

Running Sheet Summary

Compliance Activity Ref: CA25999

Client						
Ref	Name	Address	Phone	Mobile	Fax	Email
534755	AGR Science and Technology Pty Ltd	KPMG / 2 Emporio Place Level 3, 2-8 Maroochy Boulevard MAROOCHYDORE QLD 4558	07 3255 6333		07 3255 6433	agrst@agrst.com.au

Activity Location		
Name	Risk Level	Address
160 Musgrave Road COOPERS PLAINS QLD 4108		160 Musgrave RD COOPERS PLAINS QLD 4108

Source Ref: CA25999

Action Source Ref:

Date Commenced: 21/AUG/12

Officer Involved: ALAM, Shamaul

Responsible Office: ES-RSD-SER-Brisbane South

Action Type: Site Inspection - Level C

Inspection Type: Reactive - initial

Enforcement Measure Type:

Referral To:

Action: On 21 August 2012, the Tox Free site at Coopers Plains was inspected. A file note compiled to summarise observations made during the investigation can be found at the directory: Z:\Work Unit Data\Brisbane South\Bris City South\Licence and DA\Brisbane City Council\Tox Free QLD Cooper Plains 280267\Tox Free(Qld) Pty Ltd\Enforcement\Level C\21AUG12

Time Spent Hours: 15

Time Spent Minutes:

Outcome: Action Required - awaiting response

Outcome Description:

Due Date: 18/SEP/12

Date Completed:

RTI DL RELEASE - EHP

Level C inspection - Tox Free

21/8/12.

Laurie - manager (Hazardous waste).

Armani - senior chemists.

Phil - operations manager

Observations:

- ⇒ replaced five tanks that will have electronic ultra sound level indicators.
- ⇒ receive variety of different wastes.
- ⇒ mainly class 3 is recycled - sent to place in toowoomba and manufactured into gum wash.
- ⇒ sample every load and analyse every 7 to 14 loads.
- ⇒ mainly consolidate and bulking process. → find best practice faults and rectify when necessary.
- ⇒ Tox free acquired BCD at Nannakra and chem sell (gums)
- ⇒ SSAA gets sampled every product that goes out.
- ⇒ galvanising waste streams get tested on a quarterly basis - not every batch.
- ⇒ new galvanising plant inputs get tested on-off then the owner is on the generator to maintain the spec of the "product" during a 3 month period. This testing is verified by Tox free on a quarterly basis.
- ⇒ no minimum acceptance criteria for input wastes in the SSAA product.
- ⇒ Documents in process manual are not contained within the document.
- ⇒ Requested results of SSAA product sampling.
- ⇒ All SSAA goes to Nufarm.
- ⇒ [REDACTED]
- ⇒ Requested a copy of report provided to toowoomba office about trial in Nufarm.
- ⇒ mixed dangerous goods store - wastes aggregated into flammables etc. Fully banded.
- ⇒ store 5-10 KL of acid in storage at any one time
- ⇒ contaminated soil from Surat bari from origin - total waste management.
- ⇒ some products go to grocery - pesticides, solvents, herbicides,

10 a week - 2 a week - depending acid quality
Test quarterly input.
Every batch of SSAA.
No schedule.

found tank 17.
~~Tox~~ 2K0842 01 TOX TN 17 (1) small.

se. vardy $\rightarrow$ triple rined each sample -
sampling

01 TOX TN 17 - S. vardy 12:00 pm. (1) 21 August 2012. (Red)

1 TOX TN 17 - S. vardy 12:02 pm. (2) " (Red).

1 TOX TN 15 - S. vardy 12:08 pm. (1) " "

1 TOX TN 15 - S. vardy 12:09 (2) " "

TOX TN 16 - S. vardy 12:12 (1) " "

TOX TN 16 - S. vardy 12:14 (2) " "

TOX TN 14 - S. vardy 12:17 (1) " "

TOX TN 14 - S. vardy 12:18 (2) " "

TOX TN 13 - S. vardy 12:21 (1) " "

TOX TN 13 - S. vardy 12:23 (2) " "

~~TOX TN 12~~ - S. vardy

~~TOX TN 12~~ - S. vardy

TOX TN 01 -

1 TOX TN 02 - S. vardy 12:31 (1)

1 TOX TN 02 - S. vardy 12:32 (2)

1 TOX TN 03 - S. vardy 12:34 (1)

TOX TN 03 - S. vardy 12:34 (2)

impl. of tanker is yellow grade.

HG. - hunter's galvanisers.

1 TOX TR 01 HG (1) S. vardy 12:48 $\rightarrow$ bottom of tank.

1 TOX TR 01 HG (2) S. vardy 12:49 - Has alot of paint in it.

TOX TR 01 HG (1) Duplicate, 12:49

TOX TR 01 HG (2) 12:49.

Sample that says 01 TOX TN 01 is actually from tank 2.

rel bottles whiped of excess Acid / caustic.

probably have surface scum in samples 01 TOX TN 03.

01
 01 TOX TR 02 - S. Vandy 12:50
 01 TOX TR 02 - S. Vandy 12:55
 01 TOX TR 03 - S. Vandy 12:59
 01 TOX TR 03 - S. Vandy 13:02

top of Acid Bath

Hunkergale

"

Blanks

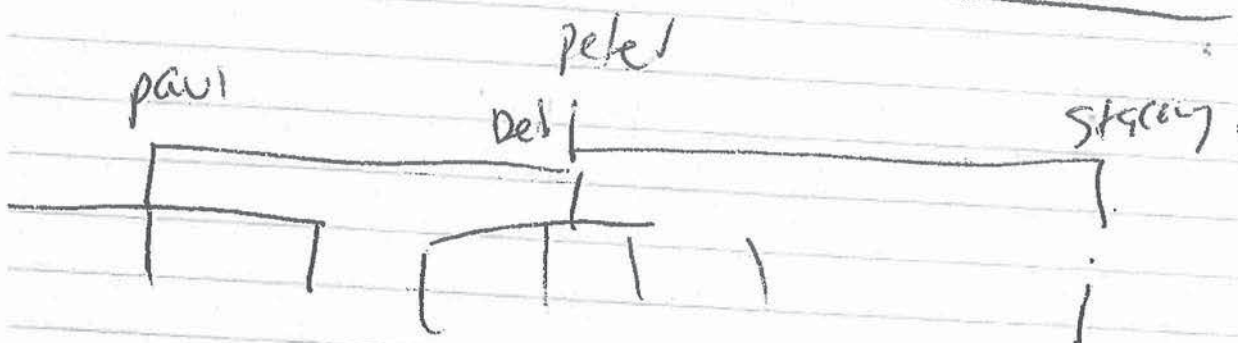
Blanks

main issues:

- => lots of fugitive emissions
- => relying on client to give correct spec product
- => sending contaminated drums to Action metal.
- => calibration of records & maintenance of records.
- => Condition WS - waste must be sealed (oil)
- * details about in-line filters (for lab?)

=> stop accepting Zac in the last few months.

- => spill occurred during unloading of tanker
- => Cam-lock fittings not fitting properly - resulting in spill.
- => liquid gets filtered before pumping to storage tanks.
- => undemineralized water for blank.



ab1 - Env
Manage

- ⇒ specific decanting area w/ acid resistant coating (EP-max).
- ⇒ containers w/ unknown chemicals on label.
- ⇒ extraction system ~~with~~ over decanting area. w/ no carbon filter.
- ⇒ unknown chemicals often come from police seizures.
 - ⇒ Tor free undertake testing to determine whether it can be treated on a large scale. look at diluting after a bucket test.
- ⇒ How do they determine risk??

sch4p4(7)(1)(a) Trade Secrets

- ⇒ strong odour - VOC emissions -
- ⇒ Scrap metal goes to Action metal recyclers with less than 2% residue.
- ⇒ Fluro crushing machine → goes to N.S.W. for segregation.
 - ⇒ sealed and goes through carbon filter.
- ⇒ large amount of gas bottles.
- ⇒ large amount of CCA timber treatment ~~product~~ waste
 - ⇒ solid waste - gets neutralised and fixed ~~as~~ then goes to landfill.
- ⇒ Contaminated soil (covered) and out in open.
- ⇒ odour present in yard near CCA waste.
- ⇒ open containers of oil
- ⇒ gas odour present - bottles containing gas not processed, empties punctured.
- ⇒ Tor free - transfer and storage of returned pharmaceuticals
- ⇒ pharmaceuticals incinerated at bangem.
- ⇒ No sampling of stormwater b4 leaving the site.
- ⇒ new sledge / truck wash out area.
- ⇒ SSAA production
 - ⇒ bulk acids
 - ⇒ Caustic

- => progressively improving facilities
- => Extraction fan in SSAA shed - emission source.
- => 16 tanks operational at the moment.
- => light on means not full but flashing indicates near full (\$10000)
- => 2 to 3 minutes left of ~~transfer~~ transfer.
- => Acid gets graded into 3 types (red, yellow, green) bad ← good
 - ↳ graded based on zinc content.
- => Filtration system connected to mixing tank.
- => Exhaust system on mixing tanks.
- => SSAA tested for PH, EC and ZINC
 - ↳ crude monitoring equipment.
 - zinc measured using laser - puts into press, with binder, pellet then 1980s.
 - ↳ Also gets zinc and aluminium (possibly some other metals).
- => SSAA causes sodic soils to become granular.
- => may not keep records on formal calibration records.
- => SSAA PH of 4-5 - quite a thick product.
- => Red Acid could be ZAC
- => Ventilation of mixing tanks - suction of gases
 - ↳ scrubber present but questionable whether treat air *
- mixing pump and air injection into mixing tank.
- => manual loading system of acids, caustic etc.
- => Tap on tank to determine volume.
- odour off-site out boundary of property - from fixation area -
- => moving to auto system w/ flow meter etc.
- => Iron tested in input but questionable whether tested in Final SSAA product.
- a few companies provide ZAC as waste stream e.g. Australian tube mills, Orcon, national galvanising. Wastes contain pb (lead) and cr (chromium) (not tested for).
- => SSAA contains salt - how is it removed.
- => advised that will forward copy of analytic results.
- =>

Tox Free Pty Ltd Level C inspection Photos

On 21 August 2012, a level C inspection was carried out at the Tox Free Pty Ltd (Tox Free) site at 160 Musgrave Rd, Coopers Plains. Attending the inspection was:

- Environmental Officer-Shamaul Alam (Lead), Environment and Heritage Protection (EHP)
- Principal Environmental Officer-Ashleigh Fowler (Support), EHP
- Senior Environmental Officer-April Hoyles (Support), EHP
- Principal Scientist-Suzanne Vardy (Support), Department of Science Information Technology Innovation and the Arts
- Manager of Hazardous Waste Services Queensland-Laurie Minto (Site Contact), Tox Free
- Environmental Advisor- Paul Ratajczyk, Tox Free
- Senior Chemist- Amani Kowero
- Operations Manager- Phil McAndrew

During the Compliance Inspection the following was noted:

1. Fugitive air emissions coming from the fixation area that were emanating beyond the boundary of the site;
2. Entire paint tins and other metal tins were in the fixation skips to be sent to landfill;
3. Fugitive air emissions coming from SSAA mixing tanks that were being released directly to the atmosphere through a ventilation system. It was unclear at the time of the inspection whether the air being passed through the ventilation system was being treated prior to release. Given the crude mixing method and volume of SSAA being produced, this is likely a large source of emissions;
4. Crushing metal drums containing residues of regulated wastes are being sent to Action Metal Recyclers (who are not permitted to accept such wastes);
5. Container of waste oil that was did not have its closure in place and was not in a roofed area;
6. Multiple 220L drums of waste from the CCA timber treatment industry being stored in an unroofed area;
7. Lack of knowledge about laboratory equipment calibration and inability to produce calibration records;
8. Issues with the testing regime to verify the quality of incoming waste material that is used to produce SSAA. Tox Free advised:
 - a) Incoming waste is accepted upon development of a tri-party (waste generator, transporter, receiver i.e. Tox Free) agreement.
 - b) The tri-party agreement requires the waste to meet particular specification, however Tox Free was unable to provide these specifications;
 - c) Upon forming the agreement the waste generator is only required to sample the wastes being sent to Tox Free quarterly;

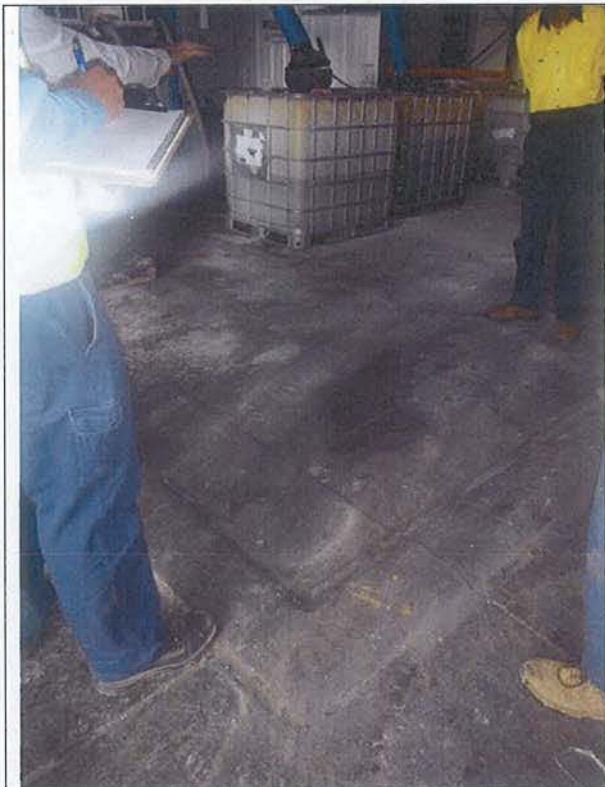
Note: This process could be managed if Tox Free can justify acceptance of wastes not beneficial to the SSAA production process. Further to this, Tox Free can justify acceptance if an adequate sampling procedure is in place. Considering the variations in wastes from the galvanising industry (which is the input material to produce SSAA) the current quality control procedures do not seem adequate to ensuring the consistent production of SSAA and minimisation of waste.

9. Issues with the maximum contaminant specifications for the incoming waste streams that Tox Free will accept (limits for selenium, cooper, arsenic, lead, mercury, nickel, Zinc etc.) then limiting the testing regime of the final SSAA product to only PH, EC and Zinc.
10. Very crude production process for SSAA, resulting in a final product that varies in contaminant load, especially in batches when red acids (high in zinc) are used.

The purpose of the photos below is to illustrate some of the issues and events that were observed and occurred respectively during the inspection.

This Inspection has been recorded as Compliance Action: CA25999

RTI DL RELEASE - EHP



Picture 1-IBC decantation



sch4 - Personal information

Picture 2-Currently, not-conditioned Point Source emission



Picture 3-Fixation Area, where whole paint tins are thrown in to skip bins (in addition to other objects) and fixated with Bentonite



Picture 4-Regulated wastes received are currently being store in un roofed areas



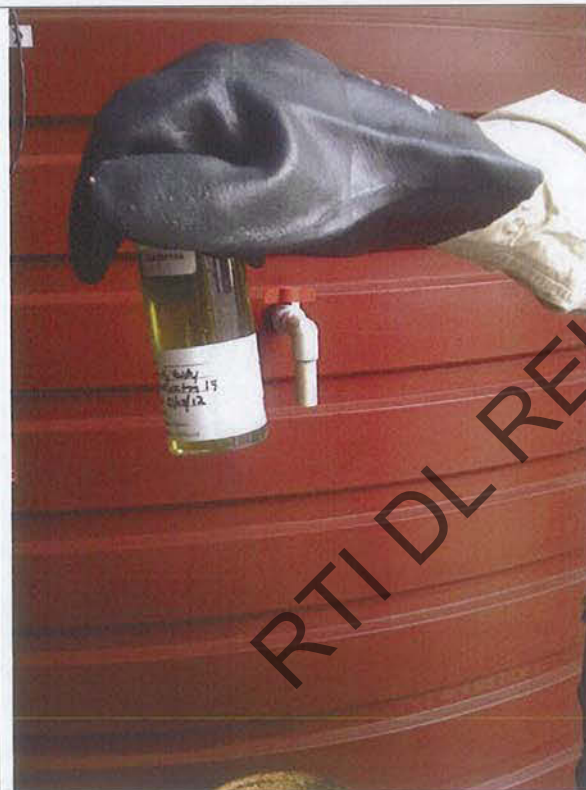
Picture 4-Regulated wastes received are currently being store in un roofed areas



Picture 5-New area where additional processes will occur, EHP was not notified of this prior to the inspection.



Picture 6-New tanks for the SSAA process



Picture 8- example of a sample bottle containing acid, for analysis of heavy metals.

Picture 7-Inline filters for receiving of SSAA precursor materials



Picture 9-example of samples being placed into zip lock bags.

	
Picture 10- Loading/Unloading Area	

RTI DL RELEASE - EHP



sch4 - Personal information



LABORATORY REPORT

Client: Shamaul Alam
Department of Environment and Heritage Protection
GPO BOX 2771
BRISBANE QLD 4001

Job Name: Tox Free Level C

Sampled By: Client
Sampling Method: Grab
Sample Matrix: Aqueous
Batch Number: 12/08239
Registration Date: 21 August 2012
Date of Report: 14 September 2012

Comments:**Fluoride:**

12/08239/6 [01TOXTN01] and 12/08239/7 [01TOXTN03]. [NT] - Fluoride: Samples unsuitable for analysis by ISE. Both of these samples had a highly alkaline pH, which upon addition of reagent for the analysis, underwent a precipitation reaction. ie solid material dropped out of solution. The samples were deemed to be unsuitable for analysis by this method.

Conductivity (Estimated):

Conductivity (Estimated) was determined by measuring the conductivity of a x50 dilution of the original sample and adjusting accordingly.

Metals Analysis:

Samples were diluted considerably to accommodate extreme matrix effects. The LORs have been adjusted accordingly.

sch4 - Personal information

Patti O'Shea
Supervising Chemist



ACCREDITED FOR
**TECHNICAL
COMPETENCE**
Accredited for compliance
with ISO/IEC 17025.

The results refer only to the samples tested.

This document shall not be reproduced except in full, without written approval of SAS.

Method with * indicates NATA accreditation does not cover the performance of this service.

Page 1 of 5

Client: Department of Environment and Heritage Protection
Job Name: Tox Free Level C

Batch Number: 12/08239
Report Date: 14/09/12

	Test	Units	12/08239/1 01TOXTN17 21/08/2012 12:00	12/08239/2 01TOXTN15 21/08/2012 12:08	12/08239/3 01TOXTN16 21/08/2012 12:12	12/08239/4 01TOXTN14 21/08/2012 12:07
1.002	pH	pH Unit	1.1	<1	<1	<1
1.007	Conductivity (Estimated)	uS/cm	614,000	631,000	699,000	514,000
Calc.	Total Dissolved Salts	mg/L	393,000	404,000	447,000	329,000
FIA.109	Chloride	mg/L	255,000	272,000	264,000	176,000
1.620	Fluoride by ISE	mg/L	[NT]	[NT]	2.6	31
1.012	Total Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	<1.0	<1.0
5.012	Bicarbonate Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	<1.0	<1.0
5.012	Carbonate Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	<1.0	<1.0
5.012	Hydroxide Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	<1.0	<1.0
5.304	Calcium as Ca	mg/L	<500	<500	<500	630
5.304	Magnesium as Mg	mg/L	<500	<500	<500	<500
5.304	Sodium as Na	mg/L	10,200	12,100	8,590	2,940
5.304	Potassium as K	mg/L	<1,000	<1,000	<1,000	<1,000
5.304	Sulphur as SO ₄	mg/L	1,500	1,700	<1,000	<1,000
5.304	Aluminium as Al	mg/L	710	790	230	230
5.304	Cadmium as Cd	mg/L	<5	<5	<5	<5
5.304	Chromium as Cr	mg/L	79	130	56	86
5.304	Copper as Cu	mg/L	13	8.0	8.1	<5
5.304	Iron as Fe	mg/L	100,000	110,000	89,000	58,000
5.304	Manganese as Mn	mg/L	780	840	690	500
5.304	Nickel as Ni	mg/L	74	100	54	79
5.304	Lead as Pb	mg/L	200	220	200	80
5.304	Zinc as Zn	mg/L	66,000	95,000	100,000	79,000
5.304	Arsenic as As	mg/L	<50	<50	<50	<50

The results refer only to the samples tested.

This document shall not be reproduced except in full, without written approval of SAS.

Method with * indicates NATA accreditation does not cover the performance of this service.

Client: Department of Environment and Heritage Protection
Job Name: Tox Free Level C

Batch Number: 12/08239
Report Date: 14/09/12

	Test	Units	12/08239/5 01TOXTN13 21/08/2012 12:21	12/08239/6 01TOXTN01 21/08/2012 12:31	12/08239/7 01TOXTN03 21/08/2012 12:34	12/08239/8 01TOXTR01HG 21/08/2012 12:48
1.002	pH	pH Unit	<1	14.0	14.0	<1
1.007	Conductivity (Estimated)	uS/cm	655,000	516,000	620,000	519,000
Calc.	Total Dissolved Salts	mg/L	419,000	330,000	397,000	332,000
FIA.109	Chloride	mg/L	278,000	3,600	32,900	230,000
1.620	Fluoride by ISE	mg/L	6.3	[NT]	[NT]	1.2
1.012	Total Alkalinity as CaCO ₃	mg/L	<1.0	236,000	211,000	<1.0
5.012	Bicarbonate Alkalinity as CaCO ₃	mg/L	<1.0	20	17	<1.0
5.012	Carbonate Alkalinity as CaCO ₃	mg/L	<1.0	188,000	160,000	<1.0
5.012	Hydroxide Alkalinity as CaCO ₃	mg/L	<1.0	50,000	50,000	<1.0
5.304	Calcium as Ca	mg/L	<500	<100	<50	<200
5.304	Magnesium as Mg	mg/L	<500	<100	<50	<200
5.304	Sodium as Na	mg/L	7,100	96,500	106,000	5,120
5.304	Potassium as K	mg/L	18,000	<200	110	<400
5.304	Sulphur as SO ₄	mg/L	<1,000	<200	1,200	<400
5.304	Aluminium as Al	mg/L	86	47,000	27,000	58
5.304	Cadmium as Cd	mg/L	<5	<1	<0.5	<2
5.304	Chromium as Cr	mg/L	28	2.0	0.74	160
5.304	Copper as Cu	mg/L	<5	<1	<0.5	5.2
5.304	Iron as Fe	mg/L	76,000	72	7.5	130,000
5.304	Manganese as Mn	mg/L	650	1.1	<0.5	850
5.304	Nickel as Ni	mg/L	75	<1	2.1	40
5.304	Lead as Pb	mg/L	200	<10	<5	37
5.304	Zinc as Zn	mg/L	110,000	350	3,100	33,000
5.304	Arsenic as As	mg/L	<50	<10	<5	<20

The results refer only to the samples tested.

This document shall not be reproduced except in full, without written approval of SAS.

Method with * indicates NATA accreditation does not cover the performance of this service.

Page 3 of 5

Client: Department of Environment and Heritage Protection
Job Name: Tox Free Level C

Batch Number: 12/08239
Report Date: 14/09/12

	Test	Units	12/08239/9 02TOXTR01HG 21/08/2012 12:45	12/08239/10 01TOXTR02HG 21/08/2012 12:50	12/08239/11 01TOXTR03HG 21/08/2012 12:59	12/08239/12 02TOXTN6 24/08/2012 10:21
1.002	pH	pH Unit	<1	<1	7.0	5.1
1.007	Conductivity (Estimated)	uS/cm	519,000	520,000	3.0	279,000
Calc.	Total Dissolved Salts	mg/L	332,000	333,000	2.0	179,000
FIA.109	Chloride	mg/L	230,000	232,000	<1	108,000
1.620	Fluoride by ISE	mg/L	1.8	0.88	<0.05	14
1.012	Total Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	3.0	11,600
5.012	Bicarbonate Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	3.0	11,600
5.012	Carbonate Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	<1.0	<1.0
5.012	Hydroxide Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	<1.0	<1.0
5.304	Calcium as Ca	mg/L	240	<250	<1	<200
5.304	Magnesium as Mg	mg/L	<200	<250	<1	<200
5.304	Sodium as Na	mg/L	5,320	5,100	<2	24,100
5.304	Potassium as K	mg/L	<400	<500	<1	<400
5.304	Sulphur as SO ₄	mg/L	<400	<500	<1	41,000
5.304	Aluminium as Al	mg/L	37	62	<05	14,000
5.304	Cadmium as Cd	mg/L	<2	<2.5	<0.005	<2
5.304	Chromium as Cr	mg/L	170	160	<0.01	63
5.304	Copper as Cu	mg/L	5.2	3.5	<0.005	3.9
5.304	Iron as Fe	mg/L	120,000	120,000	<0.005	53,000
5.304	Manganese as Mn	mg/L	890	900	<0.005	440
5.304	Nickel as Ni	mg/L	40	40	<0.01	22
5.304	Lead as Pb	mg/L	36	32	<0.05	38
5.304	Zinc as Zn	mg/L	33,000	33,000	<0.005	36,000
5.304	Arsenic as As	mg/L	<20	<25	<0.05	<20

The results refer only to the samples tested.

This document shall not be reproduced except in full, without written approval of SAS.

Method with * indicates NATA accreditation does not cover the performance of this service.

Client: Department of Environment and Heritage Protection
Job Name: Tox Free Level C

Batch Number: 12/08239
Report Date: 14/09/12

	Test	Units	12/08239/13 02TOXTN8 24/08/2012 06:20	12/08239/14 02TOXTN8S2 24/08/2012 06:39	12/08239/15 02TOXTR01 24/08/2012 06:58
1.002	pH	pH Unit	5.0	5.0	5.0
1.007	Conductivity (Estimated)	uS/cm	313,000	307,000	300,000
Calc.	Total Dissolved Salts	mg/L	201,000	197,000	192,000
FIA.109	Chloride	mg/L	125,000	123,000	124,000
1.620	Fluoride by ISE	mg/L	28	19	12
1.012	Total Alkalinity as CaCO ₃	mg/L	5,820	6,020	6,020
5.012	Bicarbonate Alkalinity as CaCO ₃	mg/L	5,820	6,020	6,020
5.012	Carbonate Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	<1.0
5.012	Hydroxide Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	<1.0
5.304	Calcium as Ca	mg/L	<200	<200	<200
5.304	Magnesium as Mg	mg/L	<200	<200	<200
5.304	Sodium as Na	mg/L	16,700	17,100	16,500
5.304	Potassium as K	mg/L	<400	<400	<400
5.304	Sulphur as SO ₄	mg/L	45,000	45,000	45,000
5.304	Aluminium as Al	mg/L	9,800	9,900	9,900
5.304	Cadmium as Cd	mg/L	<2	<2	<2
5.304	Chromium as Cr	mg/L	89	89	89
5.304	Copper as Cu	mg/L	4.6	4.4	4.3
5.304	Iron as Fe	mg/L	64,000	66,000	6,700
5.304	Manganese as Mn	mg/L	540	540	540
5.304	Nickel as Ni	mg/L	28	28	27
5.304	Lead as Pb	mg/L	31	29	31
5.304	Zinc as Zn	mg/L	40,000	40,000	40,000
5.304	Arsenic as As	mg/L	<20	<20	<20

The results refer only to the samples tested.

This document shall not be reproduced except in full, without written approval of SAS.

Method with * indicates NATA accreditation does not cover the performance of this service.

Page 5 of 5

LABORATORY REPORT

Client: Shamaul Alam
Department of Environment and Heritage Protection
GPO BOX 2771
BRISBANE QLD 4001

Job Name: Tox Free Level C

Sampled By: Client
Sampling Method: Grab
Sample Matrix: Aqueous
Batch Number: 12/08468
Registration Date: 28 August 2012
Date of Report: 14 September 2012

Comment:

Conductivity (Estimated):
Conductivity (Estimated) was determined by measuring the conductivity of a x50 dilution of the original sample and adjusting accordingly.

Metals Analysis:
Samples were diluted considerably to accommodate extreme matrix effects. The LORs have been adjusted accordingly.

sch4 - Personal information

Patti O'Shea
Supervising Chemist



The results refer only to the samples tested.
This document shall not be reproduced except in full, without written approval of SAS.
Method with * indicates NATA accreditation does not cover the performance of this service.

Page 1 of 2

Client: Department of Environment and Heritage Protection
Job Name: Tox Free Level C

Batch Number: 12/08468
Report Date: 14/09/12

	Test	Units	12/08468/1 03TOXTN08 28/08/2012 06:22	12/08468/2 03TOXTN08-2 28/08/2012 06:34	12/08468/3 03TOXTR01 28/08/2012 06:55
1.002	pH	pH Unit	5.0	5.1	5.0
1.007	Conductivity (Estimated)	uS/cm	322,000	320,000	316,000
Calc.	Total Dissolved Salts	mg/L	206,000	205,000	202,000
FIA.109	Chloride	mg/L	131,000	136,000	136,000
1.620	Fluoride by ISE	mg/L	17	19	11
1.012	Total Alkalinity as CaCO ₃	mg/L	22,100	24,100	21,600
5.012	Bicarbonate Alkalinity as CaCO ₃	mg/L	22,100	24,100	21,600
5.012	Carbonate Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	<1.0
5.012	Hydroxide Alkalinity as CaCO ₃	mg/L	<1.0	<1.0	<1.0
5.304	Calcium as Ca	mg/L	<200	<200	<200
5.304	Magnesium as Mg	mg/L	<200	<200	<200
5.304	Sodium as Na	mg/L	26,700	25,700	25,700
5.304	Potassium as K	mg/L	<400	<400	<400
5.304	Sulphur as SO ₄	mg/L	22,000	22,000	22,000
5.304	Aluminium as Al	mg/L	14,000	15,000	15,000
5.304	Cadmium as Cd	mg/L	<2	<2	<2
5.304	Chromium as Cr	mg/L	89	90	88
5.304	Copper as Cu	mg/L	4.9	5.0	5.4
5.304	Iron as Fe	mg/L	60,000	62,000	60,000
5.304	Manganese as Mn	mg/L	500	510	500
5.304	Nickel as Ni	mg/L	30	30	29
5.304	Lead as Pb	mg/L	68	67	67
5.304	Zinc as Zn	mg/L	36,000	37,000	36,000
5.304	Arsenic as As	mg/L	<20	<20	<20

The results refer only to the samples tested.

This document shall not be reproduced except in full, without written approval of SAS.

Method with * indicates NATA accreditation does not cover the performance of this service.

Page 2 of 2

Alam Jamal

From: Vardy Suzanne
Sent: Wednesday, 12 September 2012 5:50 PM
To: Alam Jamal
Cc: Vasel Peter
Subject: the risk to the business from salinity

Hi Guys,

I have extracted this from the Process Manual pg 37. Sorry it is long but have highlighted bits of interest.

7.2 Sodium Chloride (Na+ Cl-) and Salinity Risk

The production of SSAA from the waste solutions used by ToxFree is accompanied by dissolved sodium chloride (salt). It is recognised that general application of saline solutions to soils will generally result in degradation of the soil and potential plant morbidity or production loss ie in general application, salt is rightly recognised as a source of adverse environmental risk. **The only processes currently identified as possible candidates for separating salt from aqueous solution are reverse osmosis and evaporation. Both of these processes are costly and energy intensive with disposal of separated salt an additional environmental risk. Not only would such processes make SSAA production by the current process unsustainable commercially, there is little available evidence that the mixture of the raw materials or SSAA would be amenable to such processes. The risk to business and the environment is likely to be significant.**

In contrast, the SSAA produced at Coopers Plains contains active ferrihydrite and hydrated oxaluminium hydroxide complexes (and precursors) that have a proven, recognised capacity to aggregate selected clay soils. In so doing, they increase soil hydraulic permeability for the long term. This results in both indigenous and added salt being steadily flushed (following rainfall) below the root zone of pasture into the subsoil where there are generally existing and much larger banks of salt. In fact, the use trees and other plants to alter the water table and draw down salt below the root zone that is a well recognised tool for control of soil salinity (as per Qld Government Guidelines).

Application of SSAA is therefore a useful salinity risk control measure that benefits the environment and the producer. The residual risk relates to run-off after heavy rain potentially carrying salt into local catchments. AGR already minimises this risk by developing a bund around paddocks in advance of treatment with SSAA. The residual environmental risk from the production and application of SSAA containing salt to degraded clay soils is actually positive ie there is a definite benefit that exceeds any residual adverse impact. The Lloyds report identified no observable harm arising from the application of SSAA to appropriate soils (other operational issues and associated adverse risks have been acknowledged and corrective measures implemented). **A requirement to extensively monitor salt levels in SSAA beyond that proposed presents a significant adverse business risk to ToxFree. Such monitoring is costly and there are apparently no regulatory or environmental criteria against which to assess monitored levels in product (or soil). There is therefore little opportunity to cost-effectively address the issue through process modification.**

Dr Susi Vardy
Principal Scientist
Catchment Water Science
Water Quality and Aquatic Ecosystem Health
Phone: 3170 5604 Mb: [REDACTED] - Personal information

Alam Jamal

From: Vardy Suzanne
Sent: Friday, 5 October 2012 4:34 PM
To: Vasel Peter
Cc: Alam Jamal; Bowden Deb; Warne Michael; Playford Julia
Subject: TOXFREE summary

Dear Peter,

This is a brief overview of the Sodic Soil Ammendment Agent (SSAA) produced by TOXFREE. According to TOXFREE's process manual, SSAA is a mixture [REDACTED] sch4p4(7)(1)(a) Trade Secrets Waste is sourced from a number of suppliers, and is mixed depending upon the source and the zinc concentration. The two waste streams are mixed together to reach a specification outlined in the process manual (Table 1). The aim of mixing the waste streams is to produce [REDACTED] sch4p4(7)(1)(a) Trade Secrets which the company claims improves sodic soils.

Table 1 – SSAA Chemical Specification (From TOXFREE Process Manual Appendices Rev 4 April 2011).

	Units	Min	Max
[REDACTED] sch4p4(7)(1)(a) Trade Secrets			

Based on the Environmental Protection Regulation 2008, Schedule 7, Section 65 –

- By TOXFREE's own specifications, the Sodic Soil Ammendment Agent (SSAA) produced by TOXFREE is a regulated waste.
 - Subsection 1 - acidic solutions and acids in solid form (ph 4-5)
 - Subsection 36 - non-toxic salts including, for example, saline effluent (the EC max of SSAA = 300 000 µS/cm, the EC of seawater is around 50 000 µS/cm. Therefore TOXFREE are producing a waste that is 6 times the saltier than seawater.)
 - Subsection 71 - zinc compounds (the waste is around 3.5% zinc).
- Based on the source of the material, it is a regulated waste under Subsection 66 - Waste from surface treatment of metals or plastics (both the [REDACTED] sch4p4(7)(1)(a) Trade Secrets are from the surface treatment of metals).
- It is also likely that it is a regulated waste under Subsection 50 - Reducing agent [REDACTED] sch4p4(7)(1)(a) Trade Secrets. The SSAA collected on the 28/08/2012 by EHP departmental staff was a green colour, the colour of

sch4p4(7)(1)(a) Trade Secrets (pg 29) tend to be a rust colour. The SSAA process manual states that the iron in the SSAA is a mixture of (pg 29) (pg 29). Based on the green colour, I would suspect that the predominant species of iron in the SSAA. However chemical tests would need to be carried out to confirm this.

It should be noted that ZAC, a substance that is listed under galvanising acid waste (pickling waste) in the manual is not strictly speaking acid waste from a galvanising plant. It is preflux, and is a zinc ammonium chloride solution and is a zinc solution waste, containing some iron from carryover from the pickling. It seems likely that claiming ZAC as a waste acid was a way of disposing of a predominantly zinc waste. The concentration of Zn in ZAC cited in process manual (pg 16) is (pg 16) compared to an Fe concentration of (pg 16). ZAC is not a good source of iron. However, since mentioning this to TOXFREE staff on 21/08/2012, I have been told that ZAC has been removed from the sampling manual as an acceptable source product for SSAA.

It is important to note that according to the Process Manual (pg 14) a major active claimed beneficial constituent of SSAA) is Fe species are not fully converted until **after** the SSAA it is mixed with the soil.

To summarise, in my opinion, SSAA is a clearly a regulated waste under 4 subsections of Environmental Protection Regulation 2008, Schedule 7, Section 65, and probably a fifth.

Note: I have not undertaken an in depth assessment of the claims that SSAA benefits sodic soils. However, data in the Lloyd consulting report (AGR Science and Technology: Environmental Assessment, March 2009) indicated that there is no evidence of an improvement in the soil at Leyburn (albeit from a limited data set) (Table 2). Overall, based on the data from this report the SSAA would appear to make the sodic soil problem worse as well as increasing the zinc concentration in the soils (Table 3).

Table 2 – Summary of Exchangeable Sodium Percent Data from Lloyds Report

	Exchangeable Sodium Percent	
	median	range
untreated	13.2	12.6-18.6
Lime and biosolids	8.4	2.5-9.7
Treated	19.7	6.6-60.7

Table 3 – Summary of Zinc concentration in soils from Lloyds report.

	Zinc (mg/kg)	
	median	range
untreated	24.0	<5-41
Lime and biosolids	18.0	<5-20
Treated	130.5	22-822

Regards,
Susi.

Dr Susi Vardy
Acting Chief Scientist
Catchment Water Science
Water Quality and Aquatic Ecosystem Health
Phone: 3170 5604 sch4p4(7)(1)(a) Trade Secrets

**Marian Kimberley**

From: Vasel Peter
Sent: Tuesday, 9 October 2012 9:31 AM
To: Marian Kimberley
Cc: Alam Jamal; Butcher Paul; Bowden Deb
Subject: FW: Tox Free - Coopers Plains

Hi marian

Lets chat.

rgds

Peter Vasel

Manager | Environmental Services and Regulation Division | Southern Region - Brisbane South
Department of Environment and Heritage Protection

T: 3008 6985 [redacted] F: 3406 2578 |

Email: peter.vasel@ehp.qld.gov.au

Web: www.ehp.qld.gov.au

4th Floor, LandCentre, Cnr Main & Vulture Streets, WOOLLOONGABBA QLD 4102
GPO Box 2771, BRISBANE QLD 4001

From: Rachel Irvine-Marshall [mailto:r.irvine-marshall@toxfree.com.au]
Sent: Tuesday, 9 October 2012 8:59 AM
To: Vasel Peter
Subject: FW: Tox Free - Coopers Plains

Peter,

Thank you for your response.

We believe there is benefit to both the Department and Toxfree in meeting to more fully understand your concerns and would prefer to do this prior to receiving a formal response.

As a result of the meeting of 27 September we have ceased production and transport of SSAA and you will appreciate that time delays in resolving this issue are having significant commercial impacts, both for us and our customers. We would therefore prefer to meet as soon as possible to more fully understand your concerns and provided the dates of the 16th – 18th of October to meet with you.

Please advise if this is acceptable to you and advise of a convenient time to meet.

Regards,

Rachel Irvine-Marshall (in the absence of Neil Armstrong)
Manager - Environmental Services - Compliance, Toxfree

From: Neil Armstrong
Sent: Friday, 5 October 2012 3:00 PM
To: Jason Dixon; Steve Gostlow; Peter Goodwin
Cc: Laurie Minto; Ged Styles; Rachel Irvine-Marshall
Subject: Fwd: Tox Free - Coopers Plains

To: Jason Dixon; Steve Gostlow; Peter Goodwin
Cc: Laurie Minto; Ged Styles; Rachel Irvine-Marshall
Subject: Fwd: Tox Free - Coopers Plains

Sent from my iPhone

Begin forwarded message:

From: Vasel Peter <Peter.Vasel@ehp.qld.gov.au>
Date: 5 October 2012 14:20:03 AWST
To: Neil Armstrong <n.armstrong@toxfree.com.au>
Cc: Marian Kimberley <Kimberley.Marian@ehp.qld.gov.au>, Alam Jamal <Jamal.Alam@ehp.qld.gov.au>, Butcher Paul <Paul.Butcher@ehp.qld.gov.au>
Subject: RE: Tox Free - Coopers Plains

Greetings Neil

We've had a bit of an upheaval over here hence the delay in the response to you. I expect that you will receive the letter by early next week. We will also get in contact with you for an appropriate date.

regards

Peter Vasel

Manager | Environmental Services and Regulation Division | Southern Region - Brisbane South
Department of Environment and Heritage Protection

T: 3008 6985 | 4th - Personal information F: 3406 2578 |

Email: peter.vasel@ehp.qld.gov.au

Web: www.ehp.qld.gov.au

4th Floor, LandCentre, Cnr Main & Vulture Streets, WOOLLOONGABBA QLD 4102
GPO Box 2771, BRISBANE QLD 4001

From: Neil Armstrong [<mailto:n.armstrong@toxfree.com.au>]
Sent: Friday, 5 October 2012 3:48 PM
To: Vasel Peter
Subject: Tox Free - Coopers Plains

Hi Peter

I hope you are well.

Please find attached letter regarding Tox Free Coopers Plains site, the 16th-18th October would be good for me.

regards

Neil Armstrong

General Manager - Technical and Environmental Services

24 Sangiorgio Court, Osborne Park WA 6017

PO Box 1108, Osborne Park DC 6916

E.n.armstrong@toxfree.com.au



safe.reliable.sustainable
www.toxfree.com.au



Please consider the environment before printing this email

This email (and any attachments to this email) is for the exclusive use of the person, firm or corporation to which it is addressed and may contain information that by law is privileged, confidential or protected by copyright. If you are not the intended recipient or the person responsible for the delivery of this email to the intended recipient, you are notified that any use, disclosure, distribution, printing or copying of this email transmission is prohibited by law and that the contents must be kept strictly confidential. If you have received this email in error, kindly notify us immediately on 1300 869 373 or respond to the sender by return email. The original of this email must be destroyed.

The information in this email together with any attachments is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. There is no waiver of any confidentiality/privilege by your inadvertent receipt of this material.

Any form of review, disclosure, modification, distribution and/or publication of this email message is prohibited, unless as a necessary part of Departmental business.

If you have received this message in error, you are asked to inform the sender as quickly as possible and delete this message and any copies of this message from your computer and/or your computer system network.

RTI DL RELEASE EHP



5 October 2012

Mr Peter Vasel
Manager - Brisbane City South
Environmental Services
Department of Environment and Heritage Protection
PO Box 2454
Brisbane Qld 4002

PO BOX 1108
Osborne Park DC 6916
T 08 6216 7000
F 08 6216 7001

24 Sangiorgio Court
Osborne Park WA 6017

Tox Free Solutions Limited
ABN 27 058 596 124

Dear Mr Vasel

Tox Free - 160 Musgrave Road, Coopers Plains

We refer to your meeting with Mr Paul Ratajczyk of our company on 28 September 2012.

At that meeting, we understand that you communicated to Mr Ratajczyk that our company should cease the production and export of Sodic Soil amendment agent (SSAA) product at its Coopers Plains site. You told us that this was on the basis of analytical results received by the Department in early September, as well as other issues that were not detailed.

As a result of that meeting, Tox Free has ceased production and export of SSAA product from the Coopers Plains site. This obviously has significant impacts on our business, and on our clients who must find alternative disposal sites for their relevant waste that was previously reprocessed.

We have not received from the Department an explanation as to the specific concerns of the Department that have led to the verbal communication that the site should cease production and export of SSAA product.

Tox Free requests an urgent meeting with the Department in order to understand the Department's concerns as referred to in the meeting of 28 September 2012.

Please contact me to confirm your availability to meet.

Yours sincerely

sch4 - Personal information

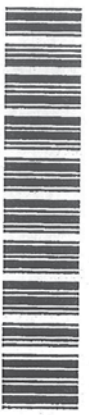
Neil Armstrong
General Manager - Technical and Environmental Services
T 08 6216 7000 F 08 6216 7001
E n.armstrong@toxfree.com.au

File No:

BST2012/1745

11-Oct-2012

C1919196





Department of
Environment and
Heritage Protection

9 October 2012

Mr Neil Armstrong
Po Box 837,
Archerfield
BC QLD 4108

**Re: Meeting held on 27 September 2012 between Toxfree and Department of
Environment and Heritage Protection**

Dear Mr Armstrong

I refer to the meeting held between the Department of Environment and Heritage Protection (the department) and representatives of your company held at the Land Centre on Thursday 27 September 2012. I also refer to your letter to the department dated 5 October 2012 and an email from Rachel Irvine-Smith dated 9 October 2012.

As discussed at the meeting held on 27 September and based on analytical results of samples taken by the department in late August 2012 over a number of days, it is the department's view that your company take all the necessary measures under your control to cease the application of the Sodic Soil Amending Agent (SSAA) to land.

The department is also of the view that the practice involves depositing a regulated waste onto land hence contravening a number of sections of the Environmental Protection Act 1994 (the Act) and the Environmental Protection (Waste Management) Regulation 2000.

Please be advised that the department intends to amend your development approval IPCE00318805A11 under section 73C of the Act. Further to this, the department is considering other enforcement tools that may be appropriate.

I understand that you have requested a meeting to discuss the matter further. I look forward to elaborating any further queries you may have about this matter at that meeting.

Landcentre
Cnr Main & Vulture Streets
Woolloongabba, QLD 4102
GPO Box 2771 Brisbane
Queensland 4001 Australia
Telephone + 61 7 3406 2956
Facsimile + 61 7 3406 2578
Website www.ehp.qld.gov.au
ABN 46 640 294 485

Should you have any further inquiries, please contact Ms Kim Marian, Environmental Officer of the Department on telephone (07) 3406 2956.

Yours sincerely

sch4 - Personal information

Peter Vasei
Manager, Brisbane South
Environmental Services and Regulation
Department of Environment and Heritage Protection

RTI DL RELEASE - EHP



24th October 2012

Rec'd - ODG

26 OCT 2012

The Hon. Andrew Powell, MP
Minister for Environment and Heritage Protection
GPO Box 2454
BRISBANE QLD 4001

PO BOX 1108
Osborne Park DC 6916
T 08 6216 7000
F 08 6216 7001

24 Sangiorgio Court
Osborne Park WA 6017

Tox Free Solutions Limited
ABN 27 058 596 124

cc. Mr Andrew Chesterman
Director General
Department of Environment and Heritage Protection
GPO Box 2454
BRISBANE QLD 4001

Dear Minister

Toxfree - operations at 160 Musgrave Road, Coopers Plains

Toxfree (Queensland) Pty Ltd is a division of Tox Free Solutions Ltd (Toxfree), a leading national industrial services and waste company. Toxfree operates sites across the country, with 10 sites in metropolitan and regional Queensland. Within Queensland, Toxfree has 80 employees, and pays \$4.6m in salaries and are committed to continuing to grow our presence in Queensland.

Toxfree provides diverse and innovative waste processing solutions, with a focus on reprocessing and reusing waste materials, reducing waste to landfill, and providing beneficial alternatives to disposal.

One of the sites operated by Toxfree is at 160 Musgrave Road, Coopers Plains. As the primary process at this site, Toxfree technology allows the reprocessing of acid and caustic waste from preselected and specific industries to manufacture a product called Sodic Soil Amendment Agent (SSAA). SSAA is a safe soil conditioner which can be applied directly to degraded sodic/saline clay soils to reduce soil salinity and enhance pasture yield. SSAA is used exclusively at a property operated by AGR Industries located at Leyburn.

AGR Industries and subsequently Toxfree have operated the site at 160 Musgrave Road Coopers Plains under approvals from the predecessor to the Department of Environment and Heritage Protection (EHP) since 2006.

On 27 September 2012, Toxfree were requested to attend a meeting with EHP who verbally advised that the manufacture of SSAA from the Coopers Plains site must cease immediately. Although Toxfree holds all required approvals authorising the manufacture of SSAA, and have an excellent record of compliance with such approvals Toxfree in good faith ceased production of SSAA.

CTS/6350/12



Toxfree has since sought to meet with EHP to understand the specific concerns by letter dated 5 October 2012 (copy attached). Since requesting this meeting, Toxfree has received correspondence from EHP dated 9 October 2012 which is devoid of detail as to the basis for the verbal direction to cease production (copy attached). As a result, Toxfree reiterated its request for a meeting with officers of EHP in order to understand EHP's concerns.

At a meeting held on 18 October 2012, officers from EHP stated that it was their intention that Toxfree's development approval be amended and potentially an environmental protection order issued to essentially stop the production of SSAA. Although again specific detail was not provided, this proposed action appears to be based on a lack of understanding of the manufacturing process of SSAA, and the application of SSAA to land. This is despite Toxfree having invested significant time and effort in educating other officers of the Department on the process, and having obtained all required approvals for the manufacture of SSAA.

Toxfree is deeply concerned with the approach that has been taken by officers of EHP to this issue. It appears that despite approvals having been in place for the last 6 years, and the operation being carried out with the knowledge of EHP (and its predecessors) and detailed evaluation of the product and investment in its development, EHP has simply changed its mind on the acceptability of SSAA. This has been done without properly articulating the concerns of the Department, other than to say that it is based on "analytical results". Toxfree is concerned that this action has been taken based on a lack of understanding of the process. This is particularly frustrating to Toxfree given the effort that has been expended in working with previous officers to educate them on the process and benefits of SSAA and Toxfree holding all required approvals for the manufacture of SSAA.

Toxfree and AGR Industries have invested significant time and money in researching the manufacture and application of SSAA to land. This has included the development of peer reviewed scientific thesis, engagement of specialist soil scientists, environmental consultants and chemical engineers to facilitate the development of SSAA as a manufactured product to controlled specifications. This has resulted in the development of a management system that clearly identifies and controls all environmental risks, to low or negligible levels. Results to date clearly demonstrate the positive impacts that SSAA has on the treatment of sodic soils and prior to recent events Toxfree had commenced a long term controlled field trial, developed in conjunction with EHP officers to provide quantitative data on pasture yield improvement. In addition through this process and the beneficial reuse and recycling of wastes from industry Toxfree have managed to divert approximately 10,000 tonnes per annum away from landfill disposal. The ceasing of production of SSAA without notice has obvious consequences, not only in terms of Toxfree's operations at its Coopers Plains site, but in terms of the risk this approach presents to Toxfree's significant investments in Queensland, consequences to our customers and the increased disposal of waste to landfill.



Toxfree is seeking an expeditious resolution of this issue, as the delays in this process are having significant commercial consequences. We are informed by officers of EHP that formal steps will not be taken until the end of November, owing to a lack of resources. We are concerned that formal steps taken by officers of EHP without a full understanding of the SSAA process and the significant research and analysis that informs the manufacture and use of SSAA, will unnecessarily start a lengthy legal process which is productive to neither EHP nor Toxfree.

A meeting is urgently requested so that we can expedite an acceptable resolution to this matter without further detrimental effect to our business in Queensland.

Yours sincerely

sch4 - Personal information

Mr Steve Gostlow
MANAGING DIRECTOR

RTI DL RELEASE - EHP