv)(a)(b), A9(v), A10(i)(ii) & A11]. Energy auditing requirements called-up under Conditions A9(iv)(c), A10(iii) & A11 are not due until the 2004 Annual Return.

A15 – In-Compliance – A Community Liaison Committee is in place and operating – most recent meeting completed in October 2003 – membership remains inclusive of site-surrounding residential persons and Local Government representation. An annual site Review Committee meeting (earlier Court Case requirement), to be arranged by the Company, remains to materialise.

A16 – In-Compliance – GELITA has no problems in meeting this requirement concerning EPA access to the site.

Schedule B - Air:

B1, B2 – In-Compliance – GELITA has measures in place to minimise the release of contaminants to atmosphere (See comments below).

B3-B5 – In-Compliance – Release Points information included in Schedule B – Table 1 remains relevant and correct.

B6, B7 – NON-COMPLIANT - BOILER EMISSIONS TESTING - C Smeal / R Wearne provided a report of February 2003 titled, *"Stack Emissions Monitoring and Biofilter Odour Assessment"*, prepared by AIR NOISE ENVIRONMENT P/L which indicated that the Finafire coal-fired fluidised-bed Boiler had been found to be in NON-COMPLIANCE with Particulates limits included in SR0722 (Attached). To overcome the ongoing problems associated with the problematic wet-ash removal equipment (Flosep system), GELITA is proposing to "dump" this process and replace it with a baghouse. The Company was requested to provide a timeframe for completion of this project, as soon as practicable. Company letter of 9/04/2003 from R C Wearne, General Manager of Davis Gelatine Australia Pty Limited, at that time, committed to the installation of a Baghouse system to the Finafire Boiler, commencing around February 2004 (Copy attached). This commitment remains the objective of GELITA Australia Pty Ltd. Following Boiler stack testing completed in February 2003, stack emissions testing is a biennial requirement of SR0722, falling due in 2005 (H9).

B8 – In-Compliance – GELITA indicated that during the 2003 annual return period two (2) odour complaints were received, investigated and reported to the EPA – confirmed (12/2002 – dead cow & 3/2003 – compost turning trial). See also comments under H1-H8 below.

B9, B10, B11 – In-Compliance - The Co-generation project remains on the "back-burner", however sufficient biogas can now be collected and held to fuel a trial / short production run. GELITA provided copies of quality analyses, including coal Total Sulphur levels for domestic supply from Jeebropilly Collieries (Attached).

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓
B12, B13, B14 – In-Compliance – During the audit inspection, doors servicing the raw materials receival area were observed to be closed as prescribed by SR0722. GELITA advised that the raw materials building ventilation air volume / changes have been improved / upgraded, with the installation of an additional fan unit since original plant commissioning.
B15 – In-Compliance – The large Biofilter is operating effectively (Comments under B17 apply).
B16 – In-Compliance – The Hybractor Technology Biofilter is scheduled for a fan replacement in January 2004 (Fig.12), to obviate leakage of odorous and corrosive air to atmosphere (Comments under B17 apply). On-going maintenance measures have significantly minimised odour leakage, compared to previous assessments.
B17 – NON-COMPLIANT - BIOFILTER TESTING - C Smeal and Company Consultants have commented on perceived "shortcomings" with the odour assessment process relevant to the on-site biofilters, requesting consideration of amendment to the assessment procedure to account for any background odour levels / impacts. EPA is to consider clarifying the odour assessment process through possible amendment of Condition B17 and H10 included in SR0722 (See Biofilter test results and comments provided by AIR NOISE ENVIRONMENT P/L – attached). Fugitive odour leakage has not impacted beyond the boundaries of the site and generally remains localised.
B18 – In-Compliance – Biogas is flared / Co-generation project remains "on hold".
B19, B20 – In-Compliance – GELITA indicated that regular system leakage checks and plant shutdown SOPs are in place.
<u>Schedule C - Water:</u>
C1 – In-Compliance – DNR maintains Logan River monitoring stations above and immediately below the GELITA property boundary, which continuously trace a range of indicator parameters on river water passing these points. Cameron Smeal indicated that these plots have not indicated any significant deviations from expected ranges. Data will be reviewed in the up-coming annual return for 2003, due by 4/11/2003.
C2-C8 – Ponds Conditions – In-Compliance – The site inspection confirmed; "free-board" requirements as prescribed, ponds integrity maintained, stormwater impacts minimised (diversion banks / drains in place). The contents of Aerobic Pond 1 were noted to be a "healthy brown colour", with an acceptable odour profile.
<u>Schedule D – Stormwater Management:</u>
D1, D2 – In-Compliance – GED Conditions - GELITA has measures in place to minimise the release of contaminants to stormwater, viz; bunding, formed drainage, catch dams, contour banks and drains, variously in place around the site (Figs.1, 2, 3, 5, 6, 7, 8, 9, 10). The concrete-sealed "ring road" surrounding the gelatine processing plant serves as a "first-flush" catchment, with all runoff directed to catch dams for return and treatment in Pond1 (See additional comments below under D6).
D3, D4 – In-Compliance – GED Conditions - GELITA has measures in place to minimise the release of contaminants to stormwater, viz; bunding, formed drainage, catch dams, contour banks and drains, variously in place around the site (Figs.1, 2, 3, 5, 6, 7, 8, 9, 10). A number of "catch dams" located in stormwater runoff gullies / waterways leaving the site obviate any contaminant discharges to the Logan River (See also comments under C1 above concerning independent river monitoring carried out by DNR).
D5 – In-Compliance – Vehicle washing is carried out on a concrete pad, adjacent to the belt-press shed, which drains to the wastewater treatment system.
D6 – In-Compliance – GELITA has SOPs and a number of strategic spill control kits in place around the site (Figs.5, 7). Staff are expected to effectively capture / contain / clean up any spillages to the sealed surrounds of the processing facility. However, any liquid discharges to the formed drainage system and roadways located immediately adjacent to all areas surrounding the production buildings and associated plant installations, drain to a double "trap-dam" system, situated in a gully below the belt-press shed. Any material collected in these dams is pumped to the wastewater treatment plant for processing. It was noted during the audit that the second trap dam in the series was empty, while the first catchment dam appeared to be at around 50% of capacity (recent local rain event).

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓

D7, D8 – In-Compliance – Both bunds servicing the Sulphuric Acid external storage tank and the small, above-ground fuel storage tank located in the “old stables” shed, previously indicated to be defective during the 2002 audit, were effectively rebuilt / reconditioned during 2003 (Fig.8). GELITA previously provided the EPA with photographic records, validating completion of these works. Bund installations on site are generally effectively serviced and maintained (Figs.1, 2, 3, 6, 8, 10).

D9-D14 – In-Compliance – All external bunds were inspected during the formal audit completed on 29/10/2003 and were found to be effective and well maintained (See comments above and Figs.1, 2, 3, 6, 8, 9, 10).

Schedule E – Land Application:

E1 – In-Compliance – Only prescribed contaminant releases were confirmed as irrigated to land during the formal site audit and inspection completed on 29/10/2003.

E2 – In-Compliance - Confirmed on file 961EA472\1, documentation, “Leiner Davis Gelatin Sunny Hills Irrigation Farm”, site plan. Cameron Smeal indicated that the “defined contaminant release areas” for the site will require updating / amendment, as an outcome of the recently completed EMP No.1157.

E3, E4 – In-Compliance – GELITA advised that no off-site disposal of treated wastewater had been undertaken or is proposed at this time (“Third party” disposal of treated wastewater).

E5 – In-Compliance - While approximately 120 hectares of land comprises the current treated wastewater disposal areas on site, Cameron Smeal indicated that the “defined contaminant release areas” for the site will require updating / amendment, as an outcome of the recently completed EMP No.1157.

E6-E9 – In-Compliance – Current land irrigation practices for treated wastewater applications continue to provide effective controls (Company EM Plan of 1994 and IEMS of 1997), but will be included in an updated Irrigation Management Plan (IMP), which is planned to include data / information arising from the on-going projects “driving” EMP No.1157, which reached conclusion on 30/09/2003 (Reference documents concerned with the completed EMP No.1157 remain to be fully completed and reviewed, in this regard). The visual effectiveness of land irrigation practices were observed / reviewed during a vehicle tour of the on-site disposal areas on 29/10/2003.

E10 – In-Compliance – GELITA confirmed that records are maintained of the total quantity of programmed contaminants released to the irrigation areas on any day, which remains below 3ML of final treated wastewater (Attachment). Cameron Smeal indicated that reprogramming of treated wastewater discharges to redefined contaminant release areas would be a further consequence of the outcomes of EMP No.1157.

E11, E12, E13, E14 – In-Compliance – GELITA confirmed that land application and wet weather storage practices are in place, as prescribed in SR0722 and will be included in an updated IMP, arising from the completion of EMP No.1157 (current procedures reference documents include company EM Plan of 1994 and IEMS of 1997).

E15, E16, E17 – In-Compliance – The sewage effluent disposal area was inspected – observed restricted access / signage in place / lockable valving in place.

E18-E23 – IMP – In-Compliance - An updated Irrigation Management Plan (IMP), which is planned to include data / information arising from the on-going projects “driving” EMP No.1157, which reached conclusion on 30/09/2003 (Reference documents concerned with the completed EMP No.1157 remain to be fully completed and reviewed, in this regard) also remains to be finalised. The 15 requirements included under condition E19 have been addressed by MEDLI aspects of EMP No.1157, which includes data / projects operated by the Company, UQ and DNR.

E24 – NON-COMPLIANT – Treated wastewater release quality characteristics issues are being addressed through recently completed / ongoing projects “driving” EMP No.1157, which reached conclusion on 30/09/2003. Cameron Smeal indicated that GELITA would be seeking “flow-on” amendment of most parameters included in Schedule E – Table 1 of SR0722, in due course.

E25 – In-Compliance – GELITA indicated that the Company was not aware of any problems concerning environmental nuisance or harm arising from issues prescribed by this condition.

Schedule F – Noise:

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓
F1 – In-Compliance - GELITA indicated that no noise complaints had been received for 2002-2003 and hence no noise assessments had been undertaken by the Company.
F2, F3 – In-Compliance – GELITA indicated that vehicle curfews remain in place and infrequent non-compliances are actioned (one [1] during 2002-2003).
<u>Schedule G – Waste Management:</u>
G1 – In-Compliance – GED Condition – During the formal audit and site inspection of the Josephville operation, completed on 29/10/2003, GELITA was observed to be meeting the requirements of this condition
G2 – In-Compliance - GELITA does not permit the burning of Company waste either on site or off site.
G3, G4 – In-Compliance - Appropriate recycling of waste materials is undertaken, where practicable, viz; paper and cardboard by local collector "Spotty Bins", belt-press sludge removed by licensed soil conditioner manufacturer Moreshost P/L [ERA 53], who was recently issued with a Regulated Waste Transport Licence [ERA 83(b)(i)] and occasionally scrap metal disposal.
G5, G6, G7 – In-Compliance - Regulated waste, viz; belt-press sludge and occasionally boiler ash are transported to EPA licensed operator Moreshost P/L for garden mix / soil conditioner manufacturing purposes. Moreshost P/L has a Regulated Waste Transport Licence with the EPA.
G8 – In-Compliance – GELITA uses EPA licensed operator J J Richards for removal of general waste materials (lift-bins) to local landfill. The GELITA waste-tracking database was confirmed.
<u>Schedule H – Self Monitoring & Reporting:</u>
H1-H8 – In-Compliance – GELITA has a standard recording format in place / viewed, for complaints, incidents and emergencies. Complaints and incidents are actioned / followed-up as required (H7) and reported to the EPA. A complaints summary for 2003 will be included in the company annual return due to be provided to the EPA early November 2003. GELITA indicated that during the 2003 annual return period two (2) odour complaints were received (H1), investigated and reported to the EPA – confirmed (12/2002 – dead cow & 3/2003 – compost early turning trial), while a vehicle curfew violation (F3) was actioned by the Company, with the transport operator. GELITA have SOPs in place to ensure corrective action / feedback loops are completed as prescribed in SR0722. Cameron Smeal flagged a potential odour complaint / incident source over the upcoming New Year shut-down period, when the primary digester vessel of the Hybractor unit will be opened for maintenance work (January 2004), potentially releasing offensive odours to the atmosphere, which may result in nuisance complaints beyond the boundaries of the site. While the repair work may take a number of days, continuous emission of offensive odour is not expected and prevailing weather conditions will be taken into account, at the time.
H9 – NON-COMPLIANT – See comments under B6 and B7 above (Information attached).
H10, H11 – NON-COMPLIANT – See comments under B17 above (Information attached). The foul air fan supplying the wastewater treatment plant Biofilter (Fig.12) is to be replaced during the New Year shut-down period, due to continuing odour leakage problems, resulting in local nuisance odour levels in the surrounding work area, but not beyond the boundaries of the site.
H12 – In-Compliance - Both Boiler and Biofilter emissions monitoring was completed over January / February 2003 (see testing "Frequency" in Schedule H, Table 1 – "Biennially from 2001") and relevant records confirmed in storage for the past seven (7) years. See results appraisal comments under B6, B7 and B17 above.
H13-H17 – In-Compliance – GELITA indicated that no noise complaints had been received during 2002-2003 and hence the Company had not undertaken noise monitoring.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓

H18-H21 – NON-COMPLIANT - Viewed and discussed monthly contaminant release monitoring results with GELITA Environmental Officer, Cameron Smeal. The company annual return for 2003, due to be forwarded to the EPA by early November 2003, will provide this data. An example of weekly ponds sampling results was provided to the EPA during the formal site audit completed on 29/10/2003 (Attached).

With the completion of long-term EMP No.1157 on 30/09/2003, "flow-on" recommendations are expected to require amendment of most of the treated wastewater release quality characteristics limits included in SR0722. EMP No.1157, which includes data / projects operated / undertaken by both the Company and UQ was completed on 30/09/2003 (See also comments under "Details of Scope or Particular Focus" above).

NOTE: Due to workplace health and safety concerns by the Company regarding the use of SMP 1 as prescribed, equivalent material is now collected from the "Reticulation Pump Line from the BSD", in-lieu of, "the overflow from the final effluent balancing storage dam" (H19). This change will be addressed as part of the upcoming amendment process of SR0722.

A number of NATA Registered Laboratories are used by GELITA for monitoring / interpreting sample analyses; Brisbane Water, FALA, QG Health (H21, H27 & H31).

H22, H23 – In-Compliance - GELITA confirmed that "mag" meter records are maintained of the total quantity of programmed contaminants released to the irrigation areas on any day (sighted), which remains below 3ML of final treated wastewater (Attachment). Cameron Smeal indicated that reprogramming of treated wastewater discharges to redefined contaminant release areas would be a further consequence of the outcomes of EMP No.1157.

H24-H28 – Logan River Daily Monitoring – In-Compliance – Daily monitoring is carried out by DNR automatic recording stations within the river, both above and also immediately below the GELITA downstream boundary. These recordings for 2003 were sighted / reviewed, indicating only inherent variations in parameters assessed at the two (2) river sampling points. This extensive chart data is available for call-up for annual return assessment purposes. Parameters were confirmed as those included in the company EM Plan of 1994, due for review in early 2004, as part of the IMP update, flowing from completion of EMP No.1157 on 30/09/2003.

H29-H32 – Soils Monitoring – In-Compliance - Monitoring results completed by UQ are covered by EMP No.1157, that includes data / projects reaching finality around 30/09/2003 and which support material will be provided to the EPA with EMP No.1157, for assessment. Cropping trials, to ascertain nutrient utilisation in soils irrigated with treated wastewater, form a number of projects associated with EMP No.1157.

H33-H35 – Groundwater Monitoring – In-Compliance - Results of bimonthly standing water levels and constituent analyses of the 31 boreholes over the site will be provided to the EPA with EMP No.1157 support material. Discussions and review of results for the current period did not indicate nutrient transfer / leakage to the "deep" groundwater systems on site and hence to the Logan River (See also comments under H24-H28 above). In many areas of the "farm", shallow topsoil cover, over a deep clay base, precludes transfer of irrigated treated wastewater to groundwater. Cameron Smeal indicated that in the light of data accumulated from EMP No.1157, the value of retaining a number of the parameters included in condition H34(d) will warrant reassessment / amendment at conclusion of the EMP review process. GELITA intends to adopt the "Full-Stop" Controller, developed by CSIRO Scientist R Stirzaker (See CSIRO.au) to monitor moisture movement through soil profiles on site, as a measure of irrigated treated wastewater penetration / field capacity / percolation effectiveness.

E36 – In-Compliance - GELITA seeks expert advice from a variety of sources regarding results emanating from the site monitoring programs, viz; Consulting NATA Laboratories, Air, Noise Environment, UQ Project Team, Soil / Agronomy Consultant Dr Brian Schafer, Ted Gardner of DNR (soil / plant systems [particularly Vetiver grass applications / hydrology issues], J Biala of "The Organic Force" for composting guidance and Dr Paul Truong, Vetiver cultivation expert (Attached – "Research, Development and Implementation of the Vetiver System for Wastewater Treatment" by Paul Truong and Cameron Smeal, August 2003, relevant to the GELITA site, where most of the research data used in this Technical Bulletin was generated). Both authors Truong and Smeal co-presented the above paper at the Third International Conference on Vetiver in Guangzhou, China in October 2003.

H37, H38 – NON-COMPLIANT - Licence limit(s) exceedances arising with the irrigated disposal of treated wastewater to land on site have been covered by EMP No.1157, for the past 4.5 years, to 30/09/2003 and hence have not been individually advised to the EPA. However, the EPA has been aware of results achieved over the course of EMP No.1157, following regular and annual reviews of progress of the process.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓

Schedule I – Definitions: No comments required.

REQUIRED ACTIONS:

B7 & H9: GELITA Australia Pty Limited has made a commitment in writing to commence actions to install a Baghouse to control over-limit Total Solids Particulates discharges from the Finafire coal-fired Boiler early in 2004 (Attached – Company letter of 9/04/2003); and

E24 & H18-H21, H37, H38: GELITA Australia Pty Limited is to forward a written report concerning the outcomes of completed EMP No.1157, "To ensure that the GELITA Australia Pty Ltd [formerly Leiner Davis Gelatin (Aust)] Effluent Disposal System will be operated in a long term environmentally and economically sustainable manner", together with supporting material to validate recommendations arising from the EMP process and including any amendments requested to Company Environmental Licence SR0722; and

B17 & H10: GELITA Australia Pty Limited is to negotiate with the EPA concerning the wording / intent of Biofilter licence conditions, to take account of ambient, fugitive odour levels present in the immediate surrounds that could impact on results of the equipment performance outcome.

Licence Conditions Module:

Condition Number(s)	Details of non-compliance(s)
B7 & H9	Over-limit Total Solids Particulates discharged from Finafire coal-fired Boiler.
E24 & H18-H21, H37, H38	Over-limit treated wastewater release quality characteristics.
B17 & H10	Influence of ambient odour levels on Biofilter performance measurement results.

RECOMMENDATION:

NO RECOMMENDATIONS ARE OFFERED, AS CONDITIONS CURRENTLY INCLUDED IN SR0722 ARE CONSIDERED ADEQUATE TO ENSURE SUSTAINABILITY OF THE GELATINE MANUFACTURING ACTIVITIES CARRIED OUT ON SITE AND TO SAFEGUARD THE ENVIRONMENTAL INTEGRITY OF THE SURROUNDING SENSITIVE RECEPTORS.

Signoff Sheet:

Additional Comments:
<u>NIL</u>
Recommendation:
<u>NIL</u>

Additional Comments:

Adoption of Report:

This report accurately represents the issues and outcomes of this site inspection.

Inspecting officer

Don Shackel

Signed

Date

Inspecting officer

N/A

Signed

Date

Comments and Recommendation:

Supervisor

Doug Carey

Signed

Date

COPY



Queensland
Government

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference
Our reference STH495-7-SR0722

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

19 November 2003

COPY

Mr R Seach
General Manager
GELITA Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

Attention: Mr Cameron Smeal, Environmental Officer

Re: Report of Annual Compliance Audit for Licence SR0722, on behalf of GELITA Australia Pty Ltd, located at "Sunny Hills", Flood Road, Josephville via Beaudesert, Qld 4285.

Environmental Protection Agency (EPA) Officers Don Shackel and Adam Burt conducted a compliance audit inspection on 29 October 2003, in respect of the rendering operation (extraction of gelatine) carried out by GELITA Australia Pty Ltd, at the above address.

The inspection was undertaken as part of an EPA program to complete regular inspections of premises holding environmental authorities with the EPA.

The purpose of the inspection was to evaluate the compliance of activities being conducted on your site with conditions prescribed in Environmental Authority SR0722, assess compliance with general provisions of the *Environmental Protection Act 1994* and associated policies and to ensure any areas of non-compliance are dealt with.

It would appear that you were in breach of the following condition of your environmental authority, at the time of the inspection: B7.

The condition, in full, is attached to this letter. You must immediately take all measures necessary to ensure compliance with the condition of your environmental authority, as a breach of licence condition is a serious offence for which there are heavy penalties.

Licence conditions B17 and H10 may need to be amended to reflect the operation of the Biofilters.

I acknowledge the written commitment of GELITA Australia to commence actions to install a Baghouse, early in 2004, to control over-limit Total Solids Particulates discharges from the Finafire coal-fired Boiler.

The EPA commends GELITA Australia on embracing a zero-waste policy for the gelatine manufacturing operation, together with the pragmatic approach taken to develop a cost effective new processing sequence for such highly reactive wastes.

As such, the EPA supports the proposed maintenance, improvement and expansion of the established composting facility on site at Josephville.

The EPA thanks you for your co-operation during the audit inspection and looks forward to your continued commitment to the environmental management of the site.

Should you have any questions regarding the above matters, please contact Don Shackel on (07) 3225 1040.

Yours sincerely

Kyle Roberts
Operations Manager
Heavy Industry Group
Environmental Operations
Southern Region

Assessment of Annual Return – 2003-2004

Licence Holder:	GELITA Australia Pty Ltd
Licence Number:	SR1114 / DA0007
File:	STH495/8
Premises:	"Sunny Hills", Flood Road, Josephville via BEAUDESERT, Q 4285
Date received:	5/01/2004
Date assessed:	20/01/2004
Assessed by:	Don Shackel
Supervising Officer	Kyle Roberts, Operations Manager, Heavy Industry Group
Time Taken to review	2 hrs.

Licensed activities:

- **ERA 53 Soil conditioner manufacturing** - Commercially manufacturing soil conditioners (other than spent mushroom growing substrate by a mushroom grower) by receiving and blending, storing, processing, drying or composting organic material or organic waste, including, for example, animal manures, sewage, septic sludges and domestic waste, in works having a design production capacity of 200 t or more per year

Assessment of Annual Return	YES	NO	N/A
Is the holder required to complete monitoring / reports as a condition of the licence *Files assessment of client indicated 2 odour complaints were received from composting operations since inception 2 years ago.		X	
Have the required monitoring / reports been completed	X (complaints)		
Has holder fully complied with licence conditions and environmental duty *Stated and signed Question 7 of 'Annual Return for environmental authorities' form.	X		
Correct licence fee lodged (N/A if fee waiver application has been lodged)	X		
Is this an annual return for ERA 83 & have applicable forms been returned for licensed vehicles		X	
Notice of regulated waste vehicles registered with administrative authority			X
Has rehabilitation of disturbed land been undertaken			X
Fee Waiver Application Submitted			
Fee waiver risk assessment checklist (3-RIS) completed			X
Fee waiver request for statutory approval (RSA) completed			X
Notice of decision sent			X
Issues identified			X
Application approved			X
Complaints			
Complaints / incidents registered on Chuckle	X		
All complaints recorded on file	X		

H:\HEAVY INDUSTRY\Beaudesert Shire Council\Licence & DA Premises\Davis Gelatine Australia Pty Limited - SR1114 & DA7\Annual Return\2003\GELITAManager\AssessmentofAnnualReturn2003SR1114.doc

Are there any outstanding complaints	X (1 x odour)		
Do registered complaints indicate a breach of licence conditions	X (B1)		
Compliance			
Have any compliance inspections or environmental audits been carried out on the site in the past 12 months	X (SR722) (29/10/2003)		
Did the inspection / audit show any breaches of licence conditions		X (SR1114)	
Were any actions required as a result of the inspection/audits		X (SR1114)	
Are there any ongoing compliance issues		X (SR1114)	
Have any EMP's or EPO's been issued for the site	X (EMP 1157 – SR722)		
Are there any outstanding issues from the EMP's EPO's	X (SR722)		
Are there any outstanding critical dates		X (SR1114)	
Issues			
Outstanding issues identified for SR1114 Details: NIL			X
Letter of request sent		X	
Further action for SR1114 Details: NIL			X

The EPA has recently approved continuation of composting activities on site (EPA letter to Company of 19/11/2003 – copy attached), following an initial 12 month waste composting project period (September 2002-September 2003) to trial processing methodology and assess outcomes (an odour control plan is in place), with a view to long term, on-going total waste utilisation / recycling on site.

The company has contracted part-time consultancy services from Johannes Biala of "The Organic Force", to assist with the composting project. The composting consultant Company has prepared a report dated October 2003, titled "**Assessing the Suitability of Covered Windrow Composting for On-site Processing of Gelatine By-products**", for GELITA Australia Pty Ltd, which has been made available to the EPA (See STH495/6 – Folio 40).

Since commencement, only two (2) odour complaints are known to have resulted from the composting trials (3/2003 – turning windrows on windy day) and the following early, formal production of material (complaint advised 7/01/2004). Corrective actions implemented following these incidents should obviate further problems arising from such sources.

GELITA now has a staff bonus incentive plan in place, whereby any valid complaints confirmed beyond the boundaries of the site, reduce the ultimate value of the bonus paid.

Assessing Officer: Don Shackel

Position: Senior Inspector – Heavy Industry Group
Southern Region

sch4p4(6) Personal in

Date: 20/01/2004

Supervising Officer: Kyle Roberts

Position: Operations Manager – Heavy Industry Group
Southern Region

sch4p4(6) Personal in

Date: 21 / 1 / 2004

H:\HEAVY INDUSTRY\Beauesert Shire Council\Licence & DA Premises\Davis Gelatine Australia Pty Limited - SR1114 & DA7\Annual Return\2003\GELITAManagerQAAssessmentofAnnualReturn2003SR1114.doc



Queensland Government
Environmental Protection Agency
Queensland Parks and Wildlife Service

EPA SOUTHERN REGION
Correspondence No. **STH42004/150** Barcode N.
File No. **STH 495** PART **7** FOLIO
Action Officer **Sinead Donnelly** Related Items
Received 12/01/04

STH495

ABN: 8722 115 8786

Annual return for environmental authorities
Section 316 Environmental Protection Act 1994

COPY

Important information for applicants

- This form must be completed annually by the holders of all licences or integrated authorities under the Environmental Protection Act 1994 (EP Act).
- Please label all attachments alphabetically (e.g. "Attachment A" etc.).
- The guidance information provided on the left side of this document is intended to assist you to complete the form. However, if you experience difficulties completing the form please contact your local Environmental Protection Agency (EPA) office (details provided at the back of this form).

FOR OFFICE USE ONLY

Date received: **5/1/04** File Ref: **STH495**
Correct AA: Yes ☒ Complete Form: Yes ☒ Correct Fee: Yes ☒
Entered By (sign): **[Signature]** (date): **6/1/03**

The name of the environmental authority holder will be stated on the licence/integrated authority. Enter the full name.

If the environmental authority holder is not an individual, please nominate someone who is authorised to act on behalf of the organisation which holds the environmental authority (e.g. Director, CEO, or Manager). You must prepare all reports required as a condition of your environmental authority. For example, environmental management programs or implementation of a stormwater management plan etc. If you are required to prepare results as a part of the conditions on your environmental authority, please see the back of this form for an example of the preferred method of formatting and presenting that data.

All reports must be held in the same place and be available for inspection by the administering authority during business hours. You must forward the reports to the EPA on request or when the licence has either expired (provisional licence only), been surrendered (licence without development approval only) or cancelled.

1 Environmental authority holder

Name
GELITA Australia Pty/Ltd

2 Responsible person

Name
MR Roger Seach

3 Current environmental authority no.

Number
SR1114

4 Does a condition of your environmental authority require you to carry out any monitoring and/or prepare report(s) on your environmentally relevant activity?

- ☒ Yes → Please do not submit the report(s) with this annual return — fill out Table 4.1. If you require more space, attach additional information. Attachment
- ☐ No → Go to Question 6.

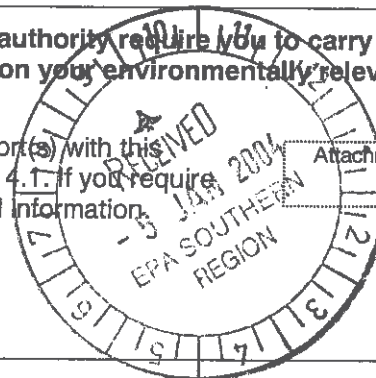


Table 4.1 - Table of reports

Location of reports and/or monitoring: **"SUNNY HILLS" JOSEPHVILLE**

Nature of report and/or monitoring	Prepared by	Dates covered
SCHEDULE E2-SOURCE, VOLUMES & COMPOSITION OF MATERIALS USED	CAMERON SMEAL	JAN 2003- JAN 2004



If the activity(ies) the subject of your environmental authority have or will be altered since the time your environmental authority was issued, your environmental authority may need to be amended. Contact your local EPA office for advice.

If you wish to submit information about non-compliance incident/s by way of a program notice (section 351 of the EP Act), please contact your local EPA office for the approved form. For information about your general environmental duty, see sections 319 and 320 of the EP Act.

5 Have you completed any monitoring and/or reports as required as a condition of your environmental authority?

☒ Yes

☐ No → Please attach a statement outlining your reasons for not completing all the required reports with this annual return.

Attachment

6 If you choose, you may submit additional information with this annual return.

For example, achievements, capital works, training, monitoring, new pollution controls, consultancy and related costs.

Attachment

7 Since your last annual return, have you fully complied with the conditions of your environmental authority and your general environmental duty?

☒ Yes

☐ No → Please provide a description of the non-compliant incident/s and remedial action undertaken in response to the incident/s. You may wish to submit program notice/s for non-compliant incidents.

Attachment

8 Is this annual return for environmentally relevant activity 83 — Regulated waste transport?

☐ Yes → You will need to complete the EPA form *Details of regulated waste vehicles* and submit it along with this annual return.

Attachment

☒ No

COPY



Please read carefully through the certification opposite before signing. Note that this form must be signed by the "responsible person" nominated on the first page of this form.

The annual fees for all ERAs are listed in Schedule 1 of the Environmental Protection Regulation 1998. You can also contact your local EPA office for advice.

The fees and charges associated with this annual return have been excluded from GST by the Commonwealth Government.

You may apply for exemption from disclosing information contained in a document submitted, or proposed to be submitted with this annual return (see section 564 of the EP Act).

For details of EPA administrative access arrangements, please contact the EPA Freedom of Information Unit, PO Box 155 Brisbane Albert Street QLD 4002.

Thank you for the time you have spent completing this form. Please forward your completed form and all attachments to an EPA office near you. A list of offices that accept annual returns is attached to this form for your information.

9 Certification

I / We GELITA Australia Pty Ltd

Printed name of licence holder.

- enclose the prescribed annual fee of \$400.....; and
- understand and agree that all information provided on or with this annual return may be made available upon request, subject to the provisions of the *Freedom of Information Act 1992*, and/or EPA administrative access arrangements.

I, Roger Seach

Printed name of responsible person.

- am authorised or a person authorised to sign on behalf of the current environmental authority holder, and commit the holder in all matters relevant to this annual return. I am aware that under section 480 of the *Environmental Protection Act 1994*, it is an offence to give the administering authority information that I know is false or misleading in any material particular. The maximum penalty for such action is 165 penalty units for an individual, or 825 penalty units where the applicant is a corporation (section 181B (3) of the *Penalties and Sentences Act 1992*).

sch4p4(6) Personal information

Signature of responsible person

22/12/03

Date

GENERAL MANAGER

Position of signatory (e.g. Director, manager, owner, partner, CEO etc.)

22/12/03

Date

COPY



**Queensland
Government**

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

COPY

Enquires Karen Francis
Telephone (07) 3225 1062
Our reference STH495

6 January 2004

Leiner Davis Gelatin International Limited
PO Box 409
BEAUDESERT QLD 4285

Attention: Mr Robert Wearne

Dear Mr Wearne

Re: Annual Return Licence No. SR1114

Thank you for payment of your annual licence fee of \$400.00 and submission of your Annual Return for your activity/ies located at:

"Sunny Hills" Flood Road JOSEPHVILLE via BEAUDESERT QLD 4285

A copy of the receipt is enclosed for your records.

Your annual licence fee covers the period from 14 December 2003 until 13 December 2004.
The annual licence fee has been excluded from GST by the Commonwealth Government.

The annual return is being reviewed by our licensing staff and you may be contacted should further information be required regarding compliance with conditions of your licence.

Yours faithfully

Cathy Ufer
Environmental Support Officer

288 Edward Street Brisbane
Queensland 4000 Australia
GPO Box 2771 BRISBANE
Queensland 4001 Australia
Telephone (07) 3224 5641
Facsimile (07) 3225 8723
Website www.env.qld.gov.au
ABN 87 221 158 786
309 of 1035

Checklist

Compliance

Compliance program — inspection checklist

Instructions for use

Where an Agency issue is determined to be relevant, note appropriate detail in the observations section.

Where there is any non-compliance, discuss with the company representative and note any required action.

Where the assessment will include licence conditions, use the licence condition compliance section of the checklist.

This checklist is to be used for all inspections. Refer to the procedural guide for guidance.

Cover Sheet Module:

Company Name: GELITA Australia Pty Limited		Date of Inspection: 29/10/2003
Trading as: GELITA – The Gelatine Group		EA No.: SR0722
Description of Business Activity: ERA 50(b) – Rendering operation		
Site Street Address: Flood Road		
Suburb: Josephville	City/Town: Beaudesert	Post Code: 4285
Registered Office Address: "Sunny Hills", Flood Road, JOSEPHVILLE via BEAUDESERT QLD 4285		
Suburb: JOSEPHVILLE	City/Town: BEAUDESERT	Post Code: 4285
Site Representative: Cameron Smeal	Position: Environmental Officer	Contact phone: (07) 5541 9442

Inspection type	☐ Catchment	☐ Industry Sector	☐ Complaint	☒ Compliance
Compliance level	☐ 1	☐ 2	☒ 3	Inspection type
				☐ A
				☐ B
				☒ C
Audit focus is the following relevant Agency interests:				
☒ Water issues ¹	☒ Air issues ¹	☒ Noise issues ¹	☐ National and international	
☒ Land issues ¹	☒ Waste issues ¹	☒ Social issues	☒ Impacts on surrounds	
☐ Coastal issues	☐ Heritage issues	☐ Biodiversity		
☒ Resource allocation	☐ Tenure issues	☐ Other issues		

¹ Main issues to consider for *Environmental Protection Act 1994* focus.

DETAILS OF SCOPE OR PARTICULAR FOCUS:

GELITA Australia Pty Ltd, previously **Davis Gelatine Australia Pty Limited**, recently acquired by German private business interests from Goodman Fielder, remains committed to completion of **EMP No.1157** concerned with, ***"Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner"***, which reached full term for completion on 30 September 2003. E-mail advice from the Company at the due date of the reporting period on 30 October 2003, indicated that EMP No.1157 was completed and written-up, apart from "two final items from external sources for inclusion in the report", viz; an effluent stream characterisation under the cleaner production section and monitoring schedule from the Company soils consultant. The total report relevant to EMP NO.1157 will be forwarded to the EPA as soon as these outstanding items become available.

Subsequently, licence limits requirements for treated wastewater parameters such as Total Nitrogen and Total Dissolved Solids, observed as not achieving compliance on an historic on-going basis, will be addressed by the EMP review process, within a "holistic" context for the site. While non-compliances were flagged by this audit, on-going corrective actions remain in place, relevant and ongoing via EMP No.1157. The company has regularly provided progress reports for EMP No.1157 to the EPA for assessment and information, indicating milestones towards achieving compliance by 30/09/2003. It is expected that outcomes of EMP No.1157 will indicate a need to seriously reassess, amend or delete some or all treated wastewater limits from SR0722.

Sustainability of application of treated wastewater to on-site land will be achieved through a mix of options including; pasture / grazing systems (including Vetiver grass), cropping (cutting & exporting hay products) and agro-forestry, which plant products will / may become a raw material source (green waste) for **on-site compost-making**, utilising all processing wastes generated by gelatine manufacturing ("skutch", belt-press sludge, boiler ash) for total on-site soil conditioning purposes.

To this end, the EPA has recently approved continuation of composting activities on site, following an initial 12 month waste composting project period (September 2002-September 2003) to trial processing methodology and assess outcomes (an odour control plan is in place), with a view to long term, on-going total waste utilisation / recycling on site. Davis Gelatine Australia Pty Limited holds DA7 (with conditions) and SR1114 for ERA 53, relevant to "soil conditioner manufacturing". The company has contracted part-time consultancy services from Johannes Biala of "The Organic Force", to assist with the composting project. The composting consultant Company has prepared a report dated October 2003, titled ***"Assessing the Suitability of Covered Windrow Composting for On-site Processing of Gelatine By-products"***, for GELITA Australia Pty Ltd, which has been made available to the EPA.

SITE CONTACTS:

Review of conditions included in SR0722, together with a subsequent site inspection were undertaken with the company Environmental Officer, Mr Cameron Smeal, while General Manager, Mr Roger Seach was involved in initial and exit discussions.

PHOTOGRAPHS:

A series of 21 digital photographs taken during the site audit on 29/10/2003 indicate the current environmental status of the site, particularly with regard to stormwater protection aspects, together with a limited number of records of processing plant.

CHUCKLE:

A review of Chuckle and Company files, STH495 records for 2003 indicated that any complaints received by the company had been actioned and reports provided to the EPA, in each instance (3 for 2002-2003).

Agency Interests Module:

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review__Non-compliant ✓

Assessments & Observations:

ADMINISTRATIVE:

Environmental Licence No. SR0722 (without development approval) (Section 93):
Both the company business and activity location addresses were confirmed CORRECT.
ASIC search – See attached printout.
ERA Items – confirmed no changes.
Real Property Description – confirmed no changes.
Licence Effect Date – 27/09/2002.
Licence Anniversary Date – 4 November.

The anniversary date of SR0722 of 4 November 2003 for submission of the company annual return for 2003 was drawn to the attention of Cameron Smeal, Environmental Officer.

In regard to ERA 50(b) – Rendering operation, Cameron Smeal indicated that he did not consider gelatine manufacture a rendering process. These comments were acknowledged by EPA Officer Don Shackel who considered / indicated that wording in the ERA definition including, “processing or extracting substances, including, for example, ----- proteinaceous matter, from animal wastes or by-products”, were relevant to the Davis Gelatine operation.

Schedule A - General Conditions:

A1 – In-Compliance – GELITA operates a standard maintenance card request-advice / corrective-action system which is currently being upgraded to a computer-driven MFG-PRO workshop / preventative maintenance application, together with a MIS accounting / stores system, which is intended to address equipment, plant and building maintenance aspects to reduce / minimise environmental risk.

A2 – In-Compliance – GELITA Environmental Licence SR0722 is displayed in the office foyer on site, while copies are available to staff in the amenity area.

A3, A4 – In-Compliance – The formal audit confirmed that Company environmental records are available as prescribed.

A5 – In-Compliance – GELITA indicated that the Company had achieved up to a 15% increase in gelatine yield over 2-3 years without an “increase in the risk of environmental harm” – annual gelatine production remains around 2200 MT.

A6 – In-Compliance – Perused calibration records file (Copy of “Calibration Master List” provided - Attached).

A7 – In-Compliance – GELITA indicated that no external complaints had been advised / recorded for a number of months.

<p>SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review __Non-compliant ✓</p>
<p>A8, A9, A10, A11, A12, A13, A14 – IEMS – In-Compliance - Updating / amendment of the documentation was linked to company progress towards ISO 14000 certification [A14], which was achieved since the previous formal audit completed on 15/10/2002 (A12, A13, A14). Copies of SGS International Certification Services Pty Ltd documentation, "Environmental Management Systems Preliminary Audit" (28/04-1/05/2002) and "Environmental Management Systems Certification Audit" (4-6/08/2003) of GELITA Australia Pty Ltd to AS/NZS ISO 14001:1996, were provided to the EPA during the formal audit completed on 29/10/2003. An SGS "Audit Status and Itinerary" form listed "Standard Clauses" of the "Document Report Review" for the ISO 14001 Environmental Management System (IEMS) assessment (Attached). See also copy of SGS Certificate AU03/1818 concerning the management system of GELITA Australia Pty Ltd, Flood Road, Josephville, QLD 4285 Australia, that has been assessed and certified as meeting the requirements of ISO 14001:1996, for the following activities, "Management of environmental effects associated with processing plant operations for manufacture of edible grade gelatins as well as the treatment and disposal of wastes." (Certificate valid from 06/08/2003 until 06/08/2006 – Issue 1. Certified since 06/08/2003).</p> <p>The on-going Company training matrix was confirmed [A9(iii)]. Environmental performance and energy audits / reviews were provided to the EPA in the 2002 Annual Return (Copy provided – previously withheld awaiting call-up), [A9(iv), A10, A11].</p> <p>On-site gelatine processing waste utilisation / composting trials have been successfully completed with a view to achieving total internal recycling of nutrients, in due course [A9(v)]. The GELITA Annual Return for 2003 falls due on 4 November 2003, where appropriate reporting will be provided / reviewed [A9(iv)(a)(b), A9(v), A10(i)(ii) & A11]. Energy auditing requirements called-up under Conditions A9(iv)(c), A10(iii) & A11 are not due until the 2004 Annual Return.</p>
<p>A15 – In-Compliance – A Community Liaison Committee is in place and operating – most recent meeting completed in October 2003 – membership remains inclusive of site-surrounding residential persons and Local Government representation. An annual site Review Committee meeting (earlier Court Case requirement), to be arranged by the Company, remains to materialise.</p>
<p>A16 – In-Compliance – GELITA has no problems in meeting this requirement concerning EPA access to the site.</p>
<p>Schedule B - Air:</p>
<p>B1, B2 – In-Compliance – GELITA has measures in place to minimise the release of contaminants to atmosphere (See comments below).</p>
<p>B3-B5 – In-Compliance – Release Points information included in Schedule B – Table 1 remains relevant and correct.</p>
<p>B6, B7 – NON-COMPLIANT - BOILER EMISSIONS TESTING - C Smeal / R Wearne provided a report of February 2003 titled, "Stack Emissions Monitoring and Biofilter Odour Assessment", prepared by AIR NOISE ENVIRONMENT P/L which indicated that the Finafire coal-fired fluidised-bed Boiler had been found to be in NON-COMPLIANCE with Particulates limits included in SR0722 (Attached). To overcome the ongoing problems associated with the problematic wet-ash removal equipment (Flosep system), GELITA is proposing to "dump" this process and replace it with a baghouse. The Company was requested to provide a timeframe for completion of this project, as soon as practicable. Company letter of 9/04/2003 from R C Wearne, General Manager of Davis Gelatine Australia Pty Limited, at that time, committed to the installation of a Baghouse system to the Finafire Boiler, commencing around February 2004 (Copy attached). This commitment remains the objective of GELITA Australia Pty Ltd. Following Boiler stack testing completed in February 2003, stack emissions testing is a biennial requirement of SR0722, falling due in 2005 (H9).</p>
<p>B8 – In-Compliance – GELITA indicated that during the 2003 annual return period two (2) odour complaints were received, investigated and reported to the EPA – confirmed (12/2002 – dead cow & 3/2003 – compost turning trial). See also comments under H1-H8 below.</p>
<p>B9, B10, B11 – In-Compliance - The Co-generation project remains on the "back-burner", however sufficient biogas can now be collected and held to fuel a trial / short production run. GELITA provided copies of quality analyses, including coal Total Sulphur levels for domestic supply from Jeebropilly Collieries (Attached).</p>

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓
B12, B13, B14 – In-Compliance – During the audit inspection, doors servicing the raw materials receival area were observed to be closed as prescribed by SR0722. GELITA advised that the raw materials building ventilation air volume / changes have been improved / upgraded, with the installation of an additional fan unit since original plant commissioning.
B15 – In-Compliance – The large Biofilter is operating effectively (Comments under B17 apply).
B16 – In-Compliance – The Hybractor Technology Biofilter is scheduled for a fan replacement in January 2004 (Fig.12), to obviate leakage of odorous and corrosive air to atmosphere (Comments under B17 apply). On-going maintenance measures have significantly minimised odour leakage, compared to previous assessments.
B17 – NON-COMPLIANT - BIOFILTER TESTING - C Smeal and Company Consultants have commented on perceived "shortcomings" with the odour assessment process relevant to the on-site biofilters, requesting consideration of amendment to the assessment procedure to account for any background odour levels / impacts. EPA is to consider clarifying the odour assessment process through possible amendment of Condition B17 and H10 included in SR0722 (See Biofilter test results and comments provided by AIR NOISE ENVIRONMENT P/L – attached). Fugitive odour leakage has not impacted beyond the boundaries of the site and generally remains localised.
B18 – In-Compliance – Biogas is flared / Co-generation project remains "on hold".
B19, B20 – In-Compliance – GELITA indicated that regular system leakage checks and plant shutdown SOPs are in place.
Schedule C - Water:
C1 – In-Compliance – DNR maintains Logan River monitoring stations above and immediately below the GELITA property boundary, which continuously trace a range of indicator parameters on river water passing these points. Cameron Smeal indicated that these plots have not indicated any significant deviations from expected ranges. Data will be reviewed in the up-coming annual return for 2003, due by 4/11/2003.
C2-C8 – Ponds Conditions – In-Compliance – The site inspection confirmed; "free-board" requirements as prescribed, ponds integrity maintained, stormwater impacts minimised (diversion banks / drains in place). The contents of Aerobic Pond 1 were noted to be a "healthy brown colour", with an acceptable odour profile.
Schedule D – Stormwater Management:
D1, D2 – In-Compliance – GED Conditions - GELITA has measures in place to minimise the release of contaminants to stormwater, viz; bunding, formed drainage, catch dams, contour banks and drains, variously in place around the site (Figs.1, 2, 3, 5, 6, 7, 8, 9, 10). The concrete-sealed "ring road" surrounding the gelatine processing plant serves as a "first-flush" catchment, with all runoff directed to catch dams for return and treatment in Pond1 (See additional comments below under D6).
D3, D4 – In-Compliance – GED Conditions - GELITA has measures in place to minimise the release of contaminants to stormwater, viz; bunding, formed drainage, catch dams, contour banks and drains, variously in place around the site (Figs.1, 2, 3, 5, 6, 7, 8, 9, 10). A number of "catch dams" located in stormwater runoff gullies / waterways leaving the site obviate any contaminant discharges to the Logan River (See also comments under C1 above concerning independent river monitoring carried out by DNR).
D5 – In-Compliance – Vehicle washing is carried out on a concrete pad, adjacent to the belt-press shed, which drains to the wastewater treatment system.
D6 – In-Compliance – GELITA has SOPs and a number of strategic spill control kits in place around the site (Figs.5, 7). Staff are expected to effectively capture / contain / clean up any spillages to the sealed surrounds of the processing facility. However, any liquid discharges to the formed drainage system and roadways located immediately adjacent to all areas surrounding the production buildings and associated plant installations, drain to a double "trap-dam" system, situated in a gully below the belt-press shed. Any material collected in these dams is pumped to the wastewater treatment plant for processing. It was noted during the audit that the second trap dam in the series was empty, while the first catchment dam appeared to be at around 50% of capacity (recent local rain event).

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓
D7, D8 – In-Compliance – Both bunds servicing the Sulphuric Acid external storage tank and the small, above-ground fuel storage tank located in the “old stables” shed, previously indicated to be defective during the 2002 audit, were effectively rebuilt / reconditioned during 2003 (Fig.8). GELITA previously provided the EPA with photographic records, validating completion of these works. Bund installations on site are generally effectively serviced and maintained (Figs.1, 2, 3, 6, 8, 10).
D9-D14 – In-Compliance – All external bunds were inspected during the formal audit completed on 29/10/2003 and were found to be effective and well maintained (See comments above and Figs.1, 2, 3, 6, 8, 9, 10).
Schedule E – Land Application:
E1 – In-Compliance – Only prescribed contaminant releases were confirmed as irrigated to land during the formal site audit and inspection completed on 29/10/2003.
E2 – In-Compliance – Confirmed on file 961EA472\1, documentation, “Leiner Davis Gelatin Sunny Hills Irrigation Farm”, site plan. Cameron Smeal indicated that the “defined contaminant release areas” for the site will require updating / amendment, as an outcome of the recently completed EMP No.1157.
E3, E4 – In-Compliance – GELITA advised that no off-site disposal of treated wastewater had been undertaken or is proposed at this time (“Third party” disposal of treated wastewater).
E5 – In-Compliance – While approximately 120 hectares of land comprises the current treated wastewater disposal areas on site, Cameron Smeal indicated that the “defined contaminant release areas” for the site will require updating / amendment, as an outcome of the recently completed EMP No.1157.
E6-E9 – In-Compliance – Current land irrigation practices for treated wastewater applications continue to provide effective controls (Company EM Plan of 1994 and IEMS of 1997), but will be included in an updated Irrigation Management Plan (IMP), which is planned to include data / information arising from the on-going projects “driving” EMP No.1157, which reached conclusion on 30/09/2003 (Reference documents concerned with the completed EMP No.1157 remain to be fully completed and reviewed, in this regard). The visual effectiveness of land irrigation practices were observed / reviewed during a vehicle tour of the on-site disposal areas on 29/10/2003.
E10 – In-Compliance – GELITA confirmed that records are maintained of the total quantity of programmed contaminants released to the irrigation areas on any day, which remains below 3ML of final treated wastewater (Attachment). Cameron Smeal indicated that reprogramming of treated wastewater discharges to redefined contaminant release areas would be a further consequence of the outcomes of EMP No.1157.
E11, E12, E13, E14 – In-Compliance – GELITA confirmed that land application and wet weather storage practices are in place, as prescribed in SR0722 and will be included in an updated IMP, arising from the completion of EMP No.1157 (current procedures reference documents include company EM Plan of 1994 and IEMS of 1997).
E15, E16, E17 – In-Compliance – The sewage effluent disposal area was inspected – observed restricted access / signage in place / lockable valving in place.
E18-E23 – IMP – In-Compliance – An updated Irrigation Management Plan (IMP), which is planned to include data / information arising from the on-going projects “driving” EMP No.1157, which reached conclusion on 30/09/2003 (Reference documents concerned with the completed EMP No.1157 remain to be fully completed and reviewed, in this regard) also remains to be finalised. The 15 requirements included under condition E19 have been addressed by MEDLI aspects of EMP No.1157, which includes data / projects operated by the Company, UQ and DNR.
E24 – NON-COMPLIANT – Treated wastewater release quality characteristics issues are being addressed through recently completed / ongoing projects “driving” EMP No.1157, which reached conclusion on 30/09/2003. Cameron Smeal indicated that GELITA would be seeking “flow-on” amendment of most parameters included in Schedule E – Table 1 of SR0722, in due course.
E25 – In-Compliance – GELITA indicated that the Company was not aware of any problems concerning environmental nuisance or harm arising from issues prescribed by this condition.
Schedule F – Noise:

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review__Non-compliant ✓
F1 – In-Compliance - GELITA indicated that no noise complaints had been received for 2002-2003 and hence no noise assessments had been undertaken by the Company.
F2, F3 – In-Compliance – GELITA indicated that vehicle curfews remain in place and infrequent non-compliances are actioned (one [1] during 2002-2003).
<u>Schedule G – Waste Management:</u>
G1 – In-Compliance – GED Condition – During the formal audit and site inspection of the Josephville operation, completed on 29/10/2003, GELITA was observed to be meeting the requirements of this condition
G2 – In-Compliance - GELITA does not permit the burning of Company waste either on site or off site.
G3, G4 – In-Compliance - Appropriate recycling of waste materials is undertaken, where practicable, viz; paper and cardboard by local collector "Spotty Bins", belt-press sludge removed by licensed soil conditioner manufacturer Moreshost P/L [ERA 53], who was recently issued with a Regulated Waste Transport Licence [ERA 83(b)(i)] and occasionally scrap metal disposal.
G5, G6, G7 – In-Compliance - Regulated waste, viz; belt-press sludge and occasionally boiler ash are transported to EPA licensed operator Moreshost P/L for garden mix / soil conditioner manufacturing purposes. Moreshost P/L has a Regulated Waste Transport Licence with the EPA.
G8 – In-Compliance – GELITA uses EPA licensed operator J J Richards for removal of general waste materials (lift-bins) to local landfill. The GELITA waste-tracking database was confirmed.
<u>Schedule H – Self Monitoring & Reporting:</u>
H1-H8 – In-Compliance – GELITA has a standard recording format in place / viewed, for complaints, incidents and emergencies. Complaints and incidents are actioned / followed-up as required (H7) and reported to the EPA. A complaints summary for 2003 will be included in the company annual return due to be provided to the EPA early November 2003. GELITA indicated that during the 2003 annual return period two (2) odour complaints were received (H1), investigated and reported to the EPA – confirmed (12/2002 – dead cow & 3/2003 – compost early turning trial), while a vehicle curfew violation (F3) was actioned by the Company, with the transport operator. GELITA have SOPs in place to ensure corrective action / feedback loops are completed as prescribed in SR0722. Cameron Smeal flagged a potential odour complaint / incident source over the upcoming New Year shut-down period, when the primary digester vessel of the Hybractor unit will be opened for maintenance work (January 2004), potentially releasing offensive odours to the atmosphere, which may result in nuisance complaints beyond the boundaries of the site. While the repair work may take a number of days, continuous emission of offensive odour is not expected and prevailing weather conditions will be taken into account, at the time.
H9 – NON-COMPLIANT – See comments under B6 and B7 above (Information attached).
H10, H11 – NON-COMPLIANT – See comments under B17 above (Information attached). The foul air fan supplying the wastewater treatment plant Biofilter (Fig.12) is to be replaced during the New Year shut-down period, due to continuing odour leakage problems, resulting in local nuisance odour levels in the surrounding work area, but not beyond the boundaries of the site.
H12 – In-Compliance - Both Boiler and Biofilter emissions monitoring was completed over January / February 2003 (see testing "Frequency" in Schedule H, Table 1 – "Biennially from 2001") and relevant records confirmed in storage for the past seven (7) years. See results appraisal comments under B6, B7 and B17 above.
H13-H17 – In-Compliance – GELITA indicated that no noise complaints had been received during 2002-2003 and hence the Company had not undertaken noise monitoring.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review__Non-compliant ✓

H18-H21 – NON-COMPLIANT - Viewed and discussed monthly contaminant release monitoring results with GELITA Environmental Officer, Cameron Smeal. The company annual return for 2003, due to be forwarded to the EPA by early November 2003, will provide this data. An example of weekly ponds sampling results was provided to the EPA during the formal site audit completed on 29/10/2003 (Attached).

With the completion of long-term EMP No.1157 on 30/09/2003, "flow-on" recommendations are expected to require amendment of most of the treated wastewater release quality characteristics limits included in SR0722. EMP No.1157, which includes data / projects operated / undertaken by both the Company and UQ was completed on 30/09/2003 (See also comments under "Details of Scope or Particular Focus" above).

NOTE: Due to workplace health and safety concerns by the Company regarding the use of SMP 1 as prescribed, equivalent material is now collected from the "Reticulation Pump Line from the BSD", in-lieu of, "the overflow from the final effluent balancing storage dam" (H19). This change will be addressed as part of the upcoming amendment process of SR0722.

A number of NATA Registered Laboratories are used by GELITA for monitoring / interpreting sample analyses; Brisbane Water, FALA, QG Health (H21, H27 & H31).

H22, H23 – In-Compliance - GELITA confirmed that "mag" meter records are maintained of the total quantity of programmed contaminants released to the irrigation areas on any day (sighted), which remains below 3ML of final treated wastewater (Attachment). Cameron Smeal indicated that reprogramming of treated wastewater discharges to redefined contaminant release areas would be a further consequence of the outcomes of EMP No.1157.

H24-H28 – Logan River Daily Monitoring – In-Compliance – Daily monitoring is carried out by DNR automatic recording stations within the river, both above and also immediately below the GELITA downstream boundary. These recordings for 2003 were sighted / reviewed, indicating only inherent variations in parameters assessed at the two (2) river sampling points. This extensive chart data is available for call-up for annual return assessment purposes. Parameters were confirmed as those included in the company EM Plan of 1994, due for review in early 2004, as part of the IMP update, flowing from completion of EMP No.1157 on 30/09/2003.

H29-H32 – Soils Monitoring – In-Compliance - Monitoring results completed by UQ are covered by EMP No.1157, that includes data / projects reaching finality around 30/09/2003 and which support material will be provided to the EPA with EMP No.1157, for assessment. Cropping trials, to ascertain nutrient utilisation in soils irrigated with treated wastewater, form a number of projects associated with EMP No.1157.

H33-H35 – Groundwater Monitoring – In-Compliance - Results of bimonthly standing water levels and constituent analyses of the 31 boreholes over the site will be provided to the EPA with EMP No.1157 support material. Discussions and review of results for the current period did not indicate nutrient transfer / leakage to the "deep" groundwater systems on site and hence to the Logan River (See also comments under H24-H28 above). In many areas of the "farm", shallow topsoil cover, over a deep clay base, precludes transfer of irrigated treated wastewater to groundwater. Cameron Smeal indicated that in the light of data accumulated from EMP No.1157, the value of retaining a number of the parameters included in condition H34(d) will warrant reassessment / amendment at conclusion of the EMP review process. GELITA intends to adopt the "Full-Stop" Controller, developed by CSIRO Scientist R Stirzaker (See CSIRO.au) to monitor moisture movement through soil profiles on site, as a measure of irrigated treated wastewater penetration / field capacity / percolation effectiveness.

E36 – In-Compliance - GELITA seeks expert advice from a variety of sources regarding results emanating from the site monitoring programs, viz; Consulting NATA Laboratories, Air, Noise Environment, UQ Project Team, Soil / Agronomy Consultant Dr Brian Schafer, Ted Gardner of DNR (soil / plant systems [particularly Vetiver grass applications / hydrology issues], J Biala of "The Organic Force" for composting guidance and Dr Paul Truong, Vetiver cultivation expert (Attached – "Research, Development and Implementation of the Vetiver System for Wastewater Treatment" by Paul Truong and Cameron Smeal, August 2003, relevant to the GELITA site, where most of the research data used in this Technical Bulletin was generated). Both authors Truong and Smeal co-presented the above paper at the Third International Conference on Vetiver in Guangzhou, China in October 2003.

H37, H38 – NON-COMPLIANT - Licence limit(s) exceedances arising with the irrigated disposal of treated wastewater to land on site have been covered by EMP No.1157, for the past 4.5 years, to 30/09/2003 and hence have not been individually advised to the EPA. However, the EPA has been aware of results achieved over the course of EMP No.1157, following regular and annual reviews of progress of the process.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓
Schedule I – Definitions: No comments required.
<p>REQUIRED ACTIONS:</p> <p>B7 & H9: GELITA Australia Pty Limited has made a commitment in writing to commence actions to install a Baghouse to control over-limit Total Solids Particulates discharges from the Finafire coal-fired Boiler early in 2004 (Attached – Company letter of 9/04/2003); and</p> <p>E24 & H18-H21, H37, H38: GELITA Australia Pty Limited is to forward a written report concerning the outcomes of completed EMP No.1157, "To ensure that the GELITA Australia Pty Ltd [formerly Leiner Davis Gelatin (Aust)] Effluent Disposal System will be operated in a long term environmentally and economically sustainable manner", together with supporting material to validate recommendations arising from the EMP process and including any amendments requested to Company Environmental Licence SR0722; and</p> <p>B17 & H10: GELITA Australia Pty Limited is to negotiate with the EPA concerning the wording / intent of Biofilter licence conditions, to take account of ambient, fugitive odour levels present in the immediate surrounds that could impact on results of the equipment performance outcome.</p>

Licence Conditions Module:

Condition Number(s)	Details of non-compliance(s)
B7 & H9	Over-limit Total Solids Particulates discharged from Finafire coal-fired Boiler.
E24 & H18-H21, H37, H38	Over-limit treated wastewater release quality characteristics.
B17 & H10	Influence of ambient odour levels on Biofilter performance measurement results.

RECOMMENDATION:
<p><u>NO RECOMMENDATIONS ARE OFFERED, AS CONDITIONS CURRENTLY INCLUDED IN SR0722 ARE CONSIDERED ADEQUATE TO ENSURE SUSTAINABILITY OF THE GELATINE MANUFACTURING ACTIVITIES CARRIED OUT ON SITE AND TO SAFEGUARD THE ENVIRONMENTAL INTEGRITY OF THE SURROUNDING SENSITIVE RECEPTORS.</u></p>

Signoff Sheet:

Additional Comments:
<u>NIL</u>
Recommendation:
<u>NIL</u>

Additional Comments:

Adoption of Report:
This report accurately represents the issues and outcomes of this site inspection.

Inspecting officer

Don Shackel

Signed

Date

Inspecting officer

N/A

Signed

Date

Comments and Recommendation:

Supervisor

Doug Carey

Signed

Date

All Complaints Against Single Company

Report for the period between 1/09/2002 and 16/01/2004 for 'Gelita Australia Pty Ltd', Trading as 'not applicable'

Complaint Number:

16829

Responsible Officer:

KR/Don Shackel

Complaint Details:

Licence Number:

SR0722

Category

Air

Nature of Complaint:

Odour : Abattoir/Animals

File No:

STH495/6

Complaint Made Against

Gelita Australia Pty Ltd

Shire: Beaudesert

Other file Reference No: None entered

Trading As:

not applicable

Complaint Processing Details:

Date of Event:	Date Received:	Time Spent:	Date Finalised:	Was this complaint Referred?	No
25/04/2003	28/04/2003	1		Comments:	
Time of Event:	Time Received:		Time Finalised:		
15:12	11:10:00 AM				
Date of First Action:	28/04/2003	Time of First Action:			

Description of Complaint:

On Monday, 28 April 2003, around 11:10AM, EPA Officer Don Shackel received a telephone contact from Cameron Smeal, Environmental Officer for Davis Gelatine Australia Limited advising of an odour complaint received by the Company from Mrs Veronica Hyland of 17 Flood Road, Josephville, relative to Friday, 25 April 2003 at 3:12PM (Anzac Day). The complainant indicated - "very bad odour" to the Security Service response line operator.

Subsequently, Cameron Smeal contacted the complainant on 28/04/2003 to discuss the odour issue. Cameron Smeal indicated that he would investigate the source of the complaint and advise the EPA accordingly.

Follow-up paperwork advising of the reported complaint was received by the EPA on 29-30/04/2003 and filed on STH495/6 - Folio 36.

Don Shackel ***** 30/04/2003.

Action Taken:

Company follow-up actions to be advised.

Was a 'Show Cause Notice' issued?

No

If so when?

Reason

Complaint was Made By: Mrs Veronica Hyland

Of: 17 Flood Road

Josephville

QLD 4285

Phone: (07) 3540 4917

Fax:

Other Contact:

All Complaints Against Single Company

*Report for the period between 1/09/2002 and 16/01/2004 for 'Gelita
Australia Pty Ltd', Trading as 'not applicable'*



Queensland
Government

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference
Our reference STH495-7-SR0722

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

19 November 2003

COPY

Mr R Seach
General Manager
GELITA Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

Attention: Mr Cameron Smeal, Environmental Officer

Re: Report of Annual Compliance Audit for Licence SR0722, on behalf of GELITA Australia Pty Ltd, located at "Sunny Hills", Flood Road, Josephville via Beaudesert, Qld 4285.

Environmental Protection Agency (EPA) Officers Don Shackel and Adam Burt conducted a compliance audit inspection on 29 October 2003, in respect of the rendering operation (extraction of gelatine) carried out by GELITA Australia Pty Ltd, at the above address.

The inspection was undertaken as part of an EPA program to complete regular inspections of premises holding environmental authorities with the EPA.

The purpose of the inspection was to evaluate the compliance of activities being conducted on your site with conditions prescribed in Environmental Authority SR0722, assess compliance with general provisions of the *Environmental Protection Act 1994* and associated policies and to ensure any areas of non-compliance are dealt with.

It would appear that you were in breach of the following condition of your environmental authority, at the time of the inspection: B7.

The condition, in full, is attached to this letter. You must immediately take all measures necessary to ensure compliance with the condition of your environmental authority, as a breach of licence condition is a serious offence for which there are heavy penalties.

Licence conditions B17 and H10 may need to be amended to reflect the operation of the Biofilters.

I acknowledge the written commitment of GELITA Australia to commence actions to install a Baghouse, early in 2004, to control over-limit Total Solids Particulates discharges from the Finafire coal-fired Boiler.

The EPA commends GELITA Australia on embracing a zero-waste policy for the gelatine manufacturing operation, together with the pragmatic approach taken to develop a cost effective new processing sequence for such highly reactive wastes.

As such, the EPA supports the proposed maintenance, improvement and expansion of the established composting facility on site at Josephville.

The EPA thanks you for your co-operation during the audit inspection and looks forward to your continued commitment to the environmental management of the site.

Should you have any questions regarding the above matters, please contact Don Shackel on (07) 3225 1040.

Yours sincerely

Kyle Roberts
Operations Manager
Heavy Industry Group
Environmental Operations
Southern Region

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Queensland
Government

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference
Our reference STH495-9-SR0722&SR0007DA

POSTED 25/10/2004
Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

22 October 2004

Mr R Seach
General Manager
GELITA Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

Attention: Mr Cameron Smeal, Environmental Officer

**Re: Compliance Inspection Report for Environmental Licence No.SR0722 and
Development Approval No.SR0007DA**

I refer to the inspection of GELITA Australia Pty Ltd, Josephville site located at Flood Road, Josephville via Beaudesert, on 6 October 2004 by Environmental Protection Agency (EPA) Officers Don Shackel and Adam Burt.

The purpose of the inspection was to assess site compliance with the conditions of Development Approval No.SR0007DA, issued under the *Integrated Planning Act 1997* and Environmental Licence No.SR0722, issued under the *Environmental Protection Act 1994*, for the site, assess compliance with the general provisions of the *Environmental Protection Act 1994* (the Act) and associated policies, and to develop an action plan to address any potential non-compliances.

I am pleased to report that the Company was in compliance with the conditions of the environmental authority and with the general provisions of the Act, at the time of the inspection.

The EPA thanks you for your co-operation during the inspection and looks forward to your continued co-operation in the environmental management of the site.

Yours sincerely

sch495 (6) Personal Inform
A. S. Connor

Andrew Connor
Acting Operations Manager
Heavy Industry Group
Southern Region EPA

Compliance – Inspection Program

Compliance Inspection Report

Inspection Details:

Date of Compliance Inspection: 6/10/2004
Compliance Inspection Reason: Annual Site Compliance Audit
Compliance Inspection Type: C

Compliance Level of Site: 3

Licence Holder / Operator Details:

Licensee and/or Company Name: GELITA Australia Pty Ltd
Site Address: "Sunny Hills", Flood Road, Josephville via
Beaudesert, QLD 4285

Environmental Authority No. SR0722:

Environmentally Relevant Activities: ERA 50(b) – Rendering operation; and
ERA 17 – Fuel burning; and
ERA 15(a) – Sewage treatment

Name and Position of Contact Person during Inspection: Mr Cameron Smeal,
Environmental Officer
(07) 5541 9442

General Description of the Site and Surrounding Environment:

"Sunny Hills" was a former dairy farm located within the Beaudesert Shire, being defined by the Logan River on the southern boundary, the NSW / QLD interstate rail line / corridor on the western boundary, additional private farm land on the eastern boundary and Flood / Tally-Ho Roads on the northern boundary.

The site consists of alluvial flats adjacent to the Logan River (deep sandy loams), leading upwards via rolling ridges (degraded Walloons) and shallow gullies to a high-point hill situated in the north-eastern corner of the property.

History of the Activity/ERA at the Site:

Originally, Leiner Davis Gelatin International Limited trading as Leiner Davis Gelatin (Australia) Pty Limited, subsequently Davis Gelatine Australia Pty Limited and currently GELITA Australia Pty Ltd, established Australia's only gelatine processing operation on the "Sunny Hills" homestead dairy farm site in 1992, following relocation of the activity from Botany, NSW.

GELITA Australia Pty Ltd, which was recently acquired by German private business interests from Goodman Fielder, has now completed **EMP No.SR1157** concerned with, ***“Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner”***, which reached full term for completion on 30 September 2003, following a 4.5 year timeframe. A “Final Report”, together with “supporting information” relevant to EMP No.SR1157 was provided to the EPA on 20/11/2003.

Following internal assessment of the “progress” and “final completion” reports, together with “supporting information” provided by GELITA in relation to EMP No.5080001157 (SR1157), originally approved on behalf of the former Leiner Davis Gelatin International Limited, as suitable “Compliance / Completion Reports”, in respect of the EMP, the EPA considered that the Company had achieved compliance with the matters dealt with by the program. Outcomes arising from completion of EMP No.SR1157 indicated a need to seriously reassess, amend and delete some or all treated wastewater limits from SR0722. Subsequently, following negotiated discussion of licence changes, between EPA Regional Management (D Brown, K Roberts, D K Shackel) and the Company, the EPA approved amendment of SR0722 on 1/06/2004.

In general terms, EMP No.SR1157 outcomes indicated that sustainability of application of treated wastewater to on-site land will be achieved through a mix of options including; pasture / grazing systems (including Vetiver Grass), cropping (cutting & exporting hay products) and agro-forestry, which plant products will / may become a raw material source (green waste) for **on-site compost-making**, utilising all processing wastes generated by gelatine manufacturing (“skutch”, belt-press sludge, boiler ash) for total on-site soil conditioning purposes.

It is anticipated that adoption of outcomes arising from the recent EMP process will lead, not only to the application of environmentally friendly land disposal applications for the industrial treated wastewaters, but also innovative uses of such a resource in environmentally and economically “best practice” farming procedures.

Process Description:

Extraction, purification, drying and packaging of gelatine processed from off-site abattoir resource materials (“facepieces”), including treatment of liquid gelatine processing effluents / wastewaters prior to irrigation to land, to support a number of on-site farming options, together with composting of gelatine processing solids and associated wastes, to produce a soil-enhancing composted soil additive.

Non-Compliances and/or new identified issues:

NIL

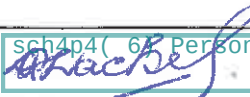
Consultation with Licensee: (including commitments for improvements/required actions)

Since completion of proceedings by the EPA, in the Magistrates Court, in July 1996, against Leiner Davis Gelatin (Australia) Pty Limited, Site Licensing Officer Don Shackel has been closely involved with facilitating environmental improvement on the Josephville site outside Beaudesert.

With the recent completion of a 4.5 year duration, complex Environmental Management Plan (EMP No.SR1157) concerning, ***“Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner”***, a number of innovative, environmentally friendly “best practice” farming applications for the effective disposal of industrial, treated wastewater are expected to be further developed and refined on site, over a number of years.

RECOMMENDATION:

NIL

Report Completed by:sch4p4 (7/6) Person


Name and Position:

Don Shackel, Senior Inspector, Heavy Industry Group

Date:

20/10/2004

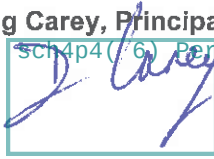
Report Reviewed by:

Name and Position:

Doug Carey, Principal Environmental Officer, Heavy Industry

Group

Date:

sch4p4 (7/6) Person


21/10/2004

Attachments:

- **Reports** – GELITA provided examples of a number of maintenance / environmental reporting forms, test results, technical reports and complaints actions, during the formal audit completed on 6/10/2004 (Attached).
- **Photographs** – A series of 41 digital photographs taken during the site audit on 6/10/2004 indicate the current environmental status of the site, particularly with regard to land disposal issues and stormwater protection aspects, together with a limited number of records of external processing plant / operations (Attached).

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Checklist

Compliance

Compliance Program — Inspection Checklist

Instructions for use

Where an Agency issue is determined to be relevant, note appropriate detail in the observations section.

Where there is any non-compliance, discuss with the company representative and note any required action.

Where the assessment will include licence conditions, use the licence condition compliance section of the checklist.

This checklist is to be used for all inspections. Refer to the procedural guide for guidance.

Cover Sheet Module:

Company Name: GELITA Australia Pty Limited		Date of Inspection: 6/10/2004
Trading as: GELITA – The Gelatine Group		EA No.: SR0722
Description of Business Activity: ERA 50(b) – Rendering operation		
Site Street Address: Flood Road		
Suburb: Josephville	City/Town: Beaudesert	Post Code: 4285
Registered Office Address: "Sunny Hills", Flood Road, JOSEPHVILLE via BEAUDESERT QLD 4285		
Suburb: JOSEPHVILLE	City/Town: BEAUDESERT	Post Code: 4285
Site Representative: Cameron Smeal	Position: Environmental Officer	Contact phone: (07) 5541 9442

Inspection type	☐ Catchment	☐ Industry Sector	☐ Complaint	☒ Compliance
Compliance level	☐ 1	☐ 2	☒ 3	Inspection type
				☐ A
				☐ B
				☒ C
Audit focus is the following relevant Agency interests:				
☒ Water issues ¹	☒ Air issues ¹	☒ Noise issues ¹	☐ National and international	
☒ Land issues ¹	☒ Waste issues ¹	☒ Social issues	☒ Impacts on surrounds	
☐ Coastal issues	☐ Heritage issues	☐ Biodiversity		
☒ Resource allocation	☐ Tenure issues	☐ Other issues		

¹ Main issues to consider for *Environmental Protection Act 1994* focus.

DETAILS OF SCOPE OR PARTICULAR FOCUS:

GELITA Australia Pty Ltd, previously **Davis Gelatine Australia Pty Limited**, recently acquired by German private business interests from Goodman Fielder, has now completed **EMP No. SR1157** concerned with, ***"Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner"***, which reached full term for completion on 30 September 2003. E-mail advice from the Company at the due date of the reporting period on 30 October 2003, indicated that EMP No. SR1157 was completed and written-up, apart from "two final items from external sources for inclusion in the report", viz; an effluent stream characterisation under the cleaner production section and monitoring schedule from the Company soils consultant. The EPA received the "total" final report relevant to EMP No. SR1157 on 20 November 2003.

Subsequently, licence limits requirements included in **SR0722**, for treated wastewater parameters such as Total Nitrogen and Total Dissolved Solids, previously observed as not achieving compliance on an historic on-going basis, were addressed by the EMP review process, within a "holistic" context, for the site. The company has regularly provided progress reports over the lifetime of EMP No. SR1157, to the EPA, for assessment and information, indicating milestones towards achieving compliance by 30/09/2003.

Following internal assessment of the "progress" and "final completion" reports, together with supporting information provided by GELITA in relation to EMP No. 5080001157 (SR1157), originally approved on behalf of the former Leiner Davis Gelatin International Limited, as suitable "Compliance / Completion Reports", in respect of the EMP, the EPA considered that the Company had achieved compliance with the matters dealt with by the program. Outcomes arising from completion of EMP No. SR1157, indicated a need to seriously reassess, amend and delete some or all treated wastewater limits from SR0722. Subsequently, following negotiated discussion of licence changes, between EPA Regional Management (D Brown, K Roberts, D K Shackel) and the Company, the EPA approved amendment of SR0722 on 1/06/2004. See also: *GELITAAustSR1157EMPCompletionMemo.doc* (Attached).

EMP No. SR1157 outcomes indicated that sustainability of application of treated wastewater to on-site land will be achieved through a mix of options including; pasture / grazing systems (including Vetiver Grass), cropping (cutting & exporting hay products) and agro-forestry, which plant products will / may become a raw material source (green waste) for **on-site compost-making**, utilising all processing wastes generated by gelatine manufacturing ("skutch", belt-press sludge, boiler ash) for total on-site soil conditioning purposes.

To this end, the EPA approved continuation of composting activities on site late in 2003, following an initial 12 month waste composting project period (September 2002-September 2003) to trial processing methodology and assess outcomes (an Odour Control Plan is in place), with a view to long term, on-going total waste utilisation / recycling on site. GELITA Australia Pty Limited holds **SR0007DA** (with conditions) and **SR1114** for ERA 53, relevant to "soil conditioner manufacturing". The company has contracted part-time consultancy services from Johannes Biala of "The Organic Force", to assist with the composting project. The composting consultant Company has prepared a report dated October 2003, titled ***"Assessing the Suitability of Covered Windrow Composting for On-site Processing of Gelatine By-products"***, for GELITA Australia Pty Ltd, which was also made available to the EPA. See also, *GELITASR0007DAComplianceProgramInspectionChecklist06102004.doc* (Attached).

SITE CONTACT:

A review of conditions included in SR0722, followed by a subsequent site inspection were undertaken with the Company Environmental Officer, Mr Cameron Smeal.

PHOTOGRAPHS:

A series of 41 digital photographs taken during the site audit on 6/10/2004 indicate the current environmental status of the site, particularly with regard to land disposal issues and stormwater protection aspects, together with a limited number of records of external processing plant / operations.

CHUCKLE:

A review of CHUCKLE and Company files, STH495 records for 2003/2004 indicated that any complaints received by the company had been actioned and reports provided to the EPA, in each instance (4 odour complaints for 2003-2004 – see also comments under Conditions H1-H8 below).

Agency Interests Module:

SECTION: Compliance Audit : Agency Interest : SR0722 & Site Review : Non-compliant ✕

ADMINISTRATIVE:

1. Environmental Licence No. SR0722 (without development approval) (Section 93)
2. The Company name, the registered business address of the legal entity and the activity location address were all confirmed as **CORRECT**.
3. ASIC search provided a "Current Extract" for Organisation Number **ACN 000 010 597** – Section 1274B – See attached printout.
4. ERA Items – confirmed "no changes" for the Josephville site, at this time [ERAs 50(b), 15(a), 17 & 53].
5. Real Property Description – confirmed "no changes" for the Josephville operation.
6. Environmental Licence No. SR0722 "Effect Date" – 8/06/2004.
7. Environmental Licence No. SR0722 Anniversary Date – 31 January (Amended from 4 November on 1/06/2004).
8. GELITA Australia Pty Ltd does not carry out a **NOTIFIABLE ACTIVITY** as defined in Schedule 2 of the *Environmental Protection Act 1994*.

NOTE:

With regard to **ERA 50(b) – Rendering operation**, Cameron Smeal indicated that he did not consider gelatine manufacture a rendering process. These comments were acknowledged by EPA Officer Don Shackel who considered / indicated that wording in the ERA definition including, "processing or extracting substances, including, for example, ----- proteinaceous matter, from animal wastes or by-products", were relevant to the GELITA Australia Pty Limited, Josephville Gelatine operation.

OBSERVATIONS:

SECTION: Compliance Audit : Agency Interest : SR0722 & Site Review : Non-compliant ✕

Schedule A - General Conditions:

A1 – In-Compliance – GELITA operates a standard maintenance card, work request-advice / corrective-action system which is currently being upgraded to a computer-driven MFG-PRO system, with added MLSS engineering / preventative maintenance workshop application, together with the current MIS accounting / stores purchasing system, which is intended to address equipment, plant and building maintenance aspects to reduce / minimise environmental risk. A proactive, in-house environmental audit process designated 'ENVIRONMENTAL WALK' identifies site deficiencies for remedial action, on a regular basis, using the job cards, work request, corrective action follow-up procedure, to achieve improvement (Attached).

A2 – In-Compliance – GELITA Environmental Licence SR0722 is displayed in the office foyer and the amenity areas on site, while each member of staff has been provided with a copy for personal use, during Company training sessions.

A3, A4 – In-Compliance – The formal audit completed on 6/10/2004, confirmed that Company environmental records are available as prescribed.

A5 – In-Compliance – GELITA indicated that the Company was targeted to achieve up to a 20% increase in gelatine yield over recent figures (2200 MT), in the next 2 years (2004/2005), without an "increase in the risk of environmental harm / nuisance" – the annual gelatine production goal is around 2550 MT. At the same time, processing effluent volumes have shown real reductions in disposals, due to improved plant water saving procedures.

A6 – In-Compliance - The calibration records file was perused during the formal site audit completed on 6/10/2004.

A7 – In-Compliance – GELITA indicated that four (4) odour complaints had been advised / recorded since the previous site audit completed on 29/10/2003. Odour sources identified included; raw materials receival area, uncovered hide truck and inappropriate compost turning operation (unsuitable wind direction).

A8, A9, A10, A11, A12, A13, A14 – In-Compliance – IEMS - Updating / amendment of the documentation was linked to company progress towards ISO 14000 certification [A14], which was achieved on 6/08/2003, prior to the time of the previous formal audit completed on 29/10/2003 (A12, A13, A14). Copies of SGS International Certification Services Pty Ltd documentation, "**Environmental Management Systems Preliminary Audit**" (28/04/2002-1/05/2002) and "**Environmental Management Systems Certification Audit**" (4-6/08/2003) of GELITA Australia Pty Ltd to AS/NZS ISO 14001:1996, were provided to the EPA during the formal audit completed on 29/10/2003. An SGS "**Audit Status and Itinerary**" form listed "**Standard Clauses**" of the "**Document Report Review**" for the ISO 14001 Environmental Management System (IEMS) assessment. SGS Certificate AU03/1818 was issued concerning the management system of GELITA Australia Pty Ltd, Flood Road, Josephville, QLD 4285 Australia, that was assessed and certified as meeting the requirements of ISO 14001:1996, for the following activities, "**Management of environmental effects associated with processing plant operations for manufacture of edible grade gelatins as well as the treatment and disposal of wastes.**" (Certificate valid from 06/08/2003 until 06/08/2006 – Issue 1. Certified since 06/08/2003). Company ISO certification assessments fall due in December 2004 for the Josephville operation.

The on-going Company training matrix was confirmed [A9(iii)].

Environmental performance and energy audits / reviews were provided to the EPA in the 2002 Annual Return (Copy provided 29/10/2003 – previously with-held awaiting call-up), [A9(iv), A10, A11].

On-site gelatine processing waste utilisation / composting trials have been successfully completed (2003) with a view to achieving total internal recycling of nutrients, in due course [A9(v)].

The GELITA "Annual Return" for 2004 now falls due on 31 January 2005, following the recent processing of a Company request for amendment of anniversary date from 4 November 2004, where appropriate reporting will be provided / reviewed [A9(iv)(a)(b), A9(v), A10(i)(ii) & A11].

Energy auditing requirements called-up under Conditions A9(iv)(c), A10(iii) & A11 are due with the 2004 Annual Return. GELITA has contracted Arrow Energy to undertake this requirement.

With approved amendment of the anniversary dates of both SR0722 and SR1114 to 31 January (next due 31/01/2005), Company annual returns will now be received approximately 2-3 months later than previously available.

SECTION: Compliance Audit : Agency Interest : SR0722 & Site Review : Non-compliant ✕

A15 – In-Compliance – GELITA consults with a local community (residents and Local Government representatives) environmental liaison committee (Community Consultative Committee) on a quarterly to six monthly basis regarding complaints received, site environmental performance review and any other environmental / general business issues. A copy of Minutes of the Community Consultative Committee (CCC) Meeting of 14/07/2004 was provided to the EPA, where the matters of "Drought and Water" were also discussed, at some length (Attached). The next CCC Meeting is noted for 13/10/2004, at the GELITA site.

A16 – In-Compliance – GELITA operates a "transparent approach" in meeting the requirements of this Condition, concerning EPA access to the site.

Schedule B - Air:

B1, B2 – In-Compliance – GELITA has measures in place to minimise the release of contaminants (Boiler emissions, odour, dust) to atmosphere (See comments below).

B3-B5 – In-Compliance – Release Points information included in Schedule B – Table 1 remains relevant and correct.

B6, B7 – In-Compliance - Boiler Emissions Testing – Previously, C Smeal / R Wearne had provided a report of February 2003 titled, "**Stack Emissions Monitoring and Biofilter Odour Assessment**", prepared by AIR NOISE ENVIRONMENT P/L which indicated that the Finafire coal-fired, fluidised-bed Boiler had been found on 30/01/2003 to be in NON-COMPLIANCE with Particulates limits included in SR0722 (Limit – 250mg/Nm³ / Test result - 572mg/Nm³). To overcome the ongoing problems associated with the problematic wet-ash removal equipment (Flosep system), GELITA proposed replacing this particulate control equipment with a Baghouse to ensure particulate discharge was in compliance with licence conditions. The Company was requested to provide a timeframe for completion of this project, as soon as practicable. Company letter of 9/04/2003 from R C Wearne, General Manager of Davis Gelatine Australia Pty Limited, at that time, committed to the installation of a Baghouse system to the Finafire Boiler, commencing around February 2004. As part of the commissioning phase of replacement of the "Flosep" particulate wet scrubber with the Baghouse dust collection system, and in keeping with requirements of Schedule B, Table 2 (Particulates limit – 250 mg/Nm³) and Schedule H of SR0722, Boiler stack monitoring was undertaken on 9/03/2004. The analysis revealed that particulate discharge levels were 0.40 mg/Nm³, while Nitrogen Oxides were measured at 653 mg/Nm³. Improvement in control of particulate discharges had been outstanding. The failure to meet compliance for NOx during the commissioning phase of the Baghouse installation was unexpected and required complex reconfiguration of operational programs for the Boiler. This process was expedited with due care and consideration for health and safety concerns associated with altering boiler control systems. Subsequently, stack monitoring carried out on 8/04/2004 measured NOx levels at 468 mg/Nm³, which result established that the discharge was within compliance limits included in SR0722 (Nitrogen Oxides Limit – 500 mg/Nm³). See also "Oxides of Nitrogen Emissions Monitoring" of April 2004, prepared by AIR NOISE ENVIRONMENT P/L for GELITA Australia Pty Ltd, Beaudesert (Folio 11 filed on STH495/9).

Following the scheduled Boiler stack testing completed in February 2003, stack emissions testing is a biennial requirement of SR0722, falling due in 2005 (H9).

B8 – In-Compliance – GELITA indicated that during the 2003/2004 audit period four (4) odour complaints were received, investigated and reported to the EPA. The Company confirmed three (3) complaints were attributed to the raw materials area and one (1) associated with compost turning operations. During the formal site audit and inspection completed on 6/10/2004, no noxious or offensive or any odour was detected beyond the boundaries of the licensed place.

B9, B10, B11 – In-Compliance – Fuels burned in on-site fuel-burning equipment were confirmed as prescribed in SR0722. The Co-generation project remains on the "back-burner", however sufficient biogas can now be collected and held to fuel a trial / short production run. GELITA provided perusal copies of quality analyses, including coal Total Sulphur levels for domestic supplies received from Jeebropilly Collieries.

SECTION: Compliance Audit : Agency Interest : SR0722 & Site Review : Non-compliant ✕
<p>B12, B13, B14 – In-Compliance – During the audit inspection, doors servicing the raw materials receival area were observed to be closed as prescribed by SR0722. A proactive, in-house environmental audit process designated 'ENVIRONMENTAL WALK' identifies site deficiencies for remedial action, on a regular basis and particularly assesses the "Raw Materials" area in regard to odour control (Attached – see Page 2). As a further odour control measure, GELITA will install an 8 tonne/hour ice-making machine, during the 2004/2005 shutdown period, at a cost of around \$200,000, for chilling bulk raw material stockpiles, awaiting processing. GELITA advised that the raw materials building ventilation air volume / changes had been improved / upgraded, with the installation of an additional fan unit (2003) since original plant commissioning.</p>
<p>B15 – In-Compliance – The large Biofilter is operating effectively (Comments under B17 apply). The unit media was replaced over March-June 2004, following rebuilding of the internal support infrastructure using "Atlantis Mesh". The water/humidity control system was also upgraded early in 2004 using surface-located "soaker" hoses to maintain required media moisture / humidity levels.</p>
<p>B16 – In-Compliance – The fan transferring foul air from the plant to the Hybractor Technology Biofilter was replaced with a new unit with sealed housing and improved line connections, in December 2003 (Photo.4). Reductions in odorous and corrosive air leakage to atmosphere in the immediate vicinity were acknowledged (Comments under B17 apply). On-going maintenance measures to the Biofilter media box have also contributed to minimising local fugitive odour leakage to atmosphere, compared to previous assessments (Photos.3, 4).</p>
<p>B17 – In-Compliance - Biofilter Testing – Following previous comments from C Smeal and Company Consultants AIR NOISE ENVIRONMENT P/L, perceived "shortcomings" with the odour assessment process relevant to the on-site biofilters, have been addressed through amendment of the assessment <u>procedure</u> to account for any background odour levels / impacts apparent at the time of testing. In this regard, EPA should consider clarifying the odour assessment process through possible amendment of Condition B17 and H10 included in SR0722, <u>in due course</u>, to take account of any background "contaminant" odour. Any fugitive odour leakage from the Biofilter units has not impacted beyond the boundaries of the site, to cause nuisance complaints and generally remains totally localised.</p>
<p>B18 – In-Compliance – Biogas is flared / Co-generation project remains "on hold".</p>
<p>B19, B20 – In-Compliance – GELITA indicated that regular system leakage checks and plant shutdown SOPs are in place. A proactive, in-house environmental audit process designated 'ENVIRONMENTAL WALK' identifies site deficiencies for remedial action, on a regular basis. No equipment breakdowns, requiring an enforced plant shutdown were advised.</p>
<p><u>Schedule C - Water:</u></p>
<p>C1 – In-Compliance – DNR maintains Logan River monitoring stations above and immediately below the GELITA property boundary, which continuously trace a range of indicator parameters on river water passing these points. Perusal of monitoring data indicated that these plots have not identified any significant deviations from expected ranges. The data will be fully reviewed in the up-coming Annual Return for 2004, due by 31/01/2005.</p>
<p>C2-C8 – In-Compliance - Ponds Conditions – The site inspection confirmed; "free-board" requirements as prescribed, ponds integrity maintained, stormwater impacts minimised (diversion banks / drains in place). The contents of Aerobic Pond 1 were noted to be a "healthy chocolate brown colour", with an acceptable odour profile at the bank (Photos.9,10,11). The current VITOX oxygen delivery system is to be upgraded with pump and motor units replaced during October 2004 (Photos.1, 11).</p>
<p><u>Schedule D – Stormwater Management:</u></p>
<p>D1, D2 – In-Compliance – GED Conditions - GELITA has measures in place to minimise the release of contaminants to stormwater, viz; bunding, formed drainage, "catch" dams, contour banks and drains, variously in place around the site (Photos.6, 7, 18, 25, 28, 29, 34, 36, 40, 41). The concrete-sealed "ring road" surrounding the gelatine processing plant serves as a "first-flush" catchment, with all runoff directed to a dual "catch" dam / detention basin holding system for return and treatment in Aerobic Pond 1 (See additional comments below under D5).</p>

SECTION: Compliance Audit : Agency Interest : SR0722 & Site Review : Non-compliant ✖

D3, D4 – In-Compliance – GED Conditions - GELITA has measures in place to minimise the release of contaminants to stormwater, viz; bunding, formed drainage, catch dams, contour banks and drains, variously in place around the site (Photos.6, 7, 18, 25, 28, 29, 34, 36, 40, 41).

During the formal site inspection completed on 6/10/2004, a "drive-tour" of the site included most of the site bank / property boundary along the Logan River, where the dry winter conditions have allowed a good visual assessment of the River protection measures in place, along the entire length of the property boundary. The site has a well-grassed contour bund and swale drainage system along the entire length of the River, located at a distance in compliance with the irrigation buffer distances included in Conditions **E10** and **E11**.

A number of the more significant stormwater runoff gullies / waterways / catchments bisecting the site to the Logan River have been fitted with a series of earthen-wall / grassed "catch dams", the larger drain-ways having up to six (6) detention basins over their length, prior to discharging to the River. A series of such protective "catch" dams serve to trap and minimise much of any storm-generated sediment from reaching the Logan River. (See also comments under **C1** above concerning independent river monitoring carried out by DNR).

D5 – In-Compliance – Vehicle washing is currently carried out on a concrete pad, adjacent to the Belt-Press Shed, which drains to the wastewater treatment system. During 2005, GELITA has scheduled the installation of a dedicated vehicle wash facility, draining to the effluent treatment plant, in a vacant area between the new Hide Shed and the present Belt-Press Shed (Photo.30).

D6 – In-Compliance – GELITA has SOPs, together with a number of spill control kits and "fitted" sump / gully trap guard mats, strategically located in place around the site (Photo.33). Staff members are trained to effectively capture / contain / clean-up any spillages to the sealed surrounds of the processing facility. However, any liquid discharges to the formed drainage system and roadways located immediately adjacent to all areas surrounding the production buildings and associated plant installations, drain to a double "trap-dam" system, situated in a gully below the belt-press shed (Photos.28, 29). Any material collected in these dams is pumped to the effluent treatment plant for processing. It was noted during the audit that the second "catch" dam in the series was empty, while the first detention dam appeared to indicate minimal holding volume.

D7, D8 – In-Compliance – Both bunds servicing the Sulphuric Acid external storage tank were found to be in sound condition following rebuilding works completed during 2003/2004, while the small, above-ground diesel fuel storage tank, previously located in the now demolished "old stables" shed (Photo.2), has been temporarily relocated to a bunded area on the northern side of the processing plant building. A dedicated, bunded storage facility is planned for this tank in association with a new Workshop project. Bund installations on site are generally effectively serviced and maintained (Figs.6, 7, 34, 36, 40).

D9-D14 – In-Compliance – All external bunds were inspected during the formal site inspection completed on 6/10/2004 and were found to be effective and well maintained (See further comments under **D7, D8** above and Photos.6, 7, 34, 36, 40).

Schedule E – Land Application:

E1 – In-Compliance – During the formal site audit and inspection completed on 6/10/2004, GELITA confirmed and the EPA verified that only prescribed contaminant releases were irrigated to land.

E2 – In-Compliance – Documentation was confirmed on file 961EA472/1 concerning, "Leiner Davis Gelatin Sunny Hills Irrigation Farm", site plan. Cameron Smeal indicated on 6/10/2004 that the "defined contaminant release areas" for the site remain essentially as previously documented and will require only minor updating / amendment, as a result of the recently completed EMP No. SR1157. EMP reference material - Hydro Plan Drawing No.1052-1 of 18/09/2003 remains relevant.

E3, E4 – In-Compliance – GELITA advised that no off-site disposal of treated wastewater had been undertaken or is proposed at this time ("Third party" disposal of treated wastewater Conditions).

E5 – In-Compliance - While approximately 120 hectares of land comprises the current treated wastewater disposal areas on site, Cameron Smeal indicated that the "defined contaminant release areas" for the site will require minor updating / amendment, as an outcome of the recently completed EMP No. SR1157 (See **E2** above).

SECTION: Compliance Audit : Agency Interest : SR0722 & Site Review : Non-compliant ✖

E6-E9 – In-Compliance – Current land irrigation practices for treated wastewater applications continue to provide effective controls (Company EM Plan of 1994 and IEMS of 1997 remain relevant – C Smeal), but the site Irrigation Management Plan (IMP) will be augmented with operational data / information arising from on-site projects emanating from EMP No. SR1157, which reached conclusion on 30/09/2003 (Reference documents provided with the “Final Report” for EMP No. SR1157, at completion, have been fully reviewed, discussed and considered on sustainability grounds by EPA Management [D Brown, K Roberts, D K Shackel], in this regard). The visual effectiveness of land irrigation practices (Winter Rye Grass paddocks) were observed / reviewed during a vehicle tour of the on-site disposal areas on 6/10/2004.

E10, E11 – In-Compliance – The maintenance of prescribed irrigation buffer distances were confirmed during the formal site inspection completed on 6/10/2004, by way of a “drive-tour” of the site which included most of the site bank / property boundary along the Logan River, where the dry winter conditions have allowed a good visual assessment of the River protection measures in place, along the entire length of the property boundary. The site has a well-grassed contour bund and swale drainage system along the entire length of the River, located at a distance in compliance with the irrigation buffer distances included in Conditions **E10** and **E11**.

A number of the more significant stormwater runoff gullies / waterways / catchments bisecting the site to the Logan River have been fitted with a series of earthen-walled / grassed “catch dams”, the larger drain-ways having up to six (6) detention basins, prior to discharging to the River (detain/solids-drop/overtop principal). A series of such protective “catch” dams serve to trap and minimise much of any storm-generated sediment from reaching the Logan River. (See also comments under **C1** above concerning independent river monitoring carried out by DNR).

E12, E13 – In-Compliance – GELITA confirmed that land application and wet weather storage practices are in place, as prescribed in SR0722 and will be augmented with operational data / information arising from on-site projects emanating from EMP No. SR1157. Current land disposal procedures referenced in documents included in Company EM Plan of 1994 and IEMS of 1997 remain relevant. (See also **E6-E9** above).

E14-E16 – In-Compliance – The sewage effluent disposal area was inspected during the formal site inspection completed on 6/10/2004. Restricted access signage and lockable valving were observed to be in place.

E17-E22 – In-Compliance – Irrigation Management Plan (IMP) - Current land irrigation practices for treated wastewater applications continue to provide effective controls (Company EM Plan of 1994 and IEMS of 1997 remain relevant – C Smeal), but the site Irrigation Management Plan (IMP) will be augmented with operational data / information arising from on-site projects emanating from EMP No. SR1157, which reached conclusion on 30/09/2003 (Reference documents provided with the “Final Report” for EMP No. SR1157, at completion, have been fully reviewed, discussed and considered on sustainability grounds by EPA Management [D Brown, K Roberts, D K Shackel], in this regard). The 15 requirements included under condition **E18** have been addressed by MEDLI aspects of EMP No. SR1157, which includes data / project inputs operated by the Company, UQ and DNR.

Additional soil and groundwater sampling for determining soil behaviour in relation to infiltration and hydraulic conductivity will be monitored on an annual basis during the anticipated seven years, following establishment of the Vetiver Grass / Rye Grass production unit, planting for which is expected to commence October 2004. See also comments under Conditions **H33-H35** below. This data will be used to validate the predictive outcomes of the MEDLI model, upon which the Vetiver Grass / Rye Grass program is based. Documented corrective actions will be taken if values are deemed to be outside sustainable limits.

E23, E24 – In-Compliance – Treated wastewater release quality characteristics amendments / deletions actioned in relation to Schedule E – Table 1 of SR0722, came into effect on 8/06/2004. Conditions changes completed for SR0722 arose as a result of issues addressed through recently completed on-site projects emanating from EMP No. SR1157, which reached conclusion on 30/09/2003 (Reference documents provided with the “Final Report” for EMP No. SR1157, at completion, have been fully reviewed, discussed and considered on sustainability grounds by EPA Management [D Brown, K Roberts, D K Shackel], in this regard). With regard to Condition **E25**, GELITA indicated that the Company was not aware of any problems concerning environmental nuisance or harm arising from issues prescribed by this condition.

Schedule F – Noise:

SECTION: Compliance Audit : Agency Interest : SR0722 & Site Review : Non-compliant ✕
F1 – In-Compliance – “Complaints-driven” Condition - GELITA indicated that no noise complaints had been received for 2003-2004 and hence no noise assessments had been undertaken by the Company.
F2, F3 – In-Compliance – GELITA indicated that vehicle curfews remain in place and infrequent non-compliances are actioned with “breaching” Companies (one [1] during 2003-2004 – 14/09/2004 – uninformed new driver breach).
<u>Schedule G – Waste Management:</u>
G1 – In-Compliance – GED Condition – During the formal audit and site inspection of the Josephville operation, completed on 6/10/2004, GELITA was observed to be meeting the requirements of this condition, viz; well operated compost-making operation, fly ash, belt-press sludge and “scutch” transfers from the gelatine plant to the composting area using GED procedures, controlled fly ash dewatering operation.
G2 – In-Compliance – GELITA confirmed that the Company does not permit the burning of waste either on site or off site.
G3, G4 – In-Compliance - Appropriate recycling of waste materials is undertaken, where practicable, viz; paper and cardboard by local collector “Spotty Bins” (Photo.32), belt-press sludge removed by licensed soil conditioner manufacturer Moreshost P/L [ERA 53], who was recently issued with a Regulated Waste Transport Licence [ERA 83(b)(i)] and occasionally scrap metal disposal.
G5, G6, G7 – In-Compliance - Regulated waste, viz; belt-press sludge and occasionally boiler ash are transported to EPA licensed operator Moreshost P/L for garden mix / soil conditioner manufacturing purposes. Moreshost P/L has a Regulated Waste Transport Licence with the EPA.
G8 – In-Compliance – GELITA uses EPA licensed operator J J Richards for removal of general waste materials (lift-bins) to local landfill (Photo.32). The GELITA waste-tracking database was confirmed to be operational.
<u>Schedule H – Self Monitoring & Reporting:</u>
H1-H8 – In-Compliance – GELITA has a standard recording format in place which was viewed / confirmed, for complaints, incidents and emergencies. Complaints and incidents are actioned / followed-up as prescribed (H7) and reported to the EPA. A complaints summary for 2004 will be included in the company Annual Return due for submission to the EPA by 31/01/2005 (Anniversary date of SR0722 was recently amended from 4 November to 31 January, by amendment, which change took effect from 8/06/2004). GELITA indicated at the formal site audit completed on 6/10/2004, that during the 2003/2004 audit period four (4) odour complaints were received, investigated and reported to the EPA (H1). The Company confirmed that three (3) complaints were attributed to the raw materials area and one (1) associated with compost turning operations. The administering authority did not require GELITA to undertake odour monitoring (H11), as all odour issues were effectively resolved between the parties involved. GELITA have SOPs in place to ensure corrective action / feedback loops are completed for complaints and incidents as prescribed in SR0722.
H9 – In-Compliance – See comments under Conditions B6 and B7 above.
H10, H11 – In-Compliance – See comments under Condition B17 above. The foul air fan supplying the Hybractor Technology (wastewater treatment plant) Biofilter (Photos.3, 4) was replaced in December 2003, due to continuing odour leakage problems, resulting in local nuisance odour levels in the surrounding work area, but not beyond the boundaries of the site. See further comments under Conditions B16 & B17.
H12 – In-Compliance – GELITA indicated that both Boiler and Biofilter emissions monitoring were completed over January-March 2004 (see testing “Frequency” in Schedule H, Table 1 – “Biennially from 2001”), with relevant records confirmed in storage for the past seven (7) years. See results appraisal comments under Conditions B6, B7 and B17 above.
H13-H17 – In-Compliance – GELITA indicated that while no off-site noise complaints had been received during 2003-2004, the Company had undertaken plant noise monitoring on site during April-May 2004, for workplace health and safety “due diligence” purposes.

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H18-H21 – In-Compliance – During the formal site audit completed on 6/10/2004, GELITA provided the EPA with copies of weekly monitoring results for the PP (Pump Pond), POP (Pump Out Pond) and BSD (Balancing Storage Dam) sampling sources for the period 10/09/2003-5/10/2004.

Treated wastewater release quality characteristics amendments / deletions actioned in relation to Schedule E – Table 1 of SR0722, came into effect on 8/06/2004. Conditions changes completed for SR0722 arose as a result of “flow-on” recommendations for a number of issues addressed through recently completed on-site projects emanating from EMP No. SR1157, which reached conclusion on 30/09/2003 (Reference documents provided with the “Final Report” for EMP No. SR1157, at completion, have been fully reviewed, discussed and considered on sustainability grounds by EPA Management [D Brown, K Roberts, D K Shackel], in this regard). Supporting information for EMP No. SR1157, included data emanating from projects operated / undertaken by the Company, UQ, Forestry Research and private Consultants was nearing completion on 30/09/2003, for final submission by 31/10/2003 (See also comments under “Details of Scope or Particular Focus” above). A number of NATA Registered Laboratories are used by GELITA for monitoring / interpreting sample analyses; Brisbane Water, FALA, QG Health (**H21, H27 & H31**).

With reference to Condition **E24**, GELITA indicated that the Company was not aware of any likely problems concerning environmental nuisance or harm arising from issues prescribed by this condition.

H22, H23 – In-Compliance - GELITA confirmed that “mag” meter records are maintained of the total quantity of programmed contaminants released to dedicated irrigation areas on any day (sighted), which remains below 3ML of final treated wastewater. GELITA indicated that reprogramming of treated wastewater discharges, as a result of minor redefinition of the contaminant release areas, would be a further consequence of the outcomes of EMP No. SR1157.

H24-H28 – In-Compliance - Logan River Daily Monitoring – Daily monitoring is carried out by DNR automatic recording stations within the river, both above and also immediately below the GELITA downstream boundary. These recordings for 2003/2004 were sighted / reviewed, at the formal site audit completed on 6/10/2004, indicating only inherent variations in parameters assessed at the two (2) river sampling points. This extensive chart data is available for call-up for Annual Return assessment purposes. Parameters were confirmed as those included in the company EM Plan of 1994, which remains relevant.

H29-H32 – In-Compliance - Soils Monitoring - Soil / Agronomy Consultant Dr Brian Schafer has prepared and submitted to GELITA the following, “**GELITA (Asia Pacific Africa) Beaudesert: Preliminary Licence Compliance Report – October 2004**”, in which the preliminary “baseline” soil monitoring data generated over 2003/2004 is presented and reviewed (Attached). Schafer has indicated that, “These preliminary data are within the acceptable ranges deemed for Soil Salinity and Nutrient Status for the specified soil map units.” And further, “Field instrumentation (“Full-Stop” Wetting Front Detectors) are yet to be installed and so soil infiltration and hydraulic conductivity data are not available at this stage.” GELITA indicated that the “Full-Stop” installation program would be implemented as soon as practicable. The “baseline” soil monitoring constitutes actions completed under EMP No. SR1157, that included data / projects reaching finality around 30/09/2003 and which supporting material was provided to the EPA with the EMP No. SR1157 “Final Report”, for assessment and sign-off. Cropping trials, to ascertain nutrient utilisation in soils irrigated with treated wastewater, formed a number of projects associated with EMP No. SR1157. Additional soil and groundwater sampling for determining soil behaviour in relation to infiltration and hydraulic conductivity will be monitored on an annual basis during the anticipated seven years following establishment of the Vetiver Grass / Rye Grass production unit, planting for which is expected to commence October 2004. See also comments under Conditions **H33-H35** below.

SECTION: Compliance Audit : Agency Interest : SR0722 & Site Review : Non-compliant ✕

H33-H35 – In-Compliance - Groundwater Monitoring - Soil / Agronomy Consultant Dr Brian Schafer has prepared and submitted to GELITA the following, “**GELITA (Asia Pacific Africa) Beaudesert: Preliminary Licence Compliance Report – October 2004**”, in which he indicates field problems associated with the groundwater sampling program during 2004 (Attached). Schafer comments as follows, “Ground water analyses obtained from samples in September 2004 have been found to be in error. The piezometer boreholes installed in 1992 have variously deteriorated due to age. Later boreholes to replace some of these earlier boreholes in 2000 have also been damaged by farm operations and stock. Consequently, some of the bores which are strategic to the new monitoring program are unserviceable.” GELITA indicated that a piezometer borehole refurbishment program would be implemented as soon as practicable. Review of groundwater results available during the 2003 site audit did not indicate nutrient transfer / leakage to the “deep” groundwater systems on site and hence to the Logan River. In many areas of the “farm”, shallow topsoil cover, over a deep clay base, precludes transfer of irrigated treated wastewater to groundwater. GELITA intends to adopt the “Full-Stop” Controller, developed by CSIRO Scientist R Stirzaker (See CSIRO.au) to monitor moisture movement through soil profiles on site, as a measure of irrigated treated wastewater penetration / field capacity / percolation effectiveness (refer Schedule H – Table 3).

H36 – In-Compliance - GELITA seeks expert advice from a variety of sources regarding results emanating from the site monitoring programs, viz; Consulting NATA Laboratories, AIR, NOISE ENVIRONMENT P/L, UQ Project Team, Soil / Agronomy Consultant Dr Brian Schafer, DNR personnel (soil / plant systems [particularly Vetiver grass applications / hydrology issues], J Biala of “The Organic Force” for composting guidance and Dr Paul Truong, Vetiver Grass cultivation expert (Attached – “Research, Development and Implementation of the Vetiver System for Wastewater Treatment” by Paul Truong and Cameron Smeal, August 2003, relevant to the GELITA site, where most of the research data used in this Technical Bulletin was generated). Both authors Truong and Smeal co-presented the above paper at the Third International Conference on Vetiver Grass in Guangzhou, China in October 2003 (Attached).

H37, H38 – In-Compliance - Licence limit(s) exceedances arising with the irrigated disposal of treated wastewater to land on site have been covered by EMP No. SR1157, for the past 4.5 years, to 30/09/2003 and hence have not been individually advised to the EPA. However, the EPA has been aware of results achieved over the course of EMP No. SR1157, following regular and annual reviews of progress over the lifetime of the process.

Significant treated wastewater release quality characteristics amendments / deletions actioned in relation to Schedule E – Table 1 of SR0722, came into effect on 8/06/2004. Conditions changes completed for SR0722 arose as a result of “flow-on” recommendations for a number of issues addressed through recently completed on-site projects emanating from EMP No. SR1157, which reached conclusion on 30/09/2003 (Reference / supporting documents provided with the “Final Report” for EMP No. SR1157, at completion, have been fully reviewed, discussed and considered on sustainability grounds by EPA Management [D Brown, K Roberts, D K Shackel], in this regard). The only contaminant release quality characteristics now retained in Schedule H – Table 2 of SR0722 include; 5-day BOD (monthly), COD (weekly) and pH (weekly) determinations. GELITA was made aware of the need for timely reporting of non-compliances involving these parameters in future.

Schedule I – Definitions: NO COMMENTS REQUIRED.

REQUIRED ACTIONS: NIL

Licence Conditions Module:

Condition Number(s)	Details of non-compliance(s)
<u>NIL</u>	

RECOMMENDATION:
NO RECOMMENDATIONS ARE OFFERED, AS CONDITIONS CURRENTLY INCLUDED IN SR0722 ARE CONSIDERED ADEQUATE TO ENSURE SUSTAINABILITY OF THE GELATINE MANUFACTURING ACTIVITIES CARRIED OUT ON SITE AND TO SAFEGUARD THE ENVIRONMENTAL INTEGRITY OF THE SURROUNDING SENSITIVE RECEPTORS, viz: runoff to adjacent land and the Logan River.

Signoff Sheet:

Additional Comments:
NIL
Recommendation:
NIL

Adoption of Report:
This report accurately represents the issues and outcomes of this site inspection.

Inspecting officer

sch4p4(6) Personal I
Don Shackel

Don Shackel

Signed

20/10/2004

Date

Inspecting officer

N/A

Signed

Date

Comments and Recommendation:

Supervisor

sch4p4(6) Personal I
Doug Carey

Doug Carey

Signed

21/10/2004

Date

Checklist

Compliance

Compliance Program — Inspection Checklist

Instructions for use

Where an Agency issue is determined to be relevant, note appropriate detail in the observations section.

Where there is any non-compliance, discuss with the company representative and note any required action.

Where the assessment will include licence conditions, use the licence condition compliance section of the checklist.

This checklist is to be used for all inspections. Refer to the procedural guide for guidance.

Cover Sheet Module:

Company Name: Davis Gelatine Australia Limited		Date of Inspection: 6/10/2004
Trading as: GELITA Australia Pty Limited		EA No.: SR0007DA
Description of Business Activity: ERA 53 – Soil conditioner manufacturing		
Site Street Address: Flood Road		
Suburb: Josephville	City/Town: Beaudesert	Post Code: 4285
Registered Office Address: "Sunny Hills", Flood Road, JOSEPHVILLE via BEAUDESERT QLD 4285		
Suburb: JOSEPHVILLE	City/Town: BEAUDESERT	Post Code: 4285
Site Representative: Cameron Smeal	Position: Environmental Officer	Contact phone: (07) 5541 9442

Inspection type	☐ Catchment	☐ Industry Sector	☐ Complaint	☒ Compliance
Compliance level	☐ 1	☐ 2	☒ 3	Inspection type
				☐ A
				☐ B
				☒ C
Audit focus is the following relevant Agency interests:				
☒ Water issues ¹	☒ Air issues ¹	☒ Noise issues ¹	☐ National and international	
☒ Land issues ¹	☒ Waste issues ¹	☐ Social issues	☒ Impacts on surrounds	
☐ Coastal issues	☐ Heritage issues	☐ Biodiversity		
☐ Resource allocation	☐ Tenure issues	☐ Other issues		

¹ Main issues to consider for *Environmental Protection Act 1994* focus.

DETAILS OF SCOPE OR PARTICULAR FOCUS:

Waste Composting:

The EPA approved continuation of composting activities on site late in 2003, following an initial 12 month waste composting project period (September 2002-September 2003) to trial processing methodology and assess outcomes (an Odour Control Plan is in place), with a view to long term, on-going total waste utilisation / recycling on site. GELITA Australia Pty Limited holds SR0007DA (with conditions) and SR1114 for ERA 53, relevant to "soil conditioner manufacturing". The company has contracted part-time consultancy services from Johannes Biala of "The Organic Force", to assist with the composting project. The composting consultant Company has prepared a report dated October 2003, titled ***"Assessing the Suitability of Covered Windrow Composting for On-site Processing of Gelatine By-products"***, for GELITA Australia Pty Ltd, which was also made available to the EPA.

SITE CONTACT:

A review of conditions included in SR1114 and SR0007DA, followed by a site inspection were undertaken with the Company Environmental Officer, Mr Cameron Smeal.

PHOTOGRAPHS:

A series of 41 digital photographs taken during the site audit on 6/10/2004 indicate the current environmental status of the site, particularly with regard to land disposal issues and stormwater protection aspects, together with a limited number of records of external processing plant / operations.

CHUCKLE:

A review of CHUCKLE and Company files, STH495 records for 2003/2004 indicated that any complaints received by the company had been actioned and reports provided to the EPA, in each instance (4 odour complaints for 2003-2004 – see also comments under Condition G1 below).

ADMINISTRATIVE:

1. Development Approval No. SR0007DA – ERA 53 Soil conditioner manufacturing &
2. Personal Licence No. SR1114 (with development approval) (Section 86).
3. The Company name, the registered business address of the legal entity and the activity location address were all confirmed as **CORRECT**.
4. ASIC search provided a "Current Extract" for Organisation Number ACN 000 010 597 – Section 1274B – See attached printout.
5. ERA Item – confirmed "no changes" for the Josephville site, at this time [ERA 53].
6. Real Property Description – confirmed "no changes" for the Josephville operation.
7. Environmental (Personal) Licence No. SR1114 "Effect Date" – 4/05/2004.
8. Environmental Licence (Personal) No. SR1114 "Anniversary Date" – 31 January (Amended from 14 December on 27/04/2004)
9. Development Approval No. SR0007DA – Amendment Date 17/12/2002.
10. GELITA Australia Pty Ltd does not carry out a **NOTIFIABLE ACTIVITY** as defined in Schedule 2 of the *Environmental Protection Act 1994*.

ASSESSMENTS & OBSERVATIONS:

Agency Interests Module:

SECTION: Compliance Audit : Agency Interest: SR0007DA & Site Review : Non-compliant ✕

Schedule A – Activity:

A1 – In-Compliance – GELITA has physical (asphalt sealed operating area/pad, a perimeter pad drainage swale directing runoff to sediment basins and a “catch dam” [Photos.17, 18, 25, 28], where accumulated material is returned to the effluent treatment system Aerobic Pond for processing [Photo.9], windrow covers to minimise dust and odour nuisance [Photo.17], a mechanical windrow turner and cover applicator / remover [Photos.20, 23, 24] to effectively aerate, mix and control compost) and procedural (Odour Management Plan, IEMS, part-time Odour Consultant support) measures in place to prevent or minimise environmental nuisance or harm in carrying out the on-site composting operation at Josephville.

A2 – In-Compliance – The GELITA composting operation remains in a “scaling-up” / “learning curve” mode, taking strategic operating advice from a composting consultant, on a part-time basis, as expertise is accumulated at a number of levels of the activity. GELITA maintains updates with the EPA (Annual Returns) concerning progress with optimising the operation to progressively utilise all on-site waste resources.

A3 – In-Compliance – GELITA has IEMS (SBMP) documentation in place to manage the evolving composting operation on site.

Schedule B – Air:

B1 – In-Compliance – GELITA confirmed that the composting operation has not recently released “noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity” to cause nuisance complaints, “at any odour sensitive place”. GELITA has an Odour Management Plan in place for the composting operation. GELITA maintains extensive open “buffer” areas between the composting operation and the boundaries of the licensed place.

B2, B3 – In-Compliance – GELITA confirmed that the composting operation has not released “dust and / or particulate matter resulting from the activity” to cause nuisance complaints, “at any dust sensitive place”. GELITA maintains extensive open “buffer” areas between the composting operation and the boundaries of the licensed place. Dust monitoring is a “complaints-driven” requirement, which has not been initiated to date.

B4 – In-Compliance – GELITA has made only limited, informal, trial compost deliveries off-site to date and is aware of vehicle load GED requirements, viz; load covers, load watering – as appropriate, tailgate security, loss of material from vehicle superstructure.

B5 – In-Compliance – GELITA has procedures in place to ensure vehicle tailgates are effectively secured prior to leaving both the material loading and unloading points.

B6 – In-Compliance – GELITA has procedures in place to ensure vehicle compost loads leaving from and raw material loads arriving at the Company site are covered and maintained in place after loading at the respective departure points, prior to travel on public roadways.

Schedule C – Water:

C1 – In-Compliance – GELITA has physical measures in place to collect and direct any leachate or stormwater runoff from the composting operation via sediment basins to a “catch dam” located below the composting activity areas. Any accumulated material is pumped to the effluent treatment Aerobic Pond for processing (Photos.17, 18, 25, 28).

C2 – In-Compliance – GELITA has in place formed perimeter collection swale drainage, which directs any stormwater runoff from the composting site via a detention basin, overtopping to a dedicated “catch dam” located below the composting activity area, from where any accumulated material is pumped to the effluent treatment Aerobic Pond for processing (Photos.17, 18, 25, 28).

SECTION: Compliance Audit : Agency Interest: SR0007DA & Site Review : Non-compliant ✖
C3 – In-Compliance – GELITA has in place formal drainage structures which collect any leachate and stormwater runoff, which may have contacted compost or raw waste materials within the activity area, then such material is directed, via detention basins, that overtop to a dedicated “catch dam”, located below the activity area, from where any accumulated material is pumped to the effluent treatment Aerobic Pond for processing (Photos.17, 18, 25, 28).
C4 – In-Compliance – GELITA has in place drainage and storage infrastructure to allow the processing of all leachate and contaminated stormwater collected from the mixing pad of the waste composting facility, through the effluent treatment Aerobic Pond system (Photos.17, 18, 25, 28).
C5 – In-Compliance – GELITA maintains stormwater diversion measures, which direct any overland surface waters away from the designated waste composting facility to adjacent grazing grasslands.
C6 – In-Compliance – GELITA maintains a dedicated, concreted vehicle / equipment washing area adjacent to the Belt Press Shed, which drains to the effluent treatment system. A new dedicated vehicle washing facility, discharging to the effluent treatment plant, is planned for completion in 2005.
C7 – In-Compliance – GELITA employs dry cleaning procedures to control waste and compost spillages within the defined composting preparation and raw waste storage areas.
C8 – In-Compliance – GELITA maintains regular inspection procedures to ensure the integrity of the recently asphalt-sealed compost manufacturing area and raw materials holding pads, together with physical checks of the effectiveness of both the perimeter runoff collection drainage system and the formal overland drainage swale to the accumulation “catch dam”. Stormwater diversion banks/bunds are also inspected and maintained as necessary.
C9 – In-Compliance – GELITA has procedures in place to ensure loading / unloading of bulk materials (wastes / compost) only takes place within the designated waste composting facility.
C10 – In-Compliance – GELITA maintains regular inspection procedures to ensure the effectiveness of perimeter bunding / diversion / drainage measures in place surrounding the asphalt-sealed composting preparation area and raw dry waste storage clay pads.
Schedule D – Noise:
D1 – In-Compliance – GELITA confirmed that the composting operation has not resulted in any nuisance noise complaints being received by the Company, since the operation commenced around two (2) years ago.
D2, D3 – In-Compliance – “Complaints-driven” Noise Conditions – As GELITA has not received any nuisance noise complaints concerning the composting operation since commencement, these conditions requirements have not been activated, to date.
D4 – In-Compliance – GELITA supports and maintains the heavy vehicle entry and / or departure curfew in regard to the composting operations on site.
Schedule E – Waste:
E1 – In-Compliance – GELITA confirmed that the waste materials documented in this condition are used in the composting operation on site (Photo.19).
E2 – In-Compliance – GELITA confirmed that all wastes / raw materials usage records are maintained and reported to the EPA as prescribed by this Condition.
E3, E4 – In-Compliance – GELITA confirmed that the Company undertakes waste tracking procedures with only EPA licensed transport operators and licensed beneficial biosolids treatment/reuse facility operators (Moreshost).
Schedule F – Land:
F1 – In-Compliance – GELITA has an asphalt-sealed operating area / pad, perimeter formal drainage structures to collect any leachate and stormwater runoff, which may have contacted compost or raw waste materials within the activity area, directing runoff to sediment basins and a “catch dam”, where accumulated material is pump returned to the effluent treatment system Aerobic Pond for processing. GELITA also maintains stormwater diversion measures, which direct any overland surface waters away from the designated waste composting facility to adjacent grazing grasslands (Photos.17, 18, 25, 28).

SECTION: Compliance Audit : Agency Interest: SR0007DA & Site Review : Non-compliant ✕

F2 – In-Compliance – GELITA is aware of the need to embrace GED considerations in the application / incorporation of composted material to land for purposes of soil conditioning or fertilising.

Schedule G – Community:

G1 – In-Compliance – GELITA maintains a complaints response process, which fulfils all requirements prescribed by this Condition. Reporting outcomes of complaints investigations to the EPA is standard practice for the Company. GELITA indicated at the formal site audit completed on 6/10/2004, that during the 2003/2004 audit period four (4) odour complaints were received, investigated and reported to the EPA. The Company confirmed that three (3) complaints were attributed to the raw materials area and one (1) associated with compost turning operations. The administering authority did not require GELITA to undertake odour monitoring, as all odour issues were effectively resolved between the parties involved.

G2 – In-Compliance – GELITA consults with a local community environmental liaison committee (Community Consultative Committee) on a quarterly to six monthly basis regarding complaints received, site environmental performance review and any other environmental / general business issues. A copy of Minutes of the Community Consultative Committee (CCC) Meeting of 14/07/2004 was provided to the EPA, where the matters of "Drought and Water" were also discussed, at some length (Attached). The next CCC Meeting is noted for 13/10/2004, at the GELITA site.

G3, G4 – In-Compliance – GELITA maintains a complaints records database which addresses the requirements prescribed by these Conditions

G5, G6 – In-Compliance – GELITA maintains an incidents records database, which addresses the requirements prescribed by these Conditions.

G7, G8, G9, G10 – In-Compliance – GELITA has a process in place to manage the investigation, corrective actions implementation, monitoring and written reporting of emergencies and incidents to the EPA, taking account of requirements and timelines prescribed by these Conditions

G11 – In-Compliance – GELITA consistently provides to the EPA, all monitoring results, specialist consultants reports and complaints resolution information, with each Company 'Annual return for environmental authorities' submitted to the administering authority.

Schedule H – Definitions: NO COMMENT REQUIRED.

Schedule I – Maps / Plans: THERE ARE NO ATTACHMENTS TO THIS SCHEDULE.

REQUIRED ACTIONS: NIL

Licence Conditions Module:

Condition Number(s)	Details of non-compliance
<u>NIL</u>	<u>NIL</u>

RECOMMENDATION: (consider what is being emitted, the activity's impact and the adequacy of the EA)

NO RECOMMENDATIONS ARE OFFERED, AS CONDITIONS CURRENTLY INCLUDED IN SR0007DA ARE CONSIDERED ADEQUATE TO ENSURE SUSTAINABILITY OF THE WASTE-BASED COMPOST MANUFACTURING ACTIVITY CARRIED OUT ON SITE AND TO SAFEGUARD THE ENVIRONMENTAL INTEGRITY OF THE SURROUNDING SENSITIVE RECEPTORS, viz: adjacent land & any runoff to the Logan River.

Signoff Sheet:

Additional Comments:

NIL

Recommendation:

NIL

Adoption of Report:

This report accurately represents the issues and outcomes of this site inspection.

Inspecting officer

Don Shackel

sch4p4(6) Personal
[Signature]

Signed

20/10/2004

Date

Inspecting officer

N/A

Signed

Date

Comments and Recommendation:

Supervisor

Doug Carey

sch4p4(6) Personal
[Signature]

Signed

21/10/2004

Date

Memorandum

COPY



Queensland Government
Environmental Protection Agency
Incorporating the
Queensland Parks and Wildlife Service

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference EMP001-30031999
Our reference STH495-8-SR0722

27 February 2004

To: Kyle Roberts, Operations Manager - Heavy Industry Group

From: Don Shackel, Senior Inspector – Heavy Industry Group

Subject: **Completion of Environmental Management Program (EMP)
No.5080001157 (SR1157) - GELITA Australia Pty Ltd.**

NOTE: EMP No.SR1157 Original "Date of Certificate of Approval" – 3/05/1999 – Period-in-Force – 33/03/2002
(Period-in-Force: 4.5yrs) Amended "Date of Certificate of Approval" – 1/12/2001 – Period-in-Force – 30/09/2003

1. COMPLIANCE / COMPLETION REPORT ASSESSMENT

Verification:

On 30 October 2003, e-mail advice was received by the EPA from Cameron Smeal, Environmental Officer for GELITA Australia Pty Ltd advising that EMP No.SR1157 and internal reporting requirements were completed, as prescribed, by 30/10/2003, viz; "within 30 days of the final date for completion of the environmental management program as stated on this "Certificate of Approval" (Tuesday, September 30, 2003), the person to which the environmental management program applies must forward a report to the administering authority detailing compliance with the conditions of this "Certificate of Approval" (Copy attached).

In consideration of the Company response to completion of EMP No.SR1157, verification of compliance with mandatory "period-in-force" timelines is confirmed.

Further, "compliance shall be verified in the report (a compliance report) by inclusion of such copies of plans, procedures, photographs, photocopies of purchase receipts, statutory declarations by the person and/or other documentation as may be necessary to demonstrate such compliance." Effective reporting requirements are confirmed

A 35 page "Compliance Report", including 'Executive Summary' and 'Effluent Management Final Report' including outcomes from the 'Gelatine Effluent Land Management Study' and 'Cleaner Production Trials', was received by the EPA on 20/11/2003, due to a delay awaiting two (2) final items from external company sources (consultants) for inclusion in the extensive "Supporting Information" package (Reference - STHR1242). In consideration of the material provided, effective reporting requirements are confirmed.

GELITA Australia has also consistently and diligently provided necessary six (6) monthly and annual reports concerning progressing outcomes associated with EMP No.SR1157.

In consideration of the Company response to completion of EMP No.SR1157, verification of compliance with prescribed reporting requirements is confirmed.

Report Assessment:

The Company "Compliance Report" and "Supporting Information" materials have consumed considerable extra-office commitment to assess the outcomes of this complex, five (5) year, multi-disciplinary project with concurrent investigative strands. Not unexpectedly, the reports and findings associated with EMP No.SR1157 are extensive.

An "Executive Summary" details 18 major outcomes of the project, in dot point form, each of which has been read / reviewed in context, with the appropriate aspect in the "Supporting Information", from which it was derived.

GELITA Australia submits that the outcomes of the program meet the "General Conditions" of 'Certificate of Approval No.SR1157 for Environmental Management Program', in respect of, "Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner", the stated purpose of the EMP.

In summary, the study has determined that the operation is sustainable in terms of mineral salts but that altered practices to control nitrogen balances are required. Each of the thirteen (13) soil types identified will require individual irrigation treatments to achieve optimal outcomes. Results to date indicate that current licence conditions do not promote the most sustainable approach to site management, viz; outcome based, driven by climatic variations.

Rigorous research has determined that irrigation of treated effluent to specific soil types, using outcome-based criteria, as opposed to application load limits, currently included in site Environmental Licence No.SR0722, is the optimal management philosophy. Such a philosophy demands implementation of a reflexive irrigation model capable of dealing with extreme climatic variations (viz; 2001-2004 prevailing seasons) that is not based on assumptions of "average" conditions. **This requires a fundamental change in management from qualitative control criteria to outcome-based assessment of the operation.**

Based on the improved understanding of the soil dynamics associated with treated effluent irrigation across the farm site, a strategy is proposed to improve the long-term sustainability of the operation. An irrigation management schedule has been devised for the various soils under a forage/agro-forestry production program.

Recommended changes/amendments to Company Environmental Licence No.SR0722 will need to be progressed to allow this outcomes-based model to be effectively applied at "Sunny Hills".

Revised Treated Effluent Management Program:

A revised management approach has been devised to allow for a robust response to the soil capacities for treated effluent, given a range of climatic conditions. There are four aspects to the proposed management scheme. The concept requires graduated phases of establishment over a seven-year period.

These involve implementation of agro-forestry for limited treated effluent disposal over the less permeable soil types, the progressive establishment of a Vetiver Grass system for maximising nitrogen uptake across soils with higher hydraulic conductivity, early implementation of lateral

drainage of heavy clays and immediate improved wastewater treatment (liquid lime addition as necessary) for nitrogen removal.

The addition of liquid lime at the pump-out facility for treated effluent irrigation will raise the pH value of dosed material to levels where excess nitrogen will be volatilised. Theoretically, up to 80% of ammoniacal nitrogen in the wastewater can be eliminated by this means.

TDS limits included in Company Environmental Licence No.SR0722 will need to be removed to allow this process to be implemented.

In order to implement a disposal system best suited to meeting the criteria of ESD, GELITA Australia has proposed adoption of a seven-year implementation program. This program will be dependent on the realisation of significant changes/amendment to Company Environmental Licence No.SR0722. The core of the program will require the propagation and planting of Vetiver Grass as the key to beneficial reuse of treated effluent. The deep rooting system and high nitrogen requirement of Vetiver Grass are ideal for nutrient removal from site soils.

The harvested material will be utilised in composting trials for pasture improvement in non-irrigated areas over the farm. Supplementary plantings of trees and ephemeral cropping rotations will provide diverse and flexible means of treated effluent use to match climate and treated effluent quality variations.

The central tenets of the proposed system are as follows:

- flushing of “salts” below root zone to maintain healthy soils
- reduced irrigation disposal area to ensure flushing occurs
- crop selection (Vetiver/Rye grasses) to maximise nitrogen uptake
- nitrogen export from irrigated zones
- chemical nitrogen control contingency option
- precise irrigation management plan
- elimination of grazing within irrigated zones
- outcome-based monitoring regime
- annual independent expert assessment

In order to achieve these outcomes (above) a number of amendments to Company Environmental Licence No.SR0722 will be required and ARE SUPPORTED:

- **removal of TDS discharge limit**
- **removal of daily treated effluent discharge volume limit**
- **removal of irrigation prohibition during rainfall (aids “salts” flushing, while requirements to prevent ponding, run-off will be maintained)**
- **substitution of altered monitoring program**

Within the “Compliance Report” and “Supporting Information”, the Vetiver Grass system has been identified as having the potential to meet ESD criteria. The “Supporting Information” details the outcomes of research on the application of the Vetiver Grass system to date:

- On site R&D conducted at “Sunny Hills” has proved that Vetiver Grass is highly productive, while off-site research projects have confirmed these findings;
- Vetiver Grass has out-yielded other grasses used on site by six (6) fold;
- With this high production capability, Vetiver Grass has the potential of exporting three (3) times the nitrogen of other grass species;
- Based on field experimentation, the potential total land area required to sustainably dispose of all of the gelatine factory treated effluent would be approximately 50 ha;

- After allowing for 15%-20% salt leaching (conservative figures), MEDLI simulation also predicted that the Vetiver Grass planting area can be reduced to 49.5 ha to sustainably dispose of the total treated effluent output;
- Data on growth and nitrogen content of mature plants indicated that the deep and extensive root system of Vetiver Grass could reduce or eliminate nitrogen leaching, maintaining groundwater quality.

Consequently, the Vetiver Grass system will form a critical part of the overall proposal for a sustainable farm and factory treated effluent disposal regime.

Research Conclusions:

The following conclusions are drawn from information gained since 1999, over the lifetime of EMP No.SR1157. Data contained in reports and technical material that are included in the “Support Information”, detail the findings of this research. In summary, the conclusions that are drawn from these works indicate the following:

- *That all nitrogen and salts can be sustainably dealt with on site.*
- *That Exchangeable Sodium Percentages (ESP) have increased over time.*
- *The leaching fraction determined from current actual irrigation practice is double the conservative values used for the MEDLI modelling process (reports sourced from three [3] separate modellers reached similar conclusions).*
- *Current irrigation practice with treated effluent is sustainable on the dermosol (alluvium - Logan River “flats”) soil type in terms of salinity management.*
- *Nitrate is being leached to depth in the dermosol (alluvium – lower slopes, sandy clay/loam levees) soil type but levels are less than the licence limits.*
- *Nitrate levels in the surface soil should be utilised by improved plant growth using the proposed Vetiver/Rye Grass whole year production system.*
- *Nitrate is not accumulating at depth in the vertosol (basaltic alluvium, Walloon siltstone, mixed basaltic/Walloon sediments) and surface concentrations can be utilised for plant growth using the proposed Vetiver/Rye Grass production system.*
- *Cleaner production methods have been achieved.*

Revised Irrigation Schedule According to Soil Type and Production Type:

Based on the improved understanding of the soil dynamics associated with treated effluent irrigation across the farm site, it is the intent of GELITA Australia to ensure that specific soil types receive irrigation to match soil properties.

A strategy is proposed to improve the long-term sustainability of the operation. An irrigation management schedule has been devised for the various soil types under a forage/agro-forestry production program.

Concentrating treated effluent disposal to less than 60 hectares of suitable soils incorporating the proposed production program is recommended to prevent salt build-up to deleterious levels in the soils, under current treated effluent and climate characteristics.

Monitoring of the irrigation (quantity, quality and distribution), rainfall and potential evapo-transpiration allows for the determination of the leaching fraction achieved.

A water (treated effluent) balance model (MEDLI), developed by DNR, is used to assess past and current leaching fractions and will be included as part of the revised monitoring program to determine future leaching fractions.

Maintenance of an appropriate leaching fraction for each soil type will ensure that the concentration of leachate draining below the root zone is at a level not deleterious to productivity of plant biomass. This will provide a more relevant assessment of sustainability of the disposal system.

This program is designed to apply treated effluent according to plant water requirements at 85% of field capacity and is based on soil infiltration and hydraulic conductivity characteristics.

In conjunction with the soil monitoring program, the actual leaching fraction can be altered as required to ensure soil levels of nitrogen and “salts” remain within sustainable levels.

Proposed Amendment of GELITA Environmental Licence No.SR0722:

In order to implement the “**best practice environmental management**” program emanating from completion of EMP No.SR1157, a number of **AMENDMENTS** to Schedule E Conditions included in Company Environmental Licence No.SR0722 will be required.

Amendments sought by GELITA Australia Pty Ltd in respect of Environmental Licence No. SR0722 are set out, together with justifications for such changes, in the attached “**Recommended Licence amendments**”, included on pages 28-32 inclusive of the Company “Compliance Report”.

The proposed amendments to Environmental Licence No.SR0722, are fully supported by Assessment Officer / Site Licensing Officer Don Shackel, in respect of the outcomes emanating from EMP No.SR1157.

Conclusion / Final Comment:

Specific requirements of the EMP have been extensively addressed and in general GELITA Australia has exceeded these requirements in **developing a model** for site Environmentally Sustainable Development (ESD). Comprehensive “Supporting Information” in the form of technical documentation was provided with the “Compliance Report”.

2. ADMINISTRATION

Considering that the **AIM** of EMP No.SR1157 was to manage “Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner”, results emanating from the completed program have demonstrated that this **AIM** has been achieved for all practicable and economic purposes.

At the same time, agreed **OBJECTIVES** and **METHODS OF MEETING OBJECTIVES and TIMEFRAMES**, documented in EMP No.SR1157 have been effectively researched / trialed / actioned over the 4.5 year lifetime of the program.

Hence, the **AIMS** and **OBJECTIVES** of EMP No.SR1157, are considered to have been met by GELITA Australia Pty Ltd.

In order to implement the “**best practice environmental management**” program emanating from completion of EMP No.SR1157, a number of **AMENDMENTS** to Schedule E Conditions included in Company Environmental Licence No.SR0722 will be required. Such amendments will be considered / progressed using the Application Form – Part A – ‘General details of all applications’ and Application Form – Part B – ‘Amend environmental authority’ processes, accompanied by the appropriate Schedule 6 fee of \$150.00.

At the same time, it is considered that GELITA Australia Pty Ltd has ACHIEVED THE INTENT OF EMP No.SR1157 and hence it is CONFIRMED THAT EMP No.SR1157 IS CORRECTLY TERMINATED.

Regulatory Requirements:

In consideration of the information provided by GELITA Australia Pty Ltd through “Progress Reports”, submitted to the Administering Authority over the lifetime of EMP No.SR1157, together with the recent “Compliance Report” and “Supporting Information”, such information is considered to have satisfied the intent of the EMP process and hence EMP No.SR1157 IS COMPLETED AND NO LONGER IN FORCE.

Verification aspects of EMP No.SR1157 were considered and assessed at the top of this memorandum.

Fee Assessment / Payment:

Environmental Operations - Operational Policy – “Environmental management program (EMP) fees” indicates that Section 52(1)(b) of the EP Regulation prescribes that the fees for assessing the holders annual return and *monitoring compliance with the program* is the amount that:

- the authority considers to be reasonable; and
- is not more than the reasonable cost of the assessment and monitoring.

Fees for assessment of an EMP annual return and *monitoring of a compliance program* of an EMP are charged at a rate of \$73.40 per hour (includes GST), or part thereof, plus any reasonable cost for analysis and travel. The reasonable cost of travel will be the cost of travel, plus GST.

Fee Assessment:

Monitoring final compliance report of completed EMP No.SR1157:

- 20 hours at \$73.40/hour

Cost of monitoring final compliance report of completed EMP No.SR1157:

- \$1,468.00 (includes GST)

Travel to GELITA Australia Pty Ltd at Josephville to review completed EMP No.SR1157:

- Holden Commodore Wagon - Registration No. QGR 132 (3800cc engine capacity)

Cost of travel to GELITA Australia Pty Ltd at Josephville to review completed EMP No.SR1157:

- 148km (18/02/2004) at 60.0c/km (Directive No.3/03 *Motor Vehicle Allowances* June 2003 – for automobiles 2601cc and over)
- Calculated cost \$88.80 + GST
- Total travel cost \$97.70 (rounded)

Total fee for assessment of completed EMP No.SR1157:

- \$1,468.00 + \$97.70
- **\$1,565.70**

A compliance assessment fee, **considered to be the reasonable cost of assessing final compliance**, for completed EMP No.SR1157 has been determined at \$1,565.70 (above), comprising twenty (20) hours of assessment / reporting time amounting to \$1,468.00, together with travel expenses, to and return from Josephville to review the “Compliance Report”, calculated at \$97.70.

3. RECOMMENDATION

IT IS RECOMMENDED THAT:

1. GELITA Australia Pty Ltd formerly Leiner Davis Gelatin International Limited, the holder of the 'Certificate of Approval', be advised in writing that based on information supplied, the administering authority considers that the Company has **ACHIEVED FULL COMPLIANCE** with the *Environmental Protection Act 1994*, **FOR THE MATTERS DEALT WITH BY THE PROGRAM**; and
2. The Environmental Support Officer, Southern Region – Environmental Operations forward GELITA Australia Pty Ltd an invoice for the \$1,565.70 fee for monitoring / assessing / reporting final compliance with the program.

Assessing Officer:

Don Shackel
Senior Inspector
Heavy Industry Group
Environmental Operations
Southern Region

C/c: Cathy Ufer
Environmental Support Officer
Environmental Operations Division
Southern Region

For your information and necessary action concerning Recommendation 2.

DKS.

Checklist

Compliance

Compliance program — inspection checklist

Instructions for use

Where an Agency issue is determined to be relevant, note appropriate detail in the observations section.

Where there is any non-compliance, discuss with the company representative and note any required action.

Where the assessment will include licence conditions, use the licence condition compliance section of the checklist.

This checklist is to be used for all inspections. Refer to the procedural guide for guidance.

Cover Sheet Module:

Company Name: GELITA Australia Pty Limited		Date of Inspection: 29/10/2003
Trading as: GELITA – The Gelatine Group		EA No.: SR0722
Description of Business Activity: ERA 50(b) – Rendering operation		
Site Street Address: Flood Road		
Suburb: Josephville	City/Town: Beaudesert	Post Code: 4285
Registered Office Address: "Sunny Hills", Flood Road, JOSEPHVILLE via BEAUDESERT QLD 4285		
Suburb: JOSEPHVILLE	City/Town: BEAUDESERT	Post Code: 4285
Site Representative: Cameron Smeal	Position: Environmental Officer	Contact phone: (07) 5541 9442

Inspection type	☐ Catchment	☐ Industry Sector	☐ Complaint	☒ Compliance
Compliance level	☐ 1	☐ 2	☒ 3	Inspection type ☐ A ☐ B ☒ C
Audit focus is the following relevant Agency interests:				
☒ Water issues ¹	☒ Air issues ¹	☒ Noise issues ¹	☐ National and international	
☒ Land issues ¹	☒ Waste issues ¹	☒ Social issues	☒ Impacts on surrounds	
☐ Coastal issues	☐ Heritage issues	☐ Biodiversity		
☒ Resource allocation	☐ Tenure issues	☐ Other issues		

¹ Main issues to consider for *Environmental Protection Act 1994* focus.

DETAILS OF SCOPE OR PARTICULAR FOCUS:

GELITA Australia Pty Ltd, previously Davis Gelatine Australia Pty Limited, recently acquired by German private business interests from Goodman Fielder, remains committed to completion of **EMP No.1157** concerned with, ***"Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner"***, which reached full term for completion on 30 September 2003. E-mail advice from the Company at the due date of the reporting period on 30 October 2003, indicated that EMP No.1157 was completed and written-up, apart from "two final items from external sources for inclusion in the report", viz; an effluent stream characterisation under the cleaner production section and monitoring schedule from the Company soils consultant. The total report relevant to EMP NO.1157 will be forwarded to the EPA as soon as these outstanding items become available.

Subsequently, licence limits requirements for treated wastewater parameters such as Total Nitrogen and Total Dissolved Solids, observed as not achieving compliance on an historic on-going basis, will be addressed by the EMP review process, within a "holistic" context for the site. While non-compliances were flagged by this audit, on-going corrective actions remain in place, relevant and ongoing via EMP No.1157. The company has regularly provided progress reports for EMP No.1157 to the EPA for assessment and information, indicating milestones towards achieving compliance by 30/09/2003. It is expected that outcomes of EMP No.1157 will indicate a need to seriously reassess, amend or delete some or all treated wastewater limits from SR0722.

Sustainability of application of treated wastewater to on-site land will be achieved through a mix of options including; pasture / grazing systems (including Vetiver grass), cropping (cutting & exporting hay products) and agro-forestry, which plant products will / may become a raw material source (green waste) for **on-site compost-making**, utilising all processing wastes generated by gelatine manufacturing ("skutch", belt-press sludge, boiler ash) for total on-site soil conditioning purposes.

To this end, the EPA has recently approved continuation of composting activities on site, following an initial 12 month waste composting project period (September 2002-September 2003) to trial processing methodology and assess outcomes (an odour control plan is in place), with a view to long term, on-going total waste utilisation / recycling on site. Davis Gelatine Australia Pty Limited holds DA7 (with conditions) and SR1114 for ERA 53, relevant to "soil conditioner manufacturing". The company has contracted part-time consultancy services from Johannes Biala of "The Organic Force", to assist with the composting project. The composting consultant Company has prepared a report dated October 2003, titled ***"Assessing the Suitability of Covered Windrow Composting for On-site Processing of Gelatine By-products"***, for GELITA Australia Pty Ltd, which has been made available to the EPA.

SITE CONTACTS:

Review of conditions included in SR0722, together with a subsequent site inspection were undertaken with the company Environmental Officer, Mr Cameron Smeal, while General Manager, Mr Roger Seach was involved in initial and exit discussions.

PHOTOGRAPHS:

A series of 21 digital photographs taken during the site audit on 29/10/2003 indicate the current environmental status of the site, particularly with regard to stormwater protection aspects, together with a limited number of records of processing plant.

COPY

CHUCKLE:

A review of Chuckle and Company files, STH495 records for 2003 indicated that any complaints received by the company had been actioned and reports provided to the EPA, in each instance (3 for 2002-2003).

Agency Interests Module:

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓

Assessments & Observations:

ADMINISTRATIVE:

Environmental Licence No. SR0722 (without development approval) (Section 93):
Both the company business and activity location addresses were confirmed **CORRECT**.
ASIC search – See attached printout.
ERA Items – confirmed no changes.
Real Property Description – confirmed no changes.
Licence Effect Date – 27/09/2002.
Licence Anniversary Date – 4 November.

The anniversary date of SR0722 of 4 November 2003 for submission of the company annual return for 2003 was drawn to the attention of Cameron Smeal, Environmental Officer.

In regard to ERA 50(b) – Rendering operation, Cameron Smeal indicated that he did not consider gelatine manufacture a rendering process. These comments were acknowledged by EPA Officer Don Shackel who considered / indicated that wording in the ERA definition including, "processing or extracting substances, including, for example, ----- proteinaceous matter, from animal wastes or by-products", were relevant to the Davis Gelatine operation.

Schedule A - General Conditions:

A1 – In-Compliance – GELITA operates a standard maintenance card request-advice / corrective-action system which is currently being upgraded to a computer-driven MFG-PRO workshop / preventative maintenance application, together with a MIS accounting / stores system, which is intended to address equipment, plant and building maintenance aspects to reduce / minimise environmental risk.

A2 – In-Compliance – GELITA Environmental Licence SR0722 is displayed in the office foyer on site, while copies are available to staff in the amenity area.

A3, A4 – In-Compliance – The formal audit confirmed that Company environmental records are available as prescribed.

A5 – In-Compliance – GELITA indicated that the Company had achieved up to a 15% increase in gelatine yield over 2-3 years without an "increase in the risk of environmental harm" – annual gelatine production remains around 2200 MT.

A6 – In-Compliance - Perused calibration records file (Copy of "Calibration Master List" provided - Attached).

A7 – In-Compliance – GELITA indicated that no external complaints had been advised / recorded for a number of months.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓

A8, A9, A10, A11, A12, A13, A14 – IEMS – In-Compliance - Updating / amendment of the documentation was linked to company progress towards ISO 14000 certification [A14], which was achieved since the previous formal audit completed on 15/10/2002 (A12, A13, A14). Copies of SGS International Certification Services Pty Ltd documentation, *"Environmental Management Systems Preliminary Audit"* (28/04-1/05/2002) and *"Environmental Management Systems Certification Audit"* (4-6/08/2003) of GELITA Australia Pty Ltd to AS/NZS ISO 14001:1996, were provided to the EPA during the formal audit completed on 29/10/2003. An SGS *"Audit Status and Itinerary"* form listed **"Standard Clauses" of the "Document Report Review"** for the ISO 14001 Environmental Management System (IEMS) assessment (Attached). See also copy of SGS Certificate AU03/1818 concerning the management system of GELITA Australia Pty Ltd, Flood Road, Josephville, QLD 4285 Australia, that has been assessed and certified as meeting the requirements of ISO 14001:1996, for the following activities, **"Management of environmental effects associated with processing plant operations for manufacture of edible grade gelatins as well as the treatment and disposal of wastes."** (Certificate valid from 06/08/2003 until 06/08/2006 – Issue 1. Certified since 06/08/2003).

The on-going Company training matrix was confirmed [A9(iii)]. Environmental performance and energy audits / reviews were provided to the EPA in the 2002 Annual Return (Copy provided – previously with-held awaiting call-up), [A9(iv), A10, A11].

On-site gelatine processing waste utilisation / composting trials have been successfully completed with a view to achieving total internal recycling of nutrients, in due course [A9(v)]. The GELITA Annual Return for 2003 falls due on 4 November 2003, where appropriate reporting will be provided / reviewed [A9(iv)(a)(b), A9(v), A10(i)(ii) & A11]. Energy auditing requirements called-up under Conditions A9(iv)(c), A10(iii) & A11 are not due until the 2004 Annual Return.

A15 – In-Compliance – A Community Liaison Committee is in place and operating – most recent meeting completed in October 2003 – membership remains inclusive of site-surrounding residential persons and Local Government representation. An annual site Review Committee meeting (earlier Court Case requirement), to be arranged by the Company, remains to materialise.

A16 – In-Compliance – GELITA has no problems in meeting this requirement concerning EPA access to the site.

Schedule B - Air:

B1, B2 – In-Compliance – GELITA has measures in place to minimise the release of contaminants to atmosphere (See comments below).

B3-B5 – In-Compliance – Release Points information included in Schedule B – Table 1 remains relevant and correct.

B6, B7 – NON-COMPLIANT - BOILER EMISSIONS TESTING - C Smeal / R Wearne provided a report of February 2003 titled, **"Stack Emissions Monitoring and Biofilter Odour Assessment"**, prepared by AIR NOISE ENVIRONMENT P/L which indicated that the Finafire coal-fired fluidised-bed Boiler had been found to be in NON-COMPLIANCE with Particulates limits included in SR0722 (Attached). To overcome the ongoing problems associated with the problematic wet-ash removal equipment (Flosep system), GELITA is proposing to "dump" this process and replace it with a baghouse. The Company was requested to provide a timeframe for completion of this project, as soon as practicable. Company letter of 9/04/2003 from R C Wearne, General Manager of Davis Gelatine Australia Pty Limited, at that time, committed to the installation of a Baghouse system to the Finafire Boiler, commencing around February 2004 (Copy attached). This commitment remains the objective of GELITA Australia Pty Ltd. Following Boiler stack testing completed in February 2003, stack emissions testing is a biennial requirement of SR0722, falling due in 2005 (H9).

B8 – In-Compliance – GELITA indicated that during the 2003 annual return period two (2) odour complaints were received, investigated and reported to the EPA – confirmed (12/2002 – dead cow & 3/2003 – compost turning trial). See also comments under H1-H8 below.

B9, B10, B11 – In-Compliance - The Co-generation project remains on the "back-burner", however sufficient biogas can now be collected and held to fuel a trial / short production run. GELITA provided copies of quality analyses, including coal Total Sulphur levels for domestic supply from Jeebropilly Collieries (Attached).

COPY

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓
B12, B13, B14 – In-Compliance – During the audit inspection, doors servicing the raw materials receival area were observed to be closed as prescribed by SR0722. GELITA advised that the raw materials building ventilation air volume / changes have been improved / upgraded, with the installation of an additional fan unit since original plant commissioning.
B15 – In-Compliance – The large Biofilter is operating effectively (Comments under B17 apply).
B16 – In-Compliance – The Hybractor Technology Biofilter is scheduled for a fan replacement in January 2004 (Fig.12), to obviate leakage of odorous and corrosive air to atmosphere (Comments under B17 apply). On-going maintenance measures have significantly minimised odour leakage, compared to previous assessments.
B17 – NON-COMPLIANT - BIOFILTER TESTING - C Smeal and Company Consultants have commented on perceived "shortcomings" with the odour assessment process relevant to the on-site biofilters, requesting consideration of amendment to the assessment procedure to account for any background odour levels / impacts. EPA is to consider clarifying the odour assessment process through possible amendment of Condition B17 and H10 included in SR0722 (See Biofilter test results and comments provided by AIR NOISE ENVIRONMENT P/L – attached). Fugitive odour leakage has not impacted beyond the boundaries of the site and generally remains localised.
B18 – In-Compliance – Biogas is flared / Co-generation project remains "on hold".
B19, B20 – In-Compliance – GELITA indicated that regular system leakage checks and plant shutdown SOPs are in place.
<u>Schedule C - Water:</u>
C1 – In-Compliance – DNR maintains Logan River monitoring stations above and immediately below the GELITA property boundary, which continuously trace a range of indicator parameters on river water passing these points. Cameron Smeal indicated that these plots have not indicated any significant deviations from expected ranges. Data will be reviewed in the up-coming annual return for 2003, due by 4/11/2003.
C2-C8 – Ponds Conditions – In-Compliance – The site inspection confirmed; "free-board" requirements as prescribed, ponds integrity maintained, stormwater impacts minimised (diversion banks / drains in place). The contents of Aerobic Pond 1 were noted to be a "healthy brown colour", with an acceptable odour profile.
<u>Schedule D – Stormwater Management:</u>
D1, D2 – In-Compliance – GED Conditions - GELITA has measures in place to minimise the release of contaminants to stormwater, viz; bunding, formed drainage, catch dams, contour banks and drains, variously in place around the site (Figs.1, 2, 3, 5, 6, 7, 8, 9, 10). The concrete-sealed "ring road" surrounding the gelatine processing plant serves as a "first-flush" catchment, with all runoff directed to catch dams for return and treatment in Pond1 (See additional comments below under D6).
D3, D4 – In-Compliance – GED Conditions - GELITA has measures in place to minimise the release of contaminants to stormwater, viz; bunding, formed drainage, catch dams, contour banks and drains, variously in place around the site (Figs.1, 2, 3, 5, 6, 7, 8, 9, 10). A number of "catch dams" located in stormwater runoff gullies / waterways leaving the site obviate any contaminant discharges to the Logan River (See also comments under C1 above concerning independent river monitoring carried out by DNR).
D5 – In-Compliance – Vehicle washing is carried out on a concrete pad, adjacent to the belt-press shed, which drains to the wastewater treatment system.
D6 – In-Compliance – GELITA has SOPs and a number of strategic spill control kits in place around the site (Figs.5, 7). Staff are expected to effectively capture / contain / clean up any spillages to the sealed surrounds of the processing facility. However, any liquid discharges to the formed drainage system and roadways located immediately adjacent to all areas surrounding the production buildings and associated plant installations, drain to a double "trap-dam" system, situated in a gully below the belt-press shed. Any material collected in these dams is pumped to the wastewater treatment plant for processing. It was noted during the audit that the second trap dam in the series was empty, while the first catchment dam appeared to be at around 50% of capacity (recent local rain event).

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D7, D8 – In-Compliance – Both bunds servicing the Sulphuric Acid external storage tank and the small, above-ground fuel storage tank located in the “old stables” shed, previously indicated to be defective during the 2002 audit, were effectively rebuilt / reconditioned during 2003 (Fig.8). GELITA previously provided the EPA with photographic records, validating completion of these works. Bund installations on site are generally effectively serviced and maintained (Figs.1, 2, 3, 6, 8, 10).
D9-D14 – In-Compliance – All external bunds were inspected during the formal audit completed on 29/10/2003 and were found to be effective and well maintained (See comments above and Figs.1, 2, 3, 6, 8, 9, 10).
<u>Schedule E – Land Application:</u>
E1 – In-Compliance – Only prescribed contaminant releases were confirmed as irrigated to land during the formal site audit and inspection completed on 29/10/2003.
E2 – In-Compliance - Confirmed on file 961EA4721, documentation, “Leiner Davis Gelatin Sunny Hills Irrigation Farm”, site plan. Cameron Smeal indicated that the “defined contaminant release areas” for the site will require updating / amendment, as an outcome of the recently completed EMP No.1157.
E3, E4 – In-Compliance – GELITA advised that no off-site disposal of treated wastewater had been undertaken or is proposed at this time (“Third party” disposal of treated wastewater).
E5 – In-Compliance - While approximately 120 hectares of land comprises the current treated wastewater disposal areas on site, Cameron Smeal indicated that the “defined contaminant release areas” for the site will require updating / amendment, as an outcome of the recently completed EMP No.1157.
E6-E9 – In-Compliance – Current land irrigation practices for treated wastewater applications continue to provide effective controls (Company EM Plan of 1994 and IEMS of 1997), but will be included in an updated Irrigation Management Plan (IMP), which is planned to include data / information arising from the on-going projects “driving” EMP No.1157, which reached conclusion on 30/09/2003 (Reference documents concerned with the completed EMP No.1157 remain to be fully completed and reviewed, in this regard). The visual effectiveness of land irrigation practices were observed / reviewed during a vehicle tour of the on-site disposal areas on 29/10/2003.
E10 – In-Compliance – GELITA confirmed that records are maintained of the total quantity of programmed contaminants released to the irrigation areas on any day, which remains below 3ML of final treated wastewater (Attachment). Cameron Smeal indicated that reprogramming of treated wastewater discharges to redefined contaminant release areas would be a further consequence of the outcomes of EMP No.1157.
E11, E12, E13, E14 – In-Compliance – GELITA confirmed that land application and wet weather storage practices are in place, as prescribed in SR0722 and will be included in an updated IMP, arising from the completion of EMP No.1157 (current procedures reference documents include company EM Plan of 1994 and IEMS of 1997).
E15, E16, E17 – In-Compliance – The sewage effluent disposal area was inspected – observed restricted access / signage in place / lockable valving in place.
E18-E23 – IMP – In-Compliance - An updated Irrigation Management Plan (IMP), which is planned to include data / information arising from the on-going projects “driving” EMP No.1157, which reached conclusion on 30/09/2003 (Reference documents concerned with the completed EMP No.1157 remain to be fully completed and reviewed, in this regard) also remains to be finalised. The 15 requirements included under condition E19 have been addressed by MEDLI aspects of EMP No.1157, which includes data / projects operated by the Company, UQ and DNR.
E24 – NON-COMPLIANT – Treated wastewater release quality characteristics issues are being addressed through recently completed / ongoing projects “driving” EMP No.1157, which reached conclusion on 30/09/2003. Cameron Smeal indicated that GELITA would be seeking “flow-on” amendment of most parameters included in Schedule E – Table 1 of SR0722, in due course.
E25 – In-Compliance – GELITA indicated that the Company was not aware of any problems concerning environmental nuisance or harm arising from issues prescribed by this condition.
<u>Schedule F – Noise:</u>

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SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓
F1 – In-Compliance - GELITA indicated that no noise complaints had been received for 2002-2003 and hence no noise assessments had been undertaken by the Company.
F2, F3 – In-Compliance – GELITA indicated that vehicle curfews remain in place and infrequent non-compliances are actioned (one [1] during 2002-2003).
<u>Schedule G – Waste Management:</u>
G1 – In-Compliance – GED Condition – During the formal audit and site inspection of the Josephville operation, completed on 29/10/2003, GELITA was observed to be meeting the requirements of this condition
G2 – In-Compliance - GELITA does not permit the burning of Company waste either on site or off site.
G3, G4 – In-Compliance - Appropriate recycling of waste materials is undertaken, where practicable, viz; paper and cardboard by local collector "Spotty Bins", belt-press sludge removed by licensed soil conditioner manufacturer Moreshost P/L [ERA 53], who was recently issued with a Regulated Waste Transport Licence [ERA 83(b)(i)] and occasionally scrap metal disposal.
G5, G6, G7 – In-Compliance - Regulated waste, viz; belt-press sludge and occasionally boiler ash are transported to EPA licensed operator Moreshost P/L for garden mix / soil conditioner manufacturing purposes. Moreshost P/L has a Regulated Waste Transport Licence with the EPA.
G8 – In-Compliance – GELITA uses EPA licensed operator J J Richards for removal of general waste materials (lift-bins) to local landfill. The GELITA waste-tracking database was confirmed.
<u>Schedule H – Self Monitoring & Reporting:</u>
H1-H8 – In-Compliance – GELITA has a standard recording format in place / viewed, for complaints, incidents and emergencies. Complaints and incidents are actioned / followed-up as required (H7) and reported to the EPA. A complaints summary for 2003 will be included in the company annual return due to be provided to the EPA early November 2003. GELITA indicated that during the 2003 annual return period two (2) odour complaints were received (H1), investigated and reported to the EPA – confirmed (12/2002 – dead cow & 3/2003 – compost early turning trial), while a vehicle curfew violation (F3) was actioned by the Company, with the transport operator. GELITA have SOPs in place to ensure corrective action / feedback loops are completed as prescribed in SR0722. Cameron Smeal flagged a potential odour complaint / incident source over the upcoming New Year shut-down period, when the primary digester vessel of the Hybractor unit will be opened for maintenance work (January 2004), potentially releasing offensive odours to the atmosphere, which may result in nuisance complaints beyond the boundaries of the site. While the repair work may take a number of days, continuous emission of offensive odour is not expected and prevailing weather conditions will be taken into account, at the time.
H9 – NON-COMPLIANT – See comments under B6 and B7 above (Information attached).
H10, H11 – NON-COMPLIANT – See comments under B17 above (Information attached). The foul air fan supplying the wastewater treatment plant Biofilter (Fig.12) is to be replaced during the New Year shut-down period, due to continuing odour leakage problems, resulting in local nuisance odour levels in the surrounding work area, but not beyond the boundaries of the site.
H12 – In-Compliance - Both Boiler and Biofilter emissions monitoring was completed over January / February 2003 (see testing "Frequency" in Schedule H, Table 1 – "Biennially from 2001") and relevant records confirmed in storage for the past seven (7) years. See results appraisal comments under B6, B7 and B17 above.
H13-H17 – In-Compliance – GELITA indicated that no noise complaints had been received during 2002-2003 and hence the Company had not undertaken noise monitoring.

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H18-H21 – NON-COMPLIANT - Viewed and discussed monthly contaminant release monitoring results with GELITA Environmental Officer, Cameron Smeal. The company annual return for 2003, due to be forwarded to the EPA by early November 2003, will provide this data. An example of weekly ponds sampling results was provided to the EPA during the formal site audit completed on 29/10/2003 (Attached).

With the completion of long-term EMP No.1157 on 30/09/2003, "flow-on" recommendations are expected to require amendment of most of the treated wastewater release quality characteristics limits included in SR0722. EMP No.1157, which includes data / projects operated / undertaken by both the Company and UQ was completed on 30/09/2003 (See also comments under "Details of Scope or Particular Focus" above).

NOTE: Due to workplace health and safety concerns by the Company regarding the use of SMP 1 as prescribed, equivalent material is now collected from the "Reticulation Pump Line from the BSD", in-lieu of, "the overflow from the final effluent balancing storage dam" (H19). This change will be addressed as part of the upcoming amendment process of SR0722.

A number of NATA Registered Laboratories are used by GELITA for monitoring / interpreting sample analyses; Brisbane Water, FALA, QG Health (H21, H27 & H31).

H22, H23 – In-Compliance - GELITA confirmed that "mag" meter records are maintained of the total quantity of programmed contaminants released to the irrigation areas on any day (sighted), which remains below 3ML of final treated wastewater (Attachment). Cameron Smeal indicated that reprogramming of treated wastewater discharges to redefined contaminant release areas would be a further consequence of the outcomes of EMP No.1157.

H24-H28 – Logan River Daily Monitoring – In-Compliance – Daily monitoring is carried out by DNR automatic recording stations within the river, both above and also immediately below the GELITA downstream boundary. These recordings for 2003 were sighted / reviewed, indicating only inherent variations in parameters assessed at the two (2) river sampling points. This extensive chart data is available for call-up for annual return assessment purposes. Parameters were confirmed as those included in the company EM Plan of 1994, due for review in early 2004, as part of the IMP update, flowing from completion of EMP No.1157 on 30/09/2003.

H29-H32 – Soils Monitoring – In-Compliance - Monitoring results completed by UQ are covered by EMP No.1157, that includes data / projects reaching finality around 30/09/2003 and which support material will be provided to the EPA with EMP No.1157, for assessment. Cropping trials, to ascertain nutrient utilisation in soils irrigated with treated wastewater, form a number of projects associated with EMP No.1157.

H33-H35 – Groundwater Monitoring – In-Compliance - Results of bimonthly standing water levels and constituent analyses of the 31 boreholes over the site will be provided to the EPA with EMP No.1157 support material. Discussions and review of results for the current period did not indicate nutrient transfer / leakage to the "deep" groundwater systems on site and hence to the Logan River (See also comments under H24-H28 above). In many areas of the "farm", shallow topsoil cover, over a deep clay base, precludes transfer of irrigated treated wastewater to groundwater. Cameron Smeal indicated that in the light of data accumulated from EMP No.1157, the value of retaining a number of the parameters included in condition H34(d) will warrant reassessment / amendment at conclusion of the EMP review process. GELITA intends to adopt the "Full-Stop" Controller, developed by CSIRO Scientist R Stirzaker (See CSIRO.au) to monitor moisture movement through soil profiles on site, as a measure of irrigated treated wastewater penetration / field capacity / percolation effectiveness.

E36 – In-Compliance - GELITA seeks expert advice from a variety of sources regarding results emanating from the site monitoring programs, viz; Consulting NATA Laboratories, Air, Noise Environment, UQ Project Team, Soil / Agronomy Consultant Dr Brian Schafer, Ted Gardner of DNR (soil / plant systems [particularly Vetiver grass applications / hydrology issues], J Biala of "The Organic Force" for composting guidance and Dr Paul Truong, Vetiver cultivation expert (Attached – "Research, Development and Implementation of the Vetiver System for Wastewater Treatment" by Paul Truong and Cameron Smeal, August 2003, relevant to the GELITA site, where most of the research data used in this Technical Bulletin was generated). Both authors Truong and Smeal co-presented the above paper at the Third International Conference on Vetiver in Guangzhou, China in October 2003.

H37, H38 – NON-COMPLIANT - Licence limit(s) exceedances arising with the irrigated disposal of treated wastewater to land on site have been covered by EMP No.1157, for the past 4.5 years, to 30/09/2003 and hence have not been individually advised to the EPA. However, the EPA has been aware of results achieved over the course of EMP No.1157, following regular and annual reviews of progress of the process.

SECTION: Compliance Audit / Agency Interest : SR0722 & Site Review Non-compliant ✓

Schedule I – Definitions: No comments required.

REQUIRED ACTIONS:

B7 & H9: GELITA Australia Pty Limited has made a commitment in writing to commence actions to install a Baghouse to control over-limit Total Solids Particulates discharges from the Finafire coal-fired Boiler early in 2004 (Attached – Company letter of 9/04/2003); and

E24 & H18-H21, H37, H38: GELITA Australia Pty Limited is to forward a written report concerning the outcomes of completed EMP No.1157, "To ensure that the GELITA Australia Pty Ltd [formerly Leiner Davis Gelatin (Aust)] Effluent Disposal System will be operated in a long term environmentally and economically sustainable manner", together with supporting material to validate recommendations arising from the EMP process and including any amendments requested to Company Environmental Licence SR0722; and

B17 & H10: GELITA Australia Pty Limited is to negotiate with the EPA concerning the wording / intent of Biofilter licence conditions, to take account of ambient, fugitive odour levels present in the immediate surrounds that could impact on results of the equipment performance outcome.

Licence Conditions Module:

Condition Number(s)	Details of non-compliance(s)
B7 & H9	Over-limit Total Solids Particulates discharged from Finafire coal-fired Boiler.
E24 & H18-H21, H37, H38	Over-limit treated wastewater release quality characteristics.
B17 & H10	Influence of ambient odour levels on Biofilter performance measurement results.

RECOMMENDATION:

NO RECOMMENDATIONS ARE OFFERED, AS CONDITIONS CURRENTLY INCLUDED IN SR0722 ARE CONSIDERED ADEQUATE TO ENSURE SUSTAINABILITY OF THE GELATINE MANUFACTURING ACTIVITIES CARRIED OUT ON SITE AND TO SAFEGUARD THE ENVIRONMENTAL INTEGRITY OF THE SURROUNDING SENSITIVE RECEPTORS.

Signoff Sheet:

Additional Comments:
<u>NIL</u>
Recommendation:
<u>NIL</u>

Additional Comments:

Adoption of Report:
This report accurately represents the issues and outcomes of this site inspection.

Inspecting officer

Don Shackel

Signed

Date

Inspecting officer

N/A

Signed

Date

Comments and Recommendation:

Supervisor

Doug Carey

Signed

Date

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GELITA Australia Pty Limited, Gelatine Manufacturing Plant, "Sunny Hills", Flood Road, Josephville via Beaudesert, Qld 4285. Site audit & inspection conducted on Wednesday, 6 October 2004, by Don Shackel & Adam Burt of the EPA Southern Region with Cameron Smeal, Environmental Officer for GELITA Australia.



Photo. 1: New VITOX pump unit and 75HP electric motor awaiting installation at the Aerobic Pond as part of the upgrade of the oxygen delivery system to the pond. Enclosed "Scutch" transport skip in background.



Photo. 2: Previous location of the "Stables" chemical store, demolished to make way for a new site Workshop facility.



Photo. 3: Sand media of the Hybractor Technology Biofilter showing patches of the "Flowers-of-Sulphur" effect sublimed on the surface. The media box was recently upgraded and painted.



Photo. 4: The Hybractor Technology Biofilter gas supply fan was replaced in December 2003 with a sealed unit to obviate leakage of odorous and corrosive air to atmosphere. Such on-going maintenance measures have significantly minimised local odour leakage, compared to previous audits/inspections. Portion of the upgraded Biofilter media box is visible at the top right.



Photo. 5: Further gas supply line maintenance completed to minimise odorous gas releases to atmosphere, showing new expansion joint sleeves (black), together with a replaced/repaired line bend (centre). Many metres of corroded cable trays and covers (bottom, left) have also been replaced throughout the effluent treatment plant as a safety "due diligence" measure.

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Photo. 6: Chemical storage tank bund being inspected during the audit. While the external bund condition appeared sound, the internal epoxy wall cover had begun to breakdown (Photo. 7).



Photo. 7: View of the internal bund wall showing the early breakdown of the epoxy coating. While the repair/upgrade job has been scheduled for resealing work, to date, no leakage to the external soil environment has been apparent.



Photo. 8: Balls of fat deposited around keratin cores removed from the primary effluent stream to the Hybractor Primary Digester, using a Trommel Screen Unit.



Photo. 9: Aerobic effluent treatment pond showing air entrainment supply hose lines from the air Blower Unit aerating the pond contents. During the formal site audit and inspection, the Aerobic Pond was noted to be an "ideal" chocolate brown colour (C Smeal).



Photo. 10: Another view of the Aerobic effluent treatment pond showing the VITOX oxygen injection/sparge line. The Company has secured three (3) floating Dissolved Oxygen (DO) Meters at the end of the line tray towards the centre of the pond (centre, left) to provide continuous readout/backup of pond DO results. Three (3) units are employed using the theory that should one (1) unit fail a "backed-up" unit remains, allowing monitoring coverage at all times, of the critical oxygen levels being achieved in the pond. The Aerobic Pond was stated to be in a "healthy" condition, according to daily monitoring data generated by the Company. Continuous, accurate DO results ensure critical pond aerobic conditions are maintained, while minimising wastage/costs associated with operation of the VITOX system.

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Photo. 11: View of the "old" VITOX oxygen delivery plant (top, centre), on the bank of the Aerobic Pond, due for replacement with the "new" unit shown in Photograph 1.



Photo. 12: Recently upgraded heat exchanger units showing the absence of any leaked effluent material onto the areas below.



Photo. 13: Experimental fat removal unit using induced air entrainment principles to physically remove tallow from the effluent stream.



Photo. 14: GELITA is currently trialling zeolite in the Aerobic Pond to determine if the material will reduce the ammonia content of the effluent. Zeolite is also claimed to assist in odour suppression, reduction of chloride levels and the binding of nitrogen.



Photo. 15: Methane gas flare plant burning off materials produced by the Hybractor Primary Digester unit. This material has been considered as a potential energy resource for an on-site co-generation project, which application remains "on hold" at this time.

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Photo. 16: Hybractor Primary Digester belt press sludge being stockpiled under cover, prior to being included in on-site composting operations. Only minor, local fugitive odour is associated with this material.



Photo. 19: Compost manufacturing dry raw materials storage area showing sawdust, fly ash, paper ash stockpiles. Any runoff from this area is also directed to the swale system indicated in Photograph 18.



Photo. 17: View of covered composting windrows set out on the asphalt-sealed compost mixing pad/area.



Photo. 20: View of the new compost turning equipment and dedicated tractor now in use is producing a more consistent and predictable end product.



Photo. 18: Corner area of the asphalt-sealed compost manufacturing pad showing formed perimeter runoff drainage swale which directs contaminated stormwater to a series of in-line sediment traps and "catch dams" prior to processing in the Aerobic Pond of the effluent treatment system (Photos. 25, 28).

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Photo. 21: Raw materials placed for a compost mixing "batch" showing a circular belt press sludge, sawdust, fly ash, paper ash and green waste mixing "dam" with wet/semi-liquid "skutch" unloaded into the centre for mixing/incorporation with the dry solids. "Scutch" is transferred from the gelatine plant using a tractor-hitched enclosed tanker.



Photo. 24: Commencement of a compost windrow mixing "run". The "swing arm" mounted at the rear of the compost mixing unit (centre, right) can be positioned to place and remove covers from the windrows prior to mixing/aeration (Photos. 17, 23).



Photo. 22: Raw materials placed for a compost mixing "batch" showing a circular belt press sludge, sawdust, fly ash, paper ash and green waste mixing "dam" prior to "scutch" addition to the centre "dam" area.



Photo. 25: An example of a sediment detention basin, which accepts runoff from the formed perimeter drainage swale surrounding the asphalt-sealed composting area (Photo. 18), prior to overtopping to the downstream "catch dams" (Photo. 28).



Photo. 23: New compost mixing unit and dedicated "slow-crawl" geared tractor recently acquired by GELITA.

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Photo. 26: "Finished" compost maturing stockpile accumulated on a "packed clay" storage area adjacent to the mixing pad awaiting use. No odour was noted with this material. Runoff from this area also drains to the dedicated surrounding swale, sediment basin and "catch dam" system on site.



Photo. 27: A four (4) row planting of Vetiver Grass with the long-term purpose of stabilising the earth bank separating the "finished" compost storage area from the asphalt-sealed compost manufacturing pad. Vetiver Grass is also highly effective at utilising nutrients and other contaminants and as such the application is opportune.



Photo. 28: Main "catch dam" servicing the composting area to collect runoff directed by the perimeter drainage and sediment basin system (Photos. 18, 25) for holding prior to processing in the Aerobic Pond of the effluent treatment system. This facility was noted to be empty during a subsequent "drive-tour" of the site.



Photo. 29: Main "catch dam" servicing the hardstand surrounds to the gelatine processing plant, which acts as a "first-flush" catchment holding pond, prior to processing in the Aerobic Pond of the effluent treatment system. The facility was noted to be holding minimal accumulated material at the time of the site inspection.

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Photo. 30: New Hide Storage Shed recently put into use at Josephville. The company proposes to progressively transfer "back-up" material from rental storage in Redbank to this on-site facility. The new store is situated between the belt press shed (left) and the composting operation (far right) and below the large Biofilter (centre).



Photo. 32: Confirmation of waste contractors operating on site: J J Richards and Spotty Bins.



Photo. 31: Front view of the new Hide Storage Shed showing stormwater diversion, roll-over bunds surrounding the front of the facility. The composting operation is visible in the distance at the top left corner.



Photo. 33: Example of a site Spill Kit showing adequately stocked "clean-up" materials and unit servicing log attached to the inner surface of the lid.

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Photo. 34: Roofed and bunded chemical drum storage area on the northern external wall of the gelatine extraction/processing plant. The gully trap in the left, bottom corner of the photograph drains to the effluent treatment system.



Photo. 36: Effectively bunded bulk chemical and ammonia storage tanks at the rear of the gelatine extraction/processing plant.



Photo. 35: Bed of the large Biofilter unit treating gelatine plant processing air, which was rehabilitated early in 2004. Optimum internal humidity conditions are maintained using top laid "soaker" hoses. Further maintenance work is to be undertaken on the fan housing and surrounding drainage works, during the upcoming 2004/2005 shutdown.



Photo. 37: Finafire coal-fired Boiler with the new Bag House unit located on the tower, to the rear and right of the Stack.

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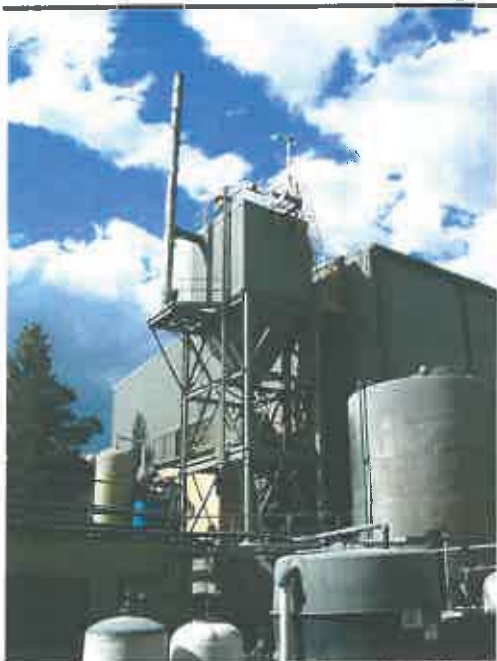


Photo. 38: Second and side view of the Finafire coal-fired Boiler and new Bag House unit, located on the tower to the right of the Stack (top, centre)



Photo. 39: Boiler surrounds general work area. Boiler water treatment chemicals are held on banded pallets on the floor deck of the tower, from which this photograph was taken (Photo. 37).



Photo. 40: The yellow roll-over bund separates the "dirty" area gully trap (upper) servicing access to the "scutch" load-out tank and draining to the effluent treatment system from the "clean" access roadway area stormwater gully trap (lower) draining to the plant surrounds "catch dam" (Photo. 29). A sump pump services the "dirty" area gully trap.



Photo. 41: Following completion of an in-house salted hides washing trial, the wash liquid "catch"/"evaporation" dam has now dried out leaving minimal residue, which includes salt and tallow material for reuse or burial.









6/10/2004

Minutes-Community Consultative Committee Meeting

Date: Thursday 14/07/04 4pm

Chairman: Mr Dave Cockburn – Councillor Beaudesert Shire Council

Attendees: Mr Alan Bermingham
Mr Andrew Grodecki - LARCA, LACA, DNR
Mr Roger Seach - General Manager Gelita
Mr Cameron Smeal - Environmental Officer Gelita

Minutes: Ms Karen Brown - Environmental Technician Gelita

Apologies: Mr Ed Youll
Mrs Helen Youll

Venue: Gelita Office meeting room

Agenda was as follows:

1. GELITA welcome.
2. Chairman's opening remarks.
3. Previous meetings minutes and action items.
4. Environmental performance review -
 - a: Farm study -completed
 - b: Compost operation-compost now saleable
 - c: New licence conditions-(outcome based).
5. Complaints received.
6. GELITA: action re: complaints received.
7. General Business.
8. Date and time of next meeting.

Welcome

- Roger reinforced the Gelita groups strong corporate commitment to environmental principles from the top of the organisation.
- Roger thanked the committee for their participation and hoped that the relationship between the company and the community over time would continue in the neighbourly tone of the past few years.
- The constructive feedback and the support received has been extremely valuable.

Chairman's opening remarks

- This was the third CCC meeting for this year and the second for Dave Cockburn as Chairman.
- Dave gave a brief acknowledgement of the ongoing support given by GELITA for the Lead-on youth program.

Previous meetings minutes and action items

- Previous minutes accepted as true and accurate record.
- No specific action items

Business arising from Minutes

- No business from previous minutes.

Environmental performance review

- Discussion of problems early in the year with odour.
- 5 incident reports were submitted to the EPA. This was a disappointing outcome for GELITA.
- The incidents were related to high voltage circuit problems. Significant work was required to replace faulty equipment. The spate of electrical storm damage across South East Queensland during the start of the year had resulted in restricted availability of specialised contract teams and the items required to rectify the problem. This delay was beyond GELITAs control and contributed to pond problems and odour.
- In order to reduce potential for odour generation GELITA limited production. This resulted in was a build up of rotting raw material because of the extremely high ambient temperatures.
- Experts from ESI and UQ waste water centre are being consulted to assist with problems.
- External training in waste water for relevant personnel is being undertaken
- Farm Study
 - Certain aspects complete but the farm study is an ongoing process.
 - EMP completed- new licence that is outcome based. One of the first outcomes based licences issued by EPA.
 - 13 Soil types – irrigation according to the soil types. Previous licence – irrigation based, on volume irrigated, not taking into account soil types.
 - Original licence conditions were not sustainable therefore change was needed.
- Compost
 - Expanded operations with goal to utilize all sludge produced on site.
 - Moving toward zero waste from site.
 - New windrow turner and cover pulling machine due on-site in September.
 - Compost has a higher nutrient value than chicken manure and is pathogen free.
 - Process means compost reaches temperature of 50-70 degrees C for 2-3 weeks which eliminates pathogens and weeds.
 - There have been some odour issues with one complaint received.
- New Licence
 - Soil has been recognised as the final treatment for irrigated effluent.
 - Previous licence conditions set limits based on a “snapshot” of effluent characteristics.
 - EPA Annual Audit takes place in November. EPA can look into anything at GELITA.
 - Don Shackel – EPA Case Officer for the GELITA site, separate officer for Bushes.
 - Annual Returns to the EPA have to be submitted each year to demonstrate licence compliance.

Complaints received

- Complaint – Section 78B(1) Liz Richards 2 July 2004 – Odour
 - External Consultant to investigate gases on site.
Point source identification using Gas Chromatography.
 - There are many sources of odour in the Beaudesert area – Feedlot, Industry, Farming Practices – chook manure. Need to identify source - finger print of site odours on Chromatograph. Minimize odours – through identification of odours from different processes – mapping of odours on site.
 - Wind direction by itself is not adequate – Ausplume Program – Management of air.
 - Odour units – 100 odour units (high) rose bush 100 very subjective.
 - Hotline – The company maintains a Hotline number for members of the community to call should there be any environmental incident associated with the operation of its plant.
 - Calls to this number are forwarded directly to the EPA, Beaudesert Shire Council, GELITA and a Security firm to make immediate investigation if required.
 - This number has been in place since the factory opened and is still available. The Community Hotline number is 1800 068 191 and is available 24 hours a day.

GELITA action re: complaints received

- EPA advised of complaints.
- Incidents investigated and remedial actions implemented as required.

General Business

- Vetiver grass trials designed to maximise nitrogen uptake from irrigated effluent. Vetiver slows down in winter so is interplanted with rye grass to ensure all year uptake. Problem with this years trial with rye grass has been that native ducks have been eating the rye.
- Platypus' have been sighted on riverbank on GELITA site this year.
- An agro-forestry plot of 30 hectares on the sodic soils is programmed to start this year. The plot will be located along the rail line and will provide increased amenity for neighbours through provision of a "screen" from the factory site.
- Cattle will be excluded from the plot for the first few years but will be re-introduced at a later date for weed control purposes.
- The agro-forestry venture will offer flexibility in irrigation capacity and will complement the vetiver plantings.
- It is expected that the plot will be irrigated with effluent for the first 2 years and then gradually "weaned" to bore water before becoming a rainfed plot. This will allow "flushing" of any salts that have accumulated over time as a result of previous irrigation.
- The water restrictions that occurred as a result of Drought Management Strategy during the last year has impacted on quality and productivity and sustainability for the company.
- The site has increased recycled water use and minimised water use. The site has the best water use figures in the Asia Pacific Afric Group. The figures reflect a 25 % lower water use than the next best best gelatine plant within the group.

- GELITA acknowledged irrigators problems incurred during drought management period.
- Increased use of recycled and bore water resulted in higher concentrations of salt discharge in final effluent load. There was a commensurate increase in risk associated with this problem. The importance of the irrigation management program was thus illustrated.
- Industry and high priority users under the DMS have reasonable water security under the proposed changes to the IROL.
- GELITAs program of recycling means that some water would be reused 2-3 times before irrigation where possible.

Drought and Water

There was general discussion between Councillor Cockburn and community members regarding water supply and attendant issues. These items do not reflect the core business of the CCC and are noted as points of interest only. GELITA does not accept responsibility for any inaccuracies in these points of record.

- A community perception that the Maroon dam water was not managed properly and that better management needed was noted.
- Irrigators – 10% of allocation but paying for full allocation. They can buy 10% credit water (not from Maroon) for 3 times the price. Sunwater - selling all water in dam down to dead level.
- Critical time for irrigators.
- Problems for everyone if bores within 50 Metres of river are cut off.
- Water harvesting in peak flow periods requires large pumping capacity – maintenance of water harvesting is expensive.
- Bromelton off stream storage – Swan Gully 1500 ML storage – not nearly enough to solve problems and price of the water could only be afforded by industry.
- Sandy Creek as storage area has been discussed and dismissed as practical option.
- Options at head of Logan and Running Ck? Need to be fully explored.
- SE Qld water study – this was a draft document that had generated significant upset at community meetings of irrigators.
- Glendower dam site has been scrapped as an option.
- State Government would commit no money on infrastructure until study is completed.
- Irrigators wanted a commitment from council to go to state Government.

Next Meeting

The date for the next Community Consultative Meeting was set at Wednesday 4 pm 13th October 2004.

6/10/2004

Draft

GELITA (Asia Pacific Africa) Beaudesert: Preliminary Licence Compliance Report

October 2004

INTRODUCTION

The current licence conditions include monitoring of soil and effluent to complement a best practice management program. The following statements are taken from the EMP submission to the EPA made in November 2003.

"The parameters to be monitored and the frequency of monitoring in the Contaminant release Area Monitoring Program shall be in accordance with the parameters and monitoring frequency prescribed in schedule H Table 3.

Schedule H Table 3

Element	Sites	Method	Frequency
Soil Salinity	Within soil units 2a, 2b, 2c, 2d, 2e, 3a, 3b,	Soil sampling and analysis for pH (1:5), EC sat, Cl, NO ₃ , SO ₄ , effective CEC, exchangeable Ca, Mg, Na,	annual
Soil infiltration and hydraulic conductivity	Within soil units, 2a, 3b, 2e	Field instrumentation	annual
Nutrient Status	As Above	Soil Sampling and analysis for Total N, NO ₃ -N, NH ₄ -N, Acid extractable P	bi-annual
Groundwater	Relevant bores with water table within soil units listed above	Tape measurement and EC. Water laboratory analysis	bi-annual
Effluent	Pump out pond outlet	Water laboratory analysis,	monthly

The existing licence conditions include soil and water monitoring requirements. The schedules above are proposed as a continuation of the original conditions and have been extended to meet the requirements of the EMP. *The combined table above is based on the following detailed schedules of monitoring and irrigation response as detailed below.*

Soil infiltration and hydraulic conductivity

Soil Map units for monitoring. 2a, 2b, 2c, 2d, 2e, 3a, 3b, 3d	Sampling Methods	Acceptable Range	Irrigation Response	Testing Frequency
Infiltration and hydraulic conductivity	FullStop Monitor time for distribution of measured amount of applied effluent of SAR 12 mmol/L ^{0.5} through soil to 50cm depth at saturation using constant head infiltrometer.	20 mm/ hour at SAR 12 mmol/L ^{0.5} on dermosols, Soil Map Unit 2a , 2b, 2c 1mm/ hour at SAR 12 mmol/L ^{0.5} on vertosols/sodosols Soil MapUnits 2d, 2e, 3b, 3d, 3a	Irrigate to 50% soil water deficit based on Fullstop indicators placed at 10cm and 50 cm depths.	Annual

Nutrient Status

Soil Salinity

Soil units 2a, 2b, 2c, 2d, 3a, 3b, 3d	Soil solution sampling via FullStop Soil core sampling depth 0-120cm.	Acceptable Range at 10cm depth	Acceptable Range at 50cm depth	Acceptable Range at 120cm depth	Irrigation response	Testing Frequency
pH	(1:5) solution soil extract	4.5-7.0	5.5-7.5	6.0-8.5	pH <5.0 add lime/compost. Field pH test response. pH >8.0 stop lime dosing. Flush neutral pH water.	Annual
ESP (% calculated from sodium and cation exchange capacity)	soil	10	15	20	Flush bore water	Annual
SAR (Calculated from calculated from soil solution ratios: Ca ⁺⁺ , Mg ⁺⁺ Na ⁺)	solution	15	20	40	Flush bore water	Annual
EC _{sat} (dS/m)	solution	3	4	5	EC >5 on clay flushing water/shandy	Annual
Cl ⁻	solution	0-150 mg/kg	0-450 mg/kg	0-600+ mg/kg	Flushing water/shandy	Annual
NO ₃ ⁺	solution /soil	120mg/kg	100mg/kg	20mg/kg (soil sample)	NO ₃ > 100mg/kg at 50 cm irrigate only flushing water. Monitor to depth 150cm Increase pH irrigation water.	Annual
Total sulphate sulphur	Solution- (includes gypsum precipitate)	4000mg/l	5000mg/l	6000 mg/kg (soil sample)	Calcium amendment	Annual

Nutrient	Acceptable Range for Soil Map Units at 10 cm Depth						
	2a	2b	2c	2d	2e	3a, 3d	3b
Total N (%)	0.1-0.25	0.1-0.25	0.1-0.3	0.2-0.5	0.2-0.5	0.2-0.4	0.2-0.5
NO ₃ -N (mg/Kg)	10-120	10-120	10-120	10-120	10-120	10-120	10-120
NH ₄ -N (mg/Kg)	20-450	20-450	20-450	20-450	20-450	20-450	20-450
Acid Extractable P (mg/Kg)	10-450	10-450	10-450	10-450	10-450	10-450	10-450
Bicarbonate Extractable P (mg/Kg)	10-100	10-100	10-100	10-100	10-100	10-100	10-100

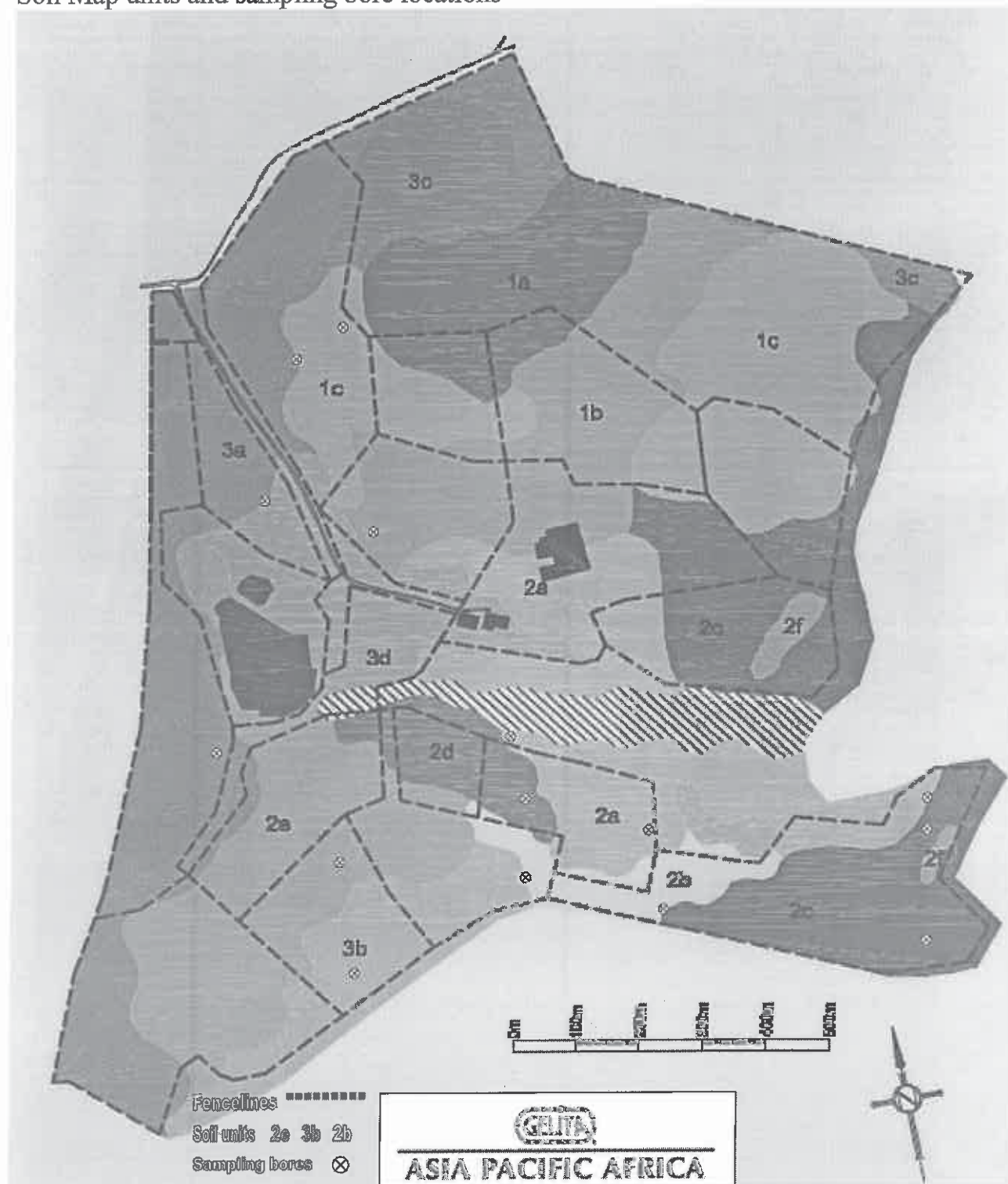
The schedules above are proposed as a continuation of the original licence conditions and have been extended to meet the requirements of the EMP. Soil sampling shall be conducted to 1.5 metre depth across soil units on an annual basis to establish benchmarks and monitor movement of "salts" and nitrogen through soil profiles. Solution for analysis shall be drawn from FullStop wetting front detectors at 10 and

50 cm for irrigation scheduling and also at depths of 1 and 1.5 metres for soil solution extracts.

Soil Order	Description	Soil Unit	Proposed irrigation treatment
Endosol	Basalt, convex crest. Shallow stony medium clay. Non-irrigation zone.	1a	This area is not suited to any irrigation. Not monitored.
Dermosol	Basalt midslope shelf. Shallow stony light clay pH 8.5 at depth. Irrigation zone.	1b	This area has been subject to irrigation in the past and future effluent irrigation shall be progressively reduced to zero as the plan is implemented. Minimal monitoring required.
Dermosol	Basalt lower slope. Shallow stony brown medium clay. Irrigation zone.	1c	This area has been subject to irrigation in the past and future effluent irrigation shall be progressively reduced to zero as the plan is implemented. Minimal monitoring required.
Dermosol	Alluvium, relic and current levees. Deep sandy loam. pH neutral at depth.	2a	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Dermosol	Alluvium dissected levee. Deep clay/sandy loam. pH neutral. Irrigation zone.	2b	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Dermosol	Alluvium, backplain. Deep layered sandy clay loam. Alkaline pH at depth. Irrigation zone.	2c	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Vertosol	Basaltic alluvium, closed depression. Black cracking clays. Alkaline. Irrigation zone.	2d	This zone will be progressively planted to vetiver and receive effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Vertosol	Basaltic alluvium, relic backplain. Dark cracking medium clays. alkaline. Irrigation zone.	2e	This zone will be subject to drainage channels and the soil flushed. It will receive some effluent irrigation as the plan is implemented. Over time the zone will be entirely excluded from effluent irrigation. Intensive monitoring as per table 3 required.
Dermosol	Alluvium dissected relic levee. Brown sandy clay loam. Irrigation zone	2f	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Characteristics of this dermosol are typical of the other dermosols on site. This soil type limited in area. Intensive monitoring as per table 3 not required.
Sochosol	Walloon sandstone, relic terrace. upper convex slopes. Brown clay loam, mottled yellow subsoil. neutral to alkaline. Irrigation zone.	3a	This zone will be subject to irrigated agroforestry and the soil flushed. It will receive some effluent irrigation as the plan is implemented. Over time the zone will be entirely excluded from effluent irrigation. Intensive monitoring as per table 3 required.
Vertosol	Walloon siltstone, relic terrace. Brown clay loam, yellow brown clay. alkaline. Irrigation zone.	3b	This zone will be retained as irrigated pasture and receive effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Vertosol	Mixed basalt/Walloon sediments. Organic black over red brown clay. alkaline.	3c	This area is not suited to any irrigation. Not monitored.
Vertosol	Colluvium basalt/Walloon sediments. relic gully infill. Brown clay, alkaline.	3d	This area is not ideal for effluent irrigation. It will continue to receive some effluent irrigation as the plan is implemented. Over time the zone will be entirely excluded from effluent irrigation.

Soil units for monitoring purposes are described in this table and presented in map format below. Fence lines and groundwater monitoring bores are also detailed on this map.

Soil Map units and sampling bore locations



The bores listed for monitoring are detailed in the map above. Therefore Condition H33 should be expanded to include the additional bore monitoring sites proposed by GELITA.

The proposed Schedule H Table 3 does not seek any changes to the parameters within the current licence conditions regarding groundwater quality monitoring other than a reduced frequency from bi-monthly to bi-annual. Condition H34 c would require amendment to reflect this proposed change.

AMENDMENT COMPLETE
8/06/2004

Groundwater monitoring parameters and reporting requirements are further proposed to constitute an integral aspect of the Annual Audit process. This process will comprise an analysis and interpretive report of the monitoring program by an external consultant; and shall include an annual modelling exercise utilising MEDLI. The MEDLI model will be a major predictive tool in long-term management of the site and shall form part of the annual reporting requirement.

GELITA will also continue to regularly monitor the following effluent quality characteristics for irrigation management purposes as required by our ISO 14001 procedures. The proposed changes to the licence are designed to achieve an outcome based reporting format and do not preclude the continuation of the GELITA waste-water monitoring program.

The following parameters are required for data input into the MEDLI model and shall continue to be collected and collated. All such records are maintained on-site indefinitely.

Irrigation Water Quality Monitoring

pH	EC	COD (mg/L)	TSS (mg/L)	BOD (mg/L)	TN (mg/L)	TDS (ppm)	NOx (mg/L)
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The initial monitoring program recommended in the Environmental Impact Statement on soil and water monitoring (GHD, 1992) was implemented as policy in the Company (Leiner Davis Gelatin Australia) Environmental Management Plan, 1994.

The revised program of irrigation scheduling (Hydroplan report, September 2003) is aimed to sustain soil conditions for productive growth according to soil properties as determined in the Land Management Study Phase 1, Task A- Soil Sampling and Analysis as reported above.

To meet the requirements of the revised licence proposal more specific sampling will be required to monitor soil conditions according to soil and crop type. The sites for sampling will follow from this report and will be taken from similar locations for comparison over time.

Additional soil and ground water sampling for determining soil behaviour in relation to infiltration and hydraulic conductivity will be monitored on an annual basis during the seven years following establishment of the vetiver/ryegrass production unit.

These data will be used to validate the predictive outcomes of the MEDLI program upon which the vetiver/ryegrass program is based. Corrective actions will be taken if values are deemed to be outside sustainable limits.

This will be effected by:

- a) modifying the leaching fraction and
- b) by reducing salt load in irrigation water by shandyng with bore water and
- c) maintaining physical soil properties by mechanical intervention (eg ripping) and
- d) controlling nitrogen loads where necessary by chemical means.

These analyses will be used in conjunction with wastewater treatment data to assess compliance with the relevant licence conditions proposed in this submission. “

SAMPLING PROGRAM 2004

The sampling program to establish preliminary baseline data for the current monitoring program began on 29 January 2003. Samples were taken by hand auger to depth from sites within the mapped soil units which were located with GPS coordinates for future reference. Further sampling will be effected to meet the criteria of depth for future monitoring. The samples were submitted to the accredited analytical laboratory, Food and Agriculture Laboratories Australia for analysis. The data are presented in Table 1. below.

These preliminary data are within the acceptable ranges deemed for Soil Salinity and Nutrient Status for the specified soil map units (see Tables under Schedule H Table 3 above). Field instrumentation (FullStop Wetting Front Detectors) are yet to be installed and so soil infiltration and hydraulic conductivity data are not available at this stage.

Ground water analyses obtained from samples in September 2004 have been found to be in error. The plesometer boreholes installed in 1992 have variously deteriorated due to age. Later boreholes to replace some of these earlier boreholes in 2000 have also been damaged by farm operations and stock. Consequently some of the bores which are strategic to the new monitoring program are unserviceable. (see photographs attached).

The design of the plesometer above ground casing and caps is unsatisfactory because caps have been knocked off by cattle rubbing against them. This has resulted in the ingress of hair and effluent resulting in contamination of the ground water. This was observed in preliminary analyses even after standard purging and sampling procedures. Consequently the data was inconsistent and did not reflect the influence of management on groundwater conditions.

It is recommended that a refurbishment program is implemented to rectify the situation to allow for credible licence compliance monitoring.

TABLE 1.
GELITA BASELINE DATA
2004

Site/ Profile Depths	pH 1:5	E.Cond.	Chlorid e	CEC	Ca ++	Mg ++	Na +	K +	Exch.ac id	Exch. Al
ID 0493647 6899828 haplic mesotrophic brown dermosol Sampled 7 April										
2a 0-10	6.5	0.117	71	24.8	4009	445	161	171	0.01	0.01
2a 10-30	6.2	0.093	95	30.8	4360	908	286	133	0.04	<0.01
2a 30-60	6.3	0.306	178	37.5	4982	1304	343	166	<0.01	<0.01
2a 60-90	7.1	0.18	332	39.4	4987	1525	346	171	<0.01	<0.01
2a 90-120	7.1	0.601	518	46.1	6067	1673	366	171	<0.01	<0.01
2a 120-150	7.1	0.466	415	46.5	6308	1599	346	139	<0.01	<0.01
ID 0493306 6899766 melanic mesotrophic brown dermosol Sampled 31 January										
2b 0-10	4.7	0.18	66	10.9	1405	81.9	134	143	2.3	1.8
2b 10-20	4.7	0.306	28	13.6	1749	97.6	160	161	3	2.4
2b 20-30	4.5	0.544	66	15.1	1883	128	205	170	3.3	2.7
2b 30-60	5.1	0.62	161	18.9	2624	344	372	132	1	0.7
2b 60-75	6.7	0.475	244	19.6	2612	476	510	115	0.1	0.08
ID 0493644 6899686 haplic eutrophic brown dermosol Sampled 31 January										
2c 0-10	4.5	1.126	131	19.6	2986	163	412	106	1.3	1
2c 10-20	4.6	0.96	180	20.2	2871	223	476	115	1.6	1.2
2c 20-30	4.8	1.256	730	25.5	3574	383	681	118	1.2	1
2c 30-60	5.5	1.39	351	32.4	4331	807	868	95	0.08	0.04
2c 60-75	6.6	1.093	655	30.8	3621	1076	831	96	0.04	0.04
ID 0493471 6900134 haplic eutrophic brown dermosol Sampled 7 April										
2c1 0-10	4.5	0.531	225	24	3316	291	410	318	3.9	3
2c1 10-30	4.8	0.63	202	30	4322	501	403	252	1.6	0.8
2c1 30-60	6.6	1.27	340	47	6344	1377	858	178	<0.01	<0.01
2c1 60-90	7	1.02	593	48	6120	1649	865	133	"	"
2c1 90-120	6.9	0.95	546	45	5458	1580	836	165	"	"
ID 0492665 6899731 episodic self mulching black vertosol Sampled 7 April										
2d 0-10	4.9	0.24	154	23	3156	388	259	482	1.67	1.12
2d 10-30	4.9	0.22	189	44	3160	493	248	265	2.38	1.32
2d 30-60	6.9	0.61	165	41	5323	1340	745	199	0.04	<0.01
2d 60-90	6.4	0.99	545	49	5628	1948	1058	166	<0.01	"
2d 90-120	7	1.09	688	50	5588	2055	1070	168	"	"
2d 120-150	6.4	0.9	621	43	3780	1459	713	122	"	"
2d 150-160	7	0.9	558	37	4388	1458	723	133	"	"
ID 0492948 6900059 episodic epipedal brown vertosol Sampled 31 January										
2e 0-10	4.6	2.04	589	24	3006	392	819	204	1.42	0.95
2e 10-20	5.6	0.79	376	16	1595	398	610	102	1.67	1.32
2e 20-30	5.1	1.15	557	26	2445	856	1085	93	1.8	1.41
2e 30-60	5.9	1.68	1039	38	3258	1645	1781	77	0.08	<0.01
2e 60-90	6.1	1.49	1390	42	3349	1943	2107	87	0.08	"

ID 0493638 6900236 brown
dermosol

Sampled 31
January

2f 0-10	6	0.19	85	6	46	485	225	218	0.04	<0.01
2f 10-30	6.2	0.29	117	30	4282	859	367	154	<0.01	"
2f 30-60	6.7	0.41	189	25	3269	789	358	112	"	"
2f 60-90	6.8	0.34	212	20	2578	646	299	97	"	"
2f 90-120	6.8	0.37	308	21	2715	688	274	115	"	"

ID 0492422 6899593 mottled subnatic
yellow sodosol

Sampled 31
January

3a 0-10	4.7	1.97	718	30	3614	681	991	186	1.34	1.04
3a 10-20	4.8	2.27	970	45	4762	1431	1473	135	3.09	2.61
3a 20-30	5.1	2.11	1174	49	4742	1964	1721	143	1.67	1.28
3a 30-60	5.6	1.94	1847	49	4010	2449	1830	149	0.42	0.25
3a 60-90	5.9	1.69	1870	48	3759	2571	1747	164	0.084	<0.001
3a 90-100	6.2	1.43	1668	41	3056	2234	1489	174	0.042	"

ID 0492955 6899797 epiacidic epipedal
grey vertosol

Sampled 31
January

3b 0-10	4.6	1.99	506	31	4164	428	860	372	1.67	1.28
3b 10-20	4.9	1.95	889	30	3480	657	1282	218	1.17	0.91
3b 20-30	5.5	1.98	1274	40	4083	1285	1804	203	0.25	0.12
3b 30-60	6.1	2.12	1735	49	4296	2214	2095	147	<0.001	<0.001
3b 60-90	7.1	2.12	2128	69	6665	3097	2338	145	"	"

Signed: Dr B.M Schafer

5 October 2004

Don Shackel

From: Cameron.Smeal@gelita.com
Sent: Tuesday, 26 October 2004 11:58 AM
To: don.shackel@epa.qld.gov.au
Subject: Re: MONITORING INFORMATION

COPY

Don
re:Fullstop. The units are on order and we expect to have them installed and operational by the end of November.
Re:piezo refurbishing- we are awaiting a site visit by Dover and sons on Thursday next week to assess our requirements and offer a quote to undertake the work. I will advise immediately work is completed.
Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442

6/10/2004

		POP			BSD															
		pH	EC	COD (mg/L)	pH	EC	TDS (ppm)	TSS (mg/L)	COD (mg/L)	BOD (mg/L)	Total P (mg/L)	PO4 (mg/L)	NOx (mg/L)	TN (mg/L)	EX-TN (mg/L)	S2- F (mg/L)	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	
10/9/03	Wed	6.97	6870	164	6.51	6850	3405	60	180	15	0.89	1.4	15	300	290	0	580			
17/9/03	Wed	7.38	7410	203	6.42	7000	3510	70	178			1.7	15.6	310		0				
23/9/03	Tue	7.6	7000	277	6.14	7010	3613	50	183			1.9	14.5	320		0				
1/10/03	Wed	6.8	6960	223	5.34	7030	4614	50	204			1.8	15.4	314		0				
9/10/03	Thu	7.31	6880		5.49	6830	4424	50				1.4	15			0				
14/10/03	Tue	7.46	7060	242	5.8	6830	3957	60	237	15	1.3	1.3	15.7	312	310	0	600	410		
22/10/03	Wed	7.3	7100	252	6.14	6950	4022	70	254			1	21.4	316		0				
28/10/03	Tue	7.18	6990	247	6.67	6940	3880	50	244			1.2	18	328		0				
4/11/03	Tue	7.34	6890	258	6.4	6940	4494	50	243			1.3	18	310		0				
11/11/03	Tue	7.19	6930	290	6.39	6930	4563	60	236	18	0.1	0.7	16	328	200	0	630	380		
18/11/03	Tue	7.11	7020	287	6.18	6970	4580	70	269			1.1	15	308		0				
25/11/03	Tue	7.53	7200	289	5.2	6990	4449	120	291			0.8	13	312		0				
2/12/03	Tue	7.42	7380	330	5.37	7060	4601	110	223			0.7	8.4	336		0				
9/12/03	Tue	7.11	7370	265	5.3	6850	4017	80	259	14	0.95	0.6	10	292	260	0	610	390		
16/12/03	Tue	7.83	7000	175	5.28	6750	4064	90	272			0.6		272		0				
23/12/03	Tue	7.5	7040	207	5.79	6860	4354	80	230			0.5	4	268		0				
30/12/03	Tue	7.03	7640	196	5.85	6920	3632	10	216			0.5	1.9	256		0				
6/1/04	Tue	6.75	8810	241	5.55	7080	3898	60	188	14	1.1	0.2	2.1	274	260	0	630	390		
9/1/04	Fri	6.85	8500																	
13/1/04	Tue	7.21	8780		6.32	5930	4103	80	270			0.6	1.2	280		0				
20/1/04	Tue	7.09	7550	170	6.28	6390	3452	60	166			3.6	2.6	214		0				
27/1/04	Tue	7.64	7760	283	6.91	6200	4069		239			2.9				0				
3/2/04	Tue	7.33	7610	203	7.2	6390	3448	40	157			3.6	2.1	232		0				
12/2/04	Thu	7.2	6760	174	7.06	6390	3293	40	153	9	1.3	2.7	9	244	200	0	620	350		
17/2/04	Tue	7.09	7170	306	6.84	6370	3543	40	141			2.8	11	236		0				
25/2/04	Wed	7.55	6910	214	6.94	6390	3464	30	178			2.1	6.9	252		0				
2/3/04	Tue	7.38	6630	204	7.05	6420	3619	40	188			1.7	8.1	252		0				
9/3/04	Tue	7.53	6680	246	6.95	6230	3372	60	206			2.1	10.4	260		0				
16/3/04	Tue	7.51		287	7.25		3395	80	216	21	1.1	1.8	9.5	276	120	0	590	310		
23/3/04	Tue	7.2	6600	271	7.2	6400	3412	90	257			2.1	13	268		0				
30/3/04	Tue	7.38		300	7.19		2962	80	247			2.6	13	288		0				
8/4/04	Thu	7.5	7010	298	7.32	6510	3977	80	283	18	1.9	3.2	11	320	340	0	560	290		
20/4/04	Tue	7.43		280	7.41		3846	110	270			1.8	3.8	332		0				
28/4/04	Wed	7.43		271	7.35		4001	100	246			1.9	2.8	348		0				
5/5/04	Wed	7.52		303	7.43		3182	70	261			1.6	4	340		0				
11/5/04	Tue	7.64		247	7.56		3613	80	222	20	1.2	1.8	2.6	352	290	0				
18/5/04	Tue	7.64	7900	317	7.47	7190	3883	40	247			1.5	2.4	364		0				
25/5/04	Tue	7.48	7720	241	7.55	7380	3215	30	222			2.3	2.7	420		0				
1/6/04	Tue	7.57	7650	170	7.6	7480	3084	40	192			2.1	2.5	428		0				
9/6/04	Wed	7.61	7630	199	7.69	7540	3236	40	185	9	1.2	2.4	2.1	440	450	0	570	270		
16/6/04	Wed	7.76	7900	166	7.77	7760	3314	30	197			2.6	2.6	460		0				
22/6/04	Tue	7.76	7830	152	7.75	7790	3220	30	153			2.8	3.3	472		0				
30/6/04	Wed	7.82	7950	165	7.83	7870	3250	9	195			2.9	4	468		0				
7/7/04	Wed	7.83		201	7.84	7780	3244	40	211			2.6	3.7	492		0				
13/7/04	Tue	7.86	7940	198	7.89	7940	3252	9	193	9	1.2	2.4	4.4	480	530	0				
20/7/04	Tue	7.83	7890	170	7.84	7940	3244	10	183			2.5	4.4	496		0				
27/7/04	Tue	7.73	7960	171	7.78	7960	3227	9	194			3	4.2	500		0				
3/8/04	Tue	7.46	7860	209	7.43	7910	3326	40	214			2.1	11.2	488		0				
10/8/04	Tue	7.33	8000	275	7.29	7910	3307	100	396	24	1.5	2.6	22	488	430	0				
17/8/04	Tue	7.54	7880	247	7.51	7870	3222	80	283			3.2	25			0				
24/8/04	Tue	7.31	8520	232	7.26	8480			258							0				
27/8/04	Fri	7.66			7.66		4700	60				4.5	12.9	496						
31/8/04	Tue	7.53	8170	248																
8/9/04	Wed	7.41	8360	250	7.4	8210	3132		287	28	2.4	4.3	20.5	552	600		495	330	53	
14/9/04	Tue	7.39	8270	286	7.3	8320	3596	80	319			3.7	25	552						
21/9/04	Tue	7.41	8050	304	7.32	8060	3522	100	300			4.2	25.7	528		0				
28/9/04	Tue	7.33	7910	272	7.3	7960		60	281			2.8	26.8	520		0				
5/10/04	Tue	7.18	7920	283	7.11	7890		120	296			2.9	34.2	532		0				

POP

		pH	EC	COD (mg/L)	TSS (mg/L)	PO4 (mg/L)	Total P (mg/L)	BOD (mg/L)	TN (mg/L)	EX-TN (mg/L)	TDS (ppm)	EX- TDS (ppm)	NOx (mg/L)	S2- T (mg/L)	S2- F (mg/L)	Mg (mg/L)	Ca (mg/L)	Na (mg/L)
10/9/03	Wed	6.97	6870	164	30	1.5	0.95	19	302	320	3456		15	0	0			600
17/9/03	Wed	7.38	7410	203	50	1.5			348		3512		12.3	0	0			
23/9/03	Tue	7.6	7000	277	130	1.3			320		3691		8.5	0	0			
1/10/03	Wed	6.8	6960	223	80	1.6			302		4174		12.5	0	0			
9/10/03	Thu	7.31	6880		40	1.1			316		4035		12.5	0	0			
14/10/03	Tue	7.46	7060	242	70	1.4	1.5	20	348	300	4125		13	0	0		380	610
22/10/03	Wed	7.3	7100	252	60	1.3			360		3940		15.5	0	0			
28/10/03	Tue	7.18	6990	247	60	1.3			360		3896		14	0	0			
4/11/03	Tue	7.34	6890	258	70	1.3			324		4383		15	0	0			
11/11/03	Tue	7.19	6930	290	80	0.6	1.5	28	344	170	4447		14	0	0		370	620
18/11/03	Tue	7.11	7020	287	100	1			320		4496		12	0	0			
25/11/03	Tue	7.53	7200	289	100	1.6			400	363	4440		14	0	0			
2/12/03	Tue	7.42	7380	330	100	1.5			404		4494		23	0	0			
9/12/03	Tue	7.11	7370	265	100	1.5	1.5	27	376	380	4531		25	0	0		370	610
16/12/03	Tue	7.83	7000	175	30	6			332		3893			0	0			
23/12/03	Tue	7.5	7040	207	60	1.5			300		4281		8	0	0			
30/12/03	Tue	7.03	7640	196	30	4.2			296		3993		14	0	0			
6/1/04	Tue	6.75	8810	241	40	1.6	1.3	14	292	290	5062	5030	17	0	0	61	510	970
9/1/04	Fri	6.85	8500		58		1						74					
13/1/04	Tue	7.21	8780		50	1.5			276		5237		7.6	0	0			
20/1/04	Tue	7.09	7550	170	40	1.9			154		4787		2.9	0	0			
27/1/04	Tue	7.64	7760	283		1.9					4908			0	0			
3/2/04	Tue	7.33	7610	203	40	3.7			360		3506		19	0	0			
12/2/04	Thu	7.2	6760	174	30	2.4	1.6	16	312	200	3486		13	0	0		340	610
17/2/04	Tue	7.09	7170	306	60	2.4			384		3404		40	0	0			
25/2/04	Wed	7.55	6910	214	30	3.4			364		3258		8.5	0	0			
2/3/04	Tue	7.38	6630	204	50	2.3			304		3532		5.3	0	0			
9/3/04	Tue	7.53	6680	246	50	5.8			348		3190		5	0	0			
16/3/04	Tue	7.51		287	35	2.8	1.6	40	312	150	3063		2.1	3.2	0		270	570
23/3/04	Tue	7.2	6600	271	70	3.5			328		3385		11	0	0			
30/3/04	Tue	7.38		300	100	3.7			332		2967		11	0	0			
8/4/04	Thu	7.5	7010	298	70	3.1	2.1	21	364	390	4136		11	0	0		280	570
20/4/04	Tue	7.43		280	100	1.4			368		4162		5.4	0	0			
28/4/04	Wed	7.43		271	70	1.3			368		3868		2.7	0	0			
5/5/04	Wed	7.52		303	130	1.1			372		3162		4.4	0	0			
11/5/04	Tue	7.64		247	70	1.2	1.4	39	400	270	4110		3.1	0	0			
18/5/04	Tue	7.64	7900	317	90	2.6			528		3863		2.3	2.4	0			
25/5/04	Tue	7.48	7720	241	40	2.4			488		3117		13	0	0			
1/6/04	Tue	7.57	7650	170	20	2			448		3030		7.4	0	0			
9/6/04	Wed	7.61	7630	199	30	2.5	1.2	9	468	460	3247		4.6	0	0		270	550
16/6/04	Wed	7.76	7900	166	30	2.3			456		3215		4.5	0	0			
22/6/04	Tue	7.76	7830	152	9	2.3			496		3194		5.2	0	0			
30/6/04	Wed	7.82	7950	165	20	2.4			492		3332		5.7	0	0			
7/7/04	Wed	7.83		201	40	2.4			492		3178		3.6	0	0			
13/7/04	Tue	7.86	7940	198	40	2.2	1.2	14	496	540	3160		4.5	0	0			
20/7/04	Tue	7.83	7890	170	20	2.6			496		3261		3.9	0	0			
27/7/04	Tue	7.73	7960	171	9	2.6			488		3212		4.1	0	0			
3/8/04	Tue	7.46	7860	209	10	1.6			488		3225		10	0	0			
10/8/04	Tue	7.33	8000	275	60	3.2	2.3	29	496	470	3266		16	0	0			
17/8/04	Tue	7.54	7880	247	60	3.8			512		4572		15	0	0			
24/8/04	Tue	7.31	8520	232										0	0			
27/8/04	Fri	7.66			50	3.4			520		4688		10.9					
31/8/04	Tue	7.53	8170	248	30	3.8			560		4754		13.5					
8/9/04	Wed	7.41	8360	250		3.7	2.3	34	564	630	3108	3200	15.4			51	320	500
14/9/04	Tue	7.39	8270	286	90	3.1			588		3586		22.1					
21/9/04	Tue	7.41	8050	304	70	3.5			532		3338		19.2	0	0			
28/9/04	Tue	7.33	7910	272	90	2			516				20	0	0			
5/10/04	Tue	7.18	7920	283	110	3.9			524				26.1	0	0			

PP

		pH	TSS (mg/L)	COD (mg/L)	NOx (mg/L)	TN (mg/L)
10/9/03	Wed	6.93	30	150	14	328
17/9/03	Wed	7.2	50	180	12.5	336
23/9/03	Tue	7.15	50	160	7.3	324
1/10/03	Wed	6.76	40	203	12.5	316
9/10/03	Thu	7.12	50		13	
14/10/03	Tue	7.28	40	220	12.5	332
22/10/03	Wed	7.22	40	237	16.1	376
28/10/03	Tue	7.09	40	225	14	340
4/11/03	Tue	7.17	50	253	14	324
11/11/03	Tue	7.01	50	207	13.6	344
18/11/03	Tue	7.06	60	263	13	328
25/11/03	Tue	7.26	100	234	14	380
2/12/03	Tue	6.86	60	239	20	376
9/12/03	Tue	6.76	70	215	25	376
16/12/03	Tue	7.27				
23/12/03	Tue	7.26	70	191	9	306
30/12/03	Tue	6.74	40	225	17	294
6/1/04	Tue	6.38	40	255	20	304
9/1/04	Fri					
13/1/04	Tue	6.71	65	320	7.5	264
20/1/04	Tue	7.13	30	171	2.9	156
27/1/04	Tue	7.43		257		
3/2/04	Tue	7.09	160	388	29	392
12/2/04	Thu	7.09	10	200	17	320
17/2/04	Tue	6.71	50	232	36	404
25/2/04	Wed	7.8	30	216	10.4	408
2/3/04	Tue	7.36	50	211	5.7	300
9/3/04	Tue	7.5	80	276	6.2	372
16/3/04	Tue	7.45	63	296	5	320
23/3/04	Tue	7.16	40	306	12	320
30/3/04	Tue	7.43	80	279	10	328
8/4/04	Thu	7.47	80	270	12	376
20/4/04	Tue	7.44	80	262	6.4	368
28/4/04	Wed	7.42	40	263	3	372
5/5/04	Wed	7.5	40	260	5.6	368
11/5/04	Tue	7.64	80	255	4.3	392
18/5/04	Tue	7.59	90	332	2.1	520
25/5/04	Tue	7.48	50	252	15	492
1/6/04	Tue	7.57	10	175	7.8	448
9/6/04	Wed	7.62	9	200	4.5	468
16/6/04	Wed	7.78	9	166	4.3	468
22/6/04	Tue	7.75	30	175	5.3	488
30/6/04	Wed	7.84	9	179	3.7	496
7/7/04	Wed	7.81	20	172	2.4	500
13/7/04	Tue	7.84	30	207	4.2	508
20/7/04	Tue	7.83	20	162	3.7	496
27/7/04	Tue	7.71	9	187	3.9	508
3/8/04	Tue	7.44	30	229	8.9	480
10/8/04	Tue	7.31	20	284	15	512
17/8/04	Tue	7.51	111	266	16	512
24/8/04	Tue	7.29		250		
27/8/04	Fri	7.68	80		10.4	524
31/8/04	Tue	7.56	40	243	13	576
8/9/04	Wed	7.43		259	16	568
14/9/04	Tue	7.36	90	278	21.4	576
21/9/04	Tue	7.34	70	293	18.4	532
28/9/04	Tue	7.25	90	258		504
5/10/04	Tue	7.16	50	299	25.5	524

ORIGINAL



ASIA PACIFIC AFRICA

EPA SOUTHERN REGION	
Correspondence No. 5742004/5019	Davis Gelatine Australia
File No. 574 495	Sunny Hills Flood Road Josephville via Beaudesert Qld 4285 Australia PO Box 409 Beaudesert Qld 4285 AUSTRALIA
Action Officer Don Shachel	Related items

ACN 000 010 597

Telephone (07) 5541 3544

Facsimile (07) 5541 3612

COPY

ENVIRONMENTAL INCIDENT REPORT - LEVEL 1

DATE: 15 July 2004

PREPARED BY: Cameron Smeal

SIGNATURE:

sch4p4(-6) Personal information

A. COMPLAINT(i) Type of communication (underline type)

Telephone

Fax

Personal

Letter

Internal

E-Mail

(ii) Date Received: 09 March 2004

(iii) Time Received:

(iv) Name/Address/Contact Telephone Number of complainant:

GELITA: self monitoring

(v) Nature of complaint:

Non-compliance with licence conditions for NOx discharge.

Monitoring of discharge of boiler stack on 30 January 2003 had revealed that particulate discharge was 572 mg/m³. This led to the company replacing the "Flosep" particulate control system with a baghouse to ensure particulate discharge was in compliance with licence conditions.

As part of the commissioning phase of replacement of the "Flosep" particulate wet scrubber with the baghouse dust collection system, and in keeping with Schedule B Table 2 and Schedule H of Licence SR722, boiler stack monitoring was undertaken on 09 April 2004.

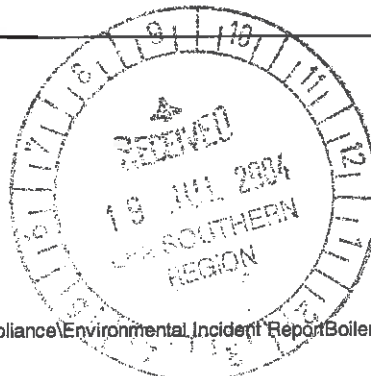
The analysis revealed that particulate discharge levels were 0.40 mg/m³ and that Nitrogen Oxides were measured at 653 mg/m³. Improvement in control of particulate discharges has been outstanding.

Licence limits are set at 250 mg/m³ for particulates and 500mg/m³ for NOx.

FORM ENVF 008/C

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24/6/11/2004
ORIGINAL



ASIA PACIFIC AFRICA

COPY

Davis Gelatine Australia

ACN 000 010 597

"Sunny Hills", Flood Road
Josephville via Beaudesert Qld 4285
Australia

Telephone (07) 5541 3544
Facsimile (07) 5541 3612

PO Box 409 Beaudesert Qld 4285 AUSTRALIA

B. RESPONSE / INVESTIGATION

(i) Name of investigator: Cameron Smeal

Signature: 

(ii) Action taken:

- a) General manager advised of non-compliance observed during commissioning phase of baghouse.
- b) EPA advised of situation by telephone.
- c) Control mechanism determined to replicate conditions of compliance during operation
- d) Boiler control program adjusted to ensure replication of optimum compliant NOx discharge
- e) Boiler stack discharge (RP1) retested and found to be in compliance.

C. GENERAL REMARKS

The failure to meet compliance for NOx during commissioning phase of baghouse installation was unexpected and required complex reconfiguration of operational programs for the boiler. This process was expedited with due care and consideration for health and safety concerns associated altering boiler control systems.

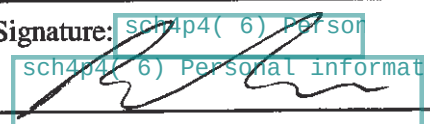
The latest monitoring report establishes that discharge is within compliance limits.

D. AUTHORISED BY OPERATIONS MANAGER

Name of General Manager:
Roger Seach

Date:

15-7-04

Signature: 

E. ATTACHMENTS

- a) Air Emissions Monitoring Report March 2004
- b) Additional Investigation of Nitrogen Oxides methodology April 2004
- c) Oxides of Nitrogen Emissions monitoring April 2004

FORM ENVF 008/C

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ASIA PACIFIC AFRICA

GELITA Australia Pty Ltd

ACN 000 010 507

"Sunny Hils", Flood Road

Telephone (07) 5541 3544

Josephville via Beaudesert Qld 4228

Facsimile (07) 5541 3512

Australia

PO Box 408 Beaudesert Qld 4225 AUSTRALIA

ENVIRONMENTAL INCIDENT REPORT - LEVEL 1

DATE: 11/10/04

Section 78B(2) RTI Act

PREPARED BY: Cameron Smeal

SIGNATURE:

A. COMPLAINT

(i) Type of communication (underline type)

Telephone

Fax

Personal

Letter

Internal

E-Mail

(ii) Date Received: 11/10/04

(iii) Time Received: 3:30 pm

(iv) Name/Address/Contact Telephone Number of complainant:

Mrs Liz Richards
Sandy Ck Road
5544 2142

(v) Nature of complaint:

Bad Odour: foul. Monday afternoon 3:00pm and Sunday afternoon about 3pm.

FORM ENVF 008/D

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ASIA PACIFIC AFRICA

GELITA Australia Pty Ltd

ACN 000 010 587

"Sunny Hills", Flood Road

Telephone (07) 5541 8544

Josephville via Beaudesert Qld 4285

Facsimile (07) 5541 3612

Australia

PO Box 409 Beaudesert Qld 4285 AUSTRALIA

B. RESPONSE / INVESTIGATION

(i) Name of investigator: Cameron Smeal

Signature:

sch4p4(6) Personal 1

Actions taken:

- (i) Advise General manager 3:40 pm
- (ii) Check with compost operator no unusual events noted.
- (iii) Check wind log for verification-confirm correlation between complaint periods and wind direction. Wind from NE to ENE. Most prior complaints are associated with ENE direction, wind is swirling.
- (iv) Return complainants call at 3:45pm.
- (v) Check for odour within site boundary. Specifically checked WWTP, compost and raw materials.
- (vi) Poor quality hide being moved around at raw materials. Hide odour detected at BSD pump shed.
- (vii) Advise production manager and shift coordinator-immediate rectification undertaken with ice being placed over hide.
- (viii) If problem was from site it would appear to have been from this material.
- (ix) Advise EPA case officer by email 12 October 2004.

C. GENERAL REMARKS

It appears that there was an odour arising from poor quality hide movements at the time of the complaint. The matter was dealt with immediately.

D. AUTHORISED BY OPERATIONS MANAGER

Name of General Manager:
Roger Seach

Date: 12-10-04 Signature:

sch4p4(6) Personal 1

E. ATTACHMENTS

- (i) Windlog for 10/11 October
- (ii) Email response of production manager
- (iii) Email notification to EPA

FORM ENVF 008/D

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GELITA Australia 11/10/04

Date	Time	TH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
11/10/04	12:00a	16.0	16.0	16.0	16.1	15.9	86	13.7	0.0	4.8	WSW	0.0	769.2	23.2	47	30
11/10/04	12:30a	16.1	16.1	16.1	16.2	15.9	86	13.7	0.0	1.6	WSW	0.0	769.0	22.9	47	30
11/10/04	1:00a	16.1	16.1	16.1	16.2	15.9	87	13.9	0.0	1.6	WSW	0.0	768.9	22.7	47	30
11/10/04	1:30a	16.3	16.3	16.3	16.4	16.1	86	13.9	0.0	3.2	WSW	0.0	768.8	22.6	47	30
11/10/04	2:00a	16.4	16.4	16.4	16.5	16.4	85	13.9	1.6	3.2	WSW	0.0	768.6	22.4	47	30
11/10/04	2:30a	16.4	16.4	16.4	16.4	16.3	86	14.1	1.6	4.8	WSW	0.0	768.6	22.3	47	30
11/10/04	3:00a	16.6	16.6	16.6	16.7	16.4	86	14.2	0.0	3.2	WSW	0.0	768.7	22.1	47	30
11/10/04	3:30a	16.8	16.8	16.8	16.8	16.6	86	14.4	1.6	3.2	WSW	0.0	768.7	22.0	48	30
11/10/04	4:00a	16.9	16.9	16.9	16.9	16.8	85	14.3	1.6	4.8	SW	0.0	768.8	21.9	48	30
11/10/04	4:30a	16.9	16.9	16.9	16.9	16.8	84	14.2	0.0	3.2	WSW	0.0	769.0	21.8	48	30
11/10/04	5:00a	16.9	16.9	16.9	16.9	16.8	84	14.2	0.0	3.2	WSW	0.0	769.2	21.8	48	30
11/10/04	5:30a	16.9	16.9	16.9	17.0	16.9	85	14.4	0.0	1.6	WSW	0.0	769.3	21.7	48	30
11/10/04	6:00a	17.1	17.1	17.1	17.2	17.0	84	14.4	0.0	1.6	WSW	0.0	769.7	21.6	48	30
11/10/04	6:30a	17.7	17.7	17.7	18.4	17.2	82	14.6	0.0	4.8	WSW	0.0	770.0	21.6	48	30
11/10/04	7:00a	19.1	19.1	19.1	19.6	18.4	79	15.3	3.2	6.4	SW	0.0	770.2	21.6	49	30
11/10/04	7:30a	20.8	20.5	20.5	21.5	19.6	72	15.3	4.8	9.7	SW	0.0	770.5	21.9	49	30
11/10/04	8:00a	22.2	22.2	22.2	22.9	21.5	66	15.6	4.8	9.7	SW	0.0	770.4	22.4	49	30
11/10/04	8:30a	23.6	23.2	23.2	23.6	22.8	62	15.6	3.2	8.0	SW	0.0	770.5	23.0	49	30
11/10/04	9:00a	24.4	24.6	24.6	25.5	23.6	56	15.3	1.6	6.4	WSW	0.0	770.5	23.5	49	30
11/10/04	9:30a	26.2	26.3	26.3	27.0	25.5	51	15.3	3.2	9.7	WSW	0.0	770.3	24.1	49	30
11/10/04	10:00a	29.3	28.6	28.6	29.6	27.0	44	15.2	3.2	12.9	ENE	0.0	770.0	24.7	50	30
11/10/04	10:30a	30.3	29.9	29.9	30.4	29.4	43	15.9	3.2	12.9	ENE	0.0	769.6	25.1	50	30
11/10/04	11:00a	30.0	29.8	29.8	30.7	29.2	40	14.7	4.8	17.7	N	0.0	769.3	25.4	50	30
11/10/04	11:30a	31.6	31.2	31.2	31.6	30.7	42	16.8	3.2	11.3	SSE	0.0	768.7	25.6	47	30
11/10/04	12:00p	30.7	31.3	31.3	32.2	30.6	36	14.5	6.4	17.7	ENE	0.0	768.3	25.4	48	30
11/10/04	12:30p	32.7	32.3	32.3	32.9	31.7	36	15.3	4.8	14.5	S	0.0	767.8	25.3	45	30
11/10/04	1:00p	33.2	32.6	32.6	32.9	32.1	34	14.7	4.8	14.5	WSW	0.0	767.4	25.3	48	30
11/10/04	1:30p	32.2	32.3	32.3	32.6	31.9	33	13.9	4.8	14.5	ENE	0.0	766.9	25.4	45	30
11/10/04	2:00p	32.2	32.3	32.3	32.5	32.0	33	13.9	6.4	17.7	ENE	0.0	766.5	25.4	44	30
11/10/04	2:30p	31.8	32.0	32.0	32.5	31.3	31	12.8	4.8	16.1	ENE	0.0	766.2	25.3	44	30
11/10/04	3:00p	30.6	30.8	30.6	31.3	30.2	40	15.6	9.7	19.3	NE	0.0	766.1	25.2	47	30
11/10/04	3:30p	30.3	29.8	29.4	30.2	29.6	43	15.9	11.3	30.6	ENE	0.0	766.1	25.4	44	30

(Men)

Date	Time	RH Index	Temp Out	Wind Chill	Hi Temp	Low Temp	Hum Out	Dew Pt.	Wind Speed	Hi	Dir	Rain	Bar	Temp In	Hum In	Arc Per
10/10/04	12:00a	18.1	18.1	18.1	18.1	17.9	75	13.6	0.0	3.2	SW	0.0	767.3	22.4	46	30
10/10/04	12:30a	18.0	18.0	18.0	18.1	18.0	76	13.7	1.6	3.2	SW	0.0	767.2	22.3	46	30
10/10/04	1:00a	17.9	17.9	17.9	18.0	17.9	76	13.7	1.6	4.8	SW	0.0	767.0	22.2	46	30
10/10/04	1:30a	17.8	17.8	17.8	18.0	17.8	76	13.6	1.6	3.2	SW	0.0	767.0	22.2	46	30
10/10/04	2:00a	17.7	17.7	17.7	17.8	17.6	77	13.7	1.6	3.2	SW	0.0	767.0	22.1	46	30
10/10/04	2:30a	17.6	17.6	17.6	17.7	17.6	78	13.7	0.0	3.2	SW	0.0	767.0	21.9	46	30
10/10/04	3:00a	17.6	17.6	17.6	17.7	17.6	76	13.3	1.6	6.4	SW	0.0	767.0	21.9	46	30
10/10/04	3:30a	17.5	17.5	17.5	17.7	17.4	76	13.2	3.2	6.4	SW	0.0	767.2	21.8	46	30
10/10/04	4:00a	17.4	17.4	17.4	17.4	17.3	77	13.3	1.6	6.4	SW	0.0	767.4	21.7	46	30
10/10/04	4:30a	16.8	16.8	16.8	17.3	16.4	77	12.8	1.6	6.4	SW	0.0	767.6	21.7	46	30
10/10/04	5:00a	15.8	15.8	15.8	16.4	15.3	79	12.2	1.6	4.8	SW	0.0	767.7	21.6	46	30
10/10/04	5:30a	15.1	15.1	15.1	15.3	14.9	80	11.6	1.6	9.7	SW	0.0	767.8	21.4	46	30
10/10/04	6:00a	14.6	14.6	14.6	14.9	14.4	82	11.6	3.2	6.4	SW	0.0	768.1	21.3	46	30
10/10/04	6:30a	15.1	15.1	15.1	15.5	14.7	80	11.7	4.8	11.3	SW	0.0	768.5	21.2	46	30
10/10/04	7:00a	16.7	16.7	16.7	17.8	15.6	74	12.1	6.4	12.9	WSW	0.0	768.8	21.1	46	30
10/10/04	7:30a	19.0	19.0	18.2	20.1	17.8	68	12.9	8.0	14.5	SW	0.0	768.9	21.1	47	30
10/10/04	8:00a	21.1	21.0	20.3	22.1	20.1	64	13.9	8.0	16.1	SW	0.0	769.1	21.1	47	30
10/10/04	8:30a	23.3	23.3	22.7	24.5	22.1	57	14.3	8.0	16.1	SW	0.0	769.1	21.1	48	30
10/10/04	9:00a	25.6	25.4	25.4	26.0	24.5	51	14.6	4.8	12.9	SW	0.0	769.1	21.2	48	30
10/10/04	9:30a	26.1	26.1	26.1	26.6	25.3	50	14.5	6.4	14.5	S	0.0	769.1	21.3	48	30
10/10/04	10:00a	28.1	27.5	27.5	28.2	26.6	45	14.5	4.8	20.9	SW	0.0	768.8	21.5	48	30
10/10/04	10:30a	27.2	27.2	27.2	28.0	26.3	46	14.6	4.8	12.9	NNW	0.0	768.7	21.7	49	30
10/10/04	11:00a	26.7	26.4	26.4	27.1	25.9	44	13.2	3.2	9.7	ENE	0.0	768.3	22.0	49	30
10/10/04	11:30a	29.1	28.7	28.7	29.9	26.9	42	14.5	4.8	12.9	SW	0.0	767.9	22.3	50	30
10/10/04	12:00p	29.3	29.5	29.5	30.0	29.0	39	14.1	4.8	12.9	NNW	0.0	767.6	22.7	50	30
10/10/04	12:30p	29.3	29.6	29.6	30.2	29.0	39	14.2	4.8	12.9	N	0.0	767.2	23.1	50	30
10/10/04	1:00p	29.8	30.2	30.2	31.2	29.0	38	14.3	4.8	12.9	ENE	0.0	766.9	23.4	50	30
10/10/04	1:30p	28.6	28.8	28.8	29.7	28.3	37	12.7	3.2	11.3	W	0.0	766.5	23.8	49	30
10/10/04	2:00p	30.3	30.5	30.5	31.2	29.7	38	14.6	4.8	16.1	W	0.0	766.3	24.1	49	30
10/10/04	2:30p	30.2	30.6	30.5	31.3	29.5	37	14.3	8.0	17.7	ENE	0.0	766.0	24.4	49	30
10/10/04	3:00p	28.8	28.7	28.7	29.5	28.1	39	13.4	3.2	12.9	NNW	0.0	765.9	24.7	48	30
10/10/04	3:30p	29.4	28.8	28.2	29.1	28.5	45	15.7	11.3	27.4	NE	0.0	766.0	25.0	48	30
10/10/04	4:00p	28.2	28.0	27.6	28.5	27.8	48	16.0	9.7	24.1	NE	0.0	766.2	25.3	48	30
10/10/04	4:30p	27.4	27.3	26.4	27.8	26.6	52	16.6	12.9	24.1	ENE	0.0	766.4	25.5	48	30
10/10/04	5:00p	26.9	26.2	25.3	26.6	25.5	57	17.0	11.3	25.7	ENE	0.0	766.9	25.7	48	30
10/10/04	5:30p	25.1	24.7	23.9	25.5	24.1	61	16.7	9.7	24.1	ENE	0.0	767.2	25.8	48	30
10/10/04	6:00p	24.0	23.4	22.9	24.1	22.9	66	16.7	8.0	17.7	NE	0.0	767.6	25.8	47	30
10/10/04	6:30p	22.2	22.4	22.4	22.9	22.0	69	16.5	4.8	14.5	N	0.0	767.9	25.7	47	30
10/10/04	7:00p	21.8	21.8	21.8	22.0	21.4	71	16.3	4.8	14.5	N	0.0	768.2	25.5	47	30
10/10/04	7:30p	21.4	21.1	21.1	21.4	20.6	73	16.1	3.2	11.3	N	0.0	768.5	25.3	47	30
10/10/04	8:00p	20.7	20.2	20.2	20.6	19.8	76	15.8	3.2	8.0	N	0.0	768.8	25.1	47	30
10/10/04	8:30p	19.6	19.6	19.6	19.8	19.2	77	15.4	1.6	6.4	N	0.0	769.0	24.8	47	30
10/10/04	9:00p	18.9	18.9	18.9	19.3	18.8	79	15.2	1.6	8.0	N	0.0	769.0	24.6	47	30
10/10/04	9:30p	18.6	18.6	18.6	18.6	18.3	81	15.2	1.6	4.8	N	0.0	769.1	24.3	47	30
10/10/04	10:00p	18.4	18.4	18.4	18.4	18.2	82	15.3	0.0	1.6	N	0.0	769.2	24.1	47	30
10/10/04	10:30p	17.7	17.7	17.7	18.2	17.4	83	14.8	0.0	0.0	---	0.0	769.3	23.8	47	30
10/10/04	11:00p	17.2	17.2	17.2	17.4	16.8	83	14.3	0.0	0.0	---	0.0	769.2	23.6	47	30
10/10/04	11:30p	16.5	16.5	16.5	16.8	16.1	85	14.0	0.0	3.2	N	0.0	769.2	23.4	47	30
10/10/04	12:00p	16.0	16.0	16.0	16.1	15.9	86	13.7	0.0	4.8	NSW	0.0	769.2	23.2	47	30

Scary

Don Shackel

From: Don Shackel [don.shackel@epa.qld.gov.au]
Sent: Tuesday, 12 October 2004 1:13 PM
To: 'Cameron.Smeal@gelita.com'
Subject: RE: Internet FAX From: GELITA AUST.;200410121211

CAMERON,

Received information / Thanks.

Don Shackel

> -----Original Message-----

> From: Cameron.Smeal@gelita.com [mailto:Cameron.Smeal@gelita.com]

> Sent: Tuesday, 12 October 2004 12:03 PM

> To: Don Shackel

> Subject: Fw: Internet FAX From: GELITA AUST.;200410121211

>

>

>

>

>

>

> Don

> please find attached incident report re: sch3(19)6 odour complaint

> Regards

> Cameron Smeal

> Environmental Officer

> Gelita Australia

> (07) 5541 9442

>

>

>

> (See attached file: image.tif)

Don Shackel

From: Cameron.Smeal@gelita.com
Sent: Tuesday, 12 October 2004 10:36 AM
To: don.shackel@epa.qld.gov.au
Subject: Re: NATURAL ZEOLITE

Don
we are currently trialling the zeolite in the pond to determine if the material will reduce ammonia content. The zeolite is claimed to assist in odour reduction, reduce chloride levels and bind N.

On another matter we had an odour complaint from Mrs Richards at 3:30 pm yesterday. The wind direction would appear to support her contention. It appears at this stage to be related to the movement of some low grade hide at raw materials and was of limited duration. We immediately covered the hide with ice and pushed it into the hide cutter as soon as was practicable. Probably 1/2 -1 hours in all.

Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442

12/10/2004



Cameron
Smeal/Beautesert_A
U/APA/Gelita/DGF

12/10/2004 10:35 AM

To <don.shackel@epa.qld.gov.au>
cc
bcc
Subject Re: NATURAL ZEOLITE

Don

we are currently trialling the zeolite in the pond to determine if the material will reduce ammonia content. The zeolite is claimed to assist in odour reduction, reduce chloride levels and bind N.

On another matter we had an odour complaint from Mrs Richards at 3:30 pm yesterday. The wind direction would appear to support her contention. It appears at this stage to be related to the movement of some low grade hide at raw materials and was of limited duration. We immediately covered the hide with ice and pushed it into the hide cutter as soon as was practicable. Probably 1/2 -1 hours in all.

Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442



THE GELATINE GROUP

Tony
Wise/Beaudesert_AU/APA/Gel
ita/DGF

11/10/2004 06:03 PM

To Cameron Smeal/Beaudesert_AU/APA/Gelita/DGF@DGF
cc Grant Ellery/Beaudesert_AU/APA/Gelita/DGF@DGF, Simon
Callanan/Beaudesert_AU/APA/Gelita/DGF@DGF

bcc

Subject Odour complaint 11/10/04

Cameron,

I have followed up the status of hide movements from 11/10/04.

Rotten hide was pushed into the hopper from the chiller very early in the morning for cutting at 4am. Cutting finished at about 8am. The Darling Downs load arrived after 8am and was moved in front of pit #2 for cutting around 7pm. It was covered with ice. William moved hide out of the chiller and into the hide hopper, with some hide exposed but covered with ice, shortly before leaving (probably 3:30pm). Grant then shut the roller doors to the level of the hide (about 1m from the ground). The hide did not present an odour issue after covering with ice. Thus any odour would have occurred from simply moving the hide over a half hour period.

There is not a lot else which can be done other than keeping hide covered with ice at all times, keeping the doors shut and and keeping the delivery area clean, which we have been and will be ever more vigilant on. However I have to stress that without odour logging in front of the Richards house we are not going to be able to no the real source of the smell, as "hide odour" seems to come up even when there are clearly much stronger odours from WWTP and compost, which I believe was also the case today and is 98% of the time.

Regards,

Tony Wise
Production Manager - GELITA Australia
(07) 5541 9413 (m) 0401 400044
email: tony.wise@gelita.com

Don Shackel

From: Cameron.Smeal@gelita.com
Sent: Tuesday, 12 October 2004 12:03 PM
To: Don Shackel
Subject: Fw: Internet FAX From: GELITA AUST.;200410121211



image.tif

Don
please find attached incident report re: 13/19/04 odour complaint
Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442

(See attached file: image.tif)



ASIA PACIFIC AFRICA

GELITA Australia Pty Ltd

ACN 000 010 597

"Sunny Hills", Flood Road
Josephville via Beaudesert Qld 4285
Australia

Telephone (07) 5541 3544
Facsimile (07) 5541 3612

PO Box 409 Beaudesert Qld 4285 AUSTRALIA

ENVIRONMENTAL INCIDENT REPORT - LEVEL 1

DATE:	08/10/04	sch4p4/ 6) Persona
PREPARED BY: Cameron Smeal	SIGNATURE: 	

A. COMPLAINT

(i)	Type of communication (<u>underline type</u>)					
	Telephone	Fax	Personal	Letter	Internal	<u>E-Mail</u>

(ii)	Date Received: 14/09/04
------	-------------------------

(iii)	Time Received: 12:49pm
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(iv)	Name/Address/Contact Telephone Number of complainant:
	Brad Peterson/Beaudesert_AU/APA/Gelita/DGF 14/09/2004 12:49 PM

(v)	Nature of complaint: Curfew breach.
	<p>Our curfew conditions for heavy vehicles was broken last night by a vehicle delivering LPG. The truck arrived at 7.00pm but didn't depart until 8.45pm, breaking the 8.00pm curfew. I've contacted Brent Herrick [ph 3867-0301 or mobile 0407-765019] at Origin Energy and advised him about the breach and asked that they take action to prevent a repeat and that they send me a letter detailing the action to be taken - I'll pass a copy of the letter to you once received.</p> <p>Brad Peterson Purchasing Manager GELITA Australia Pty Ltd. Ph: (07) 5541-9421 Fax: (07) 5541-3612 mailto:brad.peterson@gelita.com</p>

FORM ENVF 008/D

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J:\ENVIRO\EPA & Other Gov organ\Complaints and Incidents\2004\Environmental Incident\Curfew breach.DOC



ASIA PACIFIC AFRICA

GELITA Australia Pty Ltd

ACN 000 010 507

"Sunny Hills", Flood Road
Josephville via Beaudesert Qld 4285
Australia

Telephone (07) 5541 3544
Facsimile (07) 5541 3812

PO Box 409 Beaudesert Qld 4285 AUSTRALIA

B. RESPONSE / INVESTIGATION

sch4p4(6) Personal

(i) Name of investigator: Cameron Smeal

Signature:

(ii) Action taken:

- i. Notify General Manager. .
- ii. Email EPA and advise of complaint.
- iii. Forward response letter from supplier.

C. GENERAL REMARKS

--- Forwarded by Brad Peterson/Beaudesert_AU/APA/Gelita/DGF on 06/10/2004 12:03 PM ---

"Herrick, Brent"

<Brent.Herrick@originenergy.com.au>

06/10/2004 11:57 AM

Out of Curfew delivery.

Brad,

I am writing to you to advise you of our investigation following our discussions regarding the delivery that was made in early September after the hours of your delivery curfew.

We discovered that the driver that was a contractor for Boral Transport had only been newly appointed and was not aware of the curfew. The driver was counselled and further we have advised our contractors that they must have left your property by 6pm weekdays and 4 pm weekends, (2 hours earlier than your curfew).

This should rectify this problem for the future.

Kind Regards,

Brent Herrick

Origin Energy

339 Coronation Drive, Milton.

Ph: (07) 3867 0301.

Email: brent.herrick@OriginEnergy.com.au

FORM ENVF 008/D

Page 2 of 3

JA\ENVIRO\EPA & Other Gov organ\Complaints and Incidents\2004\Environmental Incident\Curfew breach.DOC

D. AUTHORISED BY OPERATIONS MANAGER

Name of General Manager: Roger Seach	Date: 13/10/04	Signature: 
---	----------------	--

sch4p4(6) Personal

E. ATTACHMENTS

Nil

Don Shackel

From: Cameron.Smeal@gelita.com
Sent: Wednesday, 6 October 2004 4:29 PM
To: Don Shackel
Subject: Re: Out of Curfew delivery.

Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442
----- Forwarded by Cameron Smeal/Beautesert_AU/APA/Gelita/DGF on 06/10/2004
04:29 PM -----

Brad Peterson/Bea udesert AU/A PA/Gelita/DG F	Cameron Smeal/Beautesert_AU/APA/Gelita/DGF@ DGF	To
06/10/2004 12:03 PM		cc
	Fw: Out of Curfew delivery.	Subject

Hi Cameron,

Hope this is okay.

Brad Peterson
Purchasing Manager
GELITA Australia Pty Ltd.
Ph: (07) 5541-9421
Fax: (07) 5541-3612
mailto:brad.peterson@gelita.com
----- Forwarded by Brad Peterson/Beautesert_AU/APA/Gelita/DGF on 06/10/2004
12:03 PM -----

"Herrick, Brent" <Brent.Herri ck@originene rgy.com.au>	<brad.peterson@gelita.com>	To
06/10/2004 11:57 AM	Out of Curfew delivery.	cc Subject

Brad,

I am writing to you to advise you of our investigation following our discussions regarding the delivery that was made in early September after the hours of your delivery curfew.

We discovered that the driver that was a contractor for Boral Transport had only been newly appointed and was not aware of the curfew. The driver was counselled and further we have advised our contractors that they must have left your property by 6pm weekdays and 4 pm weekends, (2 hours earlier than your curfew).

This should rectify this problem for the future.

Kind Regards,

Brent Herrick
Origin Energy
339 Coronation Drive, Milton.
Ph: (07) 3867 0301.

Email: ? brent.herrick@OriginEnergy.com.au

This email and any files transmitted with it are solely intended for the use of the addressee(s) and may contain information that is confidential and privileged. If you receive this email in error, please advise the sender by return email or the above telephone number immediately. Please also disregard the contents of the email, delete it and destroy any copies immediately.

Don Shackel

From: Cameron.Smeal@gelita.com
Sent: Tuesday, 14 September 2004 12:55 PM
To: Don Shackel
Subject: Curfew breach

COPY

Hi Don
preliminary notice of licence breach regarding curfew. Please also note that we have been contacted by Mr Brennan (refer incident report filed with EPA 15/10/02) with complaint regarding sludge to Teviot Sands (Moreshest), Roger followed a truck out to the Teviot Sands operation last and cannot find substantive evidence to support the Brennan complaint. A full report will be forwarded in due course.

Regards

Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442

----- Forwarded by Cameron Smeal/Beautesert_AU/APA/Gelita/DGF on 14/09/2004 12:49 PM -----

Brad
Peterson/Bea
udesert_AU/A
PA/Gelita/DG
F

14/09/2004
12:49 PM

To
Cameron
Smeal/Beautesert_AU/APA/Gelita/DGF@
DGF

cc

Subject

Curfew

Hi Cameron,

Our curfew conditions for heavy vehicles was broken last night by a vehicle delivering LPG.

The truck arrived at 7.00pm but didn't depart until 8.45pm, breaking the 8.00pm curfew. I've contacted Brent Herrick [ph 3867-0301 or mobile 0407-765019] at Origin Energy and advised him about the breach and asked that they take action to prevent a repeat and that they send me a letter detailing the action to be taken - I'll pass a copy of the letter to you once received.

Brad Peterson
Purchasing Manager
GELITA Australia Pty Ltd.
Ph: (07) 5541-9421
Fax: (07) 5541-3612
mailto:brad.peterson@gelita.com

(21)

ckel

Cameron.Smeal@gelita.com
Wednesday, 6 October 2004 12:29 PM
Don Shackel
Fw: Monitoring report

Subject:



GELITA baseline
Report 2004.d...

Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442
----- Forwarded by Cameron Smeal/Beaudesert_AU/APA/Gelita/DGF on 06/10/2004
12:29 PM -----

"Brian
Schafer"

<schaferb@be
gpond.com>

<Cameron.Smeal@gelita.com>

To

06/10/2004
07:41 AM

cc

Monitoring report

Subject

Camero Report attached. I chopped out detailed interpretation. Fotos on separate emails because of size. Include in report where relevant. (See attached file: GELITA baseline Report 2004.doc)

Draft

GELITA (Asia Pacific Africa) Beaudesert: Preliminary Licence Compliance Report October 2004

INTRODUCTION

The current licence conditions include monitoring of soil and effluent to complement a best practice management program. The following statements are taken from the EMP submission to the EPA made in November 2003.

“The parameters to be monitored and the frequency of monitoring in the Contaminant release Area Monitoring Program shall be in accordance with the parameters and monitoring frequency prescribed in schedule H Table 3.

Schedule H Table 3

Element	Sites	Method	Frequency
Soil Salinity	Within soil units 2a, 2b, 2c, 2d, 2e, 3a, 3b,	Soil sampling and analysis for pH (1:5), EC sat, Cl, NO ₃ , SO ₄ , effective CEC, exchangeable Ca, Mg, Na,	annual
Soil infiltration and hydraulic conductivity	Within soil units, 2a, 3b, 2e	Field instrumentation	annual
Nutrient Status	As Above	Soil Sampling and analysis for Total N, NO ₃ -N, NH ₄ -N, Acid extractable P	bi-annual
Groundwater	Relevant bores with water table within soil units listed above	Tape measurement and EC. Water laboratory analysis	bi-annual
Effluent	Pump out pond outlet	Water laboratory analysis,	monthly

The existing licence conditions include soil and water monitoring requirements. The schedules above are proposed as a continuation of the original conditions and have been extended to meet the requirements of the EMP. *The combined table above is based on the following detailed schedules of monitoring and irrigation response as detailed below.*

oil infiltration and hydraulic conductivity

oil Map units for monitoring. a, 2c, 2d, 2e, a, 3c, 3d	Sampling Methods	Acceptable Range	Irrigation Response	Testing Frequency
infiltration and hydraulic conductivity	FullStop Monitor time for distribution of measured amount of applied effluent of SAR 12 mmol/L ^{0.5} through soil to 50cm depth at saturation using constant head infiltrometer.	20 mm/ hour at SAR 12 mmol/L ^{0.5} on dermosols, Soil Map Unit 2a , 2b, 2c 1mm/ hour at SAR 12 mmol/L ^{0.5} on vertosols/sodosols Soil MapUnits 2d, 2e, 3b, 3d, 3a	Irrigate to 50% soil water deficit based on Fullstop indicators placed at 10cm and 50 cm depths.	Annual

Nutrient Status

Soil Salinity							Acceptable Range for S 10 cm Depth			
Soil units 2a, 2b, 2c, 2d, 3a, 3b, 3d	Soil solution sampling via FullStop Soil core sampling depth 0-120cm.	Acceptable Range at 10cm depth	Acceptable Range at 50cm depth	Acceptable Range at 120cm depth	Irrigation response	Testing Frequency	2a	2b	2c	2d
pH	(1:5) solution soil extract	4.5-7.0	5.5-7.5	6.0-8.5	pH <5.0 add lime/compost. Field pH test response. pH >8.0 stop lime dosing. Flush neutral pH water.	Annual				
ESP (% calculated from sodium and cation exchange capacity)	soil	10	15	20	Flush bore water	Annual				
SAR (Calculated from solution cations: Ca++, Mg++ Na++)	solution	15	20	40	Flush bore water	Annual				
EC _{sat} (dS/m)	solution	3	4	5	EC >5 on clay flushing water/shandy	Annual				
Cl ⁻	solution	0-150 mg/kg	0-450 mg/kg	0-600+ mg/kg	Flushing water/shandy	Annual				
NO ₃ ⁺	solution /soil	120mg/kg	100mg/kg	20mg/kg (soil sample)	NO ₃ > 100mg/kg at 50 cm irrigate only flushing water. Monitor to depth 150cm Increase pH irrigation water.	Annual				
Total sulphate sulphur	Solution- (includes gypsum precipitate)	4000mg/l	5000mg/l	6000 mg/kg (soil sample)	Calcium amendment	Annual				
Nutrient										
Total N (%)							0.1- 0.25	0.1- 0.25	0.1- 0.3	0.2- 0.5
NO ₃ -N (mg/Kg)							10- 120	10- 120	10- 120	10- 120
NH ₄ -N (mg/Kg)							20- 450	20- 450	20- 450	20- 450
Acid Extractable P (mg/Kg)							10- 450	10- 450	10- 450	10- 450
Bicarbonate Extractable P (mg/Kg)							10- 100	10- 100	10- 100	10- 100

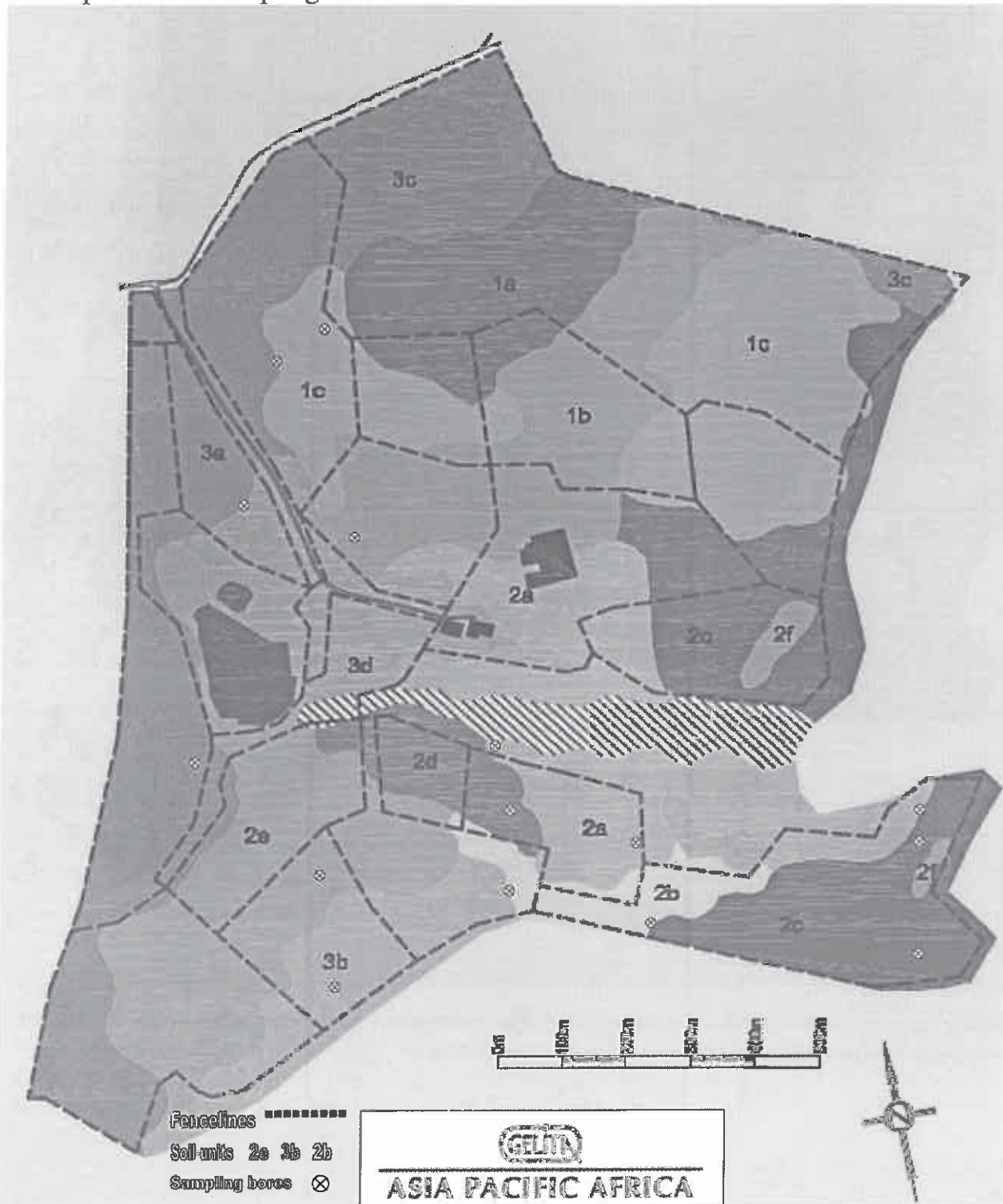
The schedules above are proposed as a continuation of the original licence conditions and have been extended to meet the requirements of the EMP. Soil sampling shall be conducted to 1.5 metre depth across soil units on an annual basis to establish benchmarks and monitor movement of "salts" and nitrogen through soil profiles. Solution for analysis shall be drawn from FullStop wetting front detectors at 10 and 50 cm for irrigation scheduling and also at depths of 1 and 1.5 metres for soil solution extracts.

Soil Order	Description	Soil Unit	Proposed irrigation treatment
Rudson	Bakshi, conveys crest, shallow stony medium clay. Non-irrigation zone.	1a	This area is not suited to any irrigation. Not monitored.

Dermosol	Basalt midslope shelf. Shallow stony light clay. pH 8.5 at depth. Irrigation zone.	1b	This area has been subject to irrigation in the past and future effluent irrigation shall be progressively reduced to zero as the plan is implemented. Minimal monitoring required.
Dermosol	Basalt lower slope. Shallow stony brown medium clay. Irrigation zone.	1c	This area has been subject to irrigation in the past and future effluent irrigation shall be progressively reduced to zero as the plan is implemented. Minimal monitoring required.
Dermosol	Alluvium, relic and current levees. Deep sandy loam, pH neutral at depth.	2a	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Dermosol	Alluvium dissected levee. Deep clay/sandy loam. pH neutral. Irrigation zone.	2b	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Dermosol	Alluvium, backplain. Deep layered sandy clay loam. Alkaline pH at depth. Irrigation zone.	2c	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Vertosol	Basaltic alluvium, closed depression. Black cracking clays. Alkaline. Irrigation zone.	2d	This zone will be progressively planted to vetiver and receive effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Vertosol	Basaltic alluvium, relic backplain. Dark cracking medium clays, alkaline. Irrigation zone.	2e	This zone will be subject to drainage channels and the soil flushed. It will receive some effluent irrigation as the plan is implemented. Over time the zone will be entirely excluded from effluent irrigation. Intensive monitoring as per table 3 required.
Dermosol	Alluvium dissected relic levee. Brown sandy clay loam. Irrigation zone.	2f	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Characteristics of this dermosol are typical of the other dermosols on site. This soil type limited in area. Intensive monitoring as per table 3 not required.
Sodosol	Walloon sandstone, relic terrace, upper convex slopes. Brown clay loam, mottled yellow subsoil, neutral to alkaline. Irrigation zone.	3a	This zone will be subject to irrigated agroforestry and the soil flushed. It will receive some effluent irrigation as the plan is implemented. Over time the zone will be entirely excluded from effluent irrigation. Intensive monitoring as per table 3 required.
Vertosol	Walloon siltstone, relic terrace. Brown clay loam, yellow brown clay, alkaline. Irrigation zone.	3b	This zone will be retained as irrigated pasture and receive effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Vertosol	Mixed basalt/Walloon sediments. Organic black over red brown clay, alkaline.	3c	This area is not suited to any irrigation. Not monitored.
Vertosol	Colluvium basalt/Walloon sediments relic gully infill. Brown clay, alkaline.	3d	This area is not ideal for effluent irrigation. It will continue to receive some effluent irrigation as the plan is implemented. Over time the zone will be entirely excluded from effluent irrigation.

Soil units for monitoring purposes are described in this table and presented in map format below. Fence lines and groundwater monitoring bores are also detailed on this map.

oil Map units and sampling bore locations



The bores listed for monitoring are detailed in the map above. Therefore Condition H33 should be expanded to include the additional bore monitoring sites proposed by GELITA.

The proposed Schedule H Table 3 does not seek any changes to the parameters within the current licence conditions regarding groundwater quality monitoring other than a reduced frequency from bi-monthly to bi-annual. Condition H34 c would require amendment to reflect this proposed change.

Groundwater monitoring parameters and reporting requirements are further proposed to constitute an integral aspect of the Annual Audit process. This process will comprise an analysis and interpretive

report of the monitoring program by an external consultant; and shall include an annual modelling exercise utilising MEDLI. The MEDLI model will be a major predictive tool in long-term management of the site and shall form part of the annual reporting requirement.

GELITA will also continue to regularly monitor the following effluent quality characteristics for irrigation management purposes as required by our ISO 14001 procedures. The proposed changes to the licence are designed to achieve an outcome based reporting format and do not preclude the continuation of the GELITA waste-water monitoring program.

The following parameters are required for data input into the MEDLI model and shall continue to be collected and collated. All such records are maintained on-site indefinitely.

Irrigation Water Quality Monitoring

pH	EC	COD (mg/L)	TSS (mg/L)	BOD (mg/L)	TN (mg/L)	TDS (ppm)	NOx (mg/L)
----	----	------------	------------	------------	-----------	-----------	------------

The initial monitoring program recommended in the Environmental Impact Statement on soil and water monitoring (GHD, 1992) was implemented as policy in the Company (Leiner Davis Gelatin Australia) Environmental Management Plan, 1994.

The revised program of irrigation scheduling (Hydroplan report, September 2003) is aimed to sustain soil conditions for productive growth according to soil properties as determined in the Land Management Study Phase 1, Task A- Soil Sampling and Analysis as reported above.

To meet the requirements of the revised licence proposal more specific sampling will be required to monitor soil conditions according to soil and crop type. The sites for sampling will follow from this report and will be taken from similar locations for comparison over time.

Additional soil and ground water sampling for determining soil behaviour in relation to infiltration and hydraulic conductivity will be monitored on an annual basis during the seven years following establishment of the vetiver/ryegrass production unit.

These data will be used to validate the predictive outcomes of the MEDLI program upon which the vetiver/ryegrass program is based. Corrective actions will be taken if values are deemed to be outside sustainable limits.

This will be effected by:

- a) modifying the leaching fraction and
- b) by reducing salt load in irrigation water by shandyng with bore water and
- c) maintaining physical soil properties by mechanical intervention (eg ripping) and
- d) controlling nitrogen loads where necessary by chemical means.

These analyses will be used in conjunction with wastewater treatment data to assess compliance with the relevant licence conditions proposed in this submission. “

SAMPLING PROGRAM 2004

The sampling program to establish preliminary baseline data for the current monitoring program began on 29 January 2003. Samples were taken by hand auger to depth from sites within the mapped soil units which were located with GPS coordinates for future reference. Further sampling will be effected to meet the criteria of depth for future monitoring. The samples were submitted to the accredited analytical laboratory, Food and Agriculture Laboratories Australia for analysis. The data are presented in Table 1. below.

These preliminary data are within the acceptable ranges deemed for Soil Salinity and Nutrient Status for the specified soil map units (see Tables under Schedule H Table 3 above). Field instrumentation (FullStop Wetting Front Detectors) are yet to be installed and so soil infiltration and hydraulic conductivity data are not available at this stage.

Ground water analyses obtained from samples in September 2004 have been found to be in error. The piezometer boreholes installed in 1992 have variously deteriorated due to age. Later boreholes to replace some of these earlier boreholes in 2000 have also been damaged by farm operations and stock. Consequently some of the bores which are strategic to the new monitoring program are unserviceable. (see photographs attached).

The design of the piezometer above ground casing and caps is unsatisfactory because caps have been knocked off by cattle rubbing against them. This has resulted in the ingress of hair and effluent resulting in contamination of the ground water. This was observed in preliminary analyses even after standard purging and sampling procedures. Consequently the data was inconsistent and did not reflect the influence of management on groundwater conditions.

It is recommended that a refurbishment program is implemented to rectify the situation to allow for credible licence compliance monitoring.

TABLE 1.
GELITA BASELINE DATA 2004

Site/ Profile Depths	pH 1:5	E.Cond.	Chloride	CEC	Ca ++	Mg ++	Na +	K +	Exch.acid	Exch. Al	Exch. H+	NO3-N
ID 0493647 6899828 haplic mesotrophic brown dermosol Sampled 7 April												
2a 0-10	6.5	0.117	71	24.8	4009	445	161	171	0.01	0.01	0.01	14
2a 10-30	6.2	0.093	95	30.8	4360	908	286	133	0.04	<0.01	0.04	11
2a 30-60	6.3	0.306	178	37.5	4982	1304	343	166	<0.01	<0.01	<0.01	3
2a 60-90	7.1	0.18	332	39.4	4987	1525	346	171	<0.01	<0.01	<0.01	7
2a 90-120	7.1	0.601	518	46.1	6067	1673	366	171	<0.01	<0.01	<0.01	6
2a 120-150	7.1	0.466	415	46.5	6308	1599	346	139	<0.01	<0.01	<0.01	8
ID 0493306 6899766 melanic mesotrophic brown dermosol Sampled 31 January												
2b 0-10	4.7	0.18	66	10.9	1405	81.9	134	143	2.3	1.8	0.5	67
2b 10-20	4.7	0.306	28	13.6	1749	97.6	160	161	3	2.4	0.6	59
2b 20-30	4.5	0.544	66	15.1	1883	128	205	170	3.3	2.7	0.6	6
2b 30-60	5.1	0.62	161	18.9	2624	344	372	132	1	0.7	0.3	8
2b 60-75	6.7	0.475	244	19.6	2612	476	510	115	0.1	0.08	0.04	8
ID 0493644 6899686 haplic eutrophic brown dermosol Sampled 31 January												
2c 0-10	4.5	1.126	131	19.6	2986	163	412	106	1.3	1	0.1	67
2c 10-20	4.6	0.96	180	20.2	2871	223	476	115	1.6	1.2	0.4	65
2c 20-30	4.8	1.256	730	25.5	3574	383	681	118	1.2	1	0.3	24
2c 30-60	5.5	1.39	351	32.4	4331	807	868	95	0.08	0.04	0.04	13
2c 60-75	6.6	1.093	655	30.8	3621	1076	831	96	0.04	0.04	0.001	19
ID 0493471 6900134 haplic eutrophic brown dermosol Sampled 7 April												
2c1 0-10	4.5	0.531	225	24	3316	291	410	318	3.9	3	0.9	7
2c1 10-30	4.8	0.63	202	30	4322	501	403	252	1.6	0.8	0.9	8
2c1 30-60	6.6	1.27	340	47	6344	1377	858	178	<0.01	<0.01	<0.01	7
2c1 60-90	7	1.02	593	48	6120	1649	865	133	"	"	"	16
2c1 90-120	6.9	0.95	546	45	5458	1580	836	165	"	"	"	9
ID 0492665 6899731 episodic self mulching black vertosol Sampled 7 April												
2d 0-10	4.9	0.24	154	23	3156	388	259	482	1.67	1.12	0.55	7
2d 10-30	4.9	0.22	189	44	3160	493	248	265	2.38	1.32	1.06	7
2d 30-60	6.9	0.61	165	41	5323	1340	745	199	0.04	<0.01	0.04	10
2d 60-90	6.4	0.99	545	49	5628	1948	1058	166	<0.01	"	<0.01	22
2d 90-120	7	1.09	688	50	5588	2055	1070	168	"	"	"	28
2d 120-150	6.4	0.9	621	43	3780	1459	713	122	"	"	"	21
2d 150-160	7	0.9	558	37	4388	1458	723	133	"	"	"	19

Site/ Profile Depths	pH 1:5	E.Cond.	Chloride	CEC	Ca ++	Mg ++	Na +	K +	Exch.acid	Exch. Al	Exch. H+	NO3-N
ID 0492948 6900059 episodic epipedal brown vertosol Sampled 31 January												
2e 0-10	4.6	2.04	589	24	3006	392	819	204	1.42	0.95	0.47	66
2e 10-20	5.6	0.79	376	16	1595	398	610	102	1.67	1.32	0.35	69
2e 20-30	5.1	1.15	557	26	2445	856	1085	93	1.8	1.41	0.39	7
2e 30-60	5.9	1.68	1039	38	3258	1645	1781	77	0.08	<0.01	0.08	9
2e 60-90	6.1	1.49	1390	42	3349	1943	2107	87	0.08	"	0.08	9
ID 0493638 6900236 brown dermosol Sampled 31 January												
2f 0-10	6	0.19	85	6	46	485	225	218	0.04	<0.01	0.04	14
2f 10-30	6.2	0.29	117	30	4282	859	367	154	<0.01	"	<0.01	13
2f 30-60	6.7	0.41	189	25	3269	789	358	112	"	"	"	10
2f 60-90	6.8	0.34	212	20	2578	646	299	97	"	"	"	9
2f 90-120	6.8	0.37	308	21	2715	688	274	115	"	"	"	11
ID 0492422 6899593 mottled subnatric yellow sodosol Sampled 31 January												
3a 0-10	4.7	1.97	718	30	3614	681	991	186	1.34	1.04	0.3	76
3a 10-20	4.8	2.27	970	45	4762	1431	1473	135	3.09	2.61	0.49	71
3a 20-30	5.1	2.11	1174	49	4742	1964	1721	143	1.67	1.28	0.39	7
3a 30-60	5.6	1.94	1847	49	4010	2449	1830	149	0.42	0.25	0.17	10
3a 60-90	5.9	1.69	1870	48	3759	2571	1747	164	0.084	<0.001	0.084	6
3a 90-100	6.2	1.43	1668	41	3056	2234	1489	174	0.042	"	0.042	7
ID 0492955 6899797 epiacidic epipedal grey vertosol Sampled 31 January												
3b 0-10	4.6	1.99	506	31	4164	428	860	372	1.67	1.28	0.39	69
3b 10-20	4.9	1.95	889	30	3480	657	1282	218	1.17	0.91	0.26	61
3b 20-30	5.5	1.98	1274	40	4083	1285	1804	203	0.25	0.12	0.13	9
3b 30-60	6.1	2.12	1735	49	4296	2214	2095	147	<0.001	<0.001	<0.001	12
3b 60-90	7.1	2.12	2128	69	6665	3097	2338	145	"	"	"	7

Signed: Dr B.M Schafer

5

October 2004



ASIA PACIFIC AFRICA

EPA SOUTHERN REGION	
Correspondence No.	Barcode No.
STH 2004/4101	
File No.	FOLIO
STH 495-9	7
Action Officer	Related Items
Don S	
RECEIVED 11/11/04	

8 June 2004

Mr Don Shackel
Senior Inspector
Environmental Protection Agency
GPO Box 2771
Brisbane
Queensland 4001

Dear Don

We have received by registered post formal response from the EPA of amendment of our licence SR0722. The altered conditions expedite the implementation of the goals of the EMP SR1157 as approved by your organisation. GELITA is confident that this will make our operation more sustainable and creates a model for similar industries.

The development of the flexible outcome based approach accepted by the EPA has been the result of a prolonged and transparent multi-disciplinary research process. This process has been instigated, driven, and managed by GELITA over the last five years. Many organisations and individuals contributed to the end result and have been acknowledged as contributors in the EMP submission.

We believe that in keeping with the concept of due diligence, we should inform you that on 4 May 2004, Associate Professor Hwat Bing So of the University of Queensland expressed some concern about GELITA's EMP submission and the requested licence amendments. Without questioning the motivation behind this unexpected development, GELITA immediately sought independent technical reviews of the EMP submission.

We now submit for your assessment the outcomes of the reviews. One review was undertaken by an independent consultant, Dr Robert Patterson who has considerable expertise in the field of soils and effluent disposal. GELITA also requested two of the other parties involved in the compilation of the EMP to respond to the concerns raised by the University.

Due to time constraints associated with such a review process we have been unable to provide the documentation prior to this date. We received the main report from Dr Patterson by post on the 28 May. The last of the other expert responses was received by facsimile today. We present for your consideration the concerns as raised by the University of Queensland, and the responses of the independent experts.



Gelatine Pharmaceutical Gelatine Photographic Gelatine



Hydrolysates

Instant Gelatine

Special Gelatine

GELITA Australia Pty Ltd. ABN 83 000 010 597

"Sunny Hills" Flood Road Josephville via Beaudesert QLD
PO Box 409, Beaudesert, Queensland 4285 Australia
Telephone 617 5541 3544 Facsimile 617 5541 3612

www.GELITA.com

We take this opportunity to state that GELITA is completely satisfied that the EMP submission and licence amendments are based on sound research and scientific analysis. GELITA fully stands by the submissions as made to, and approved by, the EPA.

We enclose herewith:

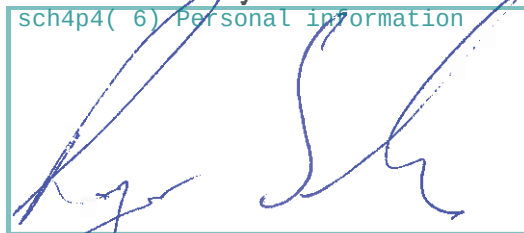
- Documents provided by Associate Professor Hwat Bing So setting out the perceived issues of concern
- Commentaries by Drs Patterson, Schafer and Truong in response to those issues
- Details of the Dr Patterson's qualifications and experience

GELITA extends an open invitation to officers of the EPA to visit and assess the progress of the site under the new licence conditions at any time.

Please do not hesitate to contact Cameron Smeal on (07) 5541 9442 should you require further detail.

Yours sincerely

sch4p4(6) Personal information

A handwritten signature in blue ink, appearing to be 'R Seach', is written over a light blue rectangular box. The box contains the text 'sch4p4(6) Personal information'.

Roger Seach
General Manager

There are two separate and inter-related issues.

1. The major one for both the University and Gelita is the misinterpretation of our report (on the issue of sustainability) and the sustainability of the proposed revised management plan.
2. The second one is the continuation of the ARC project.

The first one is independent of the second issue, in that it remains an issue even if the second one did not arise.

1. Gelita's submission to the EPA misinterpreted our report (Outcome report August 2003 in relation to the interpretation and use of the sustainability framework that we have developed and presented to the EPA conference April 6, 2004). In essence, the report proposes a revised management plan that was perceived as sustainable, but is in fact not likely to be sustainable. It is likely to be less sustainable than the current management practice. Based on the perceived improved plan, the report requested removal of operating limits that virtually asked for a license to pollute the environment.

It will be impossible for UQ to remain silent and we will be obliged to express our views to the EPA.

Currently the submission is not fully approved which presents a window of opportunity to make a revision to that submission.

2. The second issue is the continuation of the ARC project
 - a. It appears that the EMP objectives are confused with the ARC Linkage project objectives (systematic understanding and development of an appropriate management regime)
 - b. ARC Linkage was designed beyond the March 2001 (extended to Sept 2003) demonstration of approximate sustainability
 - c. Gelita claims that UQ has been paid in cash \$ 372,000 for 2002/2003, when we had only invoiced Gelita and been paid \$ 175,438.82 to the Sept quarter. We had sent an invoice for the Dec quarter of \$23771.83 which makes it \$ 199,210.65 for 2002/2003. No detailed accounting for the \$ 372,000 has been supplied. What was the \$ 197,000 additional spending? Was it in-kind contributions?

The sustainability framework (from UQ Outcome Report Aug 2003:

The strongly interlinked mass balances for water, nitrogen and salt form the basis for sustainable management of the effluent disposal site.

The sequence of considerations that is needed to ensure sustainability:

- a. The maximum salt conc (Cm) that will support adequate plant growth
- b. An adequate leaching fraction must be achieved to ensure that salt concentrations in the soil does not exceed Cm.
- c. Therefore, soil structural condition must allow sufficiently high infiltration rates to achieve the required LF..
- d. Effluent loading rate for nitrogen must be balanced with the export of nitrogen in biomass to prevent detrimental off-site impacts.

The current management practice: With an **assumed conc of 200 mg N/L in the effluent, and an assumed loss of 25 %** through volatilization, successful sustainable outcomes are only possible if the salt and/or nitrogen concentration in the effluent is reduced, unless alternative plant species with higher nitrogen uptake (higher N conc and higher biomass) are used or denitrification events can be quantified and managed.

However, increasing N uptake by increasing biomass production must be achieved without decreasing the LF and increasing EC to detrimental levels.

How the system works:

1. The capacity of the land to receive effluent irrigation is determined by the term ET in the water balance equation:

$$P + I = \Delta W + ET + DD + RO$$

2. ET is determined by the biomass of the vegetation. The greater the biomass, the greater is ET and hence the capacity of the land to receive irrigation.
3. However, as effluent contains salt and N, salt levels will build up in the root zone unless there is excess water (DD) to leach excess salt out of the rootzone. An equilibrium salt concentration will be established which will determine the biomass that can be grown. In turn, the equilibrium salt concentration will be determined by the leaching fraction (LF) and salt conc of the effluent .
4. As salt accumulates, N will also accumulate in the rootzone and in the drainage water. To reduce off-site N release, N will have to be removed by the vegetation. N losses such as denitrification and volatilisation will have to be maximized and managed, or N concentrations in the irrigation water reduced.

N removal by vegetation can be maximized by increasing biomass, but for a given irrigation quantity, higher biomass leads to reduced LF and increased salt concentration in the rootzone and drainage water.

5. Therefore, N removal by vegetation should be maximized with a minimum of biomass increases. This means that the most effective vegetation for this purpose is plants with high N content with moderate biomass production levels. High biomass with low N content will result in high salt conc, low biomass production and low N removal rates. Vetiver grass falls into the latter category (N content 1.5 – 2 %) and Rhodes grass falls into the former category (N content 3 – 3.5 %). At 500 ML/y applied to 50 ha Vetiver or 10 ML/ha/y, the result calculated using Medli is shown in Fig 1:

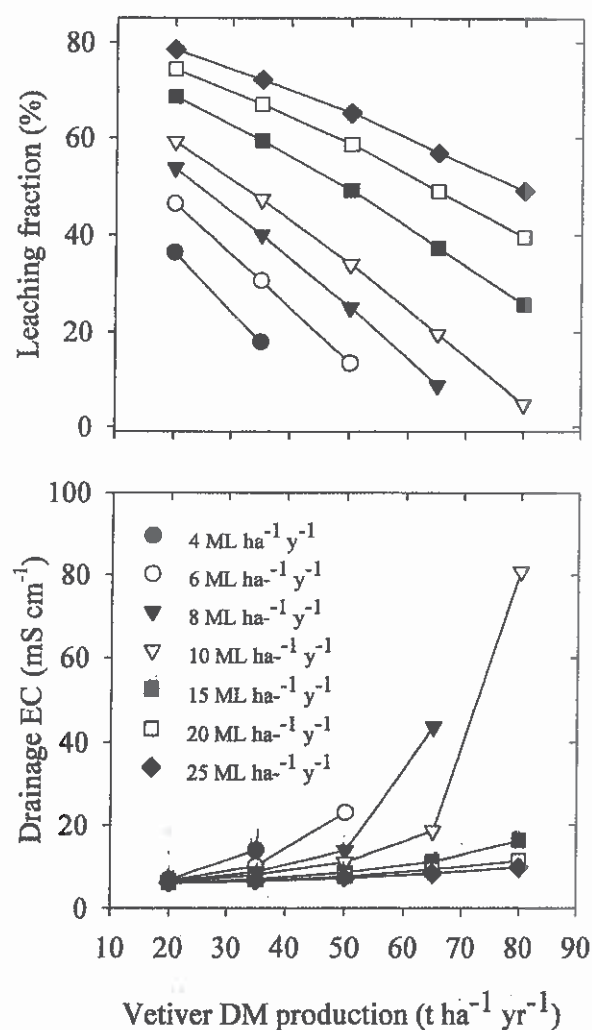


Figure 1. Effect of Vetiver (*Vetiver zizanioides*) growth on drainage EC and leaching fraction from the Dermosol predicted using MEDLI for various effluent application rates.

Comparison between current and revised management plan:

Current Management Practise (as reported in the UQ Outcome Report):

To the best estimation and available data on past practices, the **current management practice is sustainable with respect to water and salt based on the following observations:**

1. That despite the build-up of sodium on the soil exchange site to a high level (ESP of 20-26 %), the hydraulic conductivity of the surface soil remains sufficiently high that it should not impede the achievement of high leaching fractions, that is required to keep salinity levels in the root zone at levels for adequate plant growth.
2. The observed salt profiles in the Rudosol and Vertosol are sufficiently low and is consistent with a high leaching fractions of around 50 % and 27 % for the Rudosol and Vertosol respectively. This calculations included the annual rainfall.
3. Yields of the grass community, which is dominated by Rhodes grass, is low at 7 to 10 tons/ha/y in the paddock and around 14-15 tons/ha/y in the experimental plots. The latter increase was associated with liming and P application. Higher yields is possible with appropriate liming and fertilizer rates of application.

However, the current practice is not sustainable with N as the N conc in the effluent used for irrigation is too high at 200 mg/ha/y and sometimes higher. The need to concentrate irrigation on smaller area and not on the whole 121 ha, allows the achievement of sufficiently high leaching fractions, but it also resulted in high N loading per unit area.

Clearly, the **solution to this excess N is either**

- (1) to reduce N conc of the irrigation water (either at the plant or in the BSD pond),
- (2) to increase N removal by vegetation, or
- (3) combination of both, and
- (4) increase N losses through denitrification or volatilization (unknown potential at this stage).

The strong interlink between the water, salt and nitrogen balance should be interpreted that increasing N removal by increasing vegetation biomass must be conducted in a way that it should not reduce the LF to the extend that it significantly increase root zone salinity.

An increased root zone salinity may result in a reduced biomass production and in turn a reduced nitrogen removal rate. Therefore, **vegetation with high N content is preferred, and vegetation with low N content should be avoided as adequate N removal can only be achieved with high biomass..**

The proposed revised management plan (Gelita October 2003 submission to EPA) is based on the following:

- 1. Revised irrigation schedule according to soil type and production type.**
 - a. Irrigation is to be concentrated on an area < 60 ha
 - b. Irrigation management devised for a forage/agroforestry production program
 - c. Monitoring of irrigation (quality, quantity and distribution) rainfall and PET
 - d. Maintain LF to avoid deleterious effects on plant growth
 - e. Irrigation based on water requirement and triggered at 85 % of field capacity
 - f. Actual LF can be altered to ensure soil levels of N and salt are within sustainable levels (??)
- 2. Revised Effluent Management program.**
The main features of this plan are:
 - a. **Agro-forestry** on 27 ha of hill-slopes (This is good)
 - b. **Vetiver/rye vegetation** for uptake of N on a total area of 49.5 ha

Vetiver is a high biomass vegetation (80-100 t/ha/y at Gelita) with a low content of N (1.5 to 2 %) with a potential to remove 1200 t/ha/y at max growth. This is in contrast with the current grass vegetation (Rhodes grass) with an average of 3 – 3.5 % N.

The use of vetiver will result in low LF and high EC (Fig 1). The submission reported modeling result using Medli of LF around 15 – 20 % (page 27). Assuming input EC of 4-5 dS/m (after dilution with rain water), a LF of 15 % will result in an EC of drainage water of 28 – 35 dS/m, while a LF of 20 % will result in and EC of 20 – 25 dS/m. These EC are too high for even salt tolerant grasses or Vetiver to tolerate and will result in severe reduction in biomass and a reduction in N removal rate. **There seems to be an oversight of what the implications is of certain values of LF.**

Furthermore, these levels of EC takes us into unknown areas of soil hydraulic performance that has not been investigated. It is an area being investigated in the project. We know that the current EC of 6 dS/m and an SAR of 13, the soil under long-term pastures at Gelita can tolerate the dispersive and swelling pressures associated with high ESP. Very high soil ECs undoubtedly will result in high SAR and higher ESP. Will the soil retain sufficient permeability to achieve the necessary LF ? It is doubtful that the fragile Vertosol will retain adequate permeability.

Therefore, the use of a Vetiver/rye system is not likely to be sustainable. The use of Rhodes grass (N content 3-3.5 %) mixed with other grasses such as panic and rye has better potential to result in a sustainable system. Appropriate liming of the soil acidity, combined with appropriate fertilizer regime will provide a higher biomass production that will result in a similar removal rate of N without the deleterious effect on the salt

balance. At an irrigation of 10 ML/ha/y, biomass of up to 35 t/ha/y is not likely to result in excessively high EC in the soil.

- c. **Drainage:** will be used to remove excess salt from the 2e soil (vertisol). A series of lateral drainage channels will be used to flush the high salt levels using effluent water.

Flushing using effluent water is not likely to work, as the drainage channels simply replaces the bottom of the root zone. The salt balance equation $C_i D_i = C_d D_d$ applies to this case where C_d simply is the drainage water into the drain.

Increasing LF will reduce salt conc, increase N loading, but it is likely to waterlog this clay soil with a reduced pasture growth. Hence reduced capacity to take irrigation and a reduced capacity for N removal.

An unlined evaporation pond is likely to be leaky and sacrifice an area as a highly saline area.

We question the need for this type of drainage system for Gelita.

- d. **Chemical control option.**

The addition of liquid lime is proposed to raise the pH of the BSD pond to promote volatilization of ammonium. It is claimed that theoretically 80 % of ammonium can be volatilized.

It is correct that the literature reported 87 % volatilization from solution at pH 10.7, reducing rapidly to 13 % at pH 8.7. **The degree of volatilization achievable in the pond is not clear** due to:

1. unknown proportion of N as ammonium, much of it is likely to be organic ammonium which is not likely to be volatilized.
2. spray irrigation with water at pH 11 is likely to scorch the vegetation
3. the difficulty of mixing water in such a large pond.

Clearly some reduction of N in the irrigation water is achievable by increasing the pH, but this need to be investigated further.

3. The proposed revised management program:

The core of this program is the propagation and planting of vetiver over a period of 7 years (not clear why it will take 7 years). The harvested material will be composted and used for pasture improvement in the non-irrigated areas of the farm.

This plan may work by spreading the N applied by irrigation to a wider area and is spreading the application and leaching of N over a wider timespan. How long will this work before it reached a steady state where the benefit of vegetation removal is lost.

The compost should be exported from the site.

The overall conclusion is that the proposed revised management program is not likely to be sustainable.

Recommended license amendments:

2. Wet weather storage: there is no need to remove this restriction as run-off must be prevented. Suggest that it should be amended as follows:

“The release of contaminants to land must be conducted in a manner that ensures no off-site pollution occurs as a result of that practice”

3. Quality of contaminants released to land:

	Current license	Proposed
5-day BOD	100	400 mg/L (allow chem. dosing
COD	600	800 mg/L for pH and N control) ??
TSS	100 mg/L	no limit (high TSS may clog soil)
TDS	12 t/ha/y	no limit (unnecessary given UQ
findings and preclude dosing liquid lime – UQ findings did not suggest this. Unlimited capacity for 12 t/ha/y given that salt will leach into Logan River. Suggest 15 t/ha/y)		
pH	6.5 – 8.5	6.5 – 11
Total N	200 mg/L	no limit (asking for a license to
pollute !! Limit to be retained)		
Total N discharge	0.38 t/ha/y	no limit (asking for a license to
pollute !! Perhaps a relaxation of the limit maybe permitted)		
Total P	5	no limit
Total P	10	no limit

Suggest that limits be suggested that gives reasonable room to operate the plant with a stated intention to aim for further reduction in line with the sustainability framework. The University is prepared to act as an independent monitor and auditor until an optimum management strategy is developed.

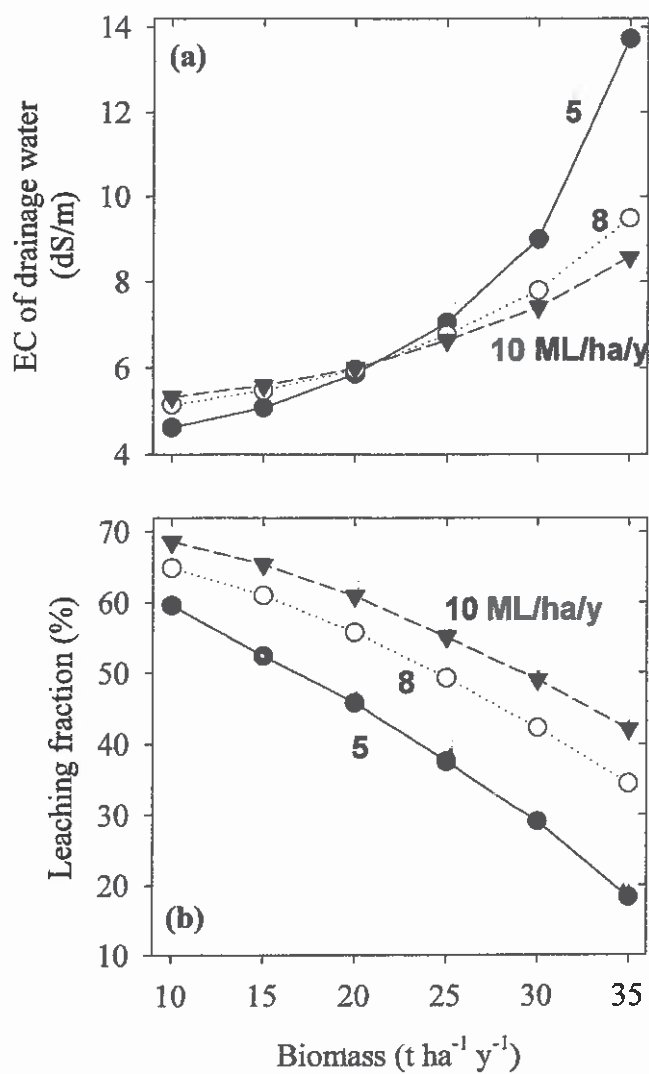


Fig 2: Effect of Rhodes grass growth on drainage EC and leaching fraction from the Dermosol predicted using MEDLI for various effluent application rate

The sustainability of land disposal systems for highly saline industrial effluent

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Abstract

The sustainability of a system for the land disposal of saline waste is fundamentally dependent on whether salt concentrations in the soil can be maintained at levels that allow adequate plant growth to remove water, salt or other solutes. Hence a suitably high leaching fraction is required to limit salt accumulation. If other potentially harmful solutes are present, the excessive amount of water application may give rise to other environmental problems of excessive solute accumulation or discharge. However, the application of salt as NaCl will increase the exchangeable sodium percentage (ESP) of the soil which could reduce the soil's infiltration rates to levels where the required leaching fraction may not be achievable.

Experience derived from an investigation of a land disposal site for highly saline industrial effluent at Beaudesert, Queensland suggests that soils from undisturbed pasture sites are sufficiently stable to counteract the detrimental effect of high ESP. This finding is in sharp contrast to our current knowledge of the behaviour of disturbed (cultivated) sodic soils.

Relevant information on the relationship between the effluent sodium adsorption ratio (SAR), ESP and the infiltration rate of soils from the land disposal site is presented and the implication to the sustainability of the land disposal system discussed. The principal considerations necessary for the development of guidelines for the sustainable disposal of saline effluent are presented.

Keywords: Saline land disposal, irrigation, ESP, SAR, Infiltration rates.

1.0 Introduction

The application of saline effluent to land is generally practised on vegetated sites and is governed by several principles (So et al, 2003):

- 1) The water balance of the root zone:

input of water = output of water

$$P + I = ET + \Delta W + RO + DD \quad [1]$$

where:

P = precipitation,
I = irrigation,
ET = evapo-transpiration,
 ΔW = change in soil water storage,
RO = run-off,
DD = deep drainage
all expressed as mm water.

- 2) The salt balance of the root zone (Anonymous, 1960) :

salt input = salt output

$$D_i C_i + S_m = D_d C_d + S_p + S_{pl} \quad [2]$$

where D_i and D_d are the depth of irrigation and drainage water, C_i and C_d are salt concentration of irrigation and drainage water, S_m , S_p and S_{pl} are the amount of salt dissolved from soil minerals, precipitated in the soil and removed during plant harvest respectively. The parameters S_m , S_p and S_{pl} are generally small and negligible, thus reducing the salt balance to:

$$D_i C_i = D_d C_d \quad [3]$$

These steady state equations are approximately correct for sufficiently long periods of observations where climatic extremes are absent. It assumes uniform conditions throughout the root zone, and the term DD in equation 1 is similar to the term D_i in equation

2 and 3. Clearly, the real situation is that the salt concentration will be lowest at the surface (C_i) and increase towards the bottom of the root zone (C_d), except for the immediate surface soil.

Where groundwater is sufficiently deep, some salt will accumulate at the immediate surface due to evaporation. The pattern of salt concentration increase with depth depends on the removal rate of water, which is determined by the rate of evapo-transpiration of the vegetation.

The salt balance does not apply to conditions where the combination of distribution of rainfall and soil are such that it leads to short periods of high leaching, e.g. sandy soils with short periods of intense rainstorms.

- 3) If another undesirable compound is present in the effluent, the salt balance equation will also apply to this compound and can be expressed as:

$$D_i C_i = D_d C_d + \text{other losses} \quad [4]$$

where other losses are associated with loss mechanisms within the soil, e.g. denitrification and volatilisation in the case of nitrogen, or precipitation with other compounds.

The interactions between these processes is dominated by the water balance, thus the DD component becomes the determining factor for the degree of accumulation in the root zone of salt or any other compound. Therefore, the sustainability of a saline land disposal system is fundamentally dependent on whether salt concentrations in the soil can be maintained at levels that allow adequate plant growth to remove water (ET), salt (S_{pl}) or other solutes. A suitable leaching fraction is required to limit salt accumulation to desired levels.

In addition to the direct effect of salinity on plant growth, the application of salt as NaCl will increase the exchangeable sodium percentage (ESP) of the soil. This can strongly affect the degree of swelling and dispersion, which in turn may block the water transmitting pores in the soil, especially in clay soils. The reduction in transmission properties of the soil (hydraulic conductivity) may lead to conditions where the required leaching fraction

may not be achievable. In such a case, the land disposal system will not be sustainable. Therefore, the equilibrium hydraulic conductivity of the soil will determine the equilibrium salt concentration in the root zone and hence the productivity of the soil.

The potential of the effluent to affect the ESP of the soil is called the sodium adsorption ratio (SAR) which is the ratio of sodium concentration to the sum of calcium and magnesium concentrations:

$$SAR = [Na]/([Ca] + [Mg])^{0.5} \quad [5]$$

where concentration is expressed as mmol/L.

The sustainability of a land disposal system should also consider the effect of saline deep drainage water on the environment. Drainage may reach the groundwater system and may in time result in salt seepage problems downhill from the land disposal site. It may also reach a natural drainage system such as a creek or river.

This paper will be confined to a discussion of the relationship between the effluent SAR, ESP and the hydraulic conductivity (K) of soils at the land disposal site, and the implication to the sustainability of that land disposal system.

2.0 SAR – ESP – K relationships

The SAR – ESP relationship for a soil is affected by the type of clay, the soil solution concentration (ionic strength) and the soil pH. The relationships under different ionic strengths are shown in Fig 1 for a Dermosol and Vertosol from a land disposal project at Beaudesert, south of Brisbane. Clearly the salinity of the effluent has a strong influence on the equilibrium ESP of the soil. For the same SAR, effluent with high salinities will give rise to significantly higher ESPs compared to effluent with low salinities.

Effluent was used for irrigation of Rhodes grass pastures. It had an approximate average salinity of 6 dS/m (approximately 60-70 mM or 4000 ppm solute concentration) with an SAR of 13. After 6 years of irrigation, the average ESP for the Dermosol was around 20 % and for the Vertosol around 25 % (So et al, 2003). Despite these high ESPs, the use of saline effluent can suppress swelling and

dispersion of the clay fraction and infiltration rates can be expected to remain high. However, when these high ESP values are combined with low soil solution concentrations (e.g. during rainfall) it may lead to a severe reduction in transmission capacity.

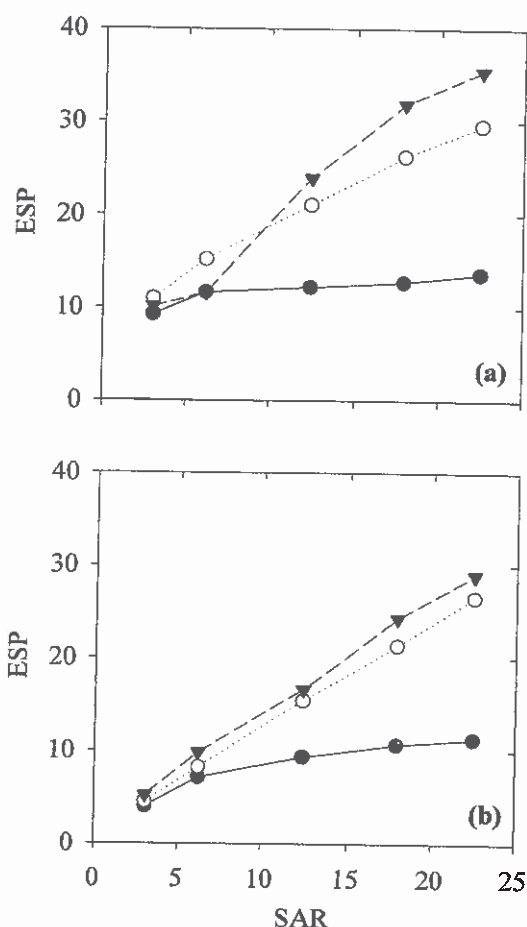


Fig 1: SAR – ESP relationships for (a) a Dermosol and (b) a Vertosol from the land disposal site, Beaudesert, Qld, at ionic strengths 10 (●), 50 (○) and 150 mM (▼)

Table 1: Field infiltration rates (mm/h) measured using a double ring infiltrometer with water and effluent.

Soil	Inf Rate (water) mm/h	Inf Rate (Effluent) mm/h
Vertosol (32-43 % clay, 30 % silt)	15.3 ± 2.7	14 ± 2
Dermosol (13-17 % clay, 3 – 14 % silt)	19.5 ± 2.5	18 ± 2

Measurement of field infiltration rates were made using a double ring infiltrometer with water and effluent separately, and in other cases alternatively. Results in Table 1 show no difference in infiltration rates through the surface soil with deionised water or effluent (Siddiqui, 2002). In both cases infiltration rates remains sufficiently high (> 14 mm/h) to allow adequate leaching fractions to be achieved, providing there are no other limitations to water flow deeper in the profile e.g. compaction.

2.1 Undisturbed versus cultivated soils: The distinction between undisturbed and cultivated soils was important to the sustainability of the land disposal system at Beaudesert. The similarity of infiltration rates under water and effluent, indicates very high structural stability of these soils which have been under pasture for at least 6 years, and remained undisturbed during that period. The surface soil has a high soil organic matter content (up to 5 %) and this was able to prevent the swelling and dispersion of the clay fractions. This is in sharp contrast to our experience with cultivated soils. If the same soil had been cultivated continuously for a similar period and irrigated with the same effluent, the infiltration rate in water is likely to be reduced to very small values, such that suitable leaching fractions may not be achievable. Further work is underway to validate this finding on other soil types.

3.0 The importance of biomass production within a land disposal system

The largest component on the right hand side of Eqn 1 is ET, which is predominantly due to transpiration (T) by the vegetation. If there is no vegetation, and run-off is avoided, all water inputs (P + I) will become deep drainage once the soil is saturated ($\Delta W=0$) except for the small component of bare soil evaporation (E) from the immediate surface soil. For a particular climatic environment, transpiration is approximately a linear function of green biomass. Hence, the larger the green biomass, the greater will be the transpiration rate and the evapo-transpiration rate (ET). The ET represents the water requirement of the standing vegetation.

The Model of Effluent Disposal using Land Irrigation (Medli) program (v.1.3) was used to

estimate the effect of biomass production on the salinity of the drainage water out of the root zone; and the leaching fractions achievable (Fig 2). As biomass increases, the depletion of the soil water between irrigations or rainfall becomes greater (ΔW increases), and the ability of the soil to accept effluent irrigation increases. This will also increase the rate of salt accumulation and reduce the leaching fraction achieved from a set irrigation rate. (Fig 2a) Consequently, it may require a higher leaching fraction if the soil salinity is to be capped to a particular value. (Fig 2b) However, this also means that the system will be able to accept more effluent irrigation.

4.0 Summary and recommendations

In summary, sustainable land disposal of saline effluent depends on maintaining salt concentrations within the soil profile that permit adequate plant growth. Excess salt can be removed from the soil by leaching, provided that the leaching fraction is sufficiently large. Where the salt is NaCl, the increase in the soil's ESP could reduce the hydraulic conductivity to levels where the required leaching fraction may not be achievable. As the ESP effect can be counteracted in part by high salt concentrations, both the SAR of the effluent and its salt concentration must be considered.

In developing guidelines for suitability of saline disposal sites, factors should be considered in the following sequence:

- 1) What is the level of salt that can be tolerated by the standing vegetation?
- 2) What is the leaching fraction that is required to maintain that salinity in the root zone?
- 3) What will be the ESP of the soil when irrigated with the effluent?
- 4) Can a sufficiently high infiltration rate be maintained considering that rainfall will intermittently decrease the soil solution concentration in the soil?

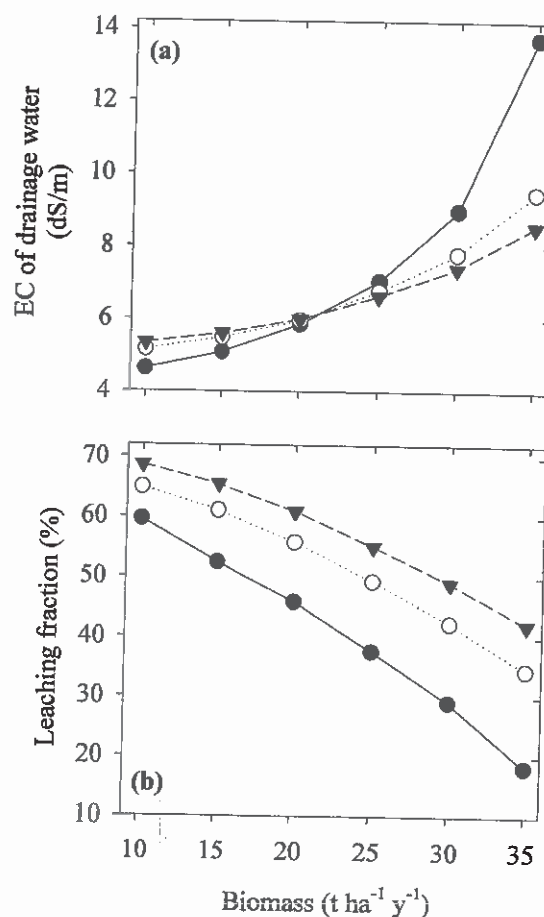


Fig 2: The effect of Rhodes grass biomass (dry weight) on (a) the electrical conductivity (EC) of drainage water, and (b) the leaching fractions (LF) achieved for effluent application rates of (●) 5, (○) 8 and (▼) 10 ML/ha/y. Estimation was made using the Medli program.

Acknowledgement: Funding for this project was provided by Gelita Australia Pty Ltd and the Australian Research Council and we are grateful for their support.

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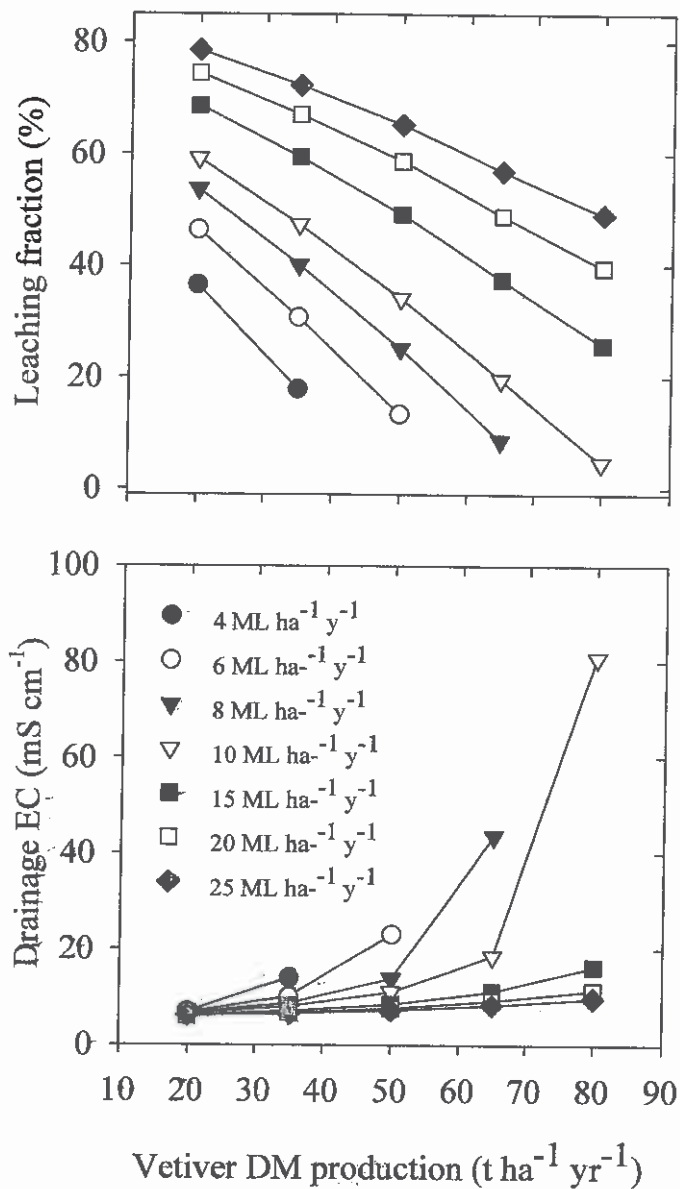


Figure 1. Effect of Vetiver (*Vetiver zizanioides*) growth on drainage EC and leaching fraction from the Dermosol predicted using MEDLI for various effluent application rates.

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Proficiency testing with Aust. Soil & Plant Analysis Council



26 May, 2004

Mr Roger Seach
The General Manager
Gelita Australia Pty Ltd
PO Box 409
Beaudesert Qld 4285

Dear Mr Seach,

Independent Review of Environmental Management Program - Effluent Management.

I refer to previous conversations with Mr Cameron Smeal and my meeting at Beaudesert on Monday 10th May 2004. Also present at that meeting were Drs Paul Truong and Brian Schafer. The purpose of the meeting was for me to receive background information with regards to data collected and assessed for the Environmental Management Program (EMP) Final Report, to receive copies of the various documents (listed in Appendix A) and accept or reject the brief.

The brief, as accepted, was to:

- (a) provide a response to the University of Queensland' current position; and
- (b) assess the EMP with respect to its ability to provide sustainable management options for effluent management under the current EPA licence.

I have reviewed the EMP and the documents that are summarised in the initial information sections of that program, bearing in mind the need for an EMP to be sufficiently robust in its current understanding of the consequences of various management options and the data available on which to make that plan. The EMP must also be sufficiently flexible to allow management to explore innovative techniques for maximising production from the effluent stream while maintaining sustainable activities and minimising off-site consequences.

The current position, I believe, is that UQ does not support the proposal for irrigating vetiver on a reduced area. This finding is supported by their previous research findings which stated that *"a reduction in area committed to effluent disposal will ease operational constraints.....concentrating effluent disposal to less than 60 hectares is essential to prevent salt build up.....A range of biomass removal options exist....."* (page 84). The current short-coming in available data is not sufficient impediment to prevent the proposed plan from being submitted to EPA as a valid plan. While much of UQ's work is the product of students' projects, the commercial reality of the worth of some of the research is questionable.

The proposal to use vetiver is supported by the current level of research conducted by Dr Truong. The soils landscape assessment by Dr Schafer is appropriate as the basis for continuing effluent discharge to land and



Soil survey and analytical assessments, landscape analysis and plant nutrient relationships
Qualified ISO14000 environmental management systems consultants

from which monitoring and fine adjustments can be made. The water balance modelling by Alison Vieritz, using MEDLI 2.0, and the work that has been completed to provide valid data inputs to that model suggest that the proposal is an excellent example of adapting a model to generate a variety of expected acceptable outcomes. While the issues of leaching fractions, nitrogen losses and salinity are incomplete, there is sufficient data to continue this research as part of the normal functions of the EMP, that is, new data becomes part of the working program.

In reviewing the EMP, I am concerned that a number of areas have been omitted from useful research projects and that alternative management strategies could arise from a more complete understanding of the soil/effluent interactions. None of these limits the current EMP in achieving its desired outcomes.

1. The issue of salinity has been examined but little has been done about sodicity. Research to date that discuss limits to the levels of salinity in the effluent negates the ability to add saline products (lime, dolomite, gypsum, calcium thiosulphate) as a means of ameliorating the effects of sodicity.
2. The role of microorganisms in the nitrogen cycle has been avoided, almost as if the only concern is the nitrogen that may leak to groundwater. The role of microbes as consumers of ammonia and nitrates, their ability to denitrify has not been adequately addressed in any of the UQ projects.
3. The role of organic material to elevate cation exchange, provide a carbon source for microorganisms, to ameliorate potential soil structural decline, to increase soil permeability have not been measured, or projected into future land management options.
4. That the economics of turning waste into a resource has not been considered a higher priority rather than basic requirement to meet EPA licence. These outcomes are mutually inclusive.
5. That specified methods of soil and effluent sampling, soil and water analysis, data analysis and data recording need to be standardised from the outset.

In summary, I cannot see any valid reason that the EMP Final Report is not capable of meeting the requirements of Part 3 of the Environmental Protection Act 1994 (as amended). It provides sufficient flexibility for the licensee to alter management in response to monitoring, yet maximise beneficial outcomes. It is clearly true that much critical data about the soil/effluent/plant interactions are unknown, that will always be the case as each landscape is unique.

Yours faithfully,



Dr Robert Patterson
Soil Scientist and Environmental Engineer

Notes discussed
with C. Smeal
16/06/2004

14/06/04 ✓

Review of Environmental Management Program - Effluent Management Final Report Gelita Australia Pty Ltd - Beaudesert Operation

Additional Comments:

The Final Report of the Environmental Management Program is a document that provides a background review of the research undertaken as part of the licence requirements under Phase I and Phase 2 and suggests changes to the licence that will allow greater flexibility in achieving sound environmental outcomes.

Phase 1 tasks, undertaken by fourth year students at the University of Queensland, were intended to gather background data on the soils and effluent and indicate the likely benefits and problems that could be foreseen. It was not my role to critique (or examine) the students' reports as research projects, rather assess their conclusions in line with the proposals for the EMP. Suffice to say that some of the projects complicated the smooth correlation of data because there were inconsistencies in analytical and reporting methods that invalidated some of the critical data. Unfortunately that cannot be undone. The task is to move on and collect data from the current monitoring program. While the student projects may have been a positive educational tool, the lack of concise examination and clear conclusions questions the practical value of that work.

The Phase 2 component has been well covered by the MEDLI modelling and the Vetiver trials and their conclusions are clear. ✓

I have not enquired as to the extent of the interactions between the Cleaner Production Trials and the Effluent Management. It would be hoped that the outcomes from the former made the tasks of the latter easier with greater beneficial outcomes.

Salinity Measurement

The issue of salinity has been poorly interpreted in many of the students' reports. Firstly, there has been no uniformity of measurement of soil salinity. Whether electrical conductivity, as a measurement of soil salinity, is measured on a 1:5 soil water suspension ($EC_{1:5}$) or a saturated extract (EC_{SE}) is of minor consequence, rather the method must be consistently applied. The saturation extract is not an easy task to perform even when standardised; moreover it is significantly more expensive to perform. The 1:5 soil water suspension is standardised across Australian laboratories in a proficiency program run by Australasian Soil and Plant Analysis Council, it is inexpensive and easily replicated.

There were opportunities where both $EC_{1:5}$ and EC_{SE} were discussed (Sisira, 2002) but there was no further comparison between the values. The UQ report (page 37) suggests rough conversions. The use of text book conversion values is not valid for an operation as critical as this.

The reporting of units of electrical conductivity was not uniform, varying from $\mu S/cm$ to dS/cm (both are acceptable) but the preference for a standard unit would remove any confusion. The report by UQ used mS/m (pages 49, 53) and dS/m .

It was clear from the research that problems with electronic measurements of salinity using either EM31 or EM38 equipment could not be easily overcome. The conclusion that these systems are not appropriate to the farm were clear. ✓

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Sodicity

It is evident from effluent analysis that sodium is an issue because of the high concentrations in the effluent as measured by both the specific ion concentration as well as sodium adsorption ratio. High sodium has pronounced effects on plant vigour, soil structural decline and loss of hydraulic conductivity (permeability). The various research projects failed to address the significance of sodium, rather concentrating on salinity as the major issue. One of the common ameliorating techniques for high sodium effluent is to increase salinity (elevate EC) of the effluent by adding gypsum, lime, dolomite or other compounds.

While sodium is an important issue, the addition of organic residues to increase cation exchange and alter the water holding and permeability status of the soil has not been addressed in the research projects.

The problems of different analytical methods for determining soil exchangeable sodium percentages (ESP) (UQ report, page 29) negate much of the soil data currently available. For this reason it is not correct to suggest that the ESP has increased over time, that fact cannot be substantiated. Whether the ESP is measured with or without pre-treatment is not the issues, rather which method will become the standardised measurement. For complete understanding of the soil solution and cation exchange, I recommend that the easier test, without pre-treatment.

It is not advisable that further research be undertaken with respect to sodium, rather the monitoring from this point forward should place a greater emphasis on sodium than on salinity generally and the results of real-time monitoring become inputs to on-going management.

16/06/04
next monitoring

Forestry Project

The outcomes from the forestry trials indicate that the trees and the inter-row grasses have the ability to capture reasonable amounts of nitrogen. While waterlogging and salinity have been identified as problem sites, other areas are ideally suited. The ability of the high density *E.moluccana* to remove 300 kg N/ha.yr has an important role to play. When combined with the inter-row grasses, 700 kg N/ha.yr can be removed if harvesting occurs at 24 months (UQ, p93).

From research in other areas, the issues of salinity and waterlogging are not insurmountable.

Removal of Cattle Grazing

The land application areas can only benefit from the removal of compaction by cattle, particularly when the soil moisture status is high. This is a positive step in management of the operation.

Nitrogen Loading

The nitrogen levels are not easily quantified in terms of nitrogen species. Regular measurement of the nitrogen species is incomplete, hence the assessment of potential nitrogen uptake rates, changes in soil nitrogen species and denitrification have been inadequately addressed.

While Schafer determined carbon to nitrogen ratios (C:N) as reported by UQ (p26), these data do not appear to have been evaluated in the context of denitrification.

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A value of 25% (UQ, p80) for in-soil denitrification under irrigation, where grasses (Vetiver or others) have a high demand, has not been measured, rather estimated without any discussion as to the reason for 25% loss. Nitrogen balances are not possible where the soil organic-N is not measured regularly, only the nitrate-N. In soil all forms of nitrogen exist, in living cells as protein, in the soil as amino acids, ammonia, ammonium, nitrite and nitrate. Since the measurement of nitrate is dependent upon temperature, soil moisture, plant phases and highly variable results are common over short period. It is incorrect to place emphasis on the level of soil nitrate-N. It is essential that the whole nitrogen pool and the dynamics of that pool are monitored and understood.

NOT, TN → OTHER "N" PARAMETERS

*YES +
N COMPONENTS
MONITORING*

It is recommended that soil analyses include organic carbon and the total nitrogen components.

Effluent Nitrogen

There is considerable opportunity to manipulate the nitrogen in the Pump out Pond (POP) by altering the cycle of aeration. While the licence (C6) prohibits the occurrence of anaerobic conditions, such limitation are counter-productive to management of nitrogen. Denitrification can only occur where there is high BOD and anoxic condition exist. Therefore, short periods of anaerobic conditions are required in the ponds to reduce high levels of nitrogen, as required.

*Denitrification process ✓
Aeration Pond → Denitrification Pond*

*"NOT ON"
MOXIE
OK ✓*

Other changes, such as elevation of pH to encourage ammonia volatilisation is also an opportunity. Splitting wastewater streams may also be an option, treating the high nitrogen stream separately prior to mixing.

*NO BUT
MOXIE*

Leaching Fractions

A significant amount of work has been done on the theory of the leaching fractions required but minor work done on the actual soil permeability measurement. The use of double ring infiltrometers (Siddiqui) is less than ideal as many replications are required to satisfy statistical soundness. My experience with these devices for permeability testing with domestic effluent is that the trouble is not worth the results. The educational benefits may be high, but the results are often meaningless.

The determination of current and future permeabilities by soil type and landscape position will have to be dealt with under operational conditions. Better water balance data and MEDLI modelling will be useful in correlating various data. Certainly soil moisture monitoring as proposed with the "Full Stop" device is a forward step.

Licence condition E10

The licence restricts to 3.0 ML per day the application of effluent to the land. It is not clear as to why this restriction has been imposed, but it may limit the ability to manipulate leaching fractions. This quantity of water is only 300 mm/ha. For a 6 ha irrigation area, only 50 mm can be applied over the period of a day. Irrigation scheduling is based upon soil moisture and climate and should not be constrained by volume except where physical limitations exist (i.e. pumping or irrigation line limitations).

*TO BE
AMENDED*

Licence Amendments (EMP page 28)

TO BE AMENDED

Various amendments are suggested in the Final Report to Schedule E Table 1 to remove the restrictions of effluent quality on release to land. In NSW, the EPA places no such restrictions on the quality of the effluent, other than rating it as low, medium or high strength. The reason for this is that the change in quality simply

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changes the method and rate of application. Low strength effluents can be applied at higher rates than high strength effluents.

The current listing of particular "Release Quality Characteristic Limits" does limit the ability to use effluent to boost certain areas with nutrients at appropriate times, detracting from the need to manage effluent and biomass production according to seasonal conditions

I agree with the removal of the total suspended solids (TSS), total dissolved solids (TDS), nitrogen (TN) and phosphorus (TP) because the soil is the final treatment system; the pond is intermediary and not the point at which licence conditions need to be met. ✓

Under NSW EPA, BOD₅ can be loaded to soil at the rate of 60 kg/ha per day. If only 3.0 ML per day was able to be irrigated (50 mm over 6 ha), this would equate to 720 mg BOD₅/L. Thus, limitation to even 400 mg/L is very restrictive. Too much decomposition in the treatment ponds may degrade the economic value of the effluent, and be a hinderance to sound management. ✓

While COD is usually twice BOD₅, the exact ratio for Gelita Beaudesert has not been nominated.

The restriction in TDS limits the addition of ameliorants or fertilisers to the POP and increases difficulty with spreading ameliorants in the paddocks. The end result is the same amount on the ground, it's a matter of how it is achieved. ✓

Schedule H Table 2.

Sulphide has been shown to be at extremely low levels. This test is expensive to perform, difficult to hold as a viable sample and is usually only from metalliferous industries. In the Gelita effluent sulphur exists as sulphate. ✓

The item "total phosphate" is an unusual request. It is common to refer to the element phosphorus. Is the term intended to mean soluble phosphorus (i.e. orthophosphate reported as P)?

IN HOUSE TESTING MANUFRINCS ✓

NOT AN ISSUE

I do not agree with the removal of most of these parameters, except that they become part of Table 3 (referred to later in EMP). I consider it important that for management purposes the quality of the effluent is well-understood so that irrigation scheduling can be carried out in confidence that the requirements of the plants and soil are sustained. I understand the high cost of weekly analysis, particularly where the samples are externally tested and monthly testing in such a large storage would be more than representative of the irrigation quality.

Schedule Table 3.

The Final Report suggests the inclusion of this additional table. I agree, with minor adjustments, that this table provides the necessary monitoring to permit timely and pertinent management decisions.

The soil salinity and nutrient status would be better together since the greater cost is in the sample collection and preparation rather than the analysis. A bi-annual (twice yearly) analysis is sufficient.

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Annual measurements of soil hydraulic conductivities is sufficient as measurable changes are likely to occur over long periods rather than short intervals.

Groundwater measurements should also include determination of sodium, calcium and magnesium, and the calculation of sodium adsorption ratio (SAR) as this will assist in understand the broader impact of groundwater movement.

CHECK
IN PLACE

Effluent analysis at monthly monitoring is adequate.

✓

Standardisation of field and laboratory methods

It is imperative that at the earliest date, Gelita establish a schedule of appropriate testing methods. Standard Methods for the Examination of Water and Wastewater by American Public Health Association is the appropriate water reference. Rayment and Higginson (1992) Australian Laboratory Methods of Soil and Water Chemical Methods is the appropriate soil reference. From each of these references the choice of specific methods should be determined and strictly followed.

CHECK
IN PLACE

Limitations for licensing purposes.

It has been suggested that the limits placed upon the effluent quality is not the appropriate place to regulate the licence, although it is easy practice. The most relevant place is in the soil where final treatment of the effluent is completed. Simply, licence conditions could require:

- a. that soil salinity levels are limited to levels such that production of biomass is not less than 90% levels compared with background conditions;
- b. that groundwater nitrate-N levels are less than background levels plus a small increment;
- c. that groundwater salinity is maintained at less than background levels plus a small increment; and
- d. that runoff controls prevent the escape of stormwater runoff up to a particular recurrent interval (say 2% ARI).

2% ARI
EVERY
TIME

GELITA
CONTROLS

In item (b) above there will need to be a small increment added to background levels simply because the increase in biological activity will correspond with an increase in soil nitrogen cycling.

Interpretation of the data

There needs to be clear analysis of the data in terms of management issues rather than simply the collection of data to meet EPA reporting conditions. Standard forms of trend analysis may be sufficient.

ANNUAL LANFAX REVIEW 3

Review of Environmental Management Program - Effluent Management Final Report Gelita Australia Pty Ltd - Beaudesert Operation

Documents read in the review of the EMP Final Report

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2. Department of Primary Industries (1992) Comments on the Response Document to Beaudesert Shire Council re Gelatine Factory EIS.
3. Dickinson, G. and Huth, J. (2002) LDG Effluent Irrigated Plantation Management Project. 12-month summary of Experiments 641 HWD and 642 a/b HWD. Queensland Forestry Research Institute. Department of Primary Industries.
4. University of Queensland (2003) Environmental Management Program: Effluent Management Gelatine Effluent Land Management Study Outcome Report August 2003. Report prepared by University of Queensland for Gelita Australia Pty Ltd, Beaudesert.
5. Environmental Management Program: Effluent Management Final Report. Version 6.8 prepared by Gelita Australia Pty Ltd.
6. Environmental Protection Act 1994. Queensland Government accessed from www.legislation.qld.gov.au/LEGISLTN/CURRENT/E/EnvProtA94.pdf
7. EPA Licence No. SR0722 for Gelita Australia Pty "Sunnyhills" Beaudesert.
8. Schafer, B.M. (2001) Summary Soils Report - 3p plus map
9. Schafer, B.M. and Smeal, C.D. (undated) Irrigation Best Management Practices.
10. Siddiqui, Qudsia (2002) Design of Irrigation Scheduling for Managing Effluent (Land) Disposal System. Graduate Research Project III, University of Queensland November 2002.
11. Sisira, H.D. (2002) Assessment of salinity related soil properties along a catena. Graduate research project II Land 7614. University of Queensland
12. So, H.B., Menzies, N.M., Yatapanage, K., Kirchhof, G., Bigwood, R., McDonald, C. and Kopitke, P. (undated) The Sustainability of Land Disposal Systems for Highly Saline Industrial Effluent. School of Land and Food Sciences, University of Queensland.
13. Truong, P. (2003) Application of the Vetiver System for Effluent Treatment Davis Gelatine Beaudesert, Queensland. Report by Vetiver Consulting Pty Ltd for Gelita Davis Gelatine.
14. various one page water and soil analyses
15. Vieritz, A. (2003) MEDLI Analysis Using Vetiver for Effluent Irrigation at Gelita Gelatine Plant Beaudesert Queensland. Department of Natural Resources and Mines, Indooroopilly.
16. Vieritz, A., Truong, P., Gardner, E. and Smeal, C. (undated) Modelling Monto Vetiver Growth and Nutrient Uptake for Effluent Irrigation Schemes.
17. Weier, L., (2002) Establishment of soil denitrification through managing an industrial effluent high in nitrogen Student research project ENV24302, School of Land and Food, University of Queensland.

12/06/04 ✓

Veticon Consulting Pty. Ltd.

Erosion and Sediment Control

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Land Stabilisation and Phytoremediation

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7 June 2004

Mr Roger Seach
General Manager
Gelita Australia Ltd Pty
Sunny Hill, Beaudesert
Queensland

Dear Mr. Seach,

Comments on the University of Queensland Outcome Report

The following is my comment and critique of the above report. My comment only covers the vetiver grass aspect of the report.

General

It is evident that the main aim of the authors of this report was to justify their inadequate and out of touch research program at Gelita's Sunny Hill site. Instead of focusing on developing a management system, which would provide options for Gelita to treat the high N effluent output, the UQ program concentrated mostly on the salinity aspect.

To justify their course of action over the last 5 years, the authors rejected the use of vetiver grass for the treatment of effluent at Gelita, by discrediting its effectiveness and promoting Rhodes grass. This is totally unprofessional, as they have no data to back up their argument. I would point out that they have not done any works what so ever with vetiver grass in general and particularly no works with vetiver and Rhodes grass on site at Sunny Hill. The only plant species they use is *Eucalyptus*, which literature has clearly shown that it can remove only 90kgN/ha/year. This level is far below the requirement of Gelita.

To prove their point, they even contradicted themselves. For example, their main argument against the use of vetiver was its high biomass, which leads to low leaching and high salt accumulation in the soil. Yet to improve the N uptake of Rhodes grass to match the high N uptake of vetiver grass they recommended the use of fertilisers and other soil amendments to increase Rhodes grass biomass.

Flaws

The main flaws of this report are:

- One of their basic assumptions is wrong, they listed the N content of Rhodes grass is between 3 and 3.5%, but in the MEDLI simulation conducted by Alison Vieritz, the N level in Rhodes did not exceed 2.1%, even when N was leaching at 50mg/L. The 2.1% value is not much better than the 1.5-2% N of vetiver grass.

- The authors are not aware of the special morphological and physiological features of vetiver grass, as they have not done any works what so ever with vetiver grass.
- They are not aware of the outcome of the MEDLI simulation conducted by Alison Vietritz.
- Data of vetiver used in the EMP are results of 3-year research at the Department of Natural Resources and onsite at Sunny Hill, not from literature or predictions.
- They have no hard data of Rhodes grass on site, relying totally on literature.

Detailed critiques

How the system works: All the statement in this section are too generalised, not specific enough for vetiver grass and soils at Sunny Hill.

Point 4: *Higher biomass leads to reduced LF and increased salt concentration in the root zone and drainage water.* This is wrong; you cannot assume that for the same biomass all plants use the same amount of water. *Plants with higher water use efficiency will use less water to produce the same biomass.* Therefore you cannot make this assumption when comparing different plant species.

It is also not correct as salt may build up at the bottom or below the root zone, not in the root zone, as predicted by MEDLI.

Point 5: As pointed out in point 4, the argument in point 5 is flawed. This should be: *Using plant with higher water use efficiency and higher total N uptake even with low N concentration.* As water use efficiency of both vetiver and Rhodes is not known, but it has been established that vetiver has higher N uptake than Rhodes (Table 1), vetiver should be used instead.

Table 1: Comparison of N export kg/ha/year by the two grasses

	<i>Vetiver</i>	<i>Rhodes</i>
Onsite field experiment at Sunny Hill	1442	373
MEDLI estimate by Alison Vieritz	1200	-
Ted Gardner field experiment at Gatton		600

Furthermore mature Rhodes N level was only 2.0-2.2% at Gelita, not 3.5% and vetiver N was 1.5-1.7%. The level of 3.5% in Rhodes is achieved only at very young age.

Higher salt concentration does not affect vetiver biomass very much, Alison Vieritz's MEDLI report predicted <10% of yield reduction if low strength effluent (200mgN/L) is used.

Wrong MEDLI Model

What model did they use? If it was 1.3 then the results are not valid for vetiver as 1.3 is not suitable for vetiver due to its limitation on biomass and root depth. They should use MEDLI 2.0, as used by Vieritz.

Conclusions

Their whole argument is about Leaching Fraction and if this is the main concern then the operation can be changed/modified to achieve that requirement: sustainability and EPA standards. This can be achieved by:

- Varying irrigation area: smaller land area with the same irrigation input will increase leaching
- Shandyng to reduce salt level as suggested by Alison Vieritz
- Deep drainage is set at to 350mm/year minimum as MEDLI simulations predicted that salinity below the root zone is reduced to 6-8dS/m at the level of deep drainage.

This is much more flexible as both land area and salt level can be varied as required. To achieve this, regular monitoring of drainage and soil N and salt level is required. *CHECK*

Even in the best scenario, the plan of using Rhodes over 50ha would not remove all the N. Especially when they expect Rhodes to move 2000kgN/ha/year, which is far excessive to the level of 600KgN reported by Ted Gardner from his works at Gatton.

To prove this point I recommend that another MEDLI simulation to be conducted by Alison Vieritz, comparing the effectiveness of vetiver grass and Rhodes at Sunny Hill. *REVIEW RESULT?*

Paul

Dr Paul Truong
Director
Veticon Consulting

Response to University of Queensland Report :Minutes of Meeting 4 May 2004

Issue 1. Misrepresentation of UQ Report

The concern shown to the EMP document in the report tabled by the UQ staff at the meeting is outside the mandate given to them in the contract. The Outcome Report submitted by them in August 2003 investigated the 5 tasks outlined in the 1999 Environmental Management Program: Effluent Management which comprised Phase 1 of the Program. They clearly stated in previous Steering Committee minutes that they were not providing management strategies and that this was not part of the agreement although the original contract included Phase 1 and Phase 2. There is no evidence that this situation was to change in the extended contract following which included ARC funding.

Consequently, -Phase 2 of the Program was conducted by Cameron Smeal in conjunction with external consultants and was completed on time and included all aspects of the submission including Cleaner Production Trials to meet requirements imposed by the EPA.

Collectively the reports listed in the submission to the EPA were used to provide a basis for requesting new licence conditions which alleviate restrictive conditions imposed by the current licence. The University report was used only for part of the submission and in no way was it pivotal to the outcomes. The work conducted on vetiver/ryegrass production was central to the requested licence changes that demonstrated that the proposed management strategies would take soil and climate variability into account as well as lifting constraints on effluent composition/quality. ✓ The licence monitoring thus is focussed on soil properties which will be used to adjust and maintain sustainable management practices. In all of the UQ work funded by Gelita these factors have been largely overlooked or at best given cursory treatment in poorly edited student project work.

The intent of these revised changes was aimed to overcome management constraints imposed by the existing licence conditions which were not considered as being restrictive when first imposed. The limits imposed in the current licence were determined from estimates prior to the commencement of factory operation rather than from practical monitoring during operation. Hence the current UQ project was designed to determine if current management was sustainable with regard to total dissolved salts and nitrogen since the inception of production. The management option provided in the project was the use of forestry species as a means of sequestering nitrogen and it was only on the insistence of the Gelita staff that pastures were also considered as a comparative alternative production option. However pasture work has only received cursory attention on one soil type and findings cannot be applied across the whole farm.

It is disturbing to say the least that the University's response after the revised EMP was submitted is that they have thrown doubt on their own work. Surely they failed in their duty of care to ensure that their report was accountable in scientific terms. Given that the report was a collation of mainly 4th year undergraduate projects one can only conclude that the cogency of the work is questionable.

The University has admitted that they failed to meet the requirements of the project in regard to nitrogen. From steering committee meetings it has been patently obvious that little effort has been applied since inception of the project. This is disappointing given that the University agreed in the contract that they had adequate staff and resources to complete the tasks set down.

In my opinion Gelita has not misinterpreted the University of Queensland Outcome Report and that the information used by the persons compiling the EMP submission to the EPA was carefully considered and used in a transparent way to objectively determine new licence conditions. The intent of this submission was to ensure sustainable operation of the factory and site in an environmentally responsible way using available scientific data. The limitations of the data were well known and much critical data about the soil/effluent/plant interactions are limited. However ongoing monitoring and research is mooted in the revised plan.

Finally the University staff were not invited to contribute to the development of the final submission and in my opinion are out of order in questioning the licence conditions.

Detailed critical review of the University report has been provided by Dr Robert Patterson of Lanfax who is a consultant experienced in effluent management and EPA compliance. I wholeheartedly support his findings and recommend their acceptance as a fair and objective review of the University work.

Issue 2. Continuation of ARC Project

The concern shown about the continuation of the ARC project involves the two postgraduate students. I believe they should be allowed to continue given that the funding for their stipend and other costs is borne by that fund. The University School of Land and Food also receive funds to support these students which has not been included in any of the budgets. Consequently I see no reason why their research cannot continue.

I understand Gelita will continue to support them in kind by the continued use of the experimental forestry plots and ancillary resources such as irrigation.

Although the Gelita funding component as a partner investigator was expended by accelerated spending prior to the end of the project this does not negate the ARC project and in no way can Gelita be accused of pulling out of the project. In my opinion Gelita should inform ARC of their position and intentions about continuation of the project until the end of the year 2004.

Dr. B.M. Schafer CPAg. AAAC

May 31 2004

B.M. Schafer

Curriculum Vitae: Dr Robert Alfred Patterson

Current Position

Director, Lanfax Laboratories, Armidale NSW
Professional Soil Scientist and Environmental Engineer
Honorary Associate - University of New England (Faculty of the Sciences)
Certified Professional Soil Scientist (Leading Professional Stage 3) (CPSS)

Professional Accreditation

Certified Professional Agricultural Consultant (CPAg)
Qualified ISO 14000 Environmental Management System auditor

Professional Affiliations

Fellow, Institution of Engineers Australia (FIEAust)
Member Environment Institute of Australia (foundation member) (MEIA)
Member Australian Society of Soil Science Society Inc.
Member Australian Water Association
Member Australasian Soil and Plant Analysis Council

Qualifications:

Bachelor of Natural Resources First Class Honours (UNE) – thesis topic on groundwater, surface water and domestic rainwater supplies for rural residential developments.
Postgraduate Certificate of Engineering (Deakin) – water and wastewater engineering
Doctor of Philosophy (UNE) – thesis –“*On-site treatment and disposal of septic tank effluent*”
Postgraduate Diploma of Engineering (Deakin) – environmental engineering
Master of Engineering (Deakin) - thesis “*Environmental Indicators of Effective Sewage Effluent Reuse*”

Professional Experiences and specific expertise

Director of Lanfax Laboratories, offering analytical procedures and technical expertise in soil, water, plant and wastewater analysis, field monitoring and research development.
Certified Soil Scientist (Leading Professional Stage 3) with specific expertise in landscape analysis, soil description, soil physical and chemical analysis, and soil phosphorus cycling. Recognised by peers as an expert in effects of salinity and sodicity in effluent re-use and water quality assessment. Key achievements: technical advice to local government and private developers in soil science and landscape issues, preparation of technical sheets for Government.

Certified Agricultural Scientist with specific expertise in soil management in agricultural land use planning, salinity and sodicity issues and fertiliser requirements. Key achievements include recognition by agriculturalists of technical competence in measuring soil chemical properties and recommending ameliorating strategies.

Environmental Engineer with practical/technical expertise in water and wastewater, soil resources and environmental issues related to contaminated sites, effluent reuse and biosolids management. Key achievements in recent projects with Armidale Dumaresq Council in relation to effluent and biosolids reuse, providing on-going assessment for Guyra Shire’s conformance to licence conditions and numerous reuse projects for packaged treatment works in coastal developments.

Conference coordinator and principal technical adviser On-site 99 conference on “*Making On-site wastewater systems work*”, On-site ’01 “*Advancing on-site Wastewater Systems*” that has become internationally known as an industry melting pot for discussion and research presentation and On-site ’03 *Future Directions for On-site Systems: Best Management Practice*

Author of numerous professional papers on effects of effluent disposal by land application, the most recent papers on On-site disposal in New Orleans, USA in Jan1997, Brisbane April 1998, Indonesia Oct. 1998, Sydney Nov.1998, Armidale July 1999, Paris July 2000, Armidale 2001, Brisbane Nov. 2002, Armidale 2003, Sydney 2003, Perth 2004, Cairns 2004, USA 2004.

Training provider to professionals in on-site wastewater management in courses with others (1995 to present) and as Lanfax Labs. Developed and offer courses on “*Practical Implementation of AS/NZS 1547: on-site domestic wastewater management*” and “*Soil and Site Assessment*”

Author of refereed manual “*Soils and Their Management*” for NSW Agriculture and training provider to their farm management students in land management and soil resources (1983-1996).

Lecturer, casual, 1982 to 1999, in disciplines of Soil Science, Rural Science, Natural Resource Management, Ecosystem Management, Surveying, Hydrology, Agricultural Engineering, Geography, Resource Engineering at the University of New England, and lectured to Production and Environmental Monitoring Workshops for Beef CRC and UNE.

Consultant, prepare on-site wastewater management plans to meet environmental constraints and comply with state and national guidelines for traditional septic tank systems, aerated wastewater treatment systems, composting toilets, sand filters, evaporation beds and other treatment systems. Key achievement: recognition by local gov’t and peers of specific expertise in on-site systems, these include preparing plans for individual dwellings and large subdivisions with packaged sewage treatment plants, and village plans for Scone Shire and Murrurundi Shire

Adviser to Local Gov’t and industry in soil nutrient balances, salinity and sodicity issues. Key achievements: projects with Armidale Dumaresq, Glen Innes Shire, Maclean Shire, Bellingen Shire, Parry Shire, Camden City, Hawkesbury City Council and Sydney Catchment Authority

Expert Witness in numerous Land & Environment Court cases dealing with effluent disposal and on-site wastewater issues for domestic developments, hydrogeology, river water quality, stormwater and drainage issues and agricultural activities.

Australian Army Reserve: 16 years, RA Infantry, retiring with rank of Major

Papua New Guinea Employment: Patrol Officer, District Officer, Specialist Adviser to Local Government, Regional Staff Development Officer (1972-1978)



ASIA PACIFIC AFRICA

10 June 2004

Don Shyckel
RECEIVED 16/06/2004

Mr Don Shackel
Senior Inspector
Environmental Protection Agency
GPO Box 2771
Brisbane
Queensland 4001

Dear Don

Further to my letter of 8 June, I note that I did not include the details of Dr Patterson's qualifications and experience as I had indicated in my covering note.

I must apologise for this oversight and enclose herewith the relevant document.

Yours sincerely


Roger Seach
General Manager



Gelatine Pharmaceutical Gelatine Photographic Gelatine



Hydrolysates

Instant Gelatine

Special Gelatine

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Postgraduate Diploma of Engineering (Deakin) – environmental engineering
Master of Engineering (Deakin) - thesis “*Environmental Indicators of Effective Sewage Effluent Reuse*”

Professional Experiences and specific expertise

□ **Director** of Lanfax Laboratories, offering analytical procedures and technical expertise in soil, water, plant and wastewater analysis, field monitoring and research development.

□ **Certified Soil Scientist** (Leading Professional Stage 3) with specific expertise in landscape analysis, soil description, soil physical and chemical analysis, and soil phosphorus cycling. Recognised by peers as an expert in effects of salinity and sodicity in effluent re-use and water quality assessment. Key achievements: technical advice to local government and private developers in soil science and landscape issues, preparation of technical sheets for Government.

□ **Certified Agricultural Scientist** with specific expertise in soil management in agricultural land use planning, salinity and sodicity issues and fertiliser requirements. Key achievements include recognition by agriculturalists of technical competence in measuring soil chemical properties and recommending ameliorating strategies.

□ **Environmental Engineer** with practical/technical expertise in water and wastewater, soil resources and environmental issues related to contaminated sites, effluent reuse and biosolids management. Key achievements in recent projects with Armidale Dumaresq Council in relation to effluent and biosolids reuse, providing on-going assessment for Guyra Shire’s conformance to licence conditions and numerous reuse projects for packaged treatment works in coastal developments.

□ **Conference coordinator** and principal technical adviser On-site 99 conference on “*Making On-site wastewater systems work*”, On-site ’01 “*Advancing on-site Wastewater Systems*” that has become internationally known as an industry melting pot for discussion and research presentation and On-site ’03 *Future Directions for On-site Systems: Best Management Practice*

□ **Author** of numerous professional papers on effects of effluent disposal by land application, the most recent papers on On-site disposal in New Orleans, USA in Jan 1997, Brisbane April 1998, Indonesia Oct. 1998, Sydney Nov. 1998, Armidale July 1999, Paris July 2000, Armidale 2001, Brisbane Nov. 2002, Armidale 2003, Sydney 2003, Perth 2004, Cairns 2004, USA 2004.

□ **Training provider** to professionals in on-site wastewater management in courses with others (1995 to present) and as Lanfax Labs. Developed and offer courses on “*Practical Implementation of AS/NZS 1547: on-site domestic wastewater management*” and “*Soil and Site Assessment*”

□ **Author** of refereed manual “*Soils and Their Management*” for NSW Agriculture and training provider to their farm management students in land management and soil resources (1983-1996).

□ **Lecturer**, casual, 1982 to 1999, in disciplines of Soil Science, Rural Science, Natural Resource Management, Ecosystem Management, Surveying, Hydrology, Agricultural Engineering, Geography, Resource Engineering at the University of New England, and lectured to Production and Environmental Monitoring Workshops for Beef CRC and UNE.

□ **Consultant**, prepare on-site wastewater management plans to meet environmental constraints and comply with state and national guidelines for traditional septic tank systems, aerated wastewater treatment systems, composting toilets, sand filters, evaporation beds and other treatment systems. Key achievement: recognition by local gov’t and peers of specific expertise in on-site systems, these include preparing plans for individual dwellings and large subdivisions with packaged sewage treatment plants, and village plans for Scone Shire and Murrumbidgee Shire

□ **Adviser** to Local Gov’t and industry in soil nutrient balances, salinity and sodicity issues. Key achievements: projects with Armidale Dumaresq, Glen Innes Shire, Maclean Shire, Bellingen Shire, Parry Shire, Camden City, Hawkesbury City Council and Sydney Catchment Authority

□ **Expert Witness** in numerous Land & Environment Court cases dealing with effluent disposal and on-site wastewater issues for domestic developments, hydrogeology, river water quality, stormwater and drainage issues and agricultural activities.

□ **Australian Army Reserve**: 16 years, RA Infantry, retiring with rank of Major

□ **Papua New Guinea Employment**: Patrol Officer, District Officer, Specialist Adviser to Local Government, Regional Staff Development Officer (1972-1978)

R S A Cover Sheet

Type of Approval: SECTION 118
 AMEND LICENCE + CHANGE ANNIVERSARY DAY

- ☐ Environmental Protection (Waste Management) Regulation 2000
☒ Environmental Protection Act ☐ Integrated Planning Act ☐ Environmental Protection Regulations
☐ Noise EPP ☐ Air EPP ☐ Water EPP

Name: GELITA Australia Pty Ltd

SITE address: "Sunny Hills"
 Flood Road
 JOSEPHVILLE via BEAUDESERT QLD 4285

Contact Officer: D. Shackel

Licence No.: SR722 FILE NUMBER: ST14495

☒ Approved ☐ Deferred ☐ Not Approved

Decision: APPROVED AS SUBMITTED

sch4p4(6) Personal in

Manager's Signature: [Signature] Date Approved: 1/6/04 Date Posted: 2/6/04

Registered Post No. RP 20174053 Date Faxed: 20174054

OFFICE USE ONLY

LICENCE ISSUE/REISSUE	
☒ Register updated	IF ALL TICKED..... RETURN FINAL COPIES TO DISTRICT FILES
☒ Licence sent to applicant with letter	
☒ Register updated (date of letter to applicant, licence No, final tick)	
RSA NOT REQUIRING LICENCE ISSUE/REISSUE	
☐ Letter sent to applicant	IF ALL TICKED..... RETURN FINAL COPIES TO DISTRICT FILES
☐ Register updated (date of decision, letter to applicant, and final tick)	

Final Update: 9

16

AMENDMENT

Application Number: SR722

Gelita Australia Pty Ltd	
"Sunnyhills" Flood Road JOSEPHVILLE via BEAUDESERT	17 Fuel Burning 50(b) Rendering operation 15(a) Sewage treatment
Date Received	12/03/2004
Additional Information (S556) Date received + 10 business days	
Application Date Date received + 10 business days	
Decision Due Application date + 20 business days S555 RSA337	1/06/2004
Notification of Decision Decision date + 8 business days	11/06/2004
File Number	
Assessing Officer	

**NOTICE OF DECISION TO AMEND LICENCE UNDER SECTION 118 OF
THE ENVIRONMENTAL PROTECTION ACT 1994**

**Request for Statutory Approval
RSA No.**

Decision Date	N/A
Licence No.:	SR0722
File No.:	STH495/8
Subject:	GELITA Australia Pty Ltd – Application for Amendment of Environmental Authority; and Application for change of anniversary day of EA
Reason for Amendment:	In order to achieve / implement a number of “ best practice environmental outcomes ” emanating from completion of EMP No.SR1157.
ERAs:	<p>ERA 17 Fuel burning - any process involving the use of fuel burning equipment (including, for example, a standby power generator) that is capable of burning (whether alone or in total) 500 kg or more of fuel per hour.</p> <p>ERA 50(b) - Rendering operation - commercially processing or extracting substances, including, for example, fat, tallow, derivatives of fat or tallow or proteinaceous matter, from animal wastes or by-products (other than an operation using wastes solely derived from an activity mentioned in item 32(a) or 47) in works having a design production capacity of 300 tonnes or more per year.</p> <p>ERA 15(a) - Sewage treatment - operating a standard sewage treatment works having a peak design capacity to treat sewage of 21 or more equivalent persons but less than 100 equivalent persons.</p>
Located at:	<p>GELITA Australia Pty Ltd “SUNNY HILLS” Flood Road JOSEPHVILLE via BEAUDESERT QLD 4285</p>

Proposed Amendment of GELITA Environmental Licence No.SR0722:

In order to implement the “**best practice environmental management**” program emanating from completion of EMP No.SR1157, a number of **AMENDMENTS** to Schedule E Conditions included in Company Environmental Licence No.SR0722 will be required.

In order to achieve these outcomes a number of specific amendments to Company Environmental Licence No.SR0722 will be required and ARE SUPPORTED:

- **removal of TDS discharge limit [E24]**
- **removal of daily treated effluent discharge volume limit [E10]**
- **removal of irrigation prohibition during rainfall (aids “salts” flushing, while requirements to prevent ponding, run-off will be maintained) [E13]**
- **substitution of altered monitoring program [H18, H19, H30, H34]**

Comments concerning amendments sought by GELITA Australia Pty Ltd in respect of Environmental Licence No. SR0722 are set out, together with justifications for such changes, in the attached “**Recommended Licence amendments**”, included on pages 28-32 inclusive of the Company “Compliance Report” for EMP No.SR1157.

On Wednesday, 26 May 2004, GELITA Australia provided to the EPA additional information in the form of a more definitive and expanded soils monitoring program, following-on from issues arising from a meeting at the Southern Regional Office of the EPA on 12 May 2004, between Damien Brown, Manager – Licensing, Kyle Roberts, Acting Business Manager and Don Shackel, GELITA Australia Site Licensing Officer.

New elements of the expanded soils monitoring program to be completed by the Company, on an annual basis, include sampling and testing regimes for:

- **soil salinity;**
- **soil infiltration and hydraulic conductivity;**
- **soil nutrient status and**
- **soil irrigation treatments relative to the outcomes of the individual monitoring programs adopted.**

Soil monitoring programs also provide expected attribute limit ranges with which to track treated wastewater disposal effects, together with corrective irrigation responses, should such be deemed necessary.

The proposed amendments to Environmental Licence No.SR0722, are fully supported by EMP Assessment Officer / Site Licensing Officer Don Shackel, in respect of the stated outcomes emanating from EMP No.SR1157.

The Company has submitted Part A and Part B Applications to ‘Amend environmental authority’ forms to effect the necessary amendment to the nominated conditions of Company Environmental Licence No.SR0722.

The correct fee of \$150.00 in relation to an Amendment application under the Act, ch 4, pt 5, accompanied the application material.

Subsequently, the EPA received and has responded to the ‘Application form – Change anniversary day of an environmental authority’, amending the anniversary date of SR0722 from 04 November to 31 January, as requested.

RECOMMENDATION:

1. That the "amendment of environmental authority" SR0722 be granted and the attached letter be sent to GELITA Australia Pty Ltd advising of the amendment; and
2. That the request for "change of anniversary day" for SR0722 be granted and the attached letter be sent to GELITA Australia Pty Ltd advising of the change.

Contact Officer – Don Shackel (07) 3225 1040

sch4p4(6) Persona

Don Shackel

26/12/2004

Kyle Roberts
Operations Manager
Heavy Industry Group
Environmental Operations
Southern Region

sch4p4(6) Persona

Kyle Roberts

26/12/04

Additional Information: GELITA Australia Limited has a Development Approval (SR0007DA) signed by the EPA on 17/12/2002 to carry out ERA 53 – Soil conditioner manufacturing on site at "Sunny Hills", Flood Road, Josephville via Beaudesert. SR0007DA has nine (9) schedules of development conditions attached, which address the operation of the composting activity on site.



**Queensland
Government**

Enquiries Don Shackel
Telephone (07)32251040
Your reference
Our reference GELITA-STH495-8-SR0722

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

1 June 2004

Mr R Seach
General Manager
GELITA Australia Pty Ltd
"Sunny Hills" Flood Road
JOSEPHVILLE VIA BEAUDESERT QLD 4285

cc GELITA Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

Dear Mr Seach

The Environmental Protection Agency (EPA) has amended Environmental Authority SR0722, under section 118 of the *Environmental Protection Act 1994*, in response to your 'Application for Amendment of Environmental Authority' of 2 March 2004.

The EPA wishes to acknowledge the "best practice environmental outcomes" emanating from recently completed Environmental Management Program No.SR1157 and the subsequent request by GELITA Australia Pty Ltd to remove restrictive conditions included in Company Environmental Licence No.SR0722, preventing the "environmentally sustainable development" of on-site disposal of treated effluent, for beneficial agricultural purposes.

Hence, the EPA has made relevant amendments to Environmental Licence No.SR0722, to allow a fundamental change in farm management from that based on qualitative control criteria, to outcome-based assessments of on-site agricultural operations.

The EPA has also responded to your 'Application form - Change anniversary day of an environmental authority' of 4 March 2004, amending the anniversary date of SR0722 from 04 November to 31 January, as requested.

Should you have any queries concerning the above matters, please contact Don Shackel on (07) 3225 1040.

Yours sincerely

sch4p4(6) Personal information

D J Brown
Manager (Licensing)
Southern Region

Enquiries Don Shackel
Telephone (07)32251040
Your reference
Our reference GELITA-STH495-8-SR0722

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

31 May 2004

Mr R Seach
General Manager
GELITA Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

Dear Mr Seach

The Environmental Protection Agency (EPA) has amended Environmental Authority SR0722, under section 118 of the *Environmental Protection Act 1994*, in response to your 'Application for Amendment of Environmental Authority' of 2 March 2004.

The EPA wishes to acknowledge the "best practice environmental outcomes" emanating from recently completed Environmental Management Program No.SR1157 and the subsequent request by GELITA Australia Pty Ltd to remove restrictive conditions included in Company Environmental Licence No.SR0722, preventing the "environmentally sustainable development" of on-site disposal of treated effluent, for beneficial agricultural purposes.

Hence, the EPA has made relevant amendments to Environmental Licence No.SR0722, to allow a fundamental change in farm management from that based on qualitative control criteria, to outcome-based assessments of on-site agricultural operations.

The EPA has also responded to your 'Application form – Change anniversary day of an environmental authority' of 4 March 2004, amending the anniversary date of SR0722 from 04 November to 31 January, as requested.

Should you have any queries concerning the above matters, please contact Don Shackel on (07) 3225 1040.

Yours sincerely

D J Brown
Manager (Licensing)
Southern Region

Don Shackel

From: Cameron.Smeal@gelita.com
Sent: Tuesday, 25 May 2004 10:21 PM
To: Don Shackel
Cc: Brian Schafer; Roger.Seach@gelita.com

Importance: High



V6.8 New .doc

Don
Please find attached the expanded details for proposed licence amendments as discussed. If no further changes are required a signed hard copy will be forwarded by snail mail for your records.

.(See attached file: V6.8 New .doc)

Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442

 ASIA PACIFIC AFRICA GELITA Australia Pty Ltd EMP: No.5080001157 Environmental Management Program Effluent Management	Authorised by: General Manager	Document EMP001 Report Final Revision (Amended) May 2004
	Page Number: Page 1 of 16	Date Effective: 30/3/99 16/07/01 23/07/02 31/10/03 25/05/04

Dear Don,

Please find enclosed GELITA's additional submission regarding the Environmental Management Program reference No. 5080001157. All new text has been italicised for ease of reference. A portion of the original submission including the Executive Summary has been retained to generate a stand-alone document to avoid constant cross-referencing when considering the amendments.

In summary, this document expands upon the proposed licence amendments as discussed in my meeting with EPA representatives on Wednesday 12th May 2004. The attached material expands on the proposed monitoring regime previously submitted for your consideration.

It is my belief that the specific requirements arising from our meeting have been addressed. It is hoped the EPA will concur with the recommended licence changes needed to allow this model to be effectively applied.

I would like to point out that the monitoring program currently undertaken by GELITA is in no way compromised, as this data is crucial for input to MEDLI. The amendments proposed reflect a change in reporting format rather than content and reflect an expanded analytical regime to that of the current licence.

Supporting documentation for these expanded tables discussed is attached within the report. However, should you have any queries regarding the submission please do not hesitate to contact me on
(07) 5541 9442.

Yours sincerely,

Cameron Smeal
Environmental Officer

 ASIA PACIFIC AFRICA GELITA Australia Pty Ltd Environmental Management Program: Effluent Management	Authorised by: General Manager	Document EMP001 Report Final Revision (Amended) May 2004
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EXECUTIVE SUMMARY

The EMP was a 5-year, multi-disciplinary project with concurrent investigative strands. Not unexpectedly, the reports and findings associated with the EMP are extensive. Each of the items listed in this summary should be read in context with the aspect from which it was derived.

- *Based on performance data for the period of the EMP, GELITA has the capacity to match current licence conditions.*
- *The research has demonstrated that the current set of licence conditions does not necessarily best promote the principles of ESD for the irrigation operation.*
- *The current licence does not reflect the diverse and variable needs and conditions of climate and soil types across the site.*
- *A paradigm shift from hypothetically based and rigid control conditions to a dynamic outcome based management system must be considered to achieve best practice.*
- *The reports demonstrate that all nitrogen and salts can be sustainably dealt with on the site*
- *These reports were sourced from three independent sources and reached similar conclusions*
- *Analyses reveal that Exchangeable Sodium Percentages (ESP) have increased over time*
- *The actual Leaching Fraction of the soil is double the conservative values applied for the MEDLI modelling*
- *Current irrigation practice with effluent is sustainable on the dermosol soil type in terms of salinity management*
- *Soil acidification can be ameliorated by the regular application of lime.*
- *A specific management plan for amelioration of the low acidity should be developed and implemented in the revised management program*
- *Soil nitrate levels have shown an increase from very low levels (less than 10 mg NO₃-N/kg) to moderate levels. Nitrate is being leached to depth in the dermosol soil type but levels are less than the licence limits. Nitrate levels in the surface soil should be utilized by improved plant growth using the proposed vetiver/ryegrass whole year production system.*
- *Nitrate is not accumulating at depth in the vertosols, and surface concentrations can be utilized for plant growth using the proposed vetiver ryegrass production system.*
- *The site capacity to accept further effluent application is dependent on a combined phytoremediation and irrigation management regime.*
- *This regime requires an adequate leaching fraction and an appropriate biomass removal scheme to balance the inputs and outputs of nitrogen.*
- *Given appropriate management of the leaching fraction, the site capacity for Total Dissolved Salts is unlimited.*
- *Trees alone do not offer viable long-term effluent disposal options.*
- *Concentrating effluent disposal to less than 60 hectares is recommended to prevent salt build up in the soil.*

Based on the improved understanding of the soil dynamics associated with effluent irrigation across the farm site a strategy is proposed to improve the long-term sustainability of the operation. An irrigation management schedule has been devised for the various soils under a forage/agroforestry production program.

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Revised Effluent Management Program

A revised management approach has been devised to allow for a robust response to the soil capacities for effluent given a range of climatic conditions. There are four aspects to the proposed management scheme. The concept requires graduated phases of establishment over a seven-year period.

This period is required to allow the biological systems to establish and adjust to altered irrigation processes; and recognises that financial constraints associated with these major proposed changes are a limiting factor to rate of implementation.

These involve implementation of agroforestry for limited effluent disposal over the less permeable soil types, the progressive establishment of a vetiver system for maximising nitrogen uptake across soils with higher hydraulic conductivity, early implementation of lateral drainage of heavy clays and immediate improved wastewater treatment for nitrogen removal.

Agroforestry

The agroforestry component is planned for an area of approximately 27 hectares on hill slopes located on the western side of the property. These soils are defined as sodosols and would receive gradually reducing iterations of effluent irrigation under the proposed programme.

The use of effluent is required to ensure the soils are allowed to recover from previous irrigation. However, saline soils can exhibit structural degradation when exposed to fresh water percolation. In order to maintain soil structure and hydraulic conductivity whilst flushing "salts" to depth, initial higher volumes of effluent irrigation are indicated. Over time the effluent would be replaced by a bore water/effluent shandy to allow for final flushing of salts that have accumulated in the root zone profile.

Finally, the zone would be excluded from the regular irrigation program and maintained largely as a rain fed plantation. The period required for this process would be determined by the results of soil monitoring data

This aspect of the program will also benefit the project's sustainability through carbon sequestering and a potential financial return through timber production.

Vetiver

The use of vetiver/rye cropping is proposed as an effective means for the long-term uptake of nitrogen on the rudisol soils. This proposal is supported by MEDLI predictions. *Such a system will take up to 7 years to implement. The extended time frame for implementation is based on the need to fully establish vetiver swards for maximum nitrogen uptake capacity.*

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Drainage

A series of lateral drainage channels across the 2e soils discharging to evaporation ponds will allow for progressive remediation of the high salt loads accumulating in the profile. Continued effluent irrigation across these soils is required to allow flushing and maintain soil structure.

Within seven years the soils will be sufficiently recovered to be irrigated with either bore water or an effluent/bore "shandy". This procedure will flush the native and irrigated salts from the soil. In order to prevent concentrating these native salts in the BSD, evaporation ponds are required. Salts collected in such ponds will be disposed of off-site. The use of evaporation ponds will eliminate the concentration of salts within the effluent storage dams.

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Chemical Control Option

The addition of liquid lime at the pump out facility for effluent irrigation will raise pH of solution to levels where excess nitrogen will be volatilised. Theoretically, up to 80% of ammoniacal nitrogen in the wastewater can be eliminated by this means.

TDS license limits will need to be removed to allow this process to be implemented. Maximum chemical costs of \$50 000 per annum are associated with this measure. These costs will be offset by the soil pH improvement that would otherwise require direct lime treatment. This is a more efficient means of maintaining soil pH in a range favourable for sustained plant growth.

Proposed Management Program

In order to implement a system best suited to meeting the criteria of Ecologically Sustainable Development, GELITA proposes to adopt a seven-year implementation program. This program will be dependent on the realisation of significant licence changes. The core of the program will require the propagation and planting of vetiver as the key to beneficial reuse of effluent. The deep rooting system and high nitrogen requirement of vetiver are ideal for nutrient removal from the site.

The harvested material will be utilised in composting trials for pasture improvement in non-irrigated areas over the farm. Supplementary plantings of trees and ephemeral cropping rotations will provide diverse and flexible means of effluent use to match climate and effluent quality variations.

The central tenets of the proposed system are as follows:

- flushing of "salts" below root zone to maintain healthy soils
- reduced irrigation area to ensure flushing occurs
- crop selection (vetiver/rye) to ensure higher nitrogen uptake
- nitrogen export from irrigated zones
- chemical nitrogen control contingency option
- precise irrigation management plan
- elimination of grazing within irrigated zones
- outcome based monitoring regime
- annual independent expert assessment

In order to achieve these outcomes a number of amendments to the current licence will be required.

- removal of TDS discharge limit
- removal of daily volume limit
- irrigate during rainfall
- altered monitoring regime

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Within this report the Vetiver System has been identified as having the potential to meet ESD criteria. The attached report details the outcomes of the research on the application of the Vetiver System to date.

- On site R&D conducted at Sunny Hills has proved that vetiver grass is highly productive
- Vetiver has out yielded other grasses used on site by six fold
- With this high production vetiver has the potential of exporting three times the nitrogen of other species of grass
- Based on field experimentation, the potential total land area required to sustainably dispose of all the factory effluent would be approximately 50 ha
- After allowing for 15%-20% salt leaching, MEDLI simulation also predicts that the vetiver planting area can be reduced to 49.5 ha to dispose of all effluent output
- Data on growth and nitrogen content of mature plants indicate that the deep and extensive root system of vetiver could reduce or eliminate nitrogen leaching.

The report outlines part of the proposal for a sustainable farm and factory effluent disposal regime.

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Recommended Licence amendments

In order to implement the best practice management program outlined in this report, a number of changes to Schedule E of the licence will be required.

The changes recommended are as follows:

Schedule E-Land Application

1) Quantity of Contaminants Released

- (E10) The total quantity of contaminants released to the irrigation areas during any day must not exceed 3.0 ML of final treated wastewater.

This condition needs to be deleted. The vetiver system is best suited to flood irrigation techniques. (Refer to Truong report). In the event that flood irrigation techniques are adopted this condition will restrict uniformity of application. There is no substantive benefit to be gained from retaining the condition.

2) Wet Weather Storage

- (E13) The release of contaminants to land must not be carried out if the soil moisture conditions are such that surface runoff or ponding is likely to occur.

This condition needs to be amended to:

The release of contaminants to land must not be carried out if the soil moisture conditions are such that waterlogging of soils is likely to occur.

In the event that flood irrigation techniques are adopted this condition will make application of effluent a licence breach. Waterlogging of soils should however, be avoided. There is no substantive benefit to be gained from retaining the condition in current form.

3) Quality of Contaminants Released to Land

- Schedule E-Table 1: Release Quality Characteristic Limits

Quality Characteristics	Release Limit	Release Limit Units	Limit Type
5-day BOD	100	mg/L	maximum
COD	600	mg/L	maximum
Total suspended solids	100	mg/L	maximum
Total dissolved solids	12	t/ha/annum	maximum
Soluble sulphide	0	mg/L	maximum
pH	6.5-8.5	pH units	range
Total nitrogen as N	200	mg/L	maximum
Total nitrogen as N	0.38	t/ha/annum	maximum
Total phosphate	5	mg/L	maximum
Total phosphorus as P	10	mg/L	maximum

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The amended Table 1 Schedule E would read as follows:

Quality of Contaminants Released to Land

• Schedule E-Table 1: Release Quality Characteristic Limits

Quality Characteristics	Release Limit	Release Limit Units	Limit Type
¹ 5-day BOD	400	mg/L	maximum
¹ COD	800	mg/L	maximum
² Total suspended solids	100	mg/L	maximum
² Total dissolved solids	12	t/ha/annum	maximum
³ Soluble sulphide	0	mg/L	maximum
⁴ pH	6.5-11	pH units	range
⁵ Total nitrogen as N	200	mg/L	maximum
⁶ Total nitrogen as N	0.38	t/ha/annum	maximum
⁷ Total phosphate	5	mg/L	maximum
⁸ Total phosphorus as P	10	mg/L	maximum

¹ Central to the revised control philosophy is the ability to respond to extreme variations in climatic and effluent conditions. The BOD and COD limit increases are required to allow for chemical dosing for pH and nitrogen control.

² The TSS and TDS limits are unnecessary given the finding of the University of Queensland and preclude dosing liquid lime to effluent prior to land application. This in effect reduces options for sustainable operation.

³ Soluble sulphide as a control parameter is of no value. During the seven-year history of the operation no result over 0mg/L has been recorded. This analysis is unnecessary and redundant.

⁴ The pH range allowable needs to be increased to allow for nitrogen control at pump out pond and for soil pH remediation. This process hinges on the use of liquid lime prior to land application.

⁵ The use of Total N in effluent as a control parameter for the operation has been invalidated when soil nitrogen loadings are considered. Soils do not exhibit the extreme nitrogen loads that could be expected given recorded application based on effluent data. Soils have moderate N loads comparable to agricultural applications. There is no accumulation of N at depth. Soil nitrogen is the preferred control parameter to determine sustainable land use.

⁶ This figure has been misinterpreted. Original submissions were for calculated soil loads of 0.38 tonnes per hectare per annum. This amount is less than the recommended rate of nitrogen fertiliser for a kikuyu grazing pasture. It is expected that under the proposed regime nitrogen deficiency will eventuate.

⁷ Current pasture and tree trials have conclusively demonstrated that the property is phosphate limited. There are rarely measurable amounts of P in any form in the effluent. Significant quantities of P fertilizer have to be applied across the irrigation area to effectively optimise plant growth.

⁸ This is a redundant control parameter for the reasons given above. The entire property is P deficient.



ASIA PACIFIC AFRICA

GELITA Australia Pty Ltd

Environmental Management Program: Effluent Management

Authorised by:

General Manager

Page Number:

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Document

EMP001

Report

Final Revision

(Amended)

May 2004

Date Effective:

30/3/99

16/07/01

23/07/02

31/10/03

25/05/04

4) Schedule H – Self Monitoring and Reporting

Monitoring of Contaminant Releases to Land

Schedule H – Table 2

QUALITY CHARACTERISTIC	FREQUENCY
5-day BOD (mg/L)	Monthly
COD (mg/L)	Weekly
Total Suspended Solids (mg/L)	Weekly
Total Dissolved Salts (t/ha/annum)	Weekly
Soluble Sulphide (mg/L)	Weekly
pH (units)	Weekly
Total Nitrogen as N. (mg/L)	Weekly
Total Nitrogen as N (t/ha/annum)	Weekly
Total Phosphate (mg/L)	Weekly
Total Phosphorous as P. (mg/L)	Monthly

The amended Table 1 Schedule E would read as follows:

Schedule H – Self Monitoring and Reporting

Monitoring of Contaminant Releases to Land

Schedule H – Table 2

QUALITY CHARACTERISTIC	FREQUENCY
5-day BOD (mg/L)	Monthly
COD (mg/L)	Weekly
Total Suspended Solids (mg/L)	Weekly
Total Dissolved Salts (t/ha/annum)	Weekly
Soluble Sulphide (mg/L)	Weekly
pH (units)	Weekly
Total Nitrogen as N. (mg/L)	Weekly
Total Nitrogen as N (t/ha/annum)	Weekly
Total Phosphate (mg/L)	Weekly
Total Phosphorous as P. (mg/L)	Monthly

The changes to this table would reflect changes made to Schedule E-Table 1: Release Quality Characteristic Limits.

 ASIA PACIFIC AFRICA GELITA Australia Pty Ltd Environmental Management Program: Effluent Management	Authorised by: General Manager	Document EMP001 Report Final Revision (Amended) May 2004
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5) Schedule H – Self Monitoring and Reporting

(H19) The determination of the quality of contaminants released to check conformity with condition E22 of the land application schedule must be undertaken at the monitoring and in-situ measuring point(s) described as

SMP 1: the overflow from the final effluent balancing storage dam: and

SMP 2: the overflow from the final effluent polishing and pump out ponds.

This condition (H19) needs to be amended to read:

Schedule H – Self Monitoring and Reporting

(H19) The determination of the quality of contaminants released to check conformity with condition E22 of the land application schedule must be undertaken at the monitoring and in-situ measuring point(s) described as

SMP 1: the in-line sampling point of the final effluent balancing storage dam reticulation pump: and

SMP 2: the overflow from the final effluent polishing and pump out ponds.

The change to this condition would reflect Occupational Health and Safety requirements. SMP 1 is a dangerous access point. Samples from the reticulation line are drawn from the BSD by submersible pump and are representative of the water quality.

6) Contaminant Release Area Monitoring Program

(H30) The parameters to be monitored and the frequency of monitoring in the Contaminant release Area Monitoring Program shall be in accordance with the parameters and monitoring frequency prescribed in 'Leiner Davis Gelatin (Australia), June 1994, Environmental Management Plan, (Draft)' Section 4.1, 4.2 and 4.3, or more recent additions or supplements to that document as such become available and approved by the administering authority.

This condition (H30) needs to be amended to read:

(H30) The parameters to be monitored and the frequency of monitoring in the Contaminant release Area Monitoring Program shall be in accordance with the parameters and monitoring frequency prescribed in schedule H Table 3.



ASIA PACIFIC AFRICA

GELITA Australia Pty Ltd

Environmental Management Program: Effluent Management

Authorised by:

General Manager

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Schedule H Table 3

Element	Sites	Method	Frequency
Soil Salinity	Within soil units 2a, 2b, 2c, 2d, 2e, 3a, 3b,	Soil sampling and analysis for pH (1:5), EC sat, Cl, NO ₃ , SO ₄ , effective CEC, exchangeable Ca, Mg, Na,	annual
Soil infiltration and hydraulic conductivity	Within soil units, 2a, 3b, 2e	Field instrumentation	annual
Nutrient Status	As Above	Soil Sampling and analysis for Total N, NO ₃ -N, NH ₄ -N, Acid extractable P	bi-annual
Groundwater	Relevant bores with water table within soil units listed above	Tape measurement and EC. Water laboratory analysis	bi-annual
Effluent	Pump out pond outlet	Water laboratory analysis,	monthly

The existing licence conditions include soil and water monitoring requirements. The schedules above are proposed as a continuation of the original conditions and have been extended to meet the requirements of the EMP. *The combined table above is based on the following detailed schedules of monitoring and irrigation response as detailed below.*

Soil Salinity

Soil units 2a, 2b, 2c, 2d, 3a, 3b, 3d	Soil solution sampling via FullStop Soil core sampling depth 0-120cm.	Acceptable Range at 10cm depth	Acceptable Range at 50cm depth	Acceptable Range at 120cm depth	Irrigation response	Testing Frequency
pH	(1:5) solution soil extract	4.5-7.0	5.5-7.5	6.0-8.5	pH <5.0 add lime/compost. Field pH test response. pH >8.0 stop lime dosing. Flush neutral pH water.	Annual
ESP (% calculated from sodium and cation exchange capacity)	soil	10	15	20	Flush bore water	Annual
SAR (Calculated from calculated from soil solution cations: Ca ⁺⁺ , Mg ⁺⁺ Na ⁺)	solution	15	20	40	Flush bore water	Annual
EC sat (dS/m)	solution	3	4	5	EC >5 on clay flushing water/shandy	Annual
Cl ⁻	solution	0-150 mg/kg	0-450 mg/kg	0-600+ mg/kg	Flushing water/shandy	Annual
NO ₃ ⁺	solution /soil	120mg/kg	100mg/kg	20mg/kg (soil sample)	NO ₃ > 100mg/kg at 50 cm Irrigate only flushing water. Monitor to depth 150cm Increase pH irrigation water.	Annual
Total sulphate sulphur	Solution- (includes gypsum precipitate)	4000mg/l	5000mg/l	6000 mg/kg (soil sample)	Calcium amendment	Annual

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Soil infiltration and hydraulic conductivity

Soil Map units for monitoring. 2a, 2b, 2c, 2d, 2e, 3a, 3b, 3d	Sampling Methods	Acceptable Range	Irrigation Response	Testing Frequency
Infiltration and hydraulic conductivity	FullStop Monitor time for distribution of measured amount of applied effluent of SAR 12 mmol/L ^{0.5} through soil to 50cm depth at saturation using constant head infiltrometer.	20 mm/ hour at SAR 12 mmol/L ^{0.5} on dermosols, Soil Map Unit 2a , 2b, 2c 1mm/ hour at SAR 12 mmol/L ^{0.5} on vertosols/sodosols Soil MapUnits 2d, 2e, 3b, 3d, 3a	Irrigate to 50% soil water deficit based on Fullstop indicators placed at 10cm and 50 cm depths.	Annual

Nutrient Status

Nutrient	Acceptable Range for Soil Map Units at 10 cm Depth						
	2a	2b	2c	2d	2e	3a, 3d	3b
Total N (%)	0.1-0.25	0.1-0.25	0.1-0.3	0.2-0.5	0.2-0.5	0.2-0.4	0.2-0.5
NO₃-N (mg/Kg)	10-120	10-120	10-120	10-120	10-120	10-120	10-120
NH₄-N (mg/Kg)	20-450	20-450	20-450	20-450	20-450	20-450	20-450
Acid Extractable P (mg/Kg)	10-450	10-450	10-450	10-450	10-450	10-450	10-450
Bicarbonate Extractable P (mg/Kg)	10-100	10-100	10-100	10-100	10-100	10-100	10-100

The existing licence conditions include soil and water monitoring requirements. The schedules above are proposed as a continuation of the original conditions and have been extended to meet the requirements of the EMP. Soil sampling shall be conducted to 1.5 metre depth across soil units on an annual basis to establish benchmarks and monitor movement of "salts" and nitrogen through soil profiles. Solution for analysis shall be drawn from FullStop wetting front detectors at 10 and 50 cm for irrigation scheduling and also at depths of 1 and 1.5 metres for soil solution extracts.



ASIA PACIFIC AFRICA

GELITA Australia Pty Ltd

Environmental Management Program: Effluent Management

Authorised by:

General Manager

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Soil Order	Description	Soil Unit	Proposed irrigation treatment
Dermosol	Basalt convex crest. Shallow stony medium clay. Non-irrigation zone.	1a	This area is not suited to any irrigation. Not monitored.
Dermosol	Basalt midslope shelf. Shallow stony light clay pH 8.5 at depth. Irrigation zone.	1b	This area has been subject to irrigation in the past and future effluent irrigation shall be progressively reduced to zero as the plan is implemented. Minimal monitoring required.
Dermosol	Basalt lower slope. Shallow stony brown medium clay. Irrigation zone.	1c	This area has been subject to irrigation in the past and future effluent irrigation shall be progressively reduced to zero as the plan is implemented. Minimal monitoring required.
Dermosol	Alluvium, relic and current levees. Deep sandy loam, pH neutral at depth.	2a	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Dermosol	Alluvium dissected levee. Deep clay/sandy loam. pH neutral. Irrigation zone.	2b	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Dermosol	Alluvium, backplain. Deep layered sandy clay loam. Alkaline pH at depth. Irrigation zone.	2c	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Vertosol	Basaltic alluvium, closed depression. Black cracking clays. Alkaline. Irrigation zone.	2d	This zone will be progressively planted to vetiver and receive effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Vertosol	Basaltic alluvium, relic backplain. Dark cracking medium clays, alkaline. Irrigation zone.	2e	This zone will be subject to drainage channels and the soil flushed. It will receive some effluent irrigation as the plan is implemented. Over time the zone will be entirely excluded from effluent irrigation. Intensive monitoring as per table 3 required.
Dermosol	Alluvium dissected relic levee. Brown sandy clay loam. Irrigation zone.	2f	This zone exhibits higher hydraulic conductivity and will be progressively planted to vetiver and receive more effluent irrigation as the plan is implemented. Characteristics of this dermosol are typical of the other dermosols on site. This soil type limited in area. Intensive monitoring as per table 3 not required.
Sodosol	Walloon sandstone, relic terrace, upper convex slopes. Brown clay loam, mottled yellow subsoil. neutral to alkaline. Irrigation zone.	3a	This zone will be subject to irrigated agroforestry and the soil flushed. It will receive some effluent irrigation as the plan is implemented. Over time the zone will be entirely excluded from effluent irrigation. Intensive monitoring as per table 3 required.
Vertosol	Walloon siltstone, relic terrace. Brown clay loam, yellow brown clay, alkaline. Irrigation zone.	3b	This zone will be retained as irrigated pasture and receive effluent irrigation as the plan is implemented. Intensive monitoring as per table 3 required.
Vertosol	Mixed basalt/Walloon sediments. Organic black over red brown clays, alkaline.	3c	This area is not suited to any irrigation. Not monitored.
Vertosol	Colluvium basalt/Walloon sediments relic gully infill. Brown clay, alkaline.	3d	This area is not ideal for effluent irrigation. It will continue to receive some effluent irrigation as the plan is implemented. Over time the zone will be entirely excluded from effluent irrigation.

Soil units for monitoring purposes are described in this table and presented in map format below. Fence lines and groundwater monitoring bores are also detailed on this map.



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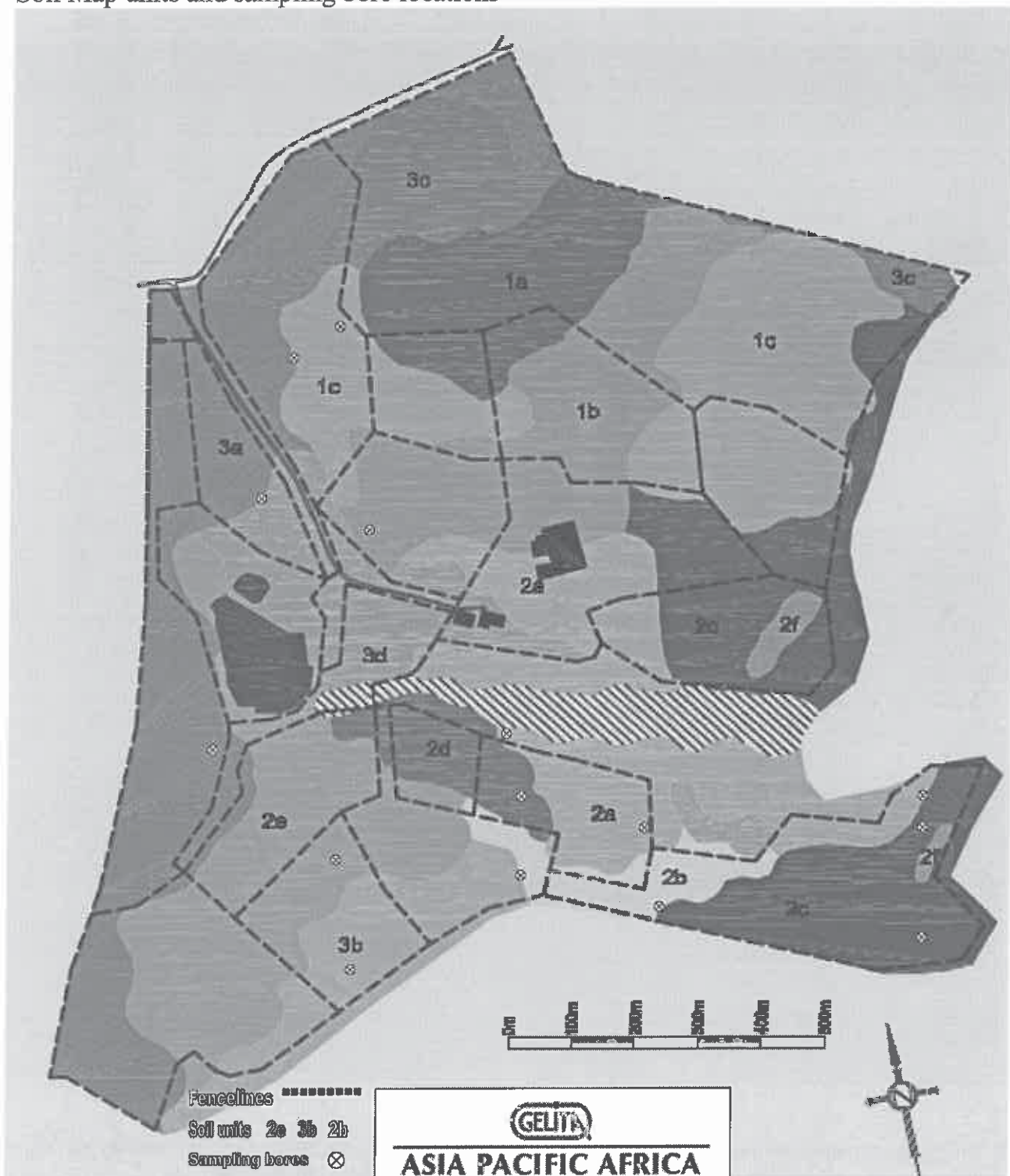
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Soil Map units and sampling bore locations



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The bores listed for monitoring are detailed in the map above. Therefore Condition H33 should be expanded to include the additional bore monitoring sites proposed by GELITA.

The proposed Schedule H Table 3 does not seek any changes to the parameters within the current licence conditions regarding groundwater quality monitoring other than a reduced frequency from bi-monthly to bi-annual. Condition H34 c would require amendment to reflect this proposed change.

Groundwater monitoring parameters and reporting requirements are further proposed to constitute an integral aspect of the Annual Audit process. This process will comprise an analysis and interpretive report of the monitoring program by an external consultant; and shall include an annual modelling exercise utilising MEDLI. The MEDLI model will be a major predictive tool in long-term management of the site and shall form part of the annual reporting requirement.

GELITA will also continue to regularly monitor the following effluent quality characteristics for irrigation management purposes as required by our ISO 14001 procedures. The proposed changes to the licence are designed to achieve an outcome based reporting format and do not preclude the continuation of the GELITA waste-water monitoring program.

The following parameters are required for data input into the MEDLI model and shall continue to be collected and collated. All such records are maintained on-site indefinitely.

Irrigation Water Quality Monitoring

pH	EC	COD (mg/L)	TSS (mg/L)	BOD (mg/L)	TN (mg/L)	TDS (ppm)	NOx (mg/L)
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The initial monitoring program recommended in the Environmental Impact Statement on soil and water monitoring (GHD, 1992) was implemented as policy in the Company (Leiner Davis Gelatin Australia) Environmental Management Plan, 1994.

The revised program of irrigation scheduling (Hydroplan report, September 2003) is aimed to sustain soil conditions for productive growth according to soil properties as determined in the Land Management Study Phase 1, Task A- Soil Sampling and Analysis as reported above.

To meet the requirements of the revised licence proposal more specific sampling will be required to monitor soil conditions according to soil and crop type. The sites for sampling will follow from this report and will be taken from similar locations for comparison over time.

Additional soil and ground water sampling for determining soil behaviour in relation to infiltration and hydraulic conductivity will be monitored on an annual basis during the seven years following establishment of the vetiver/ryegrass production unit.

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These data will be used to validate the predictive outcomes of the MEDLI program upon which the vetiver/ryegrass program is based. Corrective actions will be taken if values are deemed to be outside sustainable limits.

This will be effected by:

- modifying the leaching fraction and
- by reducing salt load in irrigation water by shandyng with bore water and
- maintaining physical soil properties by mechanical intervention (eg ripping) and
- controlling nitrogen loads where necessary by chemical means.

These analyses will be used in conjunction with wastewater treatment data to assess compliance with the relevant licence conditions proposed in this submission.

File note of meeting/discussion:

✓ Meeting ☐ Telephone

Date: 12/05/2004

Time: 9-10:30AM

Between: Cameron Smeal, Environmental Officer of: GELITA Australia Pty Ltd

And: Damian Brown, Kyle Roberts, Don Shackel of: EPA Southern Region

Subject: **Outcomes of EMP No.SR1157.**

The following issues / outcomes in relation to Company EMP No.SR1157, previously advised to GELITA Australia, for consideration, by e-mail of 5/05/2004, were addressed at the meeting:

1. Explain the need for a seven (7) year lifetime to put elements of the EMP in place;
2. Expand and possibly add monitoring limits, i.e. what are the sustainable soils limits (pH etc) to Schedule H - Table 3 (Condition H30);
3. Consider adding "waterlogging" to current Condition E13;
4. Confirm the role of Vetiver Grass in the composting process;
5. Discuss groundwater shallow and deep drainage issues concerning "flushing" of salt(s) through soils and possible outcomes, i.e. salt scalding and destination of solutes, particularly in regard to the Logan River;
6. Confirm the source(s) of bore-water for soil "flushing rehabilitation purposes" and "extending" of treated wastewater for irrigation purposes.

Item 1: Relates to the time/cost required to plant/grow the proposed 50ha of Vetiver Grass to effectiveness, which planting program may be achieved prior to the 7 year estimate, however the planting window for 2004 has already been "lost". The Company had allocated around \$250,000 over the 2004-2005 period for initial Vetiver Grass pasture establishment, to be followed by progressive annual plantings to achieve the required operational grass area. Also, development of the proposed agroforestry plots was necessarily a 5 year program to achieve canopy closure.

Item 2: From an EPA perspective, D Brown indicated that Schedule H - Table 3 (Condition H30) should be expanded to include relevant, available soil monitoring parameter limits, for those soil types receiving irrigated treated wastewater. Cameron Smeal agreed to rework Schedule H - Table 3 to include soil constituent/condition limits/ranges, where such reliable information was available.

Item 3: C Smeal acknowledged that "waterlogging" could be added to Condition E13, however "surface runoff or ponding" would need to be removed from the Condition to allow the proposed flood-irrigation option to be exercised, with which to achieve solutes "flushing" when appropriate. C Smeal indicated that trap dams were intended to capture/contain any surface runoff from flood-irrigation of treated wastewater, obviating any discharge to the surrounding Logan River.

Item 4: C Smeal confirmed that Vetiver Grass would provide “green-waste” additions to the on-site composting process, on an availability basis.

Item 5: Groundwater issues were discussed in depth by D Brown and C Smeal, in particular salt(s) “flushing”, including transfers to the alleged “shallow transient” water table, around a depth of 3-4m and subsequent deep drainage to the reported “deep” aquifer around a depth of 12m, located on the Logan River alluvial flats. Speculative discussions also considered the likelihood of “deep drainage” and “river recharge” effects impacting this deep aquifer. C Smeal confirmed that historically, irrigation of treated wastewater to river flat soils on site, over a number of years, had not impacted water quality of the adjacent Logan River, according to monitoring data generated by the two (2) DNR stream monitoring stations, above and below the GELITA property.

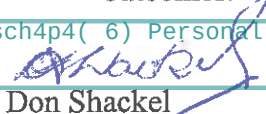
Item 6: C Smeal confirmed that a number of the 30 bores on site provided reasonable quality water sources, from a salinity perspective, for use for “flushing” and “shandyng” purposes.

MEDLI Modelling: C Smeal indicated that sustainable EMP outcomes had been derived/applied from MEDLI modelling by Gardiner/Veritz of DNR, using deliberately conservative parameters/values, viz; one half actual soil leaching rate.

Action:

1. GELITA Australia to provide additional information requested prior to 1/06/2004.
2. The RSA for amendment of SR0722 to be changed to reflect the meeting outcomes.

sch4p4(6) Personal


Don Shackel
Heavy Industry Group
Environmental Operations
Southern Region



1 of 2

GELITA AUST PIL

Outcome of EMP: operation sustainable in terms of mineral salts, Nitrogen balances are required

13 Soil types - Individual Irrigation strategies for optimal outcome.

- Monitor outcome

- Graduated Establishment 7yrs.

* Ponding and Runoff: - Condition E13, Gelita propose change to "waterlogging" What are consequences?

* Effluent Irrigation Area Monitoring
Condition H50.

* Receiving Environment

Are 13 soil types covered??
Are 13 soil types in irrigation areas??
Which are?

Sustainable

Soil Unit	Parameter	Monitoring Frequency	Expected Range	Irrigation Prohibition
1a	Ph	6 month	6.5 - 7.5	0-6.5 7.5-14
↓	CEC	6 months		
2a.			etc.	
2d.			what are sustainable limits in report?	
			ITBC.	

→ Max

→ ESD Finance Model??

→ Carport Conditions for Vetiver?

* adour plan

* Sealed pad etc... where leachate goes etc...



CLIENT

PROJECT

CALCULATION SHEET

JOB No.

DESIGNED BY:

DATE:

CHECKED BY:

DATE:

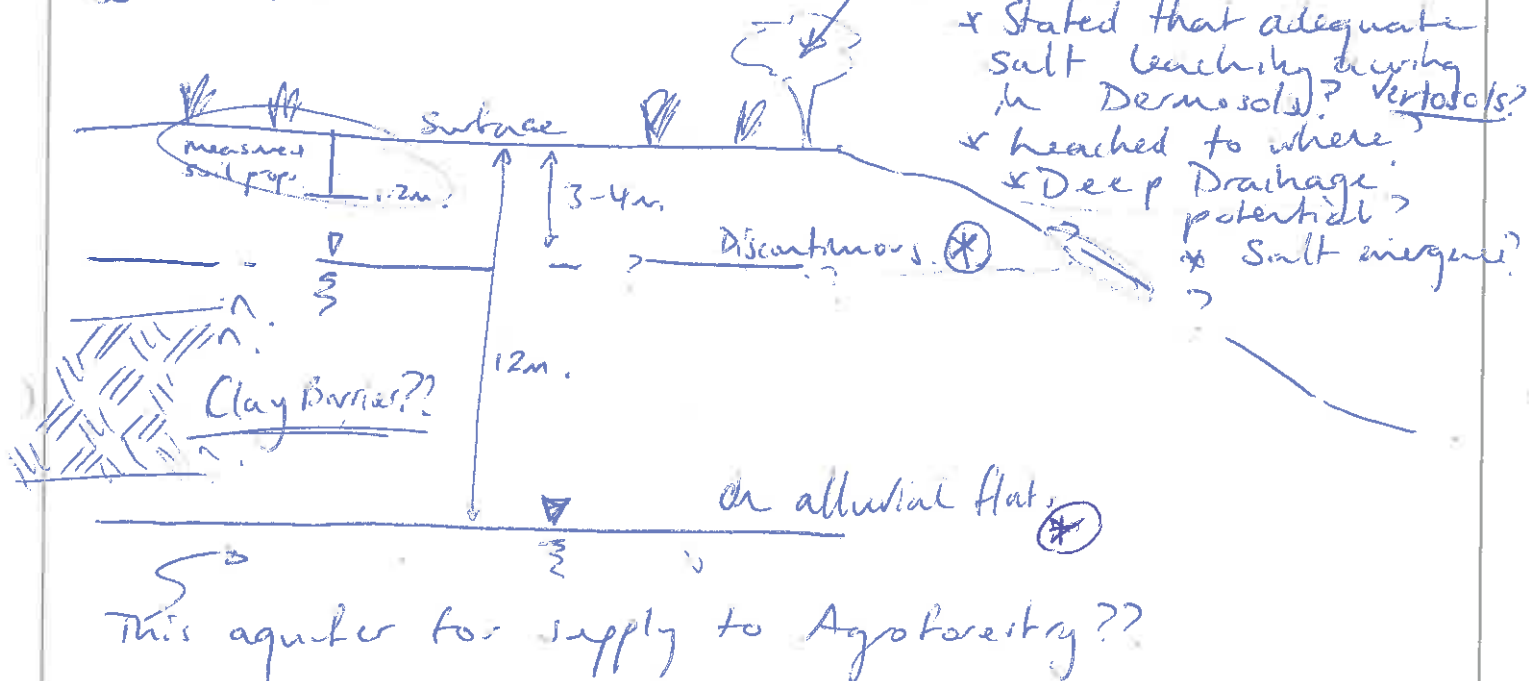
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* Groundwater Qs

2 Bodies of Groundwater



- ① H30 - Damien's proposed ? Cameron. *why to my...*
- ② 7yrs reflect in cond^{ns} ? Damien.
- ③ E13 - water logging *why to be taken place*
- ④ composting - RSA - cond^{ns} *cond^{ns} in soil*
- ⑤ 6/w deep drainage. ? Cameron.
- ✓ ⑥ bore water proposal - which aquifer 3-4m or 12m?

DATES:

✓

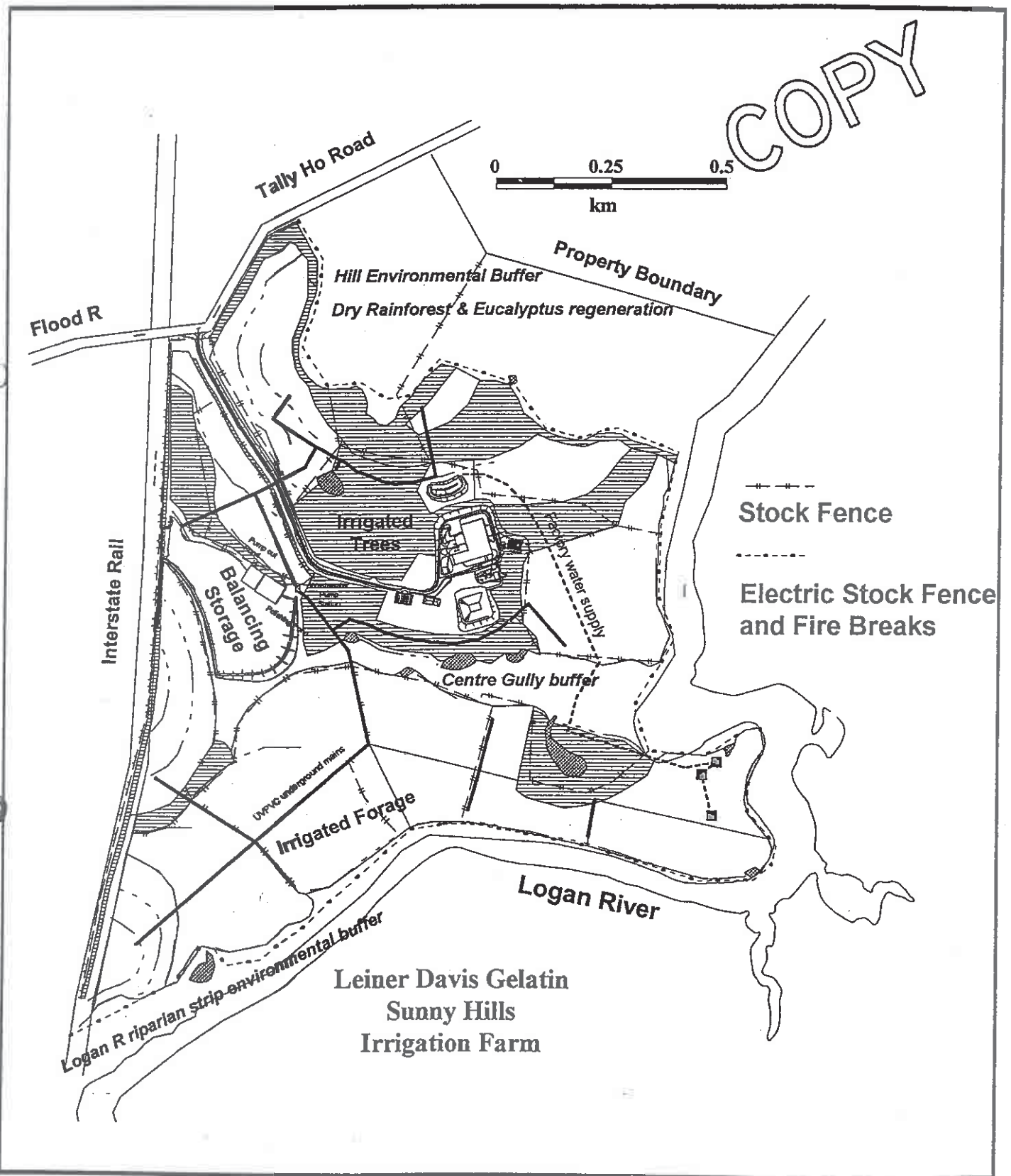
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**NOTICE OF DECISION TO AMEND LICENCE UNDER SECTION 118 OF
THE ENVIRONMENTAL PROTECTION ACT 1994**

**Request for Statutory Approval
RSA No.**

Decision Date	N/A
Licence No.:	SR0722
File No.:	STH495/8
Subject:	GELITA Australia Pty Ltd – Application for Amendment of Environmental Authority; and Application for change of anniversary day of EA
Reason for Amendment:	In order to achieve / implement a number of “ best practice environmental outcomes ” emanating from completion of EMP No.SR1157.
ERAs:	<p>ERA 17 Fuel burning - any process involving the use of fuel burning equipment (including, for example, a standby power generator) that is capable of burning (whether alone or in total) 500 kg or more of fuel per hour.</p> <p>ERA 50(b) - Rendering operation - commercially processing or extracting substances, including, for example, fat, tallow, derivatives of fat or tallow or proteinaceous matter, from animal wastes or by-products (other than an operation using wastes solely derived from an activity mentioned in item 32(a) or 47) in works having a design production capacity of 300 tonnes or more per year.</p> <p>ERA 15(a) - Sewage treatment - operating a standard sewage treatment works having a peak design capacity to treat sewage of 21 or more equivalent persons but less than 100 equivalent persons.</p>
Located at:	GELITA Australia Pty Ltd “SUNNY HILLS” Flood Road JOSEPHVILLE via BEAUDESERT QLD 4285

Proposed Amendment of GELITA Environmental Licence No.SR0722:

In order to implement the “**best practice environmental management**” program emanating from completion of EMP No.SR1157, a number of **AMENDMENTS** to Schedule E Conditions included in Company Environmental Licence No.SR0722 will be required.

In order to achieve these outcomes a number of specific amendments to Company Environmental Licence No.SR0722 will be required and ARE SUPPORTED:

- **removal of TDS discharge limit [E24]**
- **removal of daily treated effluent discharge volume limit [E10]**
- **removal of irrigation prohibition during rainfall (aids “salts” flushing, while requirements to prevent ponding, run-off will be maintained) [E13]**
- **substitution of altered monitoring program [H18, H19, H30, H34]**

Comments concerning amendments sought by GELITA Australia Pty Ltd in respect of Environmental Licence No. SR0722 are set out, together with justifications for such changes, in the attached “**Recommended Licence amendments**”, included on pages 28-32 inclusive of the Company “Compliance Report” for EMP No.SR1157.

The proposed amendments to Environmental Licence No.SR0722, are fully supported by EMP Assessment Officer / Site Licensing Officer Don Shackel, in respect of the stated outcomes emanating from EMP No.SR1157.

The Company has submitted Part A and Part B Applications to ‘Amend environmental authority’ forms to effect the necessary amendment to the nominated conditions of Company Environmental Licence No.SR0722.

The correct fee of \$150.00 in relation to an Amendment application under the Act, ch 4, pt 5, accompanied the application material.

Subsequently, the EPA received and has responded to the ‘Application form – Change anniversary day of an environmental authority’, amending the anniversary date of SR0722 from 04 November to 31 January, as requested.

RECOMMENDATION:

1. That the “amendment of environmental authority” SR0722 be granted and the attached letter be sent to GELITA Australia Pty Ltd advising of the amendment; and
2. That the request for “change of anniversary day” for SR0722 be granted and the attached letter be sent to GELITA Australia Pty Ltd advising of the change.

Contact Officer – Don Shackel (07) 3225 1040

Kyle Roberts
Operations Manager
Heavy Industry Group
Environmental Operations
Southern Region

Additional Information: GELITA Australia Limited has a Development Approval (SR0007DA) signed by the EPA on 17/12/2002 to carry out ERA 53 – Soil conditioner manufacturing on site at “Sunny Hills”, Flood Road, Josephville via Beaudesert. SR0007DA has nine (9) schedules of development conditions attached, which address the operation of the composting activity on site.

**NOTICE OF DECISION TO AMEND LICENCE UNDER SECTION 118 OF
THE ENVIRONMENTAL PROTECTION ACT 1994**

**Request for Statutory Approval
RSA No.**

Decision Date N/A
Licence No.: SR0722
File No.: STH495/8

Subject: **GELITA Australia Pty Ltd – Application for
Amendment of Environmental Authority; and
Application for change of anniversary day of EA**

Reason for Amendment: In order to achieve / implement a number of “**best practice environmental outcomes**” emanating from completion of EMP No.SR1157.

ERAs:

ERA 17 Fuel burning - any process involving the use of fuel burning equipment (including, for example, a standby power generator) that is capable of burning (whether alone or in total) 500 kg or more of fuel per hour.

ERA 50(b) - Rendering operation - commercially processing or extracting substances, including, for example, fat, tallow, derivatives of fat or tallow or proteinaceous matter, from animal wastes or by-products (other than an operation using wastes solely derived from an activity mentioned in item 32(a) or 47) in works having a design production capacity of 300 tonnes or more per year.

ERA 15(a) - Sewage treatment - operating a standard sewage treatment works having a peak design capacity to treat sewage of 21 or more equivalent persons but less than 100 equivalent persons.

Located at: GELITA Australia Pty Ltd
“SUNNY HILLS”
Flood Road
JOSEPHVILLE via BEAUDESERT QLD 4285

Proposed Amendment of GELITA Environmental Licence No.SR0722:

In order to implement the “**best practice environmental management**” program emanating from completion of EMP No.SR1157, a number of **AMENDMENTS** to Schedule E Conditions included in Company Environmental Licence No.SR0722 will be required.

In order to achieve these outcomes a number of specific amendments to Company Environmental Licence No.SR0722 will be required and ARE SUPPORTED:

- removal of TDS discharge limit [E24]
- removal of daily treated effluent discharge volume limit [E10]
- removal of irrigation prohibition during rainfall (aids “salts” flushing, while requirements to prevent ponding, run-off will be maintained) [E13]
- substitution of altered monitoring program [H18, H19, H30, H34]

Comments concerning amendments sought by GELITA Australia Pty Ltd in respect of Environmental Licence No. SR0722 are set out, together with justifications for such changes, in the attached “**Recommended Licence amendments**”, included on pages 28-32 inclusive of the Company “Compliance Report” for EMP No.SR1157.

The proposed amendments to Environmental Licence No.SR0722, are fully supported by EMP Assessment Officer / Site Licensing Officer Don Shackel, in respect of the stated outcomes emanating from EMP No.SR1157.

The Company has submitted Part A and Part B Applications to ‘Amend environmental authority’ forms to effect the necessary amendment to the nominated conditions of Company Environmental Licence No.SR0722.

The correct fee of \$150.00 in relation to an Amendment application under the Act, ch 4, pt 5, accompanied the application material.

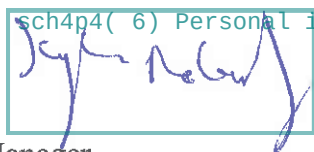
Subsequently, the EPA received and has responded to the ‘Application form – Change anniversary day of an environmental authority’, amending the anniversary date of SR0722 from 04 November to 31 January, as requested.

RECOMMENDATION:

1. That the “amendment of environmental authority” SR0722 be granted and the attached letter be sent to GELITA Australia Pty Ltd advising of the amendment; and
2. That the request for “change of anniversary day” for SR0722 be granted and the attached letter be sent to GELITA Australia Pty Ltd advising of the change.

Contact Officer – Don Shackel (07) 3225 1040

Kyle Roberts
Operations Manager
Heavy Industry Group
Environmental Operations
Southern Region

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 5/3/14



**Queensland
Government**

Enquiries Don Shackel
Telephone (07)32251040
Your reference
Our reference GELITA-STH495-8-SR0722

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

17 March 2004

Mr R Seach
General Manager
GELITA Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

Dear Mr Seach

The Environmental Protection Agency (EPA) has amended Environmental Authority SR0722, under section 118 of the *Environmental Protection Act 1994*, in response to your 'Application for Amendment of Environmental Authority' of 2 March 2004.

The EPA wishes to acknowledge the "best practice environmental outcomes" emanating from recently completed Environmental Management Program No.SR1157 and the subsequent request by GELITA Australia Pty Ltd to remove restrictive conditions included in Company Environmental Licence No.SR0722, preventing the "environmentally sustainable development" of on-site disposal of treated effluent, for beneficial agricultural purposes.

Hence, the EPA has made relevant amendments to Environmental Licence No.SR0722, to allow a fundamental change in farm management from that based on qualitative control criteria, to outcome-based assessments of on-site agricultural operations.

The EPA has also responded to your 'Application form – Change anniversary day of an environmental authority' of 4 March 2004, amending the anniversary date of SR0722 from 04 November to 31 January, as requested.

Should you have any queries concerning the above matters, please contact Don Shackel on (07) 3225 1040.

Yours sincerely

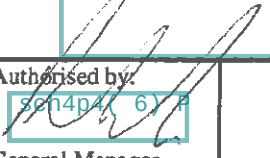
D J Brown
Manager (Licensing)
Southern Region

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Page 1 of 1

Level 16 / 288 Edward Street Brisbane
Queensland 4000 Australia
GPO Box 2771 Brisbane
Queensland 4001 Australia
Telephone
Facsimile
Website www.env.qld.gov.au
ABN 87 221 158 786

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 ASIA PACIFIC AFRICA GELITA Australia Pty Ltd Environmental Management Program: Effluent Management	Authorised by:  sch4p4(6) P General Manager	Document EMP001 Report Revision July 2001
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Recommended Licence amendments

In order to implement the best practice management program outlined in this report, a number of changes to Schedule E of the licence will be required.

The changes recommended are as follows:

Schedule E-Land Application

1) Quantity of Contaminants Released

- (E10) The total quantity of contaminants released to the irrigation areas during any day must not exceed 3.0 ML of final treated wastewater.

This condition needs to be deleted. The vetiver system is best suited to flood irrigation techniques. (Refer to Truong report). In the event that flood irrigation techniques are adopted this condition will restrict uniformity of application. There is no substantive benefit to be gained from retaining the condition.

2) Wet Weather Storage

- (E13) The release of contaminants to land must not be carried out if the soil moisture conditions are such that surface runoff or ponding is likely to occur.

This condition needs to be amended to:

The release of contaminants to land must not be carried out if the soil moisture conditions are such that waterlogging of soils is likely to occur.

In the event that flood irrigation techniques are adopted this condition will make application of effluent a licence breach. Waterlogging of soils should however, be avoided. There is no substantive benefit to be gained from retaining the condition in current form.

3) Quality of Contaminants Released to Land

Schedule E-Table 1: Release Quality Characteristic Limits

Quality Characteristics	Release Limit	Release Limit Units	Limit Type
5-day BOD	100	mg/L	maximum
COD	600	mg/L	maximum
Total suspended solids	100	mg/L	maximum
Total dissolved solids	12	t/ha/annum	maximum
Soluble sulphide	0	mg/L	maximum
pH	6.5-8.5	pH units	range
Total nitrogen as N	200	mg/L	maximum
Total nitrogen as N	0.38	t/ha/annum	maximum
Total phosphate	5	mg/L	maximum
Total phosphorus as P	10	mg/L	maximum



ASIA PACIFIC AFRICA

GELITA Australia Pty Ltd

Environmental Management Program:
Effluent Management

Authorised by:

General Manager

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July 2001

Date Effective:
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16/07/01
23/07/02
31/10/03

The amended Table 1 Schedule E would read as follows:

Quality of Contaminants Released to Land

• Schedule E-Table 1: Release Quality Characteristic Limits

Quality Characteristics	Release Limit	Release Limit Units	Limit Type
¹ 5-day BOD	400	mg/L	maximum
¹ COD	800	mg/L	maximum
² Total suspended solids	400	mg/L	maximum
² Total dissolved solids	42	t/ha/annum	maximum
³ Soluble sulphide	0	mg/L	maximum
⁴ pH	6.5-11	pH units	range
⁵ Total nitrogen as N	200	mg/L	maximum
⁶ Total nitrogen as N	0.38	t/ha/annum	maximum
⁷ Total phosphate	5	mg/L	maximum
⁸ Total phosphorus as P	40	mg/L	maximum

¹ Central to the revised control philosophy is the ability to respond to extreme variations in climatic and effluent conditions. The BOD and COD limit increases are required to allow for chemical dosing for pH and nitrogen control.

² The TSS and TDS limits are unnecessary given the finding of the University of Queensland and preclude dosing liquid lime to effluent prior to land application. This in effect reduces options for sustainable operation.

³ Soluble sulphide as a control parameter is of no value. During the seven-year history of the operation no result over 0mg/L has been recorded. This analysis is unnecessary and redundant.

⁴ The pH range allowable needs to be increased to allow for nitrogen control at pump out pond and for soil pH remediation. This process hinges on the use of liquid lime prior to land application.

⁵ The use of Total N in effluent as a control parameter for the operation has been invalidated when soil nitrogen loadings are considered. Soils do not exhibit the extreme nitrogen loads that could be expected given recorded application based on effluent data. Soils have moderate N loads comparable to agricultural applications. There is no accumulation of N at depth. Soil nitrogen is the preferred control parameter to determine sustainable land use.

⁶ This figure has been misinterpreted. Original submissions were for calculated soil loads of 0.38 tonnes per hectare per annum. This amount is less than the recommended rate of nitrogen fertiliser for a kikuyu grazing pasture. It is expected that under the proposed regime nitrogen deficiency will eventuate.

⁷ Current pasture and tree trials have conclusively demonstrated that the property is phosphate limited. There are rarely measurable amounts of P in any form in the effluent. Significant quantities of P fertilizer have to be applied across the irrigation area to effectively optimise plant growth.

⁸ This is a redundant control parameter for the reasons given above. The entire property is P deficient.



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ASIA PACIFIC AFRICA
GELITA Australia Pty Ltd

**Environmental Management Program:
Effluent Management**

Authorised by:  General Manager	Document EMP001 Report Revision July 2001
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4) Schedule H – Self Monitoring and Reporting
Monitoring of Contaminant Releases to Land
Schedule H – Table 2

QUALITY CHARACTERISTIC	FREQUENCY
5-day BOD (mg/L)	Monthly
COD (mg/L)	Weekly
Total Suspended Solids (mg/L)	Weekly
Total Dissolved Salts (t/ha/annum)	Weekly
Soluble Sulphide (mg/L)	Weekly
pH (units)	Weekly
Total Nitrogen as N. (mg/L)	Weekly
Total Nitrogen as N (t/ha/annum)	Weekly
Total Phosphate (mg/L)	Weekly
Total Phosphorous as P. (mg/L)	Monthly

The amended Table 1 Schedule E would read as follows:

Schedule H – Self Monitoring and Reporting
Monitoring of Contaminant Releases to Land
Schedule H – Table 2

QUALITY CHARACTERISTIC	FREQUENCY
5-day BOD (mg/L)	Monthly
COD (mg/L)	Weekly
Total Suspended Solids (mg/L)	Weekly
Total Dissolved Salts (t/ha/annum)	Weekly
Soluble Sulphide (mg/L)	Weekly
pH (units)	Weekly
Total Nitrogen as N. (mg/L)	Weekly
Total Nitrogen as N (t/ha/annum)	Weekly
Total Phosphate (mg/L)	Weekly
Total Phosphorous as P. (mg/L)	Monthly

The changes to this table would reflect changes made to Schedule E-Table 1: Release Quality Characteristic Limits.

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ASIA PACIFIC AFRICA
GELITA Australia Pty Ltd

**Environmental Management Program:
Effluent Management**

Authorised by: <div style="border: 1px solid black; display: inline-block; padding: 2px;">sch4p4 (6)</div> General Manager	Document EMP001 Report Revision July 2001
Page Number: Page 31 of 35	Date Effective: 30/3/99 16/07/01 23/07/02 31/10/03

5) Schedule H – Self Monitoring and Reporting

(H19) The determination of the quality of contaminants released to check conformity with condition E22 of the land application schedule must be undertaken at the monitoring and in-situ measuring point(s) described as

- SMP 1:** the overflow from the final effluent balancing storage dam; and
- SMP 2:** the overflow from the final effluent polishing and pump out ponds.

This condition (H19) needs to be amended to read:

Schedule H – Self Monitoring and Reporting

(H19) The determination of the quality of contaminants released to check conformity with condition E22 of the land application schedule must be undertaken at the monitoring and in-situ measuring point(s) described as

- SMP 1:** the in-line sampling point of the final effluent balancing storage dam reticulation pump; and
- SMP 2:** the overflow from the final effluent polishing and pump out ponds.

The change to this condition would reflect Occupational Health and Safety requirements. SMP 1 is a dangerous access point. Samples from the reticulation line are drawn from the BSD by submersible pump and are representative of the water quality.

6) Contaminant Release Area Monitoring Program

(H30) The parameters to be monitored and the frequency of monitoring in the Contaminant release Area Monitoring Program shall be in accordance with the parameters and monitoring frequency prescribed in 'Leiner Davis Gelatin (Australia), June 1994, Environmental Management Plan, (Draft)' Section 4.1, 4.2 and 4.3, or more recent additions or supplements to that document as such become available and approved by the administering authority.

This condition (H30) needs to be amended to read:

(H30) The parameters to be monitored and the frequency of monitoring in the Contaminant release Area Monitoring Program shall be in accordance with the parameters and monitoring frequency prescribed in schedule H Table 3.

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 ASIA PACIFIC AFRICA GELITA Australia Pty Ltd Environmental Management Program: Effluent Management	Authorised by: <div style="border: 1px solid black; padding: 2px; display: inline-block;">sch4p4(6)</div> General Manager	Document EMP001 Report Revision July 2001
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Schedule H Table 3

Element	Sites	Method	Frequency
Soil Salinity	Within soil units 2a, 2b, 2c, 2d, 2e, 3a, 3b,	Soil sampling and analysis for pH (1:5), EC sat, Cl, NO ₃ , SO ₄ , effective CEC, exchangeable Ca, Mg, Na, (ATA)	annual
Soil infiltration and hydraulic conductivity	Within soil units, 2a, 3b, 2e	Field instrumentation	annual
Nutrient Status	As Above	Soil Sampling and analysis for Total N, NO ₃ -N, NH ₄ -N, Acid extractable P	bi-annual
Groundwater	Relevant bores with water table within soil units listed above	Tape measurement and EC. Water laboratory analysis	bi-annual
Effluent	Pump out pond outlet	Water laboratory analysis,	monthly

The existing licence conditions include soil and water monitoring requirements. The schedules above are proposed as a continuation of the original conditions and have been extended to meet the requirements of the EMP.

The initial monitoring program recommended in the Environmental Impact Statement on soil and water monitoring (GHD, 1992) was implemented as policy in the Company (Leiner Davis Gelatin Australia) Environmental Management Plan, 1994.

The revised program of irrigation scheduling (Hydroplan report, September 2003) is aimed to sustain soil conditions for productive growth according to soil properties as determined in the Land Management Study Phase 1, Task A- Soil Sampling and Analysis as reported above.

→ To meet the requirements of the revised licence proposal more specific sampling will be required to monitor soil conditions according to soil and crop type. The sites for sampling will follow from this report and will be taken from similar locations for comparison over time.

✓ → Additional soil and ground water sampling for determining soil behaviour in relation to infiltration and hydraulic conductivity will be monitored on an annual basis during the seven years following establishment of the vetiver/ryegrass production unit.

✓ These data will be used to validate the predictive outcomes of the MEDLI program upon which the vetiver/ryegrass program is based. Corrective actions will be taken if values are deemed to be outside sustainable limits.

This will be effected by:

- ✓ a) modifying the leaching fraction and
- b) by reducing salt load in irrigation water by shandyng with bore water and
- c) maintaining physical soil properties by mechanical intervention (eg ripping) and
- d) controlling nitrogen loads where necessary by chemical means.

✓ These analyses will be used in conjunction with wastewater treatment data to assess compliance with the relevant licence conditions proposed in this submission.

Don Shackel

From: Cameron.Smeal@gelita.com
Sent: Friday, 5 March 2004 9:18 AM
To: Don Shackel
Subject: SR722 review

Don
we have reviewed the amended content of SR722 and are in agreeance with the
format and content of the strikethrough version as discussed in our
telephone conversation of Friday 05 march.

Regards
Cameron Smeal
Environmental Officer
Gelita Australia
(07) 5541 9442



Queensland
Government

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference EMPNo5080001157
Our reference STH495-8-EMPSR1157

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

2 March 2004

Mr R Seach
General Manager
GELITA Australia Pty Ltd
PO Box 409
BEAUDESERT QLD 4285

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Dear Mr Seach

Re: Completion of Environmental Management Program No.5080001157.

The Administering Authority has assessed Progress and "Final Completion" Reports, together with "Supporting Information" provided by GELITA Australia Pty Ltd in relation to Environmental Management Program (EMP) No.5080001157 (SR1157), approved on behalf of the former Leiner Davis Gelatin International Limited, as suitable "Compliance / Completion Reports", in respect of this EMP and considers that the Company has achieved compliance with the matters dealt with by the program.

It is noted that full compliance with the approved timeframe of the EMP was achieved.

Section 52(1)(b) of the *Environmental Protection Regulation 1998* allows the Administering Authority to impose a fee for monitoring compliance with the EMP.

This fee has been assessed at \$1,565.70 (includes GST), and hence an invoice for this amount will be forwarded to you, in due course.

Should you have any queries regarding these matters, please contact Don Shackel on (07) 3225 1040.

Yours sincerely

Sch4p4(6) Person

Kyle Roberts
Operations Manager
Heavy Industry Group
Environmental Operations
Southern Region

C/c Mr Cameron Smeal
Environmental Officer
GELITA Australia Pty Ltd

Memorandum



Queensland Government
Environmental Protection Agency
Incorporating the
Queensland Parks and Wildlife Service

COPY

Enquiries Don Shackel
Telephone (07) 3225 1040
Your reference EMP001-30031999
Our reference STH495-8-SR0722

27 February 2004

To: Kyle Roberts, Operations Manager - Heavy Industry Group

From: Don Shackel, Senior Inspector – Heavy Industry Group

Subject: Completion of Environmental Management Program (EMP)
No.5080001157 (SR1157) - GELITA Australia Pty Ltd.

NOTE: EMP No.SR1157 Original "Date of Certificate of Approval" – 3/05/1999 – Period-in-Force – 33/03/2002
(Period-in-Force: 4.5yrs) Amended "Date of Certificate of Approval" – 1/12/2001 – Period-in-Force – 30/09/2003

1. COMPLIANCE / COMPLETION REPORT ASSESSMENT

Verification:

On 30 October 2003, e-mail advice was received by the EPA from Cameron Smeal, Environmental Officer for GELITA Australia Pty Ltd advising that EMP No.SR1157 and internal reporting requirements were completed, as prescribed, by 30/10/2003, viz; "within 30 days of the final date for completion of the environmental management program as stated on this "Certificate of Approval" (Tuesday, September 30, 2003), the person to which the environmental management program applies must forward a report to the administering authority detailing compliance with the conditions of this "Certificate of Approval" (Copy attached).

In consideration of the Company response to completion of EMP No.SR1157, verification of compliance with mandatory "period-in-force" timelines is confirmed.

Further, "compliance shall be verified in the report (a compliance report) by inclusion of such copies of plans, procedures, photographs, photocopies of purchase receipts, statutory declarations by the person and/or other documentation as may be necessary to demonstrate such compliance." Effective reporting requirements are confirmed

A 35 page "Compliance Report", including 'Executive Summary' and 'Effluent Management Final Report' including outcomes from the 'Gelatine Effluent Land Management Study' and 'Cleaner Production Trials', was received by the EPA on 20/11/2003, due to a delay awaiting two (2) final items from external company sources (consultants) for inclusion in the extensive "Supporting Information" package (Reference - STHR1242). In consideration of the material provided, effective reporting requirements are confirmed.

GELITA Australia has also consistently and diligently provided necessary six (6) monthly and annual reports concerning progressing outcomes associated with EMP No.SR1157.

In consideration of the Company response to completion of EMP No.SR1157, verification of compliance with prescribed reporting requirements is confirmed.

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Report Assessment:

The Company "Compliance Report" and "Supporting Information" materials have consumed considerable extra-office commitment to assess the outcomes of this complex, five (5) year, multi-disciplinary project with concurrent investigative strands. Not unexpectedly, the reports and findings associated with EMP No.SR1157 are extensive.

An "Executive Summary" details 18 major outcomes of the project, in dot point form, each of which has been read / reviewed in context, with the appropriate aspect in the "Supporting Information", from which it was derived.

GELITA Australia submits that the outcomes of the program meet the "General Conditions" of 'Certificate of Approval No.SR1157 for Environmental Management Program', in respect of, "Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner", the stated purpose of the EMP.

In summary, the study has determined that the operation is sustainable in terms of mineral salts but that altered practices to control nitrogen balances are required. Each of the thirteen (13) soil types identified will require individual irrigation treatments to achieve optimal outcomes. Results to date indicate that current licence conditions do not promote the most sustainable approach to site management, viz; outcome based, driven by climatic variations.

Rigorous research has determined that irrigation of treated effluent to specific soil types, using outcome-based criteria, as opposed to application load limits, currently included in site Environmental Licence No.SR0722, is the optimal management philosophy. Such a philosophy demands implementation of a reflexive irrigation model capable of dealing with extreme climatic variations (viz; 2001-2004 prevailing seasons) that is not based on assumptions of "average" conditions. **This requires a fundamental change in management from qualitative control criteria to outcome-based assessment of the operation.**

Based on the improved understanding of the soil dynamics associated with treated effluent irrigation across the farm site, a strategy is proposed to improve the long-term sustainability of the operation. An irrigation management schedule has been devised for the various soils under a forage/agro-forestry production program.

Recommended changes/amendments to Company Environmental Licence No.SR0722 will need to be progressed to allow this outcomes-based model to be effectively applied at "Sunny Hills".

Revised Treated Effluent Management Program:

A revised management approach has been devised to allow for a robust response to the soil capacities for treated effluent, given a range of climatic conditions. There are four aspects to the proposed management scheme. The concept requires graduated phases of establishment over a seven-year period.

These involve implementation of agro-forestry for limited treated effluent disposal over the less permeable soil types, the progressive establishment of a Vetiver Grass system for maximising nitrogen uptake across soils with higher hydraulic conductivity, early implementation of lateral

drainage of heavy clays and immediate improved wastewater treatment (liquid lime addition as necessary) for nitrogen removal.

The addition of liquid lime at the pump-out facility for treated effluent irrigation will raise the pH value of dosed material to levels where excess nitrogen will be volatilised. Theoretically, up to 80% of ammoniacal nitrogen in the wastewater can be eliminated by this means.

TDS limits included in Company Environmental Licence No.SR0722 will need to be removed to allow this process to be implemented.

In order to implement a disposal system best suited to meeting the criteria of ESD, GELITA Australia has proposed adoption of a seven-year implementation program. This program will be dependent on the realisation of significant changes/amendment to Company Environmental Licence No.SR0722. The core of the program will require the propagation and planting of Vetiver Grass as the key to beneficial reuse of treated effluent. The deep rooting system and high nitrogen requirement of Vetiver Grass are ideal for nutrient removal from site soils.

The harvested material will be utilised in composting trials for pasture improvement in non-irrigated areas over the farm. Supplementary plantings of trees and ephemeral cropping rotations will provide diverse and flexible means of treated effluent use to match climate and treated effluent quality variations.

The central tenets of the proposed system are as follows:

- flushing of "salts" below root zone to maintain healthy soils
- reduced irrigation disposal area to ensure flushing occurs
- crop selection (Vetiver/Rye grasses) to maximise nitrogen uptake
- nitrogen export from irrigated zones
- chemical nitrogen control contingency option
- precise irrigation management plan
- elimination of grazing within irrigated zones
- outcome-based monitoring regime
- annual independent expert assessment

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In order to achieve these outcomes (above) a number of amendments to Company Environmental Licence No.SR0722 will be required and ARE SUPPORTED:

- removal of TDS discharge limit
- removal of daily treated effluent discharge volume limit
- removal of irrigation prohibition during rainfall (aids "salts" flushing, while requirements to prevent ponding, run-off will be maintained)
- substitution of altered monitoring program

Within the "Compliance Report" and "Supporting Information", the Vetiver Grass system has been identified as having the potential to meet ESD criteria. The "Supporting Information" details the outcomes of research on the application of the Vetiver Grass system to date:

- On site R&D conducted at "Sunny Hills" has proved that Vetiver Grass is highly productive, while off-site research projects have confirmed these findings;
- Vetiver Grass has out-yielded other grasses used on site by six (6) fold;
- With this high production capability, Vetiver Grass has the potential of exporting three (3) times the nitrogen of other grass species;
- Based on field experimentation, the potential total land area required to sustainably dispose of all of the gelatine factory treated effluent would be approximately 50 ha;

- After allowing for 15%-20% salt leaching (conservative figures), MEDLI simulation also predicted that the Vetiver Grass planting area can be reduced to 49.5 ha to sustainably dispose of the total treated effluent output;
- Data on growth and nitrogen content of mature plants indicated that the deep and extensive root system of Vetiver Grass could reduce or eliminate nitrogen leaching, maintaining groundwater quality.

Consequently, the Vetiver Grass system will form a critical part of the overall proposal for a sustainable farm and factory treated effluent disposal regime.

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Research Conclusions:

The following conclusions are drawn from information gained since 1999, over the lifetime of EMP No.SR1157. Data contained in reports and technical material that are included in the "Support Information", detail the findings of this research. In summary, the conclusions that are drawn from these works indicate the following:

- *That all nitrogen and salts can be sustainably dealt with on site.*
- *That Exchangeable Sodium Percentages (ESP) have increased over time.*
- *The leaching fraction determined from current actual irrigation practice is double the conservative values used for the MEDLI modelling process (reports sourced from three [3] separate modellers reached similar conclusions).*
- *Current irrigation practice with treated effluent is sustainable on the dermosol (alluvium - Logan River "flats") soil type in terms of salinity management.*
- *Nitrate is being leached to depth in the dermosol (alluvium - lower slopes, sandy clay/loam levees) soil type but levels are less than the licence limits.*
- *Nitrate levels in the surface soil should be utilised by improved plant growth using the proposed Vetiver/Rye Grass whole year production system.*
- *Nitrate is not accumulating at depth in the vertosol (basaltic alluvium, Walloon siltstone, mixed basaltic/Walloon sediments) and surface concentrations can be utilised for plant growth using the proposed Vetiver/Rye Grass production system.*
- *Cleaner production methods have been achieved.*

Revised Irrigation Schedule According to Soil Type and Production Type:

Based on the improved understanding of the soil dynamics associated with treated effluent irrigation across the farm site, it is the intent of GELITA Australia to ensure that specific soil types receive irrigation to match soil properties.

A strategy is proposed to improve the long-term sustainability of the operation. An irrigation management schedule has been devised for the various soil types under a forage/agro-forestry production program.

Concentrating treated effluent disposal to less than 60 hectares of suitable soils incorporating the proposed production program is recommended to prevent salt build-up to deleterious levels in the soils, under current treated effluent and climate characteristics.

Monitoring of the irrigation (quantity, quality and distribution), rainfall and potential evapo-transpiration allows for the determination of the leaching fraction achieved.

A water (treated effluent) balance model (MEDLI), developed by DNR, is used to assess past and current leaching fractions and will be included as part of the revised monitoring program to determine future leaching fractions.

Maintenance of an appropriate leaching fraction for each soil type will ensure that the concentration of leachate draining below the root zone is at a level not deleterious to productivity of plant biomass. This will provide a more relevant assessment of sustainability of the disposal system.

This program is designed to apply treated effluent according to plant water requirements at 85% of field capacity and is based on soil infiltration and hydraulic conductivity characteristics.

In conjunction with the soil monitoring program, the actual leaching fraction can be altered as required to ensure soil levels of nitrogen and "salts" remain within sustainable levels.

Proposed Amendment of GELITA Environmental Licence No.SR0722:

In order to implement the "best practice environmental management" program emanating from completion of EMP No.SR1157, a number of **AMENDMENTS** to Schedule E Conditions included in Company Environmental Licence No.SR0722 will be required.

Amendments sought by GELITA Australia Pty Ltd in respect of Environmental Licence No. SR0722 are set out, together with justifications for such changes, in the attached "**Recommended Licence amendments**", included on pages 28-32 inclusive of the Company "Compliance Report".

The proposed amendments to Environmental Licence No.SR0722, are fully supported by Assessment Officer / Site Licensing Officer Don Shackel, in respect of the outcomes emanating from EMP No.SR1157.

Conclusion / Final Comment:

Specific requirements of the EMP have been extensively addressed and in general GELITA Australia has exceeded these requirements in **developing a model** for site Environmentally Sustainable Development (ESD). Comprehensive "Supporting Information" in the form of technical documentation was provided with the "Compliance Report".

2. ADMINISTRATION

Considering that the **AIM** of EMP No.SR1157 was to manage "Operation of the Effluent Disposal System in a Long Term Environmentally and Economically Sustainable Manner", results emanating from the completed program have demonstrated that this **AIM** has been achieved for all practicable and economic purposes.

At the same time, agreed **OBJECTIVES** and **METHODS OF MEETING OBJECTIVES and TIMEFRAMES**, documented in EMP No.SR1157 have been effectively researched / trialed / actioned over the 4.5 year lifetime of the program.

Hence, the **AIMS** and **OBJECTIVES** of EMP No.SR1157, are considered to have been met by GELITA Australia Pty Ltd.

In order to implement the "best practice environmental management" program emanating from completion of EMP No.SR1157, a number of **AMENDMENTS** to Schedule E Conditions included in Company Environmental Licence No.SR0722 will be required. Such amendments will be considered / progressed using the Application Form – Part A – 'General details of all applications' and Application Form – Part B – 'Amend environmental authority' processes, accompanied by the appropriate Schedule 6 fee of \$150.00.

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At the same time, it is considered that GELITA Australia Pty Ltd has **ACHIEVED THE INTENT OF EMP No.SR1157** and hence it is **CONFIRMED THAT EMP No.SR1157 IS CORRECTLY TERMINATED.**

Regulatory Requirements:

In consideration of the information provided by GELITA Australia Pty Ltd through "Progress Reports", submitted to the Administering Authority over the lifetime of EMP No.SR1157, together with the recent "Compliance Report" and "Supporting Information", such information is considered to have satisfied the intent of the EMP process and hence **EMP No.SR1157 IS COMPLETED AND NO LONGER IN FORCE.**

Verification aspects of EMP No.SR1157 were considered and assessed at the top of this memorandum.

Fee Assessment / Payment:

Environmental Operations - Operational Policy – "Environmental management program (EMP) fees" indicates that Section 52(1)(b) of the EP Regulation prescribes that the fees for assessing the holders annual return and ***monitoring compliance with the program*** is the amount that:

- the authority considers to be reasonable; and
- is not more than the reasonable cost of the assessment and monitoring.

Fees for assessment of an EMP annual return and ***monitoring of a compliance program*** of an EMP are charged at a rate of \$73.40 per hour (includes GST), or part thereof, plus any reasonable cost for analysis and travel. The reasonable cost of travel will be the cost of travel, plus GST.

Fee Assessment:

Monitoring final compliance report of completed EMP No.SR1157:

- 20 hours at \$73.40/hour

Cost of monitoring final compliance report of completed EMP No.SR1157:

- \$1,468.00 (includes GST)

Travel to GELITA Australia Pty Ltd at Josephville to review completed EMP No.SR1157:

- Holden Commodore Wagon - Registration No. QGR 132 (3800cc engine capacity)

Cost of travel to GELITA Australia Pty Ltd at Josephville to review completed EMP No.SR1157:

- 148km (18/02/2004) at 60.0c/km (Directive No.3/03 *Motor Vehicle Allowances* June 2003 – for automobiles 2601cc and over)
- Calculated cost \$88.80 + GST
- Total travel cost \$97.70 (rounded)

Total fee for assessment of completed EMP No.SR1157:

- \$1,468.00 + \$97.70
- **\$1,565.70**

A compliance assessment fee, **considered to be the reasonable cost of assessing final compliance**, for completed EMP No.SR1157 has been determined at \$1,565.70 (above), comprising twenty (20) hours of assessment / reporting time amounting to \$1,468.00, together with travel expenses, to and return from Josephville to review the "Compliance Report", calculated at \$97.70.

3. RECOMMENDATION

IT IS RECOMMENDED THAT:

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1. GELITA Australia Pty Ltd formerly Leiner Davis Gelatin International Limited, the holder of the 'Certificate of Approval', be advised in writing that based on information supplied, the administering authority considers that the Company has **ACHIEVED FULL COMPLIANCE** with the *Environmental Protection Act 1994*, **FOR THE MATTERS DEALT WITH BY THE PROGRAM**; and
2. The Environmental Support Officer, Southern Region – Environmental Operations forward GELITA Australia Pty Ltd an invoice for the \$1,565.70 fee for monitoring / assessing / reporting final compliance with the program.

Assessing Officer:

sch4p4(6) Persona


Don Shackel
Senior Inspector
Heavy Industry Group
Environmental Operations
Southern Region

Don
Thorough assessment
in noted - supported
16/09

C/c: Cathy Ufer
Environmental Support Officer
Environmental Operations Division
Southern Region

For your information and necessary action concerning Recommendation 2.

DKS.

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Compliance – Inspection Program

Compliance Inspection Report

Inspection Details:

Date of Compliance Inspection: 18/10/2005
Compliance Inspection Reason: Annual Site Compliance Audit
Compliance Inspection Type: C
Compliance Level of Site: 3

Licence Holder / Operator Details:

Licensee and/or Company Name: GELITA Australia Pty Ltd
Site Address: "Sunny Hills", Flood Road, Josephville via
Beaudesert, QLD 4285

Registration Certificate Nos. SR0722 & SR1114 & Development Approval No. SR0007DA:

Environmentally Relevant Activities: ERA 50(b) – Rendering operation; and
ERA 17 – Fuel burning; and
ERA 15(a) – Sewage treatment; and
ERA 53 – Soil conditioner manufacturing

Name and Position of Contact Person during Inspection: Mr Cameron Smeal,
Environmental Manager
(07) 5541 9442

General Description of the Site and Surrounding Environment:

"Sunny Hills" was a former dairy farm, located within the Beaudesert Shire, being defined by the Logan River on the southern boundary, the NSW / QLD interstate rail line / corridor on the western boundary, additional private farming land on the eastern boundary and Flood / Tally-Ho Roads on the northern boundary.

The site consists of alluvial flats adjacent to the Logan River (deep sandy loams), leading upwards via rolling ridges (degraded Walloons) and shallow gullies to a high-point hill ("Sunny Hill") situated in the north-eastern corner of the property.

History of the Activity/ERA at the Site:

Originally, Leiner Davis Gelatin International Limited trading as Leiner Davis Gelatin (Australia) Pty Limited, subsequently Davis Gelatine Australia Pty Limited and currently GELITA Australia Pty Ltd, established Australia's only gelatine processing operation on the "Sunny Hills" homestead dairy farm site in 1992, following relocation of the activity from Botany, NSW.