



Initial advice of alleged odour nuisance

This form is to be used to record an initial telephone advice of an alleged odour nuisance under the Environmental Protection Act 1994.

1. Person completing this form

Report received by

Name Paul Butcher

Position

Principal Env. Officer

Location

LC - W'gubba

When received

Date 10 Aug 2009

Time

Complaint form received

2. Details of person providing information

Title & Full Name:

sch3(10)(1)(b) Confidential source of information

Residential Address:

Postal Address:

As above

Phone/fax contact details:

Home

Work

Fax

Mobile

Method of reporting:

Phone Written/Other:

3. Information provided concerning the alleged odour nuisance

Is the alleged odour nuisance currently occurring? Yes/No

If No, the following information is still required to assist in determining whether the alleged odour is of an acute or chronic nature, and therefore if any future action is required.

➤ How would you describe the current odour intensity on a scale of 1 to 6 (circle one):

0 - *Not perceptible*: Odour is not detectable, cannot be perceived by the sense of smell.

1 - *Very Weak*: Odour is just detectable in the outdoor air and activates the sense of smell.

2 - *Weak*: Odour is detectable in the outdoor air, but is not clearly distinguishable, noxious or offensive.

3 - *Distinct*: Odour is present in the outdoor air, easily activates the sense of smell, is very distinct and clearly distinguishable.



Initial advice of alleged odour nuisance

- ④ **Strong:** Odour is present in the outdoor air and would be noxious or offensive and cause a person to attempt to avoid it completely.
- 5 - **Very Strong:** Strong odour present in the outdoor air, which is so strong it is overpowering and intolerable for any length of time.
- 6 - **Extremely strong:** Extremely strong odour in the outdoor air, which is immediately intolerable.
- If still occurring, has it decreased or increased in intensity since first reported? If the intensity has decreased, does the complainant consider it valuable to have an investigator respond today?
Not today. Variable
- How often does the odour occur? Daily / Weekly / Monthly / Randomly / Other _____
- Does the odour occur at regular times? Mon-Fri, Occasionally sat 6am-6pm
- How long does the odour generally last for? Random
- Is it a continuous or fluctuating odour? Fluctuating
- What are the current weather conditions?
Temperature Hot
Wind speed and direction NE gentle or nil
Cloud cover Sometimes
- How would you describe the odour's characteristics and qualities?
- | | |
|---|--|
| ☐ Rotten eggs (H ₂ S) | ☐ Ammonia |
| ☐ Fishy | ☐ Cooking odour |
| ☐ Faecal (like manure) | ☐ Rubbish |
| ☐ Dead animal | ☐ Burnt, smoky |
| ☒ Paint like | ☐ Burnt rubber |
| ☐ Compost | ☐ Hydrocarbons |
| ☐ Other (specify) _____ | |
- Is there a suspected source? Also Noise
- Are other persons affected? No. Neighbours + don't seem to be affected sch4p4(6) Personal information
- Is the odour causing any physical effects?
- | |
|--|
| ☐ Nausea |
| ☒ Headache |
| ☒ Discomfort |
- What outcome is expected from this investigation? Whatever can be done, should be done. Don't want to have to move due to odour
- What is the minimum travelling time necessary to investigate the complaint? 10 min
- Any other comment on the alleged odour nuisance? Odour most likely present. Need to determine nuisance/offensiveness

4. Initiation of further action

Based on the above information, the following action is recommended:

- ☐ Immediate response.
- ☐ Delayed response - call complainant back within agreed timeframe, and if odour still occurring, initiate a response.
- ☐ Contact alleged source to arrange site inspection.
- ☐ No response required, investigation strategy already underway.
- ☐ No response required, complaint closed.
- ☒ Other Random visits to complaint house + visit upon request i.e. when odour considered by complainant to be strong

If a senior officer/manager was consulted on the above recommended action, please provide their name and position details. Robert Morrison Mgr Bris City South

Authorised officer name: Paul B. Acker

Signature: sch4p4(6) Personal information Date: 22 Nov 2010



Queensland
Government

Office of the
Minister for Climate Change
and Sustainability

Ref: BNE1767-38
CTS 11378/09

08 DEC 2009

sch3(10)(1)(b) Confidential source of information

Dear [REDACTED]

I refer to your e-mail of 8 September 2009 sent to the Lord Mayor, Cr Campbell Newman, regarding the compatibility of the activities undertaken by Akzo Nobel at Hyde Road, Yeronga with the site's zoning under the local planning scheme. Your e-mail has been referred to the Honourable Kate Jones MP, Minister for Climate Change and Sustainability for response.

Under current legislation, the Department of Environment and Resource Management (DERM) is responsible for the regulation of the environmental aspects of this site's activities, but cannot comment on the appropriateness of the land use. As you have identified, land use is regulated by the Council under the town planning scheme. However, DERM can comment on other matters mentioned in your correspondence to the Council.

As you would be aware from your discussions with departmental staff, DERM takes the matter of environmental nuisance seriously. In response to odour nuisance complaints, DERM directed Akzo Nobel to undertake a comprehensive environmental evaluation to examine the nature and likely impact of air emissions and to identify possible mitigation measures to address any issues identified. The evaluation, conducted by an independent third party, found that no emissions exceeded the relevant air quality criteria for health, wellbeing or toxicity. The evaluation did find, however, that there existed the possibility for transient odour nuisance to occur due to unusual variations in meteorology and emissions.

As a result of this environmental evaluation, DERM and Akzo Nobel are currently putting together a program of works designed to reduce emissions from the site. You will be informed by DERM as soon as this program is in place and advised of the timeframes for its completion.

The Minister hopes this information is of assistance. Should you wish to discuss the matter further, please contact Paul Butcher of the Department of Environment and Resource Management on telephone 3225 8416.

Yours sincerely

sch4p4(6) Personal information

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Comments on Akzo Nobel TEP Reports and Recommendations

Dr Suhail Khan
Project Support Unit, Technical Operations Branch
DERM, Queensland

A number of reports on the performance of TEP have been submitted by Akzo Nobel for the Yeronga paint manufacturing facility. These include a letter from the company summarizing the aims, actions and current status of TEP, a report from their consultant newEQ on the latest emission measurements and a revised modelling report from another consultant PAE Holmes on air impact assessment as a result of increased stack height for source D5. After reviewing the above reports, my comments and recommendations are as follows:

1. TEP Requirements and its Status

The requirements of TEP can be summarised as: (a) reduce fugitive emissions by changing work practices, (b) reduce VOC emissions through stack D5, (c) increase stack height for source D5, (d) replace "pulsamatic" solvent bath with solvent-free parts washer, and (e) reduce styrene/odour being emitted from stacks.

It appears from the reports that most of the requirements of TEP are satisfied. Except the requirement to monitor styrene related odour emissions from the stacks. According to Akzo Nobel, styrene removal system has been installed at sources D5 and H8. However, the effectiveness of this system was not measured at the time when this report was prepared. Styrene emissions monitoring was planned for 28 August 2010. I hope it is available by now. A number of improvements to reduce VOC emissions have been made at the site. The latest stack test results reflect these improvements.

Recommendations

Please provide styrene and/or odour measurement data for sources D5 and H8 to determine the effectiveness of styrene removal system.

2. Mitigation Measures

The gas extraction systems capture and direct the fugitive emissions through 13 point sources (stacks or vents). There is no VOC control device installed at the site. The facility relies mainly on the gas extraction system and a reasonable dispersion by discharging it through tall stacks with a suitable exit velocity. The peak emissions usually occur during chemicals mixing or pot washing operations. These are short term very but high VOC emissions. The short term emissions make it uneconomical to install suitable VOC control systems at the site. For mitigation measures, the company was investigating the process change, better cleaning and gas extraction system.

A number of mitigation measures are proposed for the site and focus on improvements to the extraction system and cleaning methods. The proposed improvement projects are as follows:

1. Improved process for covering pots when not in use (all areas),
2. Interlocking the extraction system to improve capture of fugitive emissions (let down mixers and small HSDS areas),
3. Stack for D5 should be increased in height by five metres to improve the dispersion of pollutants, and
4. Investigation of cleaning process at the pot wash area with a view to change to a non solvent based cleaning process.

As a result of TEP, most of the above four systems have been completed. All pots containing paints are now covered. Automatic dampers have been installed on all let down mixers. This will

only permit minimal extraction whilst the lid is closed. The stack D5 height is now increased by five metres. Two solvent-free parts washers were manufactured and installed. Two Ecosorb systems were also manufactured for styrene removal.

These mitigation measures will achieve some environmental improvements, either by reducing the site emissions from point sources or better dispersion of emissions through the stack. The full assessment of the effectiveness of the proposed equipment, practices and procedures in preventing or minimizing the release of VOC is not available at this stage. The full effectiveness of the systems can be assessed in future by monitoring the stack sources.

Recommendations

Annual stack monitoring of all point sources using flame ionisation detector (FID) for VOC and carbon tube analysis for speciated VOC is recommended to determine the continuous improvement and effectiveness of the mitigation measures.

3. VOC Source Emission Measurements

During the last few years, the stack monitoring of VOC has been conducted annually at the site. Recently, stack monitoring was conducted for both VOC and speciated VOCs. For VOC monitoring, a semi-continuous flame ionisation detector (FID) method was employed (USEPA Method 25A). For speciated VOC, the grab samples were collected using carbon tube method and the analysis was performed using GC-MS (USEPA method 18). To compare the results against the licence conditions, VOCs are presented as n-hexane equivalent. The stack monitoring was conducted for all 13-point sources at the site. The semi-continuous monitoring identified a significant variation in VOC emissions due to the batch paint manufacturing process.

The summary of the last three years (2007 to 2010) of stack monitoring results are provided in Table 1. Different monitoring methods as discussed above (grab and semi-continuous) have been used at this site. This makes it difficult to compare the results. The test results of semi-continuous VOC monitoring as presented in Table 1 are the average of the monitoring data available during the sampling period (mostly greater than 18 hours). Unfortunately, a time series mass emission data is not available during October 2008 – January 2009 monitoring period. Speciated VOC analysis was conducted on the grab samples collected for a short-term sampling period (usually 15 to 20 min) using carbon tube analysis. These speciated VOC values are converted to n-hexane equivalent and presented in Table 1 as the average of the two samples collected during the period. All results presented in Table 1 are converted to n-hexane equivalent.

The key contributors of VOC emissions can be identified from Table 1. It is interesting to note that licence specifies VOC emission limit for sources H2 and H3 only. The combined H2 and H3 VOC licence limit is 20 g/min. Table 1 indicates that VOC concentrations for source H2 and H3 are most of the time greater than 20 g/min. This means non-compliance of licence conditions. Other major VOC emission sources at the site are D5, H9 and H13. The average VOC emission from source D5 alone during 13-14 November 2008 was 270 g/min or 450 ppm (see Figure 1 of newEQ Report #00560). Unfortunately, stack emission limits are not specified for these major contributors. This issue needs to be addressed in the revised licence conditions.

Recommendations

Stack emission limits must be specified for all major contributors (point sources). In future, a time series mass emission data must be presented for all point sources for VOC using flame ionisation detector (FID) and for speciated VOC at least duplicate samples must be collected using carbon tube method.

Table 1: Summary of VOC measurements and DA release limits to atmosphere (all measured values are expressed as n-hexane equivalent).

RELEASE POINT NUMBER	VOC ¹ MEASUREMENT FEB 2007 (g/min)	VOC MEASUREMENTS OCT. 2008-JAN.2009 (g/min)		VOC MEASUREMENTS MAY-JUNE 2010 (g/min)		EXISTING RELEASE LIMITS (g/min)
		CTA ¹	FID ²	CTA ¹	FID ³	
D5	137	230	270	816	37.7	-
S1	1.5	<1.0	10	-	-	-
H2	16.5	45	210	58.8	14.2	20 ⁴
H3	0.4	10	490	32	2.5	20 ⁴
H6	0.1	0.2	6	-	-	-
H7	0.2	0.13	0.6	-	-	-
H8	9.4	9.9	20	-	-	-
H9	76	110	40	59	2.7	-
H10	18.3	0.69	1.6	-	-	-
H11	0.7	4.8	25	-	-	-
H12	20	0.25	1.7	-	-	-
H13	0.4	26	166	22.7	11.7	-
H14	41.2	1.4	51	-	-	-

Notes:

- 1 This is based on grab sampling of emission sources using a stack monitoring methodology known as carbon tube analysis (CTA), which is based on short-term sampling period (15 to 20 min) and USEPA Method 18, under typical site operating conditions. The values are average of the two samples collected at the source.
- 2 This is based on semi-continuous sampling of emission sources using stack monitoring methodology known as flame ionisation detector (FID) and USEPA Method 25A, during the hours of 06:00 through 23:00, a typical site operating conditions. The mass emission rate presented in the table is calculated from the volume flow rate and the average VOC concentrations provided in ppm in the figures of newEQ Report # 00560 for FID time series continuous monitoring results.
- 3 This is based on continuous sampling of emission sources using flame ionisation detector (FID), during the hours of 06:00 through 23:00, during typical site operating conditions. These are average measured VOC values based on 17-hour sampling period using FID method as provided in newEQ Report # 00986.
- 4 Release limit of 20 g/min is expressed as the sum of VOC emissions from sources H2 and H3.

4. Amendment of Development Approval Licence Conditions

Based on the information collected during environmental evaluation and as a result of TEP, DERM may amend the existing DA conditions. The following explains why the amended is relevant, necessary or desirable and reasonable for the ERAs carried out at the Akzo Nobel paint manufacturing facility. The issues and facts that need to be considered in amending the licence are also discussed in the following sections.

VOC licence limits

The paint manufacturing facility may releases significant quantities of VOC from its activities at the site. Volatile Organic Compounds are precursors to photochemical smog which is one of the key issues facing the Brisbane regional air shed. In addition to VOC, the limits can also be specified for major air toxics released from the site (e.g. Toluene, Xylene, Benzene and Ethylbenzene). These were identified by EE as the air pollutants of concern. It is thus necessary to limit VOC release from the site. These conditions will encourage Akzo Nobel to reduce VOC emissions to achieve continuous improvements and cleaner productions.

The condition is considered necessary and desirable to limit VOC loads into an air shed, which has reasonable likelihood of undergoing future industrial development. Emissions of air toxics such as toluene, xylene and benzene are relevant consideration as they are released from the site. Exposure to above air toxics is associated with increase in numerous adverse health effects including cancer. Such a limitation is necessary and desirable to achievement of local air quality goals. Limiting the air toxic emissions is particularly important for protecting the health of sensitive receptors.

The condition is warranted under the following standard criteria: principles of ecologically sustainable development, best practice environmental management for the activity; State and Local Government Plans e.g. SEQRAQS, the character and resilience of the receiving environment, and the public interest. It is also supported by the *Environmental Protection (Air) Policy 2008*.

Recommendations

The following bubble release limits and a set of prescriptive licence conditions are recommended for Akzo Nobel DA.

Bubble release limit for VOC

The paint manufacturing facility is a batch process and as a result there is a significant variation in VOC emissions. Setting VOC limits of individual stacks based on short term grab sampling results using Method 18 is problematic. Thus, VOC must be measured using semi-continuous FID method and the limit must be specified as a bubble emission limit. This limit can be calculated by summing the average emissions rates of all emission sources from the site and the average values represent the data collected during the plants operating hours.

The site has an unknown amount of fugitive VOC emissions from the building louvers and open doors. The fugitive emissions released from the building were measured and reported as concentrations. The level of fugitive VOC concentrations measured at the site were not high, except the pot-wash area, which was ventilated but not fully enclosed. The bubble limit is supposed to include the fugitive VOC emissions. However, the fugitive mass emissions from the site are not available due to the complicated nature of such an assessment. The fugitive VOC emissions are although very important, but unfortunately can not be included in the bubble licence limit.

Conditions of bubble release limit for VOC

- (B1) The total mass emission rate of Volatile Organic Compounds (VOC), measured as n-hexane equivalent from the site at the release point numbers D5, S1, H2, H3, H6, H7, H8, H9, H10, H11, H12, H13 and H14 (as listed in Schedule B Table ...), must not to exceed xxx grams/minute (based on a 17-hour sampling period's average measured data). The sampling period must mirror the operating hours of the plant.
- (B2) For the purpose of ensuring compliance with condition B1, the following methodology must be adopted:
1. Conduct continuous sampling of emission sources D5, S1, H2, H3, H6, H7, H8, H9, H10, H11, H12, H13 and H14 using a suitable stack monitoring methodology (such as flame ionisation detector (FID)) during the hours of 06:00 through 23:00 during typical site operating conditions.
 2. Calculate the total emissions of VOC (as n-hexane) from emission sources D5, S1, H2, H3, H6, H7, H8, H9, H10, H11, H12, H13 and H14 for the 17-hour sampling period, as follows:

$$\text{Total VOC from the Site} = \sum_{N=1}^{13} \left[\frac{1}{T} \sum_{i=1}^n C_i^N \Delta t_i^N \right]$$

Where:

C_i^N - is the measured VOC mass emission rate (grams/minute) for source N;

Δt_i^N - is the sampling period (minutes) for emission source N;
 T - is total sampling duration in minutes (17 hours x 60 minutes /hour = 1020 minutes) (see note below);
 n - is the number of measurements during the 17-hours of sampling; and
 N - is the number of emission sources ($N=13$).

Notes: In the event of minor gaps in the continuous monitoring data, the gaps be 'filled' using the mean of the available data set. If data gaps exceed 1.5 hours in total during the 17-hour sampling period of between 06:00 and 23:00 (representing a less than 90% data capture rate), the emission source must be re-sampled.

- (B3) A report on the total mass of VOC released to the atmosphere as required by condition B1 for the preceding twelve (12) month period must be submitted to DERM with each annual return and include, but not limited to, the following information:
- (i) Total mass of VOC released from the site;
 - (ii) Average mass VOC emissions from each point source during the 17-hours of sampling;
 - (iii) Stack emission profile showing concentration and mass of VOC released from each point source;
 - (iv) Percentage increase or decrease in the VOC releases from previous years;
 - (v) Impact of any waste minimisation initiatives adopted on the total mass of VOC released;
 - (vi) Ratio of total mass of VOC released to the mass of the product manufactured; and
 - (vii) Solvent-based paint production capacity.

Methodology for the estimation of bubble emission limits

This must be based on the stack monitoring data collected using FID stack monitoring methodology, during the hours of 06:00 through 23:00 or during typical site operating conditions. The sampling period must mirror the operating hours of the plant. In order to determine bubble VOC emissions limit DERM needs a time series mass emission data of all point sources. Unfortunately, the results are not provided in this format. Akzo Nobel can calculate bubble emissions from the site using a methodology as discussed above (see condition B2). The limit estimation must be based on the latest emission data which reflect the latest VOC reduction achieved at the site.

Bubble Release Limit for Speciated VOC

In addition to the total VOC limit, some speciated VOCs (e.g. Xylene, Ethylbenzene, Benzene and Toluene) limits can also be specified in the licence. This requires a short term monitoring using USEPA method 18. The speciated VOC license limits can be estimated from the impact assessment report and the stack monitoring data provided in the EE. From the speciated VOC analysis, pollutants such as xylene, ethylbenzene, benzene and toluene were identified as the air pollutants of concern.

Environmental impact assessment was conducted for the above pollutants and the ground level concentrations (GLC) were estimated at the sensitive receptors. The modeling results were compared against the health based standards. The results indicate no major issues from the release of air pollutants. The estimated GLC were below the EPP (Air) and other EPA's ambient air quality standards. Since the emission sources are located in a close proximity, the speciated VOCs licence limit can be specified as a bubble emission limit. It will be calculated from the measured mass emission data (see Condition B5 below).

Conditions of Bubble Release Limits of Xylene, Ethylbenzene, Benzene and Toluene

- (B4) The total mass emission rates of Xylene, Ethylbenzene, Benzene and Toluene, measured from the site at the release point numbers must not exceed as specified in Schedule B Table, based on short term measurements (e.g. 15-minutes sampling period).
- (B5) For the purpose of ensuring compliance with condition B4, the following methodology must be adopted:

3. Conduct grab sampling of emission sources D5, S1, H2, H3, H6, H7, H8, H9, H10, H11, H12, H13 and H14 using a suitable stack monitoring methodology (such as carbon tube analysis during the hours of 06:00 through 23:00 under typical site operating conditions.
4. Calculate the total emissions of Xylene, Ethylbenzene, Benzene and Toluene from emission sources D5, S1, H2, H3, H6, H7, H8, H9, H10, H11, H12, H13 and H14, as follows:

$$\text{Xylene, Ethylbenzene, Benzene or Toluene Emissions} = \sum_{N=1}^{13} \left[\frac{1}{n} \sum_{i=1}^n C_i^N \right]$$

Where:

C_i^N - is the measured Xylenes, Ethylbenzene, Benzene or Toluene, mass emission rate (grams/minute) for source N;

n - is the number of measurements during the sampling for emission source N; and

N - is the number of emission sources ($N=13$).

Notes: In the event of more than one measurement during the sampling for emission source N, estimate geometric mean and then calculate the bubble emissions as above, otherwise just sum the sources emissions data to calculate the bubble emissions.

- (B6) A report on the total mass of Xylene, Ethylbenzene, Benzene and Toluene released to the atmosphere as required by condition B10 for the preceding twelve (12) month period must be submitted to DERM with each annual return and include, but not limited to, the following information:
- (i) Total mass of Xylene, Ethylbenzene, Benzene and Toluene released from the site;
 - (ii) The mass emissions of Xylene, Ethylbenzene, Benzene and Toluene from each point sources;
 - (iii) Percentage increase or decrease in the Xylene, Ethylbenzene, Benzene and Toluene releases from previous years;
 - (iv) Impact of any waste minimisation initiatives adopted on the total mass of Xylene, Ethylbenzene, Benzene and Toluene released;
 - (v) Ratio of total mass of Xylene, Ethylbenzene, Benzene and Toluene released to the mass of the product manufactured; and
 - (vi) Solvent-based paint production capacity.

Methodology for the estimation of bubble speciated VOC limits

This limit must be based on the stack monitoring data collected using carbon tube analysis, during the normal operating hours representing a typical site operating conditions. In order to determine bubble emissions limit an average mass emission data of all point sources is required. The limit estimation must be based on the latest emission data which reflect the latest VOC reduction achieved at the site. Akzo Nobel can calculate the bubble emissions using a methodology as discussed above (see condition B5) and provide the information to DERM for setting the limits.

Definition of VOC

The current licence specifies air emission limits using a term called TOC, which is defined in the definition schedule. This definition is not compatible with any VOC definition specified in the Australian NPI or US EPA documents. It includes methane in the list. Actually it should be excluded from the list. Methane is not responsible for any photochemical smog formation and it is not released from the paint manufacturing facility. TOC definition in the current licence give an indication that TOC is actually the total VOC reported as n-hexane equivalent. This is one of the reason most of the monitoring data reported VOC as n-hexane equivalent. It is very important to redefine VOC in the DA. In the new licence the VOC must be defined as specified in the NPI or US EPA's documents. According Australian NPI, the VOC can be defined as follows:

"Volatile organic compounds (VOC) is defined as any chemical compound based on carbon chains or rings with a vapour pressure greater than 2mm of mercury (0.27 kPa) at 25°C), that participate in atmospheric photochemical reactions: The substances that are specifically excluded are: methane, carbon monoxide, acrylamide, benzene hexachloro, biphenyl, chlorophenols, n-dibutyl phthalate, ethylene glycol, di-(2-ethylhexyl) phthalate (DEHP), 4,4-methylene bis 2,4 aniline (MOCA), methylenebis, phenol, and toluene-2,4-diisocyanate. "

Housekeeping Procedures

This condition is necessary and desirable as it provides effective measures in reducing the waste and air pollutants generated at the site. The condition is warranted following consideration of best practice environmental management for the activity. The same condition is applied to the Dulux DA. It is also supported by the *Environmental Protection (Air) Policy 2008*, Part 4 (Management hierarchy for air emissions). The proposed condition is as follows:

- (B7) The registered operator of this development approval must develop and implement a site housekeeping procedure for effective reduction of wastes and the minimisation of air emissions. The housekeeping procedure must include, but not be limited to:
- (ii) development of management initiatives to increase employee awareness of the need for and benefit of pollution prevention, preventative maintenance to reduce the emissions of VOC and effective use of raw materials;
 - (iii) improve material handling and storage to avoid spills;
 - (iv) segregate waste streams (solvent and water based) to optimize waste treatment system;
 - (v) perform preventative maintenance and practice emergency preparedness;
 - (vi) initiate routine maintenance and training to reduce leaks and spills;
 - (vii) mix paint according to need and schedule jobs to maximize colour runs;
 - (viii) provide operator training to improve transfer efficiency;
 - (ix) develop and implement rigid inventory control to reduce solvent use;
 - (x) reduce solvent evaporation by installing tank lids;
 - (xi) waste solvent must be collected and stored in closed containers;
 - (xii) employ best practice equipment cleaning methods; and
 - (xiii) recycle material onsite where practicable.

Control of Fugitive VOC Emissions

For process and operation related issues, a set of prescriptive licence conditions are recommended to minimize the environmental harm and to encourage cleaner production at the site. The same condition is applied to the Dulux DA. DERM needs to discuss the applicability of these proposed prescriptive conditions with Akzo Nobel. The final prescriptive conditions will be issued after consultation with Akzo Nobel.

This condition is necessary and desirable as it states limits or requirement to control fugitive VOC emissions from the paint manufacturing activity. The information is sourced from the following US EPA documents:

- Control of VOC emissions from ink and paint manufacturing process, US EPA Office of Air Quality Planning, EPA-450/3-92-013, April 1992; and
- Air Permit issued to Akzo Nobel Coatings Inc, located at Pontiac, Michigan, USA, August 2006.

The condition is warranted following consideration of best practice environmental management for the activities carried out at the site. It is also supported by the *Environmental Protection (Air) Policy 2008*, Part 4 (Management hierarchy for air emissions). The proposed condition is as follows:

- (B8) The registered operator of this development approval must take all reasonable and practicable measures in the design and operation of the plant to minimise fugitive VOC emissions. For the purpose of this condition, examples of reasonable and practicable measures could be the following:

- (i) install cover on all open top vessels and tanks used to mix paint, disperse pigment and adjust viscosity and colour;
 - (ii) covers used on tanks and vessels must be VOC impermeable and must be kept closed at all times except to permit operator access;
 - (iii) clean vessels and tanks with detergent, hot alkali high pressure water or low Reid vapor pressure (less than 0.3 psia) solvent which minimise VOC emissions;
 - (iv) avoid heating solvent above 50 °C to minimise vapour generation;
 - (v) use submerged filling when transferring VOC containing materials;
 - (vi) visually inspect equipments for leaks on monthly basis; and
 - (vii) implementation of a monitoring program to regularly leak test all bulk chemical storage components including pumps, piping and controls, vessels and tanks.
- (B9) The ducting and extraction systems that transfer effluent gases from one location to another must be constructed, operated and maintained so as to minimise any leakage of effluent gases and vapours to the atmosphere occurring from these sources.
- (B10) In the event of emissions of contaminants occurring from industrial plant or ducting and extraction systems that transfer effluent gases from one location to another, the fault or omission that resulted in that emission must be corrected as soon as practicable.

Tank Lids

Tank lids are the most common equipment used by paint manufacturing facilities to control VOC emissions. Mix and blend tanks are a primary source of VOC emissions because the solvent-containing materials spend a significant amount of time in this equipment. This condition is required by paint manufactures in United States. The States in USA that regulate paint manufacturers require that all open-top equipment be covered during the manufacturing process. This information is sourced from "Control of VOC emissions from ink and paint manufacturing process, US EPA Office of Air Quality Planning, EPA-450/3-92-013, April 1992." The same condition is applied to the Dulux DA. The condition is warranted following consideration of best practice environmental management for the activity and it is as follows:

- (B11) The registered operator of this development approval must install and maintain tank lids to control VOC emissions to ensure that all open-top equipment be covered during the manufacturing process. This design must include, but are not limited to, the following requirements:
- (i) the mill, tank, vat or vessel must be equipped with a lid which completely covers these equipments, except for an opening no larger than necessary to allow for safe clearance for mixer shaft;
 - (ii) the cover remains closed, except when production, sampling, maintenance, or inspection procedures require access; and
 - (iii) the cover is maintained in good condition, such that when in place, it maintains contact with the rim of the opening for at least 90 percent of the circumference of the rim.

Equipment Cleaning

Equipment cleaning generates a high percentage of the waste associated with paint manufacturing facility. Because much of this cleaning is performed with solvents, equipment cleaning is also a major source of VOC emissions. Any methods that reduce the need or frequency of cleaning will reduce VOC emissions. The information is sourced from "Control of VOC emissions from ink and paint manufacturing process, US EPA Office of Air Quality Planning, EPA-450/3-92-013, April 1992." The condition also limits the use of cleaning solvents containing high concentration of halogenated compounds. This information is also sourced from the Air Permit issued to Akzo Nobel Coatings Inc located Pontiac, Michigan, August 2006. This condition is also applied to the Dulux DA.

The condition is warranted following consideration of best practice environmental management for the activity and it is as follows:

(B12) The registered operator of this development approval must take all reasonable and practicable measures to control VOC emissions from equipment cleaning operations. For the purpose of this condition, examples of reasonable and practicable measures could include the following:

- (i) using completely covered or enclosed equipment for organic solvent cleaning;
- (ii) investigating alternative cleaning material (e.g. hot alkali or detergent) for reducing VOC emissions;
- (iii) using rubber wipers to scrape the sides of the tank to reduce the amount of clinging paint, thus reducing the amount of solvent to clean the tank;
- (iv) using high-pressure spray heads to clean process tanks (these heads can reduce cleaning material use by 80 to 90 percent);
- (v) using plastic or foam pigs; and
- (vi) using Teflon lined tanks which can reduce the amount of paint clinging to the side of the tank and makes cleaning easier.

(B13) The cleaning solvent must not contain more than five percent by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof.

RTI DL RELEASE - EHP

5

Butcher Paul

From: Paul Butcher
Sent: Monday, 11 January 2010 1:35 PM
To: Brodie, Frances
Subject: RE: Noise complaint

Thanks Frances,

Good to know it is something simple. I will pass this info on to the complainant and that should be the end of it.

Regards

Paul Butcher

Senior Environmental Officer
Environmental Services – Brisbane City South
South East Region
Department of Environment and Resource Management
ph:(07) 3238 3819
fax: (07) 3406 2578
Email: paul.butcher@derm.qld.gov.au

Department of Environment and Resource Management
Level 3 Landcentre, Cnr Main and Vulture Streets, Woolloongabba Q 4102
GPO Box 2771 BRISBANE QLD 4001

From: Brodie, Frances [mailto:Frances.Brodie@akzonobel.com]
Sent: Monday, 11 January 2010 1:20 PM
To: Paul Butcher
Subject: RE: Noise complaint

Hi Paul,

Investigations Friday night identified that the dust collector D5 had indeed been left running. A new guard started last week and apparently had not been turning lights or the extraction system off.

We had the managers of the security guard company in for a meeting this morning, who have now spoken with the relevant guard. They will also be creating a more "idiot-proof" lock-up checklist to ensure this does not recur.

We will be closely monitoring them to ensure it doesn't happen again.

Regards,
Frances

From: Paul Butcher [mailto:paul.butcher@derm.qld.gov.au]
Sent: Friday, 8 January 2010 12:04 PM
To: Brodie, Frances

Subject: RE: Noise complaint

Thanks Frances.

Regards

Paul Butcher

Senior Environmental Officer
Environmental Services – Brisbane City South
South East Region
Department of Environment and Resource Management
ph:(07) 3238 3819
fax: (07) 3406 2578
Email: paul.butcher@derm.qld.gov.au

Department of Environment and Resource Management
Level 3 Landcentre, Cnr Main and Vulture Streets, Woolloongabba Q 4102
GPO Box 2771 BRISBANE QLD 4001

From: Brodie, Frances [mailto:Frances.Brodie@akzonobel.com]
Sent: Friday, 8 January 2010 10:37 AM
To: Paul Butcher
Subject: RE: Noise complaint

Hi Paul,

We will do some investigating over the next couple days and get back to you on this. I assume you're certain that it's not the kiln noise from next door coming up our roadway beside D5?

I know that D5 hasn't been running when I've arrived the last few mornings, which was as early at 4.15am on Wednesday.

I will get back to you next week.

Regards,
Frances

From: Paul Butcher [mailto:paul.butcher@derm.qld.gov.au]
Sent: Friday, 8 January 2010 10:05 AM
To: Brodie, Frances
Subject: Noise complaint

Hi Frances,

I visited the complainant last night and identified the source noise as being an extraction unit type noise coming from the vicinity of the D5 stack. I was there from 7.20pm to 8.10pm and ruled out other possible sources. He says it goes all night and has done so for a couple of months. Could you please investigate timer setup to determine if there has been an extraction unit operating after 7pm? It sounded different to an AC unit. If it is necessary to operate this unit after hours I shall take a noise measurement to determine compliance with DA limits.

Regards

Paul Butcher

Senior Environmental Officer
Environmental Services – Brisbane City South

South East Region
Department of Environment and Resource Management
ph:(07) 3238 3819
fax: (07) 3406 2578
Email: paul.butcher@derm.qld.gov.au

Department of Environment and Resource Management
Level 3 Landcentre, Cnr Main and Vulture Streets, Woolloongabba Q 4102
GPO Box 2771 BRISBANE QLD 4001

As of 26 March 2009 the Department of Natural Resources and Water/Environmental Protection Agency integrated to form the Department of Environment and Resource Management

+-----+
Think B4U Print

1 ream of paper = 6% of a tree and 5.4kg CO2 in the atmosphere

3 sheets of A4 paper = 1 litre of water
+-----+

RTI DL RELEASE-EHP

This email has been scanned for Viruses and Spam. For more information
please contact your local Business Unit Information Security representative.

This email has been scanned for Viruses and Spam. For more information
please contact your local Business Unit Information Security representative.

Paul Butcher

From: Paul Butcher

Sent: Friday, 19 March 2010 9:06 AM

To:

sch3(10)(1)(b) Confidential source of information

Cc:

Subject: RE: Akzo Nobel Pty Ltd - Transitional Environmental Program

Hi [REDACTED]

Apologies for the delayed response. I have been quite busy of late with statutory deadlines and the like. In response to the points you raise in your email, I will try to address them in the order received.

Regarding the proposed monitoring, this is required to be undertaken in a similar manner to that employed for the environmental evaluation (EE): baseline emission data will be collected from the plant under normal operating conditions (this will account for any improvement re reduction of generated emissions since the EE). This emission data will be used in the computer modelling process to predict the behaviour of these emissions in terms of their dispersal and likely ground level concentrations. The computer model requires inputs of a site specific nature such as efflux velocities, local topography and importantly for your query, comprehensive meteorological data for the local area. This latter data incorporates seasonal variations in temperature, wind strength and wind direction. By using these inputs, the modelling can account for changing conditions and predict if, when, where and to what extent, odours may occur.

I believe the EE did contain details of when emission monitoring was undertaken and what methodology was used. This was based on DERM requirements in the statutory notice issued to Akzo Nobel. A key point is that the consultants made an assessment of peak emission rates and where the monitoring was not undertaken at a peak time they made allowances in their calculation by up scaling the results by an appropriate factor to account for peak emission loads. The other point is that a thorough assessment of the methodology employed and the resulting data obtained and conclusions formed was undertaken by an air emission and odour expert within the department who was satisfied with the quality of the work and the report.

From the report, the majority of VOC species tested for were compared with health or toxicity based criteria and no exceedences of these were recorded. These criteria are based on current state air quality guidelines, which I understand were based on the best available science at the time of drafting. There may be future changes to these criteria but this cannot form part of our current assessments.

As mentioned, the work of the consultant was assessed by the department and the conclusions and recommendations are considered to be acceptable, hence their incorporation into the TEP. The company has independently identified further measures it can take and these were also incorporated. The department will make an assessment of the effectiveness of the actions after the TEP has finished and the report assessed. It is certainly not anticipated that the current works will see a complete elimination of all odour from the plant but it is anticipated that any odour generated will be within an acceptable level. Your feedback at this time will be helpful. I will be checking on adherence to the program re progress and when the major components are complete I will undertake some more field observations. If you do identify any concrete patterns re odour I would be interested to check them out but it may be prudent to wait until the works are finished before forming any final conclusions.

I hope this is of some assistance.

Regards

Paul Butcher

Senior Environmental Officer
Environmental Services – Brisbane City South
South East Region
Department of Environment and Resource Management
ph: (07) 3238 3819
fax: (07) 3406 2578
Email: paul.butcher@derm.qld.gov.au

Department of Environment and Resource Management
 Level 3 Landcentre, Cnr Main and Vulture Streets, Woolloongabba Q 4102
 GPO Box 2771 BRISBANE QLD 4001

From: sch3(10)(1)(b) Confidential source of information
Sent: Tuesday, 9 March 2010 8:27 PM
To: Paul Butcher; rene lindenburt
Subject: Akzo Nobel Pty Ltd - Transitional Environmental Program

Paul

Thank you for sending me a copy of the Transitional Environmental Program (TEP) regarding Akzo Nobel Pty Ltd at Hyde Road, Yeronga.

I note that the Program stipulates that the monitoring of the emissions will take place between May and June 2010, being the colder winter months.

As a person who resides [REDACTED] I note that we are much more affected by the odours during the hotter days, when there is a north easterly breeze (which usually, but not always, occurs during the afternoon). On the colder days (which has been occurring recently), there is generally a southerly breeze, which means that the odours do not affect us. This appears to be the case during winter.

Over the recent weeks, which have been slightly cooler, we have not detected many odours. Whilst I originally concluded that this was due to the implementation of some of the TEP measures, I have, unfortunately noted that on the hotter days, such as today, when there has been a north easterly breeze in the afternoon, the paint odours have been just as strong as before - today was particularly strong and sharp - lasting for 3 - 4 minutes at approximately 4.15, followed by intermittent milder smells until approx 4.45pm. This occurred approximately a week to a week and a half ago, on another warm day when there were north easterly breezes.

As the residents living directly across from Akzo on the other side of Hyde Road (and the streets which immediately south of them, [REDACTED] are the closest residents to the factory, I would like to ensure that the effects on our area are taken into account.

I am concerned that if all of the monitoring is undertaken during the colder months (as scheduled in May - June) where the odours generally disperse in a northerly direction, due to the southerly breezes, then the effects on the closest residences may not be appropriately assessed.

I would like to see that certain testing is reserved for the hotter months when the direction of the plumes affects the closest residents, south of Hyde Road. Alternatively, I would like to see that certain testing is undertaken at certain sites which have been the subject of various complaints, at the times/conditions during which they typically arise.

As a resident who has lived [REDACTED] we never detected any odours. However, since moving to our new residence [REDACTED] which is much higher in the street and is south west from the site, we regularly detect odours.

I am more than happy to pay for, or contribute towards any further testing undertaken from our premises, as it may be that the odours are only detectable from certain locations or heights.

Can I also express my reservations at the testing which has been undertaken. I am not certain as to the period of time in which the testing was undertaken (for example, was it only undertaken over a 24 hour period? I am not able to tell from my review of the report). I also understand that the consultants are engaged by the company, which would be well aware of the

times at which the monitoring would be undertaken and theoretically could adjust their work practices as a consequence to minimise any odour/VOC omissions.

I would hope that there was some type of monitoring which was independant of the company entirely - in particular that they were not aware of the times at which monitoring would take place.

Whilst I understand that the report has concluded that the site complies with VOC and odour criteria, I also note that future scientific and environmental advances may result in a stricter VOC thresholds in the future to avoid health effects. I am sure that the EPA are well aware of this but it is something which is of a concern to me and my family.

If there are any limitations/reservations held currently or in the future by the EPA in relation to the accuracy of the consultant's report, in terms of methodology, duration/timing/frequency of testing etc or the adequacy of the remediation measures proposed by the consultants, I would hope that further remediation measures could be implemented. For example, I note that the consultant has recommended that the D5 stack height's increase by 5 metres, may reduce odour potential by a factor of greater than two. If the EPA determine that that this is ineffective, then would it not be a prudent course of action for the stack height to be increased to a greater height than that recommended by the consultants (for example, increase by 10 metres with an accompanying increase in air flow to project odours higher into the atmosphere)?

Whilst I understand that not all measures in the TEP have been adopted as yet, I just wanted to have it noted that, at the present date, the measures implented to date have not yet eliminated or reduced in strength the paint odour levels. I am unable to reliably comment on the frequency of the odours (as mentioned earlier, due to the change in temperature and breezes). However, for what it is worth, I have not recently smelled the solvent "glue" smell.

Regards

sch3(10)(1)(b) Confidential source of information

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Annual return

Environmental Protection Act

Registration Certificate

This form must be completed and submitted to the administering authority each year by the holder of a registration certificate and submitted with the appropriate payment under the Environmental Protection Act 1994.

OFFICIAL USE ONLY

DATE RECEIVED

FILE REF

PROJECT REF

COMPLETE FORM

CORRECT AA

COMPLETE FEE

ENTERED BY [SIGNATURE]

DATE

GUIDE

Minor changes, such as change of name after marriage, can be made as an amendment by agreement. A change of name and a change in ABN/ACN will require a continuing registration.

Refer to your local Department of Environment and Resource Management (DERM), formerly the Environmental Protection Agency (EPA), office for more information.

1. Registration certificate holder name

AKZO NOBEL PTY LIMITED

2. Registration certificate number

ENCE00666107

3. Have any of your details changed?

☐ No → Go to question 4.☒ Yes →☐ Contact details change

EMAIL

PHONE

MOBILE

FAX

☐ Registration certificate holder name change☐ Trading/business name change (same ABN/ACN)☐ Lot/plan number change (same site)☒ Registered address change

ADDRESS

8 KELLAWAY PLACE

SUBURB

WEATHERILL PARK

POST CODE

2164

☐ Postal address change

ADDRESS

SUBURB

POST CODE



4. Do you have a copy of the development approval/s or Code of Environmental Compliance to which your registration certificate applies?

☒ YES
☐ NO

5. Have any of the activities on your registration certificate altered since the time it was issued?

☒ YES → Your development approval and registration certificate may need to be amended. Contact your local Department of Environment and Resource Management (DERM) office for advice.
☐ NO

Notification has already occurred.

6. Does your registration certificate include an activity with an aggregate environmental score?

☒ YES → Go to question 7.
☐ NO → Go to question 8.

Please refer to the *Information Sheet: Paying a reduced annual fee* for details of the eligibility criteria.

NOTE: The reduced annual fee does not apply if the annual return and fees are not submitted by the due date or if there is no aggregate environmental score (ie where the annual fee is set at \$500).

7. Are you paying a reduced annual fee?

☐ YES → Complete *Appendix B - Paying a reduced annual fee*.
☒ NO

8. Since your last annual return, have you fully complied with the conditions of your development approval or code of environmental compliance and your general environmental duty?

☒ YES
☐ NO → Provide details below. If you require more space, attach additional information.

9. Does a condition of your development approval or code of environmental compliance require you to carry out any monitoring and/or prepare reports on your ERA?

☒ YES
☐ NO → Go to question 15.

10. Do you provide reports directly to the point source database?

☐ YES → Go to question 14, if no other monitoring is required to be undertaken.
☒ NO

Monitoring data that has been submitted electronically to the Point Source Data Base in accordance with a written agreement with DERM does not need to be resubmitted.

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 DERM on request or when the registration certificate has been surrendered or cancelled.

See Appendix A - A guide for presenting data.

11. Has all of the necessary environmental monitoring been carried out and all the reports prepared?

☒ YES

☐ NO → Provide details below. If you require more space, attach additional information.

12. Where are the monitoring data and copies of reports kept?

Please do not submit the report(s) with this annual return — fill out the information below. If you require more space, attach additional information.

LOCATION OF REPORTS AND/OR MONITORING

HSE MANAGER'S OFFICE:

11.5 HYDE RD

VERONGA A104

13. Please provide a list of all of the monitoring data compiled and the reports prepared since your last annual return.

Please do not submit the report(s) with this annual return — fill out the information below. If you require more space, attach additional information.

NATURE OF REPORT AND/OR MONITORING	PREPARED BY	DATES COVERED
SOURCE EMISSION SAMPLING	NEWEL	29/10/09 - 25/10/10

14. Has the monitoring that has been carried out shown any exceedance of the environmental limits set in the conditions of your development approval?

☒ YES →

Please attach a copy of the notification of that exceedance that you gave to the administering authority.

☐ NO

15. Is this return for ERA 57 — Regulated waste transport?

☐ YES →

Complete table below. Attach additional information if required.

☒ NO

Status — existing, new, removed	Type of vehicle e.g. tanker, truck	Make of vehicle	Year of manufacture	Vehicle registration number

The first step towards payment is to calculate the fees payable.
Information on these fees can be located in the *Information Sheet: Summary of annual fees for Environmentally Relevant Activities*.

For information on paying by EFT refer to the *Information Sheet: Electronically paying fees to DERM*.

Note: Failure to pay the annual fee or where fees are paid by EFT, to include sufficient detail to show that the fee has been paid may result in DERM taking action under the legislation for failure to comply with the annual notice. This may lead to suspension or cancellation of the registration certificate.

16. Payment

The applicable fee is:

\$3800.00

Select payment method below:

☒ Payment by cheque or money order (attached)

☐ Payment by EFT:

• Date of payment by EFT: _____

• Identification code: _____ / _____

• Payment was for:

☐ This application only; or

☐ This and other applications.

• Payment notification form sent to DERM finance is attached

☐ Payment by credit card:

Card type:

☐ Visa

☐ Mastercard

Card number: _____

Valid from: _____

Valid to: _____ / _____

Name on card: _____

Telephone contact number of cardholder: _____

Cardholder's signature: _____

17. Declaration

Note: If you have not told the truth in this annual return you may be liable for prosecution under the relevant Acts or Regulations.

It is an offence under s480 of the *Environmental Protection Act 1994* to give to the administering authority a document containing information that is false, misleading or incomplete in a material particular. This offence carries a maximum penalty of \$166,500 or 2 years imprisonment.

- I do solemnly and sincerely declare that the information provided is true and correct to the best of my knowledge. I understand that it is an offence under s480 of the *Environmental Protection Act 1994* to give to the administering authority, or an authorised person, a document containing information that I know is false, misleading or incomplete in a material particular.
- I understand that all information supplied on or with this application form may be disclosed publicly in accordance with the *Freedom of Information Act 1992* and the *Evidence Act 1977*.

APPLICANTS SIGNATURE

sch4p4(6) Personal information

APPLICANTS NAME

FRANCES BRODIE

DATE

17/05/10

If you have any queries about how to complete this annual return correctly or need guidance on supporting information required please contact the help desk on 1300 368 326.

To access a list of Statewide licensing contact points for DERM visit our website at www.derm.qld.gov.au for a copy of the information sheet DERM's Environmental Services offices - contact details and Council areas.

18. Annual return checklist

- ☒ If claiming a reduced annual fee, enclose Appendix B.
- ☒ A copy of the notification of exceedence of limits, as detailed in question 14. *TOP 5,000,000*
- ☒ If paying by EFT enclose a copy of the payment notification form.
- ☒ Supporting information (if applicable).

Please return your completed annual return to:

Ecoaccess Customer Service Unit
Department of Environment and Resource Management
PO Box 15155
CITY EAST QLD 4002

Enquiries: 1300 368 326
Facsimile: (07) 3115 9600
E-mail: eco.access@derm.qld.gov.au

RTI DL RELEASE - EHP

(12)

Butcher Paul

From: Brodie, Frances [Frances.Brodie@akzonobel.com]
Sent: Tuesday, 3 August 2010 3:36 PM
To: Butcher Paul
Subject: TEP status report
Attachments: Akzo Nobel TEP completion status.pdf; 00986-2 report.pdf; 05134 Report Final v1.pdf

Hi Paul,

Please find attached the status of the Transitional Environmental Programme (TEP) for the Yeronga site which aimed to reduce odour emissions from the site.

The emission monitoring results and odour modelling reports are also attached.

If you have any questions or require any additional information, please ask.

Regards,

Frances

<<Akzo Nobel TEP completion status.pdf>> <<00986-2 report.pdf>> <<05134 Report Final v1.pdf>>

Frances Brodie

Health, Safety and Environment Manager Australasia

Marine and Protective Coatings

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F +61 (0) 7 3892 1689

M sch4p4(6) Personal information

E frances.brodie@akzonobel.com

Akzo Nobel Pty Limited

115 Hyde Rd

Yeronga

Brisbane

Qld 4104

Australia

<http://www.akzonobel.com/international>

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RTI DL RELEASE - EHP



Mr Paul Butcher
Environmental Officer
Brisbane South Region – Environmental Services
Environmental Protection Agency
GPO Box 2771
Brisbane 4001

3 August 2010

Dear Paul,

RE: TEP NUMBER TEP5100000007

This letter serves as the formal report on the performance of the Transitional Environmental Programme (TEP) for the Yeronga site of Akzo Nobel Pty Limited.

The overall objective of the TEP was to reduce odour emissions from the site. Overall, the results indicate that the required emission level reductions have been met and exceeded, although styrene emissions have not yet been monitored to test the effectiveness of the styrene abatement systems.

Each aim and action and their current status at the conclusion of the TEP are reported below.

Aim 1

Aim 1 of the TEP was to reduce fugitive emissions by changing work practices. This aim was divided into 6 actions:

Action	Status
1. Develop and implement procedures to ensure all pots containing paint or paint residue are covered until cleaned.	All pots containing paint or paint residue are now covered with pot covers.
2. Develop and implement procedures to ensure all drums containing solvent or paint residues in Pot Wash are covered when not being used.	All drums containing solvent or paint residues in Pot Wash are now covered when not being used. Also, work within the Pot Wash area has reduced the quantity of solvent used and stored within the area.
3. Train staff in the procedures outlined in actions 1 and 2 above.	All staff have been trained in actions 1 and 2.
4. Monitor adherence to the procedures outlined in actions 2 and 2 above.	Compliance to the above actions is monitored by the Manufacturing Manager and other managers responsible for these areas. See below for statement from Manufacturing Manager*.
5. Monitor fugitive emissions from Pot Wash area.	Fugitive emission monitoring around the Pot Wash area was undertaken by newEQ on 01/06/10. The results are in the attached newEQ report dated 18/06/10.

	The 2010 average results (of 6, 16, 7 and 19 ppm) in the four locations are substantially lower than the EE report emissions (140 ppm), with the reduction ranging from 86% to 96% lower than the levels recorded during the EE.
6. Report findings of monitoring to the administering authority.	This letter forms the required report.
Performance Indicators:	
(a) All full and empty pots are covered by pot covers until cleaned.	All full and empty pots are covered until cleaned.
(b) All drums in Pot Wash area are covered when not in use.	All drums in Pot Wash area are covered when not in use. Also, the number of drums in the Pot Wash area has been reduced.

* Manufacturing Manager's statement regarding action 4 above:

To whom it may concern,

I am writing to advise that we now comply with the above stated actions in relation to our full and empty pots being covered with plastic caps and that there is now no open drums in the pot wash area. I as manager for this area have advised our staff that they need to continue to comply with this action and would like to advise that I monitor this on my routine walks around the plant a number of times a day. If you have any questions regarding this please feel free to contact myself or Frances Brodie.

*Yours faithfully,
Trevor Carey
Manufacturing Manager*

Aim 2

Aim 2 was to reduce VOC emissions through stack D5. This aim was divided into 4 actions:

Action	Status
1. Install automatic dampers on let down mixers so that minimal extraction occurs while the lid is closed.	Automatic dampers have been installed on all let down mixers. These dampers permit only minimal extraction whilst the lid is closed.
2. Install automatic dampers on small high speed dispersers so that minimal extraction occurs while the lid is closed.	Automatic dampers have been installed on all small high speed dispersers. These dampers only permit minimal extraction whilst the lid is closed.
3. Monitor VOC emission from stacks D5, H2 and H3 to determine the effectiveness of actions as per performance indicators.	Monitoring of VOC emissions from D5, H2 and H3 was conducted during May 2010. The results are in the attached newEQ report dated 18/06/10. The monitoring determined that the effectiveness of these actions exceeds the performance specified by the performance indicators. For details, refer to the <i>Performance Indicator</i> lines below.
4. Report findings of monitoring to the	This letter forms the required report.

administering authority.	
<i>Performance Indicators:</i>	
(a) Dampers installed and operational.	Dampers have been installed and are operational.
(b) Reduction of VOC emissions from D5 by at least 15% from EE report levels.	VOC emissions from D5 have been reduced from 1500 mg/Nm ³ to 210 mg/Nm ³ , which is a reduction of 86%.
(c) Reduction of VOC emission from H2 by at least 10% from EE report levels.	VOC emissions from H2 have been reduced from 380 mg/Nm ³ to 147 mg/Nm ³ , which is a reduction of 61%.
(d) Reduction of VOC emissions from H3 by at least 10% from EE report levels.	VOC emissions from H3 have been reduced from 72 mg/Nm ³ to 15.3 mg/Nm ³ , which is a reduction of 79%.

Aim 3

Aim 3 was to increase D5 stack height by 5 metres. This aim was divided into 5 actions:

Action	Status
1. Design stack height and support structure	The stack and supporting structures were designed.
2. Manufacture new stack and support structure.	The new stack and support structures were manufactured.
3. Installation of new stack	The new stack was installed.
4. Undertake modelling of D5 stack emissions based on data collected in Action 3, Aim 2 above to determine odour potential of heightened stack.	Modelling was completed by PAEHolmes, the company that completed the modelling in the EE report. The results of the modelling are in the attached report from PAEHolmes, dated 22/07/10. The report indicates a reduction in odour levels around the site of approximately 60%.
5. Report findings of monitoring to the administering authority.	This letter forms the required report.
<i>Performance Indicators:</i>	
(a) Modelling of emission data at new height shows reduction of odour potential for surrounding neighbours.	Modelling of emission data at new D5 stack height does show a reduction of odour potential for surrounding neighbours. The report concludes that the stack height increase produced a reduction of odour potential of approximately 60%.

Aim 4

Aim 4 was to replace "Pulsamatic" solvent bath with solvent-free parts washer. This aim was divided into 6 actions:

Action	Status
1. Manufacture solvent-free parts washing machinery.	Two solvent-free parts washers were manufactured.
2. Design flameproof circuitry for parts washer to comply with Australian Standard requirements for equipment in areas where flammable vapours may be present, and source appropriate parts.	Flameproof circuitry was designed for both machines and appropriate parts sourced.
3. Modify Pot Wash building (eg floor,	The Pot Wash building was modified –

extraction etc.) for installation of new machines.	concrete floor, extraction, wiring etc. The Pulsamatic solvent bath was decommissioned and removed.
4. Install solvent-free parts washers.	Two solvent-free parts washers have been installed – one for Part A paints and one for Part B curing agents. These machines are now used to clean the filling equipment.
5. Monitor solvent emissions from stacks H9 and H13 to determine effectiveness of actions as per performance indicators.	Monitoring of VOC emissions from H9 and H13 was conducted during May 2010. The results are in the attached newEQ report dated 18/06/10. The monitoring determined that the effectiveness of these actions exceeds the performance specified within the performance indicators. For details, refer to the <i>Performance Indicator</i> lines below.
6. Report findings of monitoring to the administering authority.	This letter forms the required report.
Performance Indicators:	
(a) Machinery installed and operating.	The machinery is installed and operating.
(b) Reduction of solvent emission from sum of H9 and H13 stacks by at least 50% from EE report levels.	VOC emissions from the sum of H9 and H13 stacks have been reduced from 136 mg/Nm ³ to 14.39 mg/Nm ³ , which is a reduction of 89%.

Aim 5

Aim 5 was to reduce styrene odour being emitted from stacks. This aim was divided into 4 actions:

Action	Status
1. Manufacture of 'Ecosorb' styrene removal system.	Two Ecosorb systems were manufactured.
2. Installation of styrene removal system and associated services, commissioning of systems.	Two systems were installed and commissioned – one on D5 and one on H8.
3. Monitor styrene emissions from stacks D5 and H8 to determine effectiveness of actions as per performance indicators.	Monitoring of styrene emissions has not yet been completed, with a styrene-based product only being made once since the installation of the removal systems, at a time when the monitoring company was unavailable. The next styrene batch is scheduled for Friday 20 August and monitoring will be conducted on that batch.
4. Report findings of monitoring to the administering authority.	This letter forms the required report.
Performance Indicators:	
(a) System installed and operating.	The systems have been installed and are in operation during styrene-based product manufacture. The manufacturing and filling instruction cards used by operators have been modified to include the requirement to turn these systems on and off.
(b) Reduction of styrene emissions from D5 by at least 50% from EE report	Styrene emissions have not yet been monitored. Monitoring will be conducted by

levels.	newEQ on 20/08/10, and the results will be available approximately 4 weeks afterwards. They will be forwarded to DERM upon receipt.
(c) Reduction of styrene emissions from H8 by at least 50% from EE report levels.	Styrene emissions have not yet been monitored. Monitoring will be conducted by newEQ on 20/08/10, and the results will be available approximately 4 weeks afterwards. They will be forwarded to DERM upon receipt.

In summary, the results of the work undertaken within the TEP have proven to have effectively reduced the VOC and odour emissions from the Yeronga site of Akzo Nobel Pty Limited.

Akzo Nobel remains committed to VOC emission reduction on site. The emission reduction programme has not yet concluded, with a solvent-free pot washing machine on order, with delivery and installation late in 2010. This should further reduce VOC and odour emissions in the Pot Wash area. Investigations have also recently commenced into enclosed filling equipment, although complete implementation of these is likely to take several years.

If you have any questions about this report, please contact the undersigned.

Regards,

Frances Brodie

*Health, Safety and Environmental Manager
Marine and Protective Coatings, Australasia*

project ID 00986
issue number 2
client Akzo Nobel
issue date 29th June 2010
testing dates 13th May to the 1st June 2010
contact Ms. Frances Brodie



newEQ is part of the Pacific Environment Limited group of companies
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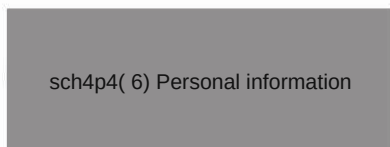
New Environmental Quality
P.O. Box 119
Coopers Plains Qld. 4108
ABN: 56 115 736 046

Source emissions sampling conducted at the Akzo Nobel facility,
Yeronga

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This report is supercedes report 00986-1 released on the 18th June 2010

Prepared by



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Accreditation
Number:
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EXECUTIVE SUMMARY

Tables 1-12 are a summary of results from testing conducted during the period of the 13th May to the 1st June, 2010. All results presented in the Executive Summary have been rounded up to two significant figures. The TVOC results presented in this executive summary are the values obtained using our FID and are referenced to n-hexane. The results are the average of all our data logged values for the testing period.

Table 1: Concentration Summary & Comparison

Source	Parameter	Test Result	Unit of measure
D5	TVOC	210	mg/Nm ³
	Odour	3463	OU
H2	TVOC	147	mg/Nm ³
	Odour	927	OU
H3	TVOC	15.3	mg/Nm ³
	Odour	1318	OU
H9	TVOC	13.8	mg/Nm ³
	Odour	3313	OU
H13	TVOC	133	mg/Nm ³
	Odour	1876	OU
D5 HSD	TVOC	78.6	mg/Nm ³
	Odour	1472	OU
D5 Mez	TVOC	315	mg/Nm ³
	Odour	3728	OU

Table 2: Emission Rate Summary & Comparison

Source	Parameter	Test Result	Unit of measure
D5	TVOC	37.7	g/min
	Odour	10620	OU/sec
H2	TVOC	14.2	g/min
	Odour	1526	OU/sec
H3	TVOC	2.47	g/min
	Odour	3623	OU/sec
H9	TVOC	2.69	g/min
	Odour	10878	OU/sec
H13	TVOC	11.7	g/min
	Odour	2820	OU/sec
D5 HSD	TVOC	6.57	g/min
	Odour	2102	OU/sec
D5 Mez	TVOC	16.0	g/min
	Odour	3212	OU/sec

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1.0 INTRODUCTION

New Environmental Quality (newEQ) was commissioned by Akzo Nobel to sample source emissions from the Akzo Nobel paint manufacturing facility located in Yeronga, Queensland. Release points D5, H2, H3, H9 and H13 were the subject of this project, with the addition of the branch lines of D5.

Each release point was sampled over the course of one full shift (12 hours) and was monitored for the parameters listed in table 3. This sampling took place from the 13th May to the 1st of June 2010. A total organic carbon analyser utilising a flame ionisation detector (FID) was set up on each of these release points for the entire testing period to monitor total VOC, the read out of this instrument was monitored for visible peaks in emissions. Once a peak was reached, often during high production times, and from consultation with area supervisors and operators, further samples were extracted from the release point and later analysed for odour concentration via AS 4323.3 along with TVOC and speciation of the volatiles via USEPA method 18.

newEQ was responsible for the collection and analysis of all samples. The collected samples remained sealed and preserved in the appropriate manner. Upon return to the laboratory the samples were prepared and analysed by the correct methodologies.

newEQ did not record any of the operating conditions for the testing period. It was entrusted to the operators and supervisors of the different site locations to log the product being made or machinery being used, at the times of testing.

2.0 TEST METHODS

Unless otherwise stated, the following test methods meet the requirements of the Queensland EPA. All sampling and analysis was conducted by newEQ unless otherwise stated. The results presented in this report are related to one or more reference calibrations held by newEQ.

Table 3: Test Methods

Parameter	Test Method	Deviations	Analysis	NATA
Traverse point selection	AS4323.1	Nil	1	Yes
Gas Velocity and Temperature	USEPA Method 2	Nil	1	Yes
Stack gas density	USEPA Method 3A	Nil	1	Yes
Moisture	USEPA Method 4	A	1	Yes
TVOC (tube sampling technique)	USEPA Method 18	Nil	1 & 2	Yes
TVOC (FID instrumental method)	USEPA Method 25A	B	1	Yes
Odour	AS4323.3	Nil	1	Collection only

Table 4: Analysis Notes

Note	Company	NATA Accreditation ID	Report Number
1	newEQ	15438	00986
2	SGS Environmental	2562 (4354)	SE78680

Table 5: Deviation Notes

Deviation	Note
A	Moisture determination based on wet and dry bulb measurements and calculations based on ASME steam table data.
B	Two point calibration (zero & span) & drift test conducted on-site at the beginning of each shift.

3.0 QUALITY ASSURANCE & QUALITY CONTROL (QA/QC)

newEQ operates within a quality system based upon the requirements of ISO17025. Our quality system defines specific procedures and methodologies to ensure any project undertaken by newEQ is conducted with the highest level of quality given the specific confines of each project

The overall objective of our QA/QC procedures is to representatively sample and accurately analyse components in the gas streams and therefore report valid measurements of emission concentrations. To ensure representativeness of field work, our quality procedures target correct sampling locations, time, frequencies and methods. Along with appropriate sample preservation, chain of custody, sample preparation and analytical techniques.

newEQ maintains strict quality assurance throughout all its sampling programs, covering on-site 'field work' and the analytical phase of our projects. Our QA program covers the calibration of all sampling and analytical apparatus, where applicable, and the use of spikes, replicate sample and reference standards.

The test methodologies used for this project are outlined in **table 3** of this document. Field test data has been recorded and calculated using direct entry into Microsoft Excel spreadsheets following the procedures of the appropriate test methods.

QA/QC checks for this project will use validation techniques and criteria appropriate to the type of data and the purpose of the measurement to approve the test report. Records of all data will be maintained. Complete chain of custody (COC) procedures has been followed to document the entire custodial history of each sample. The COC forms also served as a laboratory sheet detailing sample ID and analysis requirements.

Table 6: Sampling data QA/QC checklist

Sampling Data QA/QC Checklist	Comment
use of appropriate test methods	Yes
'normal' operation of the process being tested	Yes
Use of properly operating and calibrated test equipment	Yes
Use of high purity reagents	Yes
Performance of leak checks post sample (at least)	Yes

Table 7: Laboratory Data QA/QC checklist

Laboratory Data QA/QC Checklist	
Use of appropriate analytical methods	Yes
Use of properly operating and calibrated analytical equipment	Yes
Precision and accuracy comparable to that achieved in similar projects	Yes

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4.0 DEFINITIONS

The following terms and abbreviations may be used in this report:

Table 8: Definitions

Symbol	Definition
<	The analytes tested for was not detected; the value stated is the reportable limit of detection
Am ³	Gas volume in cubic metres at measured conditions
AS	Australian Standard
BH	Back half of sample train (filter holder and impingers) (referred to during sample recovery)
°C	Degrees Celsius
dscm	dry standard cubic meters
FH	Front half of sample train (probe and filter holder) (referred to during sample recovery)
g	Grams
kg	Kilograms
m	Metres
m ³	actual gas volume in cubic metres as measured
mb	Millibars
mg	Milligrams (10 ⁻³ grams)
min	Minute
ml	Millilitres
mmH ₂ O	Millimetres of water
Mole	SI unit that measures the amount of substance
N/A	Not applicable
ng	Nanograms (10 ⁻⁹ grams)
Nm ³	Gas volume in dry cubic metres at standard temperature and pressure (0°C and 101.3 kPa)
PM	Particulate matter
ppm-c	Parts per million referenced to carbon
ppm-p	Parts per million referenced to propane
ppm-h	Parts per million referenced to n-hexane
sec	Second
Sm ³	Gas volume in dry cubic metres at standard temperature and pressure (0°C and 101.3 kPa) and corrected to a standardised value (e.g. 7% O ₂)
STP	Standard temperature and pressure (0°C and 101.3 kPa)
TVOC	Total volatile organic compounds
USEPA	United States Environmental Protection Authority

5.0 TEST RESULTS

Table 9: Emission Results for the D5 Release Point

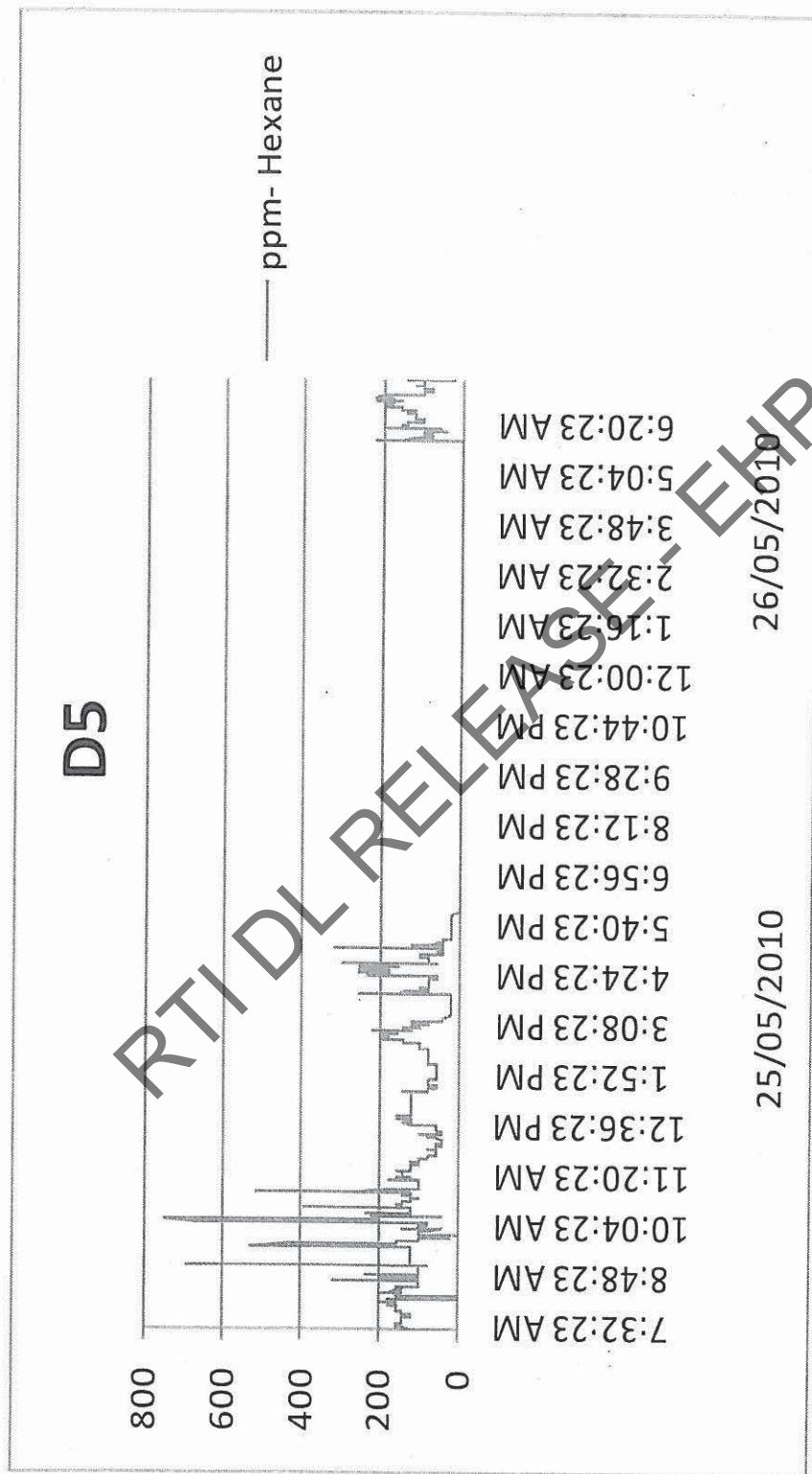
Parameter		D5	
Average Stack Gas Velocity	m/sec	12.50	
Barometric pressure	mb	1014.00	
Static pressure	mmH2O	-1.4	
Temperature	oC	24.00	
Stack Diameter/Dimensions	m	0.580	
Stack Cross-Sectional Area	m2	0.264	
Actual Stack Flow Rate	m3/min	200	
Wet Standard Stack Flow Rate	Nm3/min-wet	184	
Moisture	%v/v	2.07	
Dry Standard Stack Flow Rate	Nm3/min-dry	180	
		RUN 1	RUN 2
Odour & VOC Sample Date		25/05/2010	25/05/2010
Odour Sample Time		10:13- 10:14	10:14- 10:15
Odour conc	OU	3113	3813
Odour emission rate	OU/sec	9547	11693
Average odour conc	OU	3463	
Average odour emission rate	OU/sec	10620	
		Concentration	
Acetone	mg/Nm3	4.406	5.288
Acrylonitrile	mg/Nm3	< 0.839	< 0.846
Methylisobutylketone (MIBK)	mg/Nm3	881.255	972.929
Benzene	mg/Nm3	< 0.839	< 0.846
Benzylchloride	mg/Nm3	< 0.839	< 0.846
Butylacetate	mg/Nm3	< 0.839	< 0.846
Carbontetrachloride	mg/Nm3	< 0.839	< 0.846
Chlorobenzene	mg/Nm3	< 0.839	< 0.846
Cumene	mg/Nm3	2.518	2.750
Cyclohexane	mg/Nm3	< 0.839	< 0.846
Cyclohexanone	mg/Nm3	< 0.839	< 0.846
Diisobutylketone (DIBK)	mg/Nm3	< 0.839	< 0.846
1,2-Dichloroethane	mg/Nm3	< 0.839	< 0.846
Epichlorohydrin	mg/Nm3	< 0.839	< 0.846
Ethylacetate	mg/Nm3	< 0.839	< 0.846
Ethylacrylate	mg/Nm3	< 0.839	< 0.846
Ethylbenzene	mg/Nm3	195.135	232.657
Hexane	mg/Nm3	< 0.839	< 0.846
Methylethylketone (MEK)	mg/Nm3	< 0.839	< 0.846
a-Methylstyrene	mg/Nm3	< 0.839	< 0.846
Nonane	mg/Nm3	6.504	6.557
Propylene Oxide	mg/Nm3	< 0.839	< 0.846
Styrene	mg/Nm3	< 0.839	< 0.846
Tetrachloroethene	mg/Nm3	< 0.839	< 0.846
Toluene	mg/Nm3	2.938	2.750
Total Xylenes	mg/Nm3	832.995	972.929
Trichloroethene	mg/Nm3	< 0.839	< 0.846
VOC's as n-Hexane	mg/Nm3	4290.241	4777.506
VOC's as n-Hexane - average	mg/Nm3	4533.874	

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Table 10: Emission Results for the D5 Release Point, continued

		Emission Rate	
Acetone	g/min	0.79313	0.95178
Acrylonitrile	g/min	< 0.15107	< 0.15228
Methylisobutylketone (MIBK)	g/min	158.62584	175.12728
Benzene	g/min	< 0.15107	< 0.15228
Benzylchloride	g/min	< 0.15107	< 0.15228
Butylacetate	g/min	< 0.15107	< 0.15228
Carbontetrachloride	g/min	< 0.15107	< 0.15228
Chlorobenzene	g/min	< 0.15107	< 0.15228
Cumene	g/min	0.45322	0.49492
Cyclohexane	g/min	< 0.15107	< 0.15228
Cyclohexanone	g/min	< 0.15107	< 0.15228
Diisobutylketone (DIBK)	g/min	< 0.15107	< 0.15228
1,2-Dichloroethane	g/min	< 0.15107	< 0.15228
Epichlorohydrin	g/min	< 0.15107	< 0.15228
Ethylacetate	g/min	< 0.15107	< 0.15228
Ethylacrylate	g/min	< 0.15107	< 0.15228
Ethylbenzene	g/min	35.12429	41.87826
Hexane	g/min	< 0.15107	< 0.15228
Methylethylketone (MEK)	g/min	< 0.15107	< 0.15228
o-Methylstyrene	g/min	< 0.15107	< 0.15228
Nonane	g/min	1.17081	1.18021
Propylene Oxide	g/min	< 0.15107	< 0.15228
Styrene	g/min	< 0.15107	< 0.15228
Tetrachloroethene	g/min	< 0.15107	< 0.15228
Toluene	g/min	0.52875	0.49492
Total Xylenes	g/min	149.93919	175.12728
Trichloroethene	g/min	< 0.15107	< 0.15228
VOC's as n-Hexane	g/min	772.24347	859.95109
VOC's as n-Hexane - average	g/min	816.09728	
		FID	
Average TVOC - FID	ppm-hex	54.460	
Average TVOC - FID	mg/Nm3	209.508	
Average TVOC - FID	g/min	37.7113716	

Figure 1: D5 TVOC Chart



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Table 11: Emission Results for the H2 Release Point

Parameter		H2	
Average Stack Gas Velocity	m/sec	8.06	
Barometric pressure	mb	1005.00	
Static pressure	mmH2O	-3.00	
Temperature	oC	19.50	
Stack Diameter/Dimensions	m	0.53	
Stack Cross-Sectional Area	m2	0.22	
Actual Stack Flow Rate	m3/min	107.00	
Wet Standard Stack Flow Rate	Nm3/min-wet	98.80	
Moisture	%v/v	1.96	
Dry Standard Stack Flow Rate	Nm3/min-dry	96.80	
		RUN 1	RUN 2
Odour & VOC Sample Date		17/05/2010	17/05/2010
Odour Sample Time		8:23-8:27	8:28:8:30
Odour conc	OU	1020	838
Odour emission rate	OU/sec	1680	1372
Average odour conc	OU	927	
Average odour emission rate	OU/sec	1526	
		Concentration	
Acetone	mg/Nm3	10.347	5.012
Acrylonitrile	mg/Nm3	< 0.845	< 0.872
Methylisobutylketone (MIBK)	mg/Nm3	< 0.845	< 0.872
Benzene	mg/Nm3	< 0.845	< 0.872
Benzylchloride	mg/Nm3	< 0.845	< 0.872
Butylacetate	mg/Nm3	< 0.845	< 0.872
Carbontetrachloride	mg/Nm3	< 0.845	< 0.872
Chlorobenzene	mg/Nm3	< 0.845	< 0.872
Cumene	mg/Nm3	< 0.845	< 0.872
Cyclohexane	mg/Nm3	< 0.845	< 0.872
Cyclohexanone	mg/Nm3	< 0.845	< 0.872
Diisobutylketone (DIBK)	mg/Nm3	< 0.845	< 0.872
1,2-Dichloroethane	mg/Nm3	< 0.845	< 0.872
Epichlorohydrin	mg/Nm3	< 0.845	< 0.872
Ethylacetate	mg/Nm3	< 0.845	< 0.872
Ethylacrylate	mg/Nm3	< 0.845	< 0.872
Ethylbenzene	mg/Nm3	13.092	16.127
Hexane	mg/Nm3	< 0.845	< 0.872
Methylethylketone (MEK)	mg/Nm3	< 0.845	< 0.872
a-Methylstyrene	mg/Nm3	< 0.845	< 0.872
Nonane	mg/Nm3	2.745	3.269
Propylene Oxide	mg/Nm3	< 0.845	< 0.872
Styrene	mg/Nm3	< 0.845	< 0.872
Tetrachloroethene	mg/Nm3	< 0.845	< 0.872
Toluene	mg/Nm3	122.474	124.220
Total Xylenes	mg/Nm3	46.667	56.662
Trichloroethene	mg/Nm3	< 0.845	< 0.872
VOC's as n-Hexane	mg/Nm3	561.267	654.227
VOC's as n-Hexane - average	mg/Nm3	607.747	

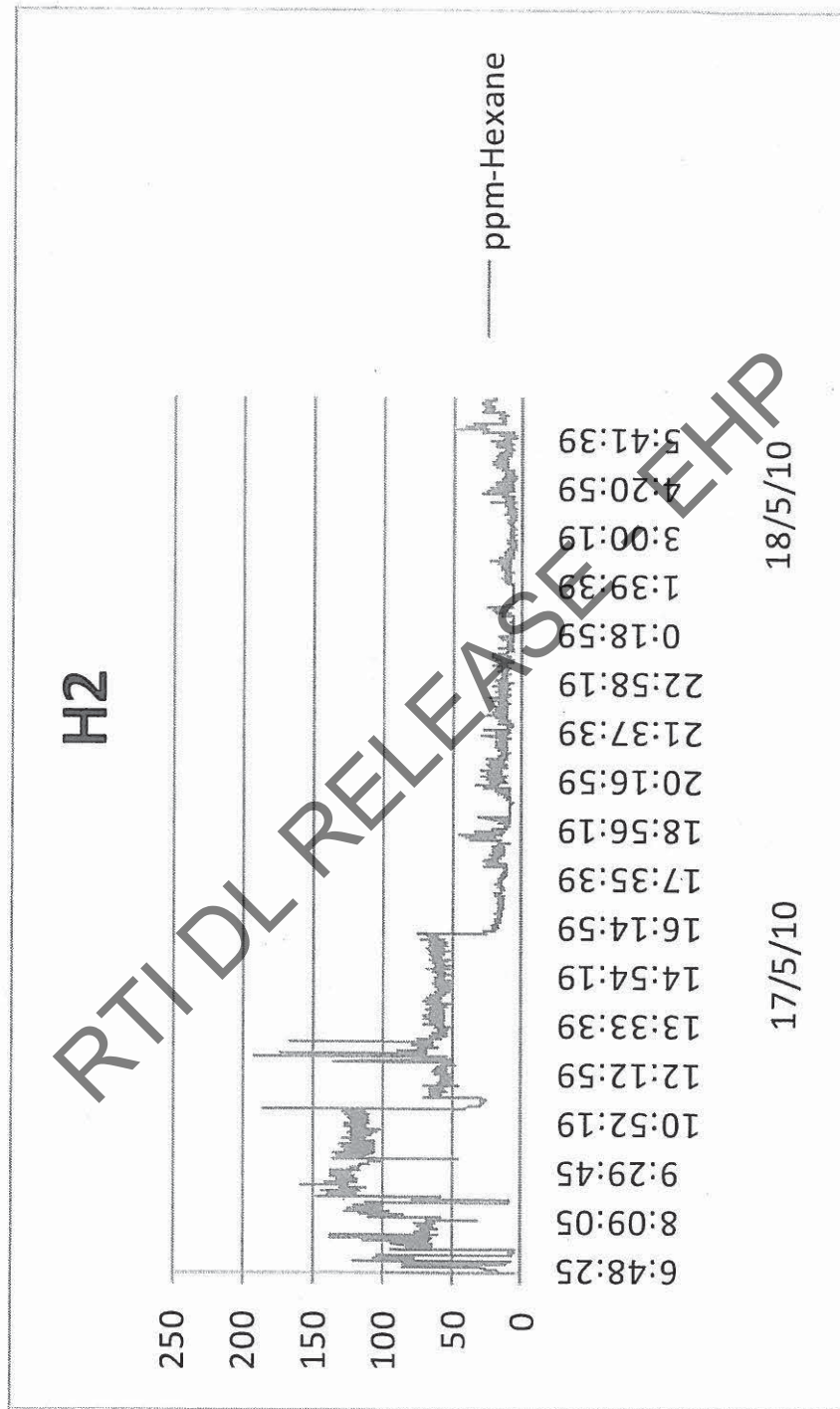
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Table 12: Emission Results for the H2 Release Point, continued

		Emission Rate	
Acetone	g/min	1.00158	0.48520
Acrylonitrile	g/min	< 0.08176	< 0.08438
Methylisobutylketone (MIBK)	g/min	< 0.08176	< 0.08438
Benzene	g/min	< 0.08176	< 0.08438
Benzylchloride	g/min	< 0.08176	< 0.08438
Butylacetate	g/min	< 0.08176	< 0.08438
Carbontetrachloride	g/min	< 0.08176	< 0.08438
Chlorobenzene	g/min	< 0.08176	< 0.08438
Cumene	g/min	< 0.08176	< 0.08438
Cyclohexane	g/min	< 0.08176	< 0.08438
Cyclohexanone	g/min	< 0.08176	< 0.08438
Diisobutylketone (DIBK)	g/min	< 0.08176	< 0.08438
1,2-Dichloroethane	g/min	< 0.08176	< 0.08438
Epichlorohydrin	g/min	< 0.08176	< 0.08438
Ethylacetate	g/min	< 0.08176	< 0.08438
Ethylacrylate	g/min	< 0.08176	< 0.08438
Ethylbenzene	g/min	1.26731	1.56108
Hexane	g/min	< 0.08176	< 0.08438
Methylethylketone (MEK)	g/min	< 0.08176	< 0.08438
o-Methylstyrene	g/min	< 0.08176	< 0.08438
Nonane	g/min	0.26573	0.31643
Propylene Oxide	g/min	< 0.08176	< 0.08438
Styrene	g/min	< 0.08176	< 0.08438
Tetrachloroethene	g/min	< 0.08176	< 0.08438
Toluene	g/min	11.85544	12.02452
Total Xylenes	g/min	4.51733	5.48487
Trichloroethene	g/min	< 0.08176	< 0.08438
VOC's as n-Hexane	g/min	54.33064	63.32913
VOC's as n-Hexane - average	g/min	58.82988	

		FID
Average TVOC - FID	ppm-hex	38.160
Average TVOC - FID	mg/Nm3	146.802
Average TVOC - FID	g/min	14.21038714

Figure 2: H2 TVOC Chart



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Table 13: Emission Results for the H3 Release Point

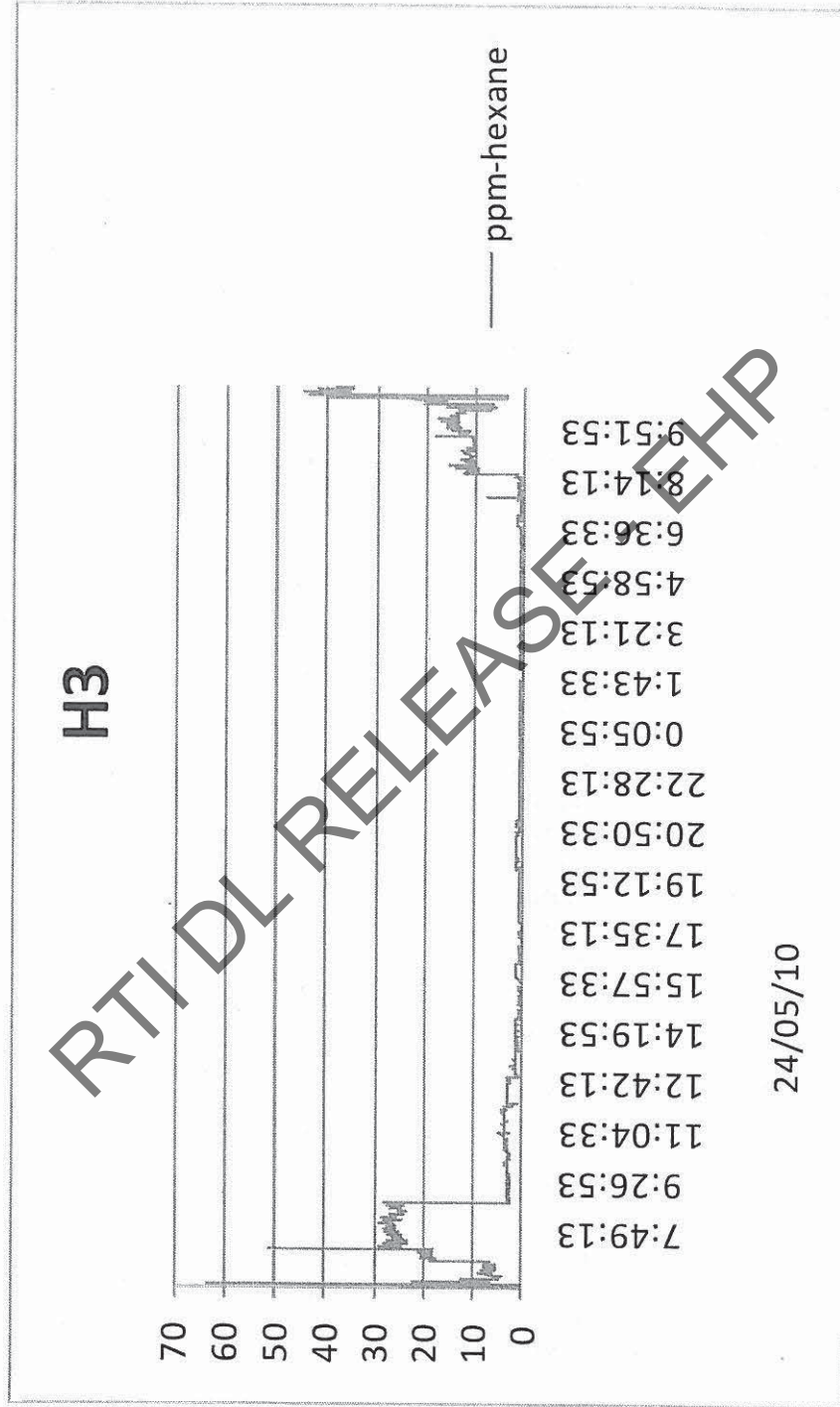
Parameter		H3	
Average Stack Gas Velocity	m/sec	10.57	
Barometric pressure	mb	1009.00	
Static pressure	mmH2O	-4.00	
Temperature	oC	24.00	
Stack Diameter/Dimensions	m	0.60	
Stack Cross-Sectional Area	m2	0.28	
Actual Stack Flow Rate	m3/min	180.00	
Wet Standard Stack Flow Rate	Nm3/min-wet	165.00	
Moisture	%v/v	2.44	
Dry Standard Stack Flow Rate	Nm3/min-dry	161.00	
		RUN 1	RUN 2
Odour & VOC Sample Date		24/05/2010	24/05/2010
Odour Sample Time		11:08-11:12	11:14-11:17
Odour conc	OU	1384	1251
Odour emission rate	OU/sec	3806	3440
Average odour conc	OU	1318	
Average odour emission rate	OU/sec	3623	
		Concentration	
Acetone	mg/Nm3	0.935	0.714
Acrylonitrile	mg/Nm3	< 0.603	< 0.476
Methylisobutylketone (MIBK)	mg/Nm3	< 0.603	< 0.476
Benzene	mg/Nm3	< 0.603	< 0.476
Benzylchloride	mg/Nm3	< 0.603	< 0.476
Butylacetate	mg/Nm3	< 0.603	< 0.476
Carbontetrachloride	mg/Nm3	< 0.603	< 0.476
Chlorobenzene	mg/Nm3	< 0.603	< 0.476
Cumene	mg/Nm3	< 0.603	< 0.476
Cyclohexane	mg/Nm3	< 0.603	< 0.476
Cyclohexanone	mg/Nm3	< 0.603	< 0.476
Diisobutylketone (DIBK)	mg/Nm3	< 0.603	< 0.476
1,2-Dichloroethane	mg/Nm3	< 0.603	< 0.476
Epichlorohydrin	mg/Nm3	< 0.603	< 0.476
Ethylacetate	mg/Nm3	< 0.603	< 0.476
Ethylacrylate	mg/Nm3	< 0.603	< 0.476
Ethylbenzene	mg/Nm3	10.860	15.467
Hexane	mg/Nm3	< 0.603	< 0.476
Methylethylketone (MEK)	mg/Nm3	< 0.603	< 0.476
a-Methylstyrene	mg/Nm3	< 0.603	< 0.476
Nonane	mg/Nm3	2.413	3.450
Propylene Oxide	mg/Nm3	< 0.603	< 0.476
Styrene	mg/Nm3	< 0.603	< 0.476
Tetrachloroethene	mg/Nm3	< 0.603	< 0.476
Toluene	mg/Nm3	0.845	1.309
Total Xylenes	mg/Nm3	27.603	39.499
Trichloroethene	mg/Nm3	< 0.603	< 0.476
VOC's as n-Hexane	mg/Nm3	158.074	240.089
VOC's as n-Hexane - average	mg/Nm3	199.081	

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Table 14: Emission Results for the H3 Release Point, continued

		Emission Rate	
Acetone	g/min	0.15056	0.11493
Acrylonitrile	g/min	< 0.09714	< 0.07662
Methylisobutylketone (MIBK)	g/min	< 0.09714	< 0.07662
Benzene	g/min	< 0.09714	< 0.07662
Benzylchloride	g/min	< 0.09714	< 0.07662
Butylacetate	g/min	< 0.09714	< 0.07662
Carbontetrachloride	g/min	< 0.09714	< 0.07662
Chlorobenzene	g/min	< 0.09714	< 0.07662
Cumene	g/min	< 0.09714	< 0.07662
Cyclohexane	g/min	< 0.09714	< 0.07662
Cyclohexanone	g/min	< 0.09714	< 0.07662
Diisobutylketone (DIBK)	g/min	< 0.09714	< 0.07662
1,2-Dichloroethane	g/min	< 0.09714	< 0.07662
Epichlorohydrin	g/min	< 0.09714	< 0.07662
Ethylacetate	g/min	< 0.09714	< 0.07662
Ethylacrylate	g/min	< 0.09714	< 0.07662
Ethylbenzene	g/min	1.74847	2.49012
Hexane	g/min	< 0.09714	< 0.07662
Methylethylketone (MEK)	g/min	< 0.09714	< 0.07662
a-Methylstyrene	g/min	< 0.09714	< 0.07662
Nonane	g/min	0.38855	0.55549
Propylene Oxide	g/min	< 0.09714	< 0.07662
Styrene	g/min	< 0.09714	< 0.07662
Tetrachloroethene	g/min	< 0.09714	< 0.07662
Toluene	g/min	0.13599	0.21070
Total Xylenes	g/min	4.44403	6.35937
Trichloroethene	g/min	< 0.09714	< 0.07662
VOC's as n-Hexane	g/min	25.44994	38.65426
VOC's as n-Hexane - average	g/min	32.05210	
		FID	
Average TVOC - FID	ppm-hex	3.980	
Average TVOC - FID	mg/Nm3	15.311	
Average TVOC - FID	g/min	2.46508066	

Figure 3: H3 TVOC Chart



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Table 15: Emission Results for the H9 Release Point

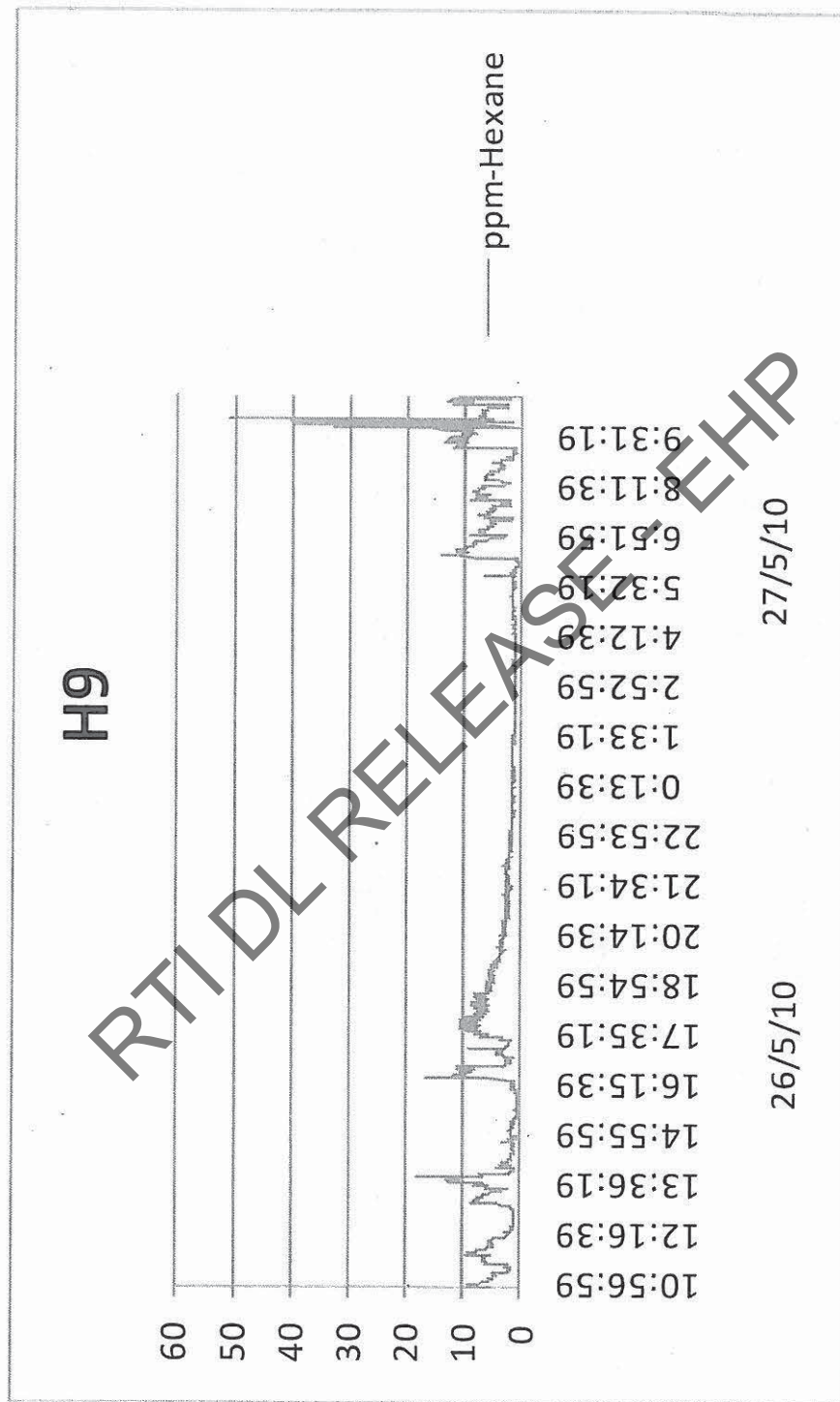
Parameter		H9	
Average Stack Gas Velocity	m/sec	12.55	
Barometric pressure	mb	1009.00	
Static pressure	mmH2O	-2.00	
Temperature	oC	21.00	
Stack Diameter/Dimensions	m	0.60	
Stack Cross-Sectional Area	m2	0.28	
Actual Stack Flow Rate	m3/min	213.00	
Wet Standard Stack Flow Rate	Nm3/min-wet	197.00	
Moisture	%v/v	1.82	
Dry Standard Stack Flow Rate	Nm3/min-dry	194.00	
		RUN 1	RUN 2
Odour & VOC Sample Date		27/05/2010	27/05/2010
Odour Sample Time		9:59-10:00	10:01-10:02
Odour conc	OU	3813	2813
Odour emission rate	OU/sec	12519	9236
Average odour conc	OU	3313	
Average odour emission rate	OU/sec	10878	
		Concentration	
Acetone	mg/Nm3	< 0.614	< 0.470
Acrylonitrile	mg/Nm3	< 0.614	< 0.470
Methylisobutylketone (MIBK)	mg/Nm3	< 0.614	< 0.470
Benzene	mg/Nm3	< 0.614	< 0.470
Benzylchloride	mg/Nm3	< 0.614	< 0.470
Butylacetate	mg/Nm3	< 0.614	< 0.470
Carbontetrachloride	mg/Nm3	< 0.614	< 0.470
Chlorobenzene	mg/Nm3	< 0.614	< 0.470
Cumene	mg/Nm3	< 0.614	< 0.470
Cyclohexane	mg/Nm3	< 0.614	< 0.470
Cyclohexanone	mg/Nm3	< 0.614	< 0.470
Diisobutylketone (DIBK)	mg/Nm3	< 0.614	< 0.470
1,2-Dichloroethane	mg/Nm3	< 0.614	< 0.470
Epichlorohydrin	mg/Nm3	< 0.614	< 0.470
Ethylacetate	mg/Nm3	< 0.614	< 0.470
Ethylacrylate	mg/Nm3	< 0.614	< 0.470
Ethylbenzene	mg/Nm3	29.172	21.165
Hexane	mg/Nm3	< 0.614	< 0.470
Methylethylketone (MEK)	mg/Nm3	< 0.614	< 0.470
a-Methylstyrene	mg/Nm3	< 0.614	< 0.470
Nonane	mg/Nm3	< 0.614	< 0.470
Propylene Oxide	mg/Nm3	< 0.614	< 0.470
Styrene	mg/Nm3	< 0.614	< 0.470
Tetrachloroethene	mg/Nm3	< 0.614	< 0.470
Toluene	mg/Nm3	0.645	0.553
Total Xylenes	mg/Nm3	142.788	97.594
Trichloroethene	mg/Nm3	< 0.614	< 0.470
VOC's as n-Hexane	mg/Nm3	321.504	287.255
VOC's as n-Hexane - average	mg/Nm3	304.380	

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Table 16: Emission Results for the H9 Release Point, continued

		Emission Rate	
Acetone	g/min	< 0.11914	< 0.09124
Acrylonitrile	g/min	< 0.11914	< 0.09124
Methylisobutylketone (MIBK)	g/min	< 0.11914	< 0.09124
Benzene	g/min	< 0.11914	< 0.09124
Benzylchloride	g/min	< 0.11914	< 0.09124
Butylacetate	g/min	< 0.11914	< 0.09124
Carbontetrachloride	g/min	< 0.11914	< 0.09124
Chlorobenzene	g/min	< 0.11914	< 0.09124
Cumene	g/min	< 0.11914	< 0.09124
Cyclohexane	g/min	< 0.11914	< 0.09124
Cyclohexanone	g/min	< 0.11914	< 0.09124
Diisobutylketone (DIBK)	g/min	< 0.11914	< 0.09124
1,2-Dichloroethane	g/min	< 0.11914	< 0.09124
Epichlorohydrin	g/min	< 0.11914	< 0.09124
Ethylacetate	g/min	< 0.11914	< 0.09124
Ethylacrylate	g/min	< 0.11914	< 0.09124
Ethylbenzene	g/min	5.65934	4.10599
Hexane	g/min	< 0.11914	< 0.09124
Methylethylketone (MEK)	g/min	< 0.11914	< 0.09124
o-Methylstyrene	g/min	< 0.11914	< 0.09124
Nonane	g/min	< 0.11914	< 0.09124
Propylene Oxide	g/min	< 0.11914	< 0.09124
Styrene	g/min	< 0.11914	< 0.09124
Tetrachloroethene	g/min	< 0.11914	< 0.09124
Toluene	g/min	0.12510	0.10721
Total Xylenes	g/min	27.70096	18.93319
Trichloroethene	g/min	< 0.11914	< 0.09124
VOC's as n-Hexane	g/min	62.37183	55.72744
VOC's as n-Hexane - average	g/min	59.04963	
		FID	
Average TVOC - FID	ppm-hex	3.600	
Average TVOC - FID	mg/Nm3	13.849	
Average TVOC - FID	g/min	2.6867448	

Figure 4: H9 TVOC Chart



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Table 17: Emission Results for the H13 Release Point

Parameter		H13	
Average Stack Gas Velocity	m/sec	14.57	
Barometric pressure	mb	1014.00	
Static pressure	mmH2O	-2.70	
Temperature	oC	27.40	
Stack Diameter/Dimensions	m	0.380	
Stack Cross-Sectional Area	m2	0.113	
Actual Stack Flow Rate	m3/min	99.2	
Wet Standard Stack Flow Rate	Nm3/min-wet	90.2	
Moisture	%v/v	2.83	
Dry Standard Stack Flow Rate	Nm3/min-dry	87.7	
		RUN 1	RUN 2
Odour & VOC Sample Date		28/05/2010	28/05/2010
Odour Sample Time		9:55-9:57	9:58-9:59
Odour conc	OU	1876	1876
Odour emission rate	OU/sec	2820	2820
Average odour conc	OU	1876	
Average odour emission rate	OU/sec	2820	
		Concentration	
Acetone	mg/Nm3	< 0.624	< 0.593
Acrylonitrile	mg/Nm3	< 0.624	< 0.593
Methylisobutylketone (MIBK)	mg/Nm3	< 0.624	< 0.593
Benzene	mg/Nm3	< 0.624	< 0.593
Benzylchloride	mg/Nm3	< 0.624	< 0.593
Butylacetate	mg/Nm3	< 0.624	< 0.593
Carbontetrachloride	mg/Nm3	< 0.624	< 0.593
Chlorobenzene	mg/Nm3	< 0.624	< 0.593
Cumene	mg/Nm3	< 0.624	< 0.593
Cyclohexane	mg/Nm3	< 0.624	< 0.593
Cyclohexanone	mg/Nm3	< 0.624	< 0.593
Diisobutylketone (DIBK)	mg/Nm3	< 0.624	< 0.593
1,2-Dichloroethane	mg/Nm3	< 0.624	< 0.593
Epichlorohydrin	mg/Nm3	< 0.624	< 0.593
Ethylacetate	mg/Nm3	< 0.624	< 0.593
Ethylacrylate	mg/Nm3	< 0.624	< 0.593
Ethylbenzene	mg/Nm3	15.453	13.192
Hexane	mg/Nm3	< 0.624	< 0.593
Methylethylketone (MEK)	mg/Nm3	< 0.624	< 0.593
a-Methylstyrene	mg/Nm3	< 0.624	< 0.593
Nonane	mg/Nm3	< 0.624	< 0.593
Propylene Oxide	mg/Nm3	< 0.624	< 0.593
Styrene	mg/Nm3	< 0.624	< 0.593
Tetrachloroethene	mg/Nm3	< 0.624	< 0.593
Toluene	mg/Nm3	< 0.624	< 0.593
Total Xylenes	mg/Nm3	71.800	60.774
Trichloroethene	mg/Nm3	< 0.624	< 0.593
VOC's as n-Hexane	mg/Nm3	274.556	243.391
VOC's as n-Hexane - average	mg/Nm3	258.974	

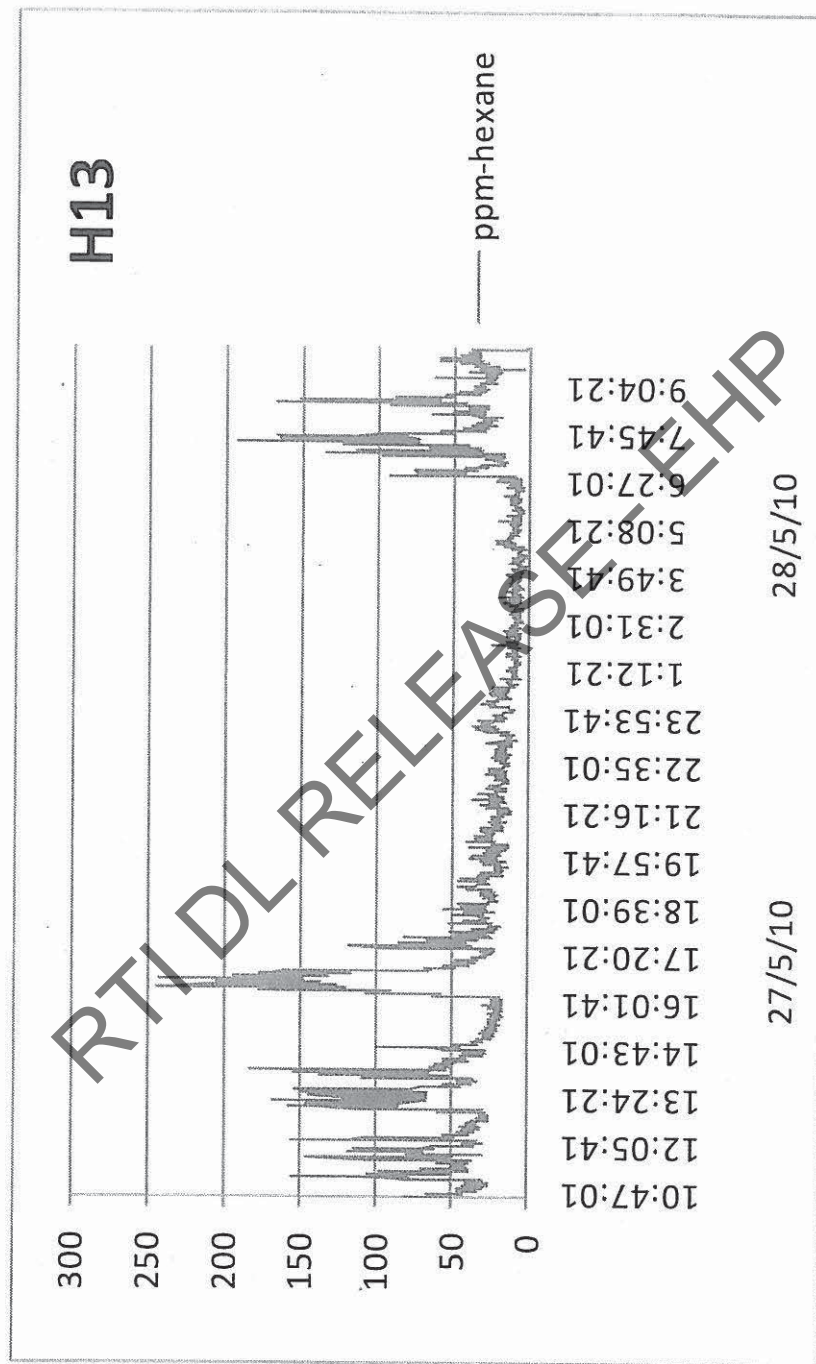
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Table 18: Emission Results for the H13 Release Point, continued

		Emission Rate	
Acetone	g/min	< 0.05476	< 0.05200
Acrylonitrile	g/min	< 0.05476	< 0.05200
Methylisobutylketone (MIBK)	g/min	< 0.05476	< 0.05200
Benzene	g/min	< 0.05476	< 0.05200
Benzylchloride	g/min	< 0.05476	< 0.05200
Butylacetate	g/min	< 0.05476	< 0.05200
Carbontetrachloride	g/min	< 0.05476	< 0.05200
Chlorobenzene	g/min	< 0.05476	< 0.05200
Cumene	g/min	< 0.05476	< 0.05200
Cyclohexane	g/min	< 0.05476	< 0.05200
Cyclohexanone	g/min	< 0.05476	< 0.05200
Diisobutylketone (DIBK)	g/min	< 0.05476	< 0.05200
1,2-Dichloroethane	g/min	< 0.05476	< 0.05200
Epichlorohydrin	g/min	< 0.05476	< 0.05200
Ethylacetate	g/min	< 0.05476	< 0.05200
Ethylacrylate	g/min	< 0.05476	< 0.05200
Ethylbenzene	g/min	1.35519	1.15697
Hexane	g/min	< 0.05476	< 0.05200
Methylethylketone (MEK)	g/min	< 0.05476	< 0.05200
a-Methylstyrene	g/min	< 0.05476	< 0.05200
Nonane	g/min	< 0.05476	< 0.05200
Propylene Oxide	g/min	< 0.05476	< 0.05200
Styrene	g/min	< 0.05476	< 0.05200
Tetrachloroethene	g/min	< 0.05476	< 0.05200
Toluene	g/min	< 0.05476	< 0.05200
Total Xylenes	g/min	6.29684	5.32985
Trichloroethene	g/min	< 0.05476	< 0.05200
VOC's as n-Hexane	g/min	24.07856	21.34541
VOC's as n-Hexane - average	g/min	22.71199	
		FID	
Average TVOC - FID	ppm-hex	34.680	
Average TVOC - FID	mg/Nm3	133.414	
Average TVOC - FID	g/min	11.70040429	

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Figure 5: H13 TVOC Chart



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Table 19: Emission Result for the D5 HSD Branch Line

Parameter		D5 HSD B.line-1	
Average Stack Gas Velocity	m/sec	20.14	
Barometric pressure	mb	1012.00	
Static pressure	mmH2O	-32.00	
Temperature	oC	26.00	
Stack Diameter/Dimensions	m	0.315	
Stack Cross-Sectional Area	m2	0.078	
Actual Stack Flow Rate	m3/min	94.2	
Wet Standard Stack Flow Rate	Nm3/min-wet	85.7	
Moisture	%v/v	2.36	
Dry Standard Stack Flow Rate	Nm3/min-dry	83.6	
		RUN 1	RUN 2
Odour & VOC Sample Date		13/05/2010	13/05/2010
Odour Sample Time		9:56-10:00	10:00-10:04
Odour conc	OU	1973	970
Odour emission rate	OU/sec	2818	1385
Average odour conc	OU	1472	
Average odour emission rate	OU/sec	2102	
		Concentration	
Acetone	mg/Nm3	< 66.051	< 63.179
Acrylonitrile	mg/Nm3	< 0.574	< 0.574
Methylisobutylketone (MIBK)	mg/Nm3	< 0.574	< 0.574
Benzene	mg/Nm3	< 0.574	< 0.574
Benzylchloride	mg/Nm3	< 0.574	< 0.574
Butylacetate	mg/Nm3	< 1.206	< 1.106
Carbontetrachloride	mg/Nm3	< 0.574	< 0.574
Chlorobenzene	mg/Nm3	< 0.574	< 0.574
Cumene	mg/Nm3	< 5.744	< 5.456
Cyclohexane	mg/Nm3	< 0.574	< 0.574
Cyclohexanone	mg/Nm3	< 0.574	< 0.574
Diisobutylketone (DIBK)	mg/Nm3	< 0.574	< 0.574
1,2-Dichloroethane	mg/Nm3	< 0.574	< 0.574
Epichlorohydrin	mg/Nm3	< 0.574	< 0.574
Ethylacetate	mg/Nm3	< 0.574	< 0.574
Ethylacrylate	mg/Nm3	< 0.574	< 0.574
Ethylbenzene	mg/Nm3	157.949	114.872
Hexane	mg/Nm3	< 0.574	< 0.574
Methylethylketone (MEK)	mg/Nm3	< 0.574	< 0.574
a-Methylstyrene	mg/Nm3	< 0.574	< 0.574
Nonane	mg/Nm3	< 0.574	< 0.574
Propylene Oxide	mg/Nm3	< 0.574	< 0.574
Styrene	mg/Nm3	< 0.574	< 0.574
Tetrachloroethene	mg/Nm3	< 0.574	< 0.574
Toluene	mg/Nm3	< 6.031	< 5.744
Total Xylenes	mg/Nm3	732.308	524.103
Trichloroethene	mg/Nm3	< 0.574	< 0.574
VOC's as n-Hexane	mg/Nm3	1513.292	1425.128
VOC's as n-Hexane - average	mg/Nm3	1469.210	

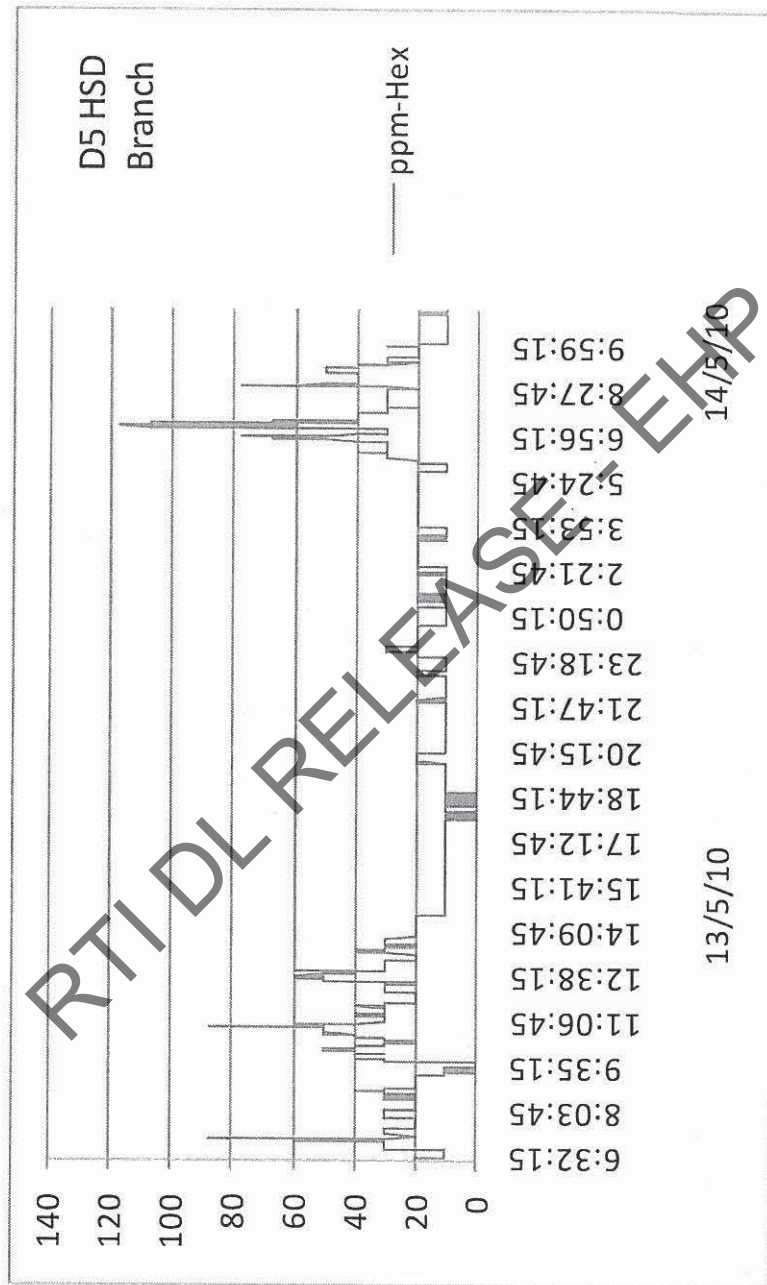
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Table 20: Emission Result for the D5 HSD Branch Line

		Emission Rate	
Acetone	g/min	< 5.52189	< 5.28181
Acrylonitrile	g/min	< 0.04802	< 0.04802
Methylisobutylketone (MIBK)	g/min	< 0.04802	< 0.04802
Benzene	g/min	< 0.04802	< 0.04802
Benzylchloride	g/min	< 0.04802	< 0.04802
Butylacetate	g/min	< 0.10083	< 0.09243
Carbontetrachloride	g/min	< 0.04802	< 0.04802
Chlorobenzene	g/min	< 0.04802	< 0.04802
Cumene	g/min	< 0.48016	< 0.45616
Cyclohexane	g/min	< 0.04802	< 0.04802
Cyclohexanone	g/min	< 0.04802	< 0.04802
Diisobutylketone (DIBK)	g/min	< 0.04802	< 0.04802
1,2-Dichloroethane	g/min	< 0.04802	< 0.04802
Epichlorohydrin	g/min	< 0.04802	< 0.04802
Ethylacetate	g/min	< 0.04802	< 0.04802
Ethylacrylate	g/min	< 0.04802	< 0.04802
Ethylbenzene	g/min	13.20451	9.60328
Hexane	g/min	< 0.04802	< 0.04802
Methylethylketone (MEK)	g/min	< 0.04802	< 0.04802
o-Methylstyrene	g/min	< 0.04802	< 0.04802
Nonane	g/min	< 0.04802	< 0.04802
Propylene Oxide	g/min	< 0.04802	< 0.04802
Styrene	g/min	< 0.04802	< 0.04802
Tetrachloroethene	g/min	< 0.04802	< 0.04802
Toluene	g/min	< 0.50417	< 0.48016
Total Xylenes	g/min	61.22092	43.81497
Trichloroethene	g/min	< 0.04802	< 0.04802
VOC's as n-Hexane	g/min	126.51124	119.14072
VOC's as n-Hexane - average	g/min	122.82598	
		FID	
Average TVOC - FID	ppm-hex	20.420	
Average TVOC - FID	mg/Nm3	78.556	
Average TVOC - FID	g/min	6.567259864	

Figure 6: D5 HSD Branch line TVOC Chart



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Table 21: Emission Result for the D5 Mezzanine Branch Line

Parameter		D5 Mezzanine Branch Line-1	
Average Stack Gas Velocity	m/sec	12.8	
Barometric pressure	mb	1012	
Static pressure	mmH2O	-40	
Temperature	oC	22	
Stack Diameter/Dimensions	m	0.305	
Stack Cross-Sectional Area	m2	0.0731	
Actual Stack Flow Rate	m3/min	56.1	
	Nm3/min-wet	51.7	
Wet Standard Stack Flow Rate	wet		
Moisture	%v/v	1.96	
	Nm3/min-dry	50.7	
Dry Standard Stack Flow Rate			
		RUN 1	RUN 2
Odour & VOC Sample Date		24/05/2010	24/5/10
Odour Sample Time		10:16-10:18	10:14-10:16
Odour conc	OU	4011	3445
Odour emission rate	OU/sec	3456.145	2968.441667
Average odour conc	OU	3728	
Average odour emission rate	OU/sec	3212.293333	
		Concentration	
Acetone	mg/Nm3	< 10.041	< 6.332
Acrylonitrile	mg/Nm3	< 0.599	< 0.618
Methylisobutylketone (MIBK)	mg/Nm3	< 13.488	< 6.486
Benzene	mg/Nm3	< 0.599	< 0.618
Benzylchloride	mg/Nm3	< 0.599	< 0.618
Butylacetate	mg/Nm3	< 1.019	< 0.726
Carbontetrachloride	mg/Nm3	< 0.599	< 0.618
Chlorobenzene	mg/Nm3	< 0.599	< 0.618
Cumene	mg/Nm3	< 5.245	< 5.559
Cyclohexane	mg/Nm3	< 0.599	< 0.618
Cyclohexanone	mg/Nm3	< 0.599	< 0.618
Diisobutylketone (DIBK)	mg/Nm3	< 0.599	< 0.618
1,2-Dichloroethane	mg/Nm3	< 0.599	< 0.618
Epichlorohydrin	mg/Nm3	< 0.599	< 0.618
Ethylacetate	mg/Nm3	< 0.599	< 0.618
Ethylacrylate	mg/Nm3	< 0.599	< 0.618
Ethylbenzene	mg/Nm3	359.668	586.832
Hexane	mg/Nm3	< 0.599	< 0.618
Methylethylketone (MEK)	mg/Nm3	< 0.599	< 0.618
o-Methylstyrene	mg/Nm3	< 0.599	< 0.618
Nonane	mg/Nm3	< 2.548	< 2.625
Propylene Oxide	mg/Nm3	< 0.599	< 0.618
Styrene	mg/Nm3	< 0.599	< 0.618
Tetrachloroethene	mg/Nm3	< 0.599	< 0.618
Toluene	mg/Nm3	< 8.392	< 10.347
Total Xylenes	mg/Nm3	1708.423	2518.899
Trichloroethene	mg/Nm3	< 0.599	< 0.618
VOC's as n-Hexane	mg/Nm3	6454.991	9496.947
VOC's as n-Hexane - average	mg/Nm3	7975.969	

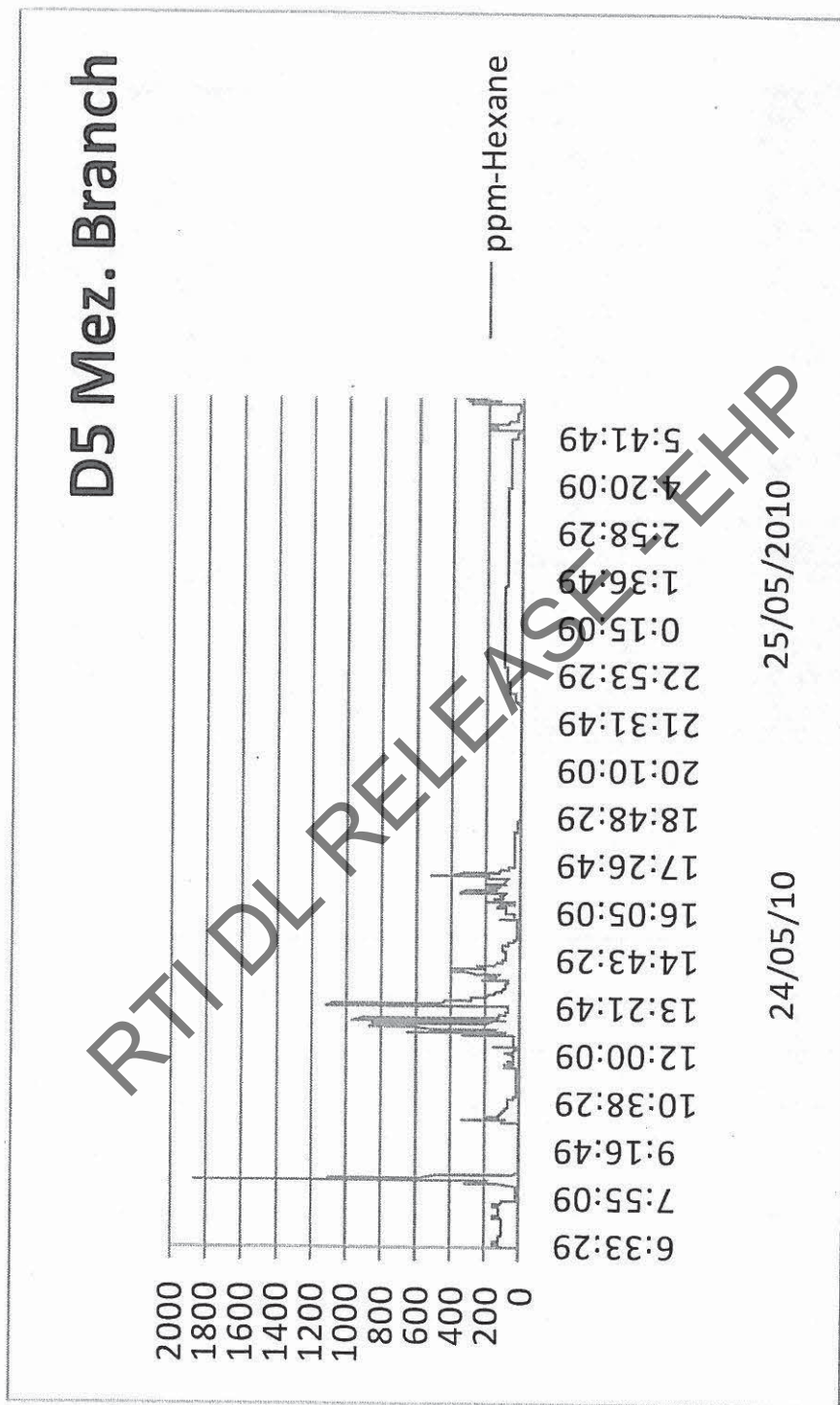
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Table 22: Emission Result for the D5 Mezzanine Branch Line, continued

		Emission Rate	
Acetone	g/min	< 0.509065061	< 0.321012473
Acrylonitrile	g/min	< 0.030391944	< 0.03131829
Methylisobutylketone (MIBK)	g/min	< 0.683818738	< 0.328842045
Benzene	g/min	< 0.030391944	< 0.03131829
Benzylchloride	g/min	< 0.030391944	< 0.03131829
Butylacetate	g/min	< 0.051666305	< 0.036798991
Carbontetrachloride	g/min	< 0.030391944	< 0.03131829
Chlorobenzene	g/min	< 0.030391944	< 0.03131829
Cumene	g/min	< 0.265929509	< 0.28186461
Cyclohexane	g/min	< 0.030391944	< 0.03131829
Cyclohexanone	g/min	< 0.030391944	< 0.03131829
Diisobutylketone (DIBK)	g/min	< 0.030391944	< 0.03131829
1,2-Dichloroethane	g/min	< 0.030391944	< 0.03131829
Epichlorohydrin	g/min	< 0.030391944	< 0.03131829
Ethylacetate	g/min	< 0.030391944	< 0.03131829
Ethylacrylate	g/min	< 0.030391944	< 0.03131829
Ethylbenzene	g/min	18.23516635	29.75237553
Hexane	g/min	< 0.030391944	< 0.03131829
Methylethylketone (MEK)	g/min	< 0.030391944	< 0.03131829
a-Methylstyrene	g/min	< 0.030391944	< 0.03131829
Nonane	g/min	< 0.129165762	< 0.133102733
Propylene Oxide	g/min	< 0.030391944	< 0.03131829
Styrene	g/min	< 0.030391944	< 0.03131829
Tetrachloroethene	g/min	< 0.030391944	< 0.03131829
Toluene	g/min	< 0.425487215	< 0.524581358
Total Xylenes	g/min	86.61704018	127.7081572
Trichloroethene	g/min	< 0.030391944	< 0.03131829
VOC's as n-Hexane	g/min	327.2680502	481.4952205
VOC's as n-Hexane - average	g/min	404.38164	
		FID	
Average TVOC - FID	ppm-hex	81.94	
Average TVOC - FID	mg/Nm3	315.223	
Average TVOC - FID	g/min	15.98181523	

Figure 7: D5 Mezzanine Branch line TVOC Chart

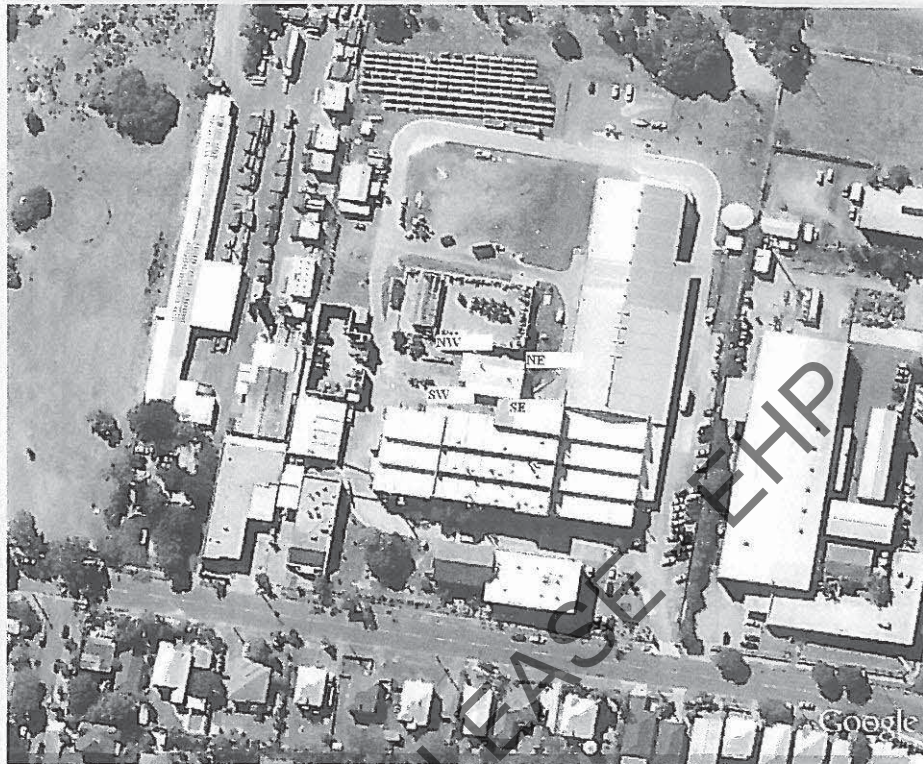


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newEQ

Figure 8: Fugitive Emissions testing

Fugitive Emissions around the pot wash shed



A sample was taken on the 1st of June 2010 using our portable FID analyser a recording was taken at 20sec intervals for 3 mins at each corner of the pot wash shed. The weather was good with no noticeable wind.

Location	Time	ppm- TVOC	Average TVOC
NW	8:04-8:07	10,8,2,5,5,6,7,8,4	6
NE	8:08-8:11	13,11,15,20,21,22,11,15,19	16
SW	8:00-8:03	6,7,9,9,10,4,5,8,7	7
SE	7:55-7:58	19,18,15,15,16,20,22,23,25	19

Table 23: Document Control

Report ID	Date	Comment	Prepared	Quality	Released to
00986-2	29 th June 2010	Removed comparison data in tables 1 & 2	DA	DA	Frances Brodie
00986-1	18 th June 2010	Initial release	MP	DA	Frances Brodie

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REPORT

REMODELLING OF D5 STACK

Akzo Nobel Pty. Ltd.

Job No: 05134

22 July 2010

RTI DL RELEASE - EHP

PROJECT TITLE: Remodelling of D5 Stack

JOB NUMBER: 05134

PREPARED FOR: Frances Brodie
Akzo Nobel Pty. Ltd.

PREPARED BY: Georgie Galvin

QA PROCEDURES CHECKED BY: Fardaus Rahaman

APPROVED FOR RELEASE BY: Georgie Galvin

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DOCUMENT CONTROL

VERSION	DATE	PREPARED BY	REVIEWED BY
a	14.07.10	Geordie Galvin	Geordie Galvin
1	16.07.10	Geordie Galvin	Robin Ormerod

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1 INTRODUCTION

Akzo Nobel Pty. Ltd. engaged PAEHolmes to perform additional modelling of its D5 stack following on from an Environmental Evaluation previously performed by PAEHolmes^a.

1.1 Background

On 29 March 2009, PAEHolmes completed and submitted to EPA/DERM an Environmental Evaluation (EE) of odour emissions from the Akzo Nobel site at Yeronga in Queensland. The EE included the following tasks:

- determining odour sources;
- developing an odour emissions inventory;
- determining composition of odours as a function of VOCs present;
- performing dispersion modelling to assess potential impacts;
- identifying potential mitigation measures; and
- preparing a comprehensive environmental evaluation report

As a result of the evaluation, the D5 stack was identified as the source with the highest potential for impact. A number of recommendations were made, namely:

- Management practice at the site should be improved, including:
 - Improved processes for covering pots when not in use, in all areas on site;
 - Interlocking the extraction system to improve capture of fugitive emissions from:
 - The let down mixers; and
 - The small HSDs.
- The stack for D5 should be increased in height by 5 metres to improve the initial dispersion of odorants from the source.
- An investigation should be performed on the cleaning processes at the pot wash area with a view to the practicality of moving to a non-solvent based cleaning process.

1.2 Objective of Study

The objective of this study was to evaluate the efficacy of the increase in height of the D5 stack for decreasing odour impacts from the Yeronga site.

1.3 Scope of Work

The study included the following key tasks:

- collecting input data
- re-running CALMET for the site, using the existing input files.
- re-modelling stack D5 with new height and emission rates

^a PAEHolmes (2009) Job 2718 – Akzo Nobel Odour Environmental Evaluation. 26 March 2009.

- post-processing the model result data and including the new D5 stack in the total emissions.
- preparation of a report that examines the effect of the changes to the D5 stack.

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2 METHODOLOGY

2.1 Emissions Estimation

Emissions have been based on two datasets. The first contains data for all odour sources (in 'odour units;') with the exception of the modified D5 stack. These data (all sources except D5) were previously summarised in PAEHolmes (2009). The second is a dataset for the new D5 stack, taken from New Environmental Quality (newEQ) report "Source emissions sampling conducted at the Akzo Nobel facility, Yeronga", Project ID 00986, Issue 2, 18 June 2010.

The main difference between the modelling in this report and the previous study is that the D5 stack has been modelled with new emission rate data, and the new release height of 18.93 metres. The release parameters of the new D5 stack are summarised in Table 2.1.

Table 2.1: D5 Stack Parameters

Parameter	Value
Average Stack Gas Velocity	12.5 m/s
Stack diameter	0.58 metres
Temperature	24°C
Release height	18.93 metres
Wet Standard Stack Flow Rate	200 Nm ³ /min-wet
Dry Standard Stack Flow Rate	180 Nm ³ /min-dry
Average Odour Emission Rate	10,620 ou/s

As with the previous modelling, the peak odour emissions, and overall daily trends are critical to predicting the odour impacts from the site. To determine the daily trend, a FID instrument was placed into the D5 stack, logging VOC concentrations every 20 seconds. The results of a 24 hour logging period (20 second intervals) are shown in Figure 2.1. In line with the work for the Environmental Evaluation, the 20 second data were converted to hourly averaged values for input into CALPUFF. The results of the conversion and the subsequent daily profile are shown in Figure 2.2.

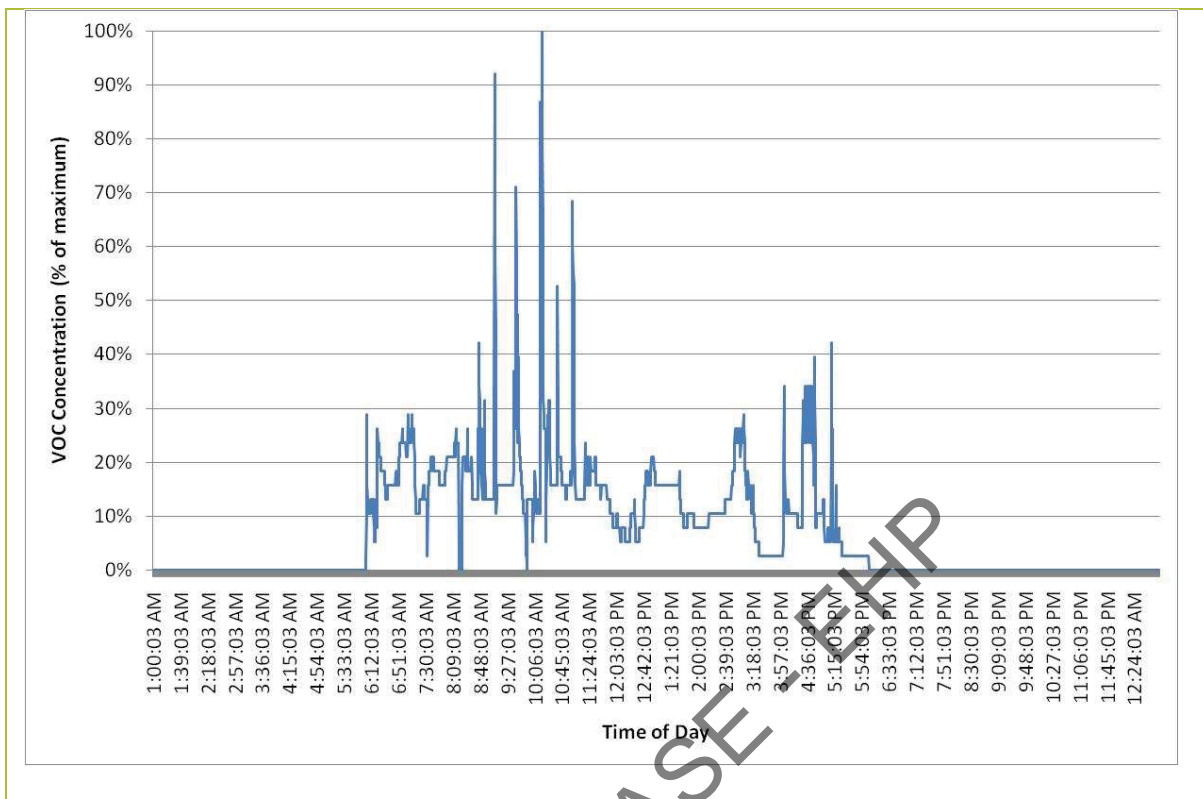


Figure 2.1: D5 - 24 hour Time Series of FID Readings (% of maximum)

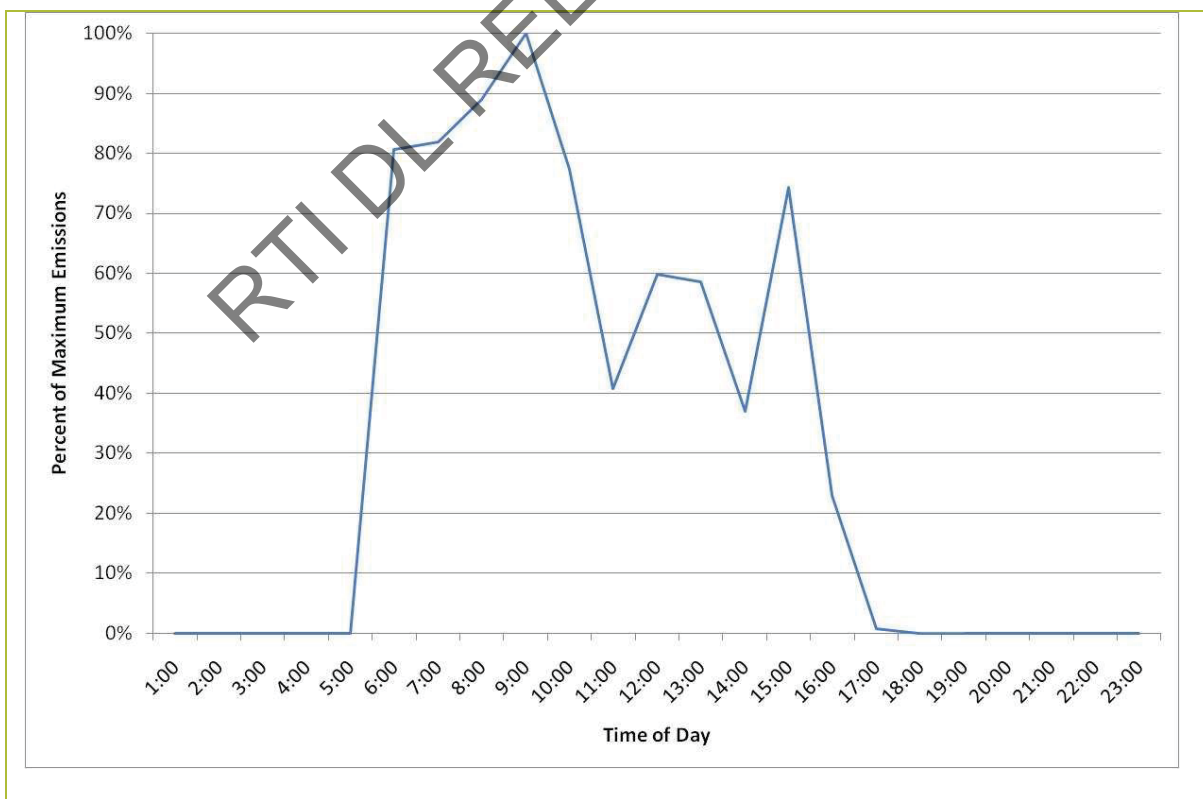


Figure 2.2: D5 - Hourly Profile for input into CALPUFF

Critical to the assessment is the time at which the odour samples were collected. The times the odour samples were collected and measured concentrations are summarised below in Table 2.2.

Table 2.2: Odour Sampling Values

Parameter	Run 1	Run 2
Date	25 May 2010	25 May 2010
Sampling Time	10:13-10:14	10:14-10:15
Odour Concentration	9,547 ou	11,693 ou

When the data in Table 2.2 is compared to the raw FID data (shown in Figure 2.1) it is apparent that the odour samples were collected during a period (20 second sampling points) of maximum concentration, and thus emissions. Therefore, the sampling is representative of maximum emissions (Figure 2.2).

The odour samples were collected at a time when the FID indicated maximum emissions (Figure 2.1). The average of the odour emission rates detailed in Table 2.2 has been assumed to represent the hourly average emission rate for the hour in which the sampling occurred. This is a conservative assumption because the VOC data indicate substantially lower average concentrations for the whole hour (10:00 to 11:00) than during the time of odour sampling.

The hourly profile of daily emissions (Figure 2.2) has been scaled relative to the estimated odour emissions during 10:00 to 11:00 using the FID data on VOC concentrations as the basis for estimating hourly variations. The conversion from FID data to relative hourly odour emission rates is also conservative, as indicated by a comparison of Figure 2.1 and Figure 2.2.

This approach is in line with that taken in the previous study. It is expected to over-predict odour emissions. However, on the assumption that odour perception in the surrounding community is influenced by short-term peaks of odour, this approach is compatible with the Queensland odour guideline, which is based on the same assumption. Nevertheless, the approach remains conservative, i.e., odour emissions are represented in the model as being higher than the hourly averaged VOC data would indicate.

We understand that improvements have been made so that emissions have decreased at other sources at the site. Only the change to the D5 stack has been considered in this report.

2.2 Dispersion Modelling

Dispersion modelling was performed using the TAPM/CALMET/CALPUFF modelling suite as described in PAEHolmes (2009).

The only difference in this study is that the data shown above in Section 2.1 were used for the D5 stack.

Once complete, the previous model runs for sources H2, H3, H6, H7, H8, H9, H10, H11, H12, H13 and H14 were added to the new D5 model run using CALSUM. The results of the modelling are shown below in Section 3.

3 MODEL RESULTS

The model results for the EE (original study) are shown in Figure 3.1 and for the new stack height (including all sources) in Figure 3.2. The maximum concentration from the gridded receptors was found to be 2.1 ou for the original modelling and 0.8 ou when the new D5 stack is included.

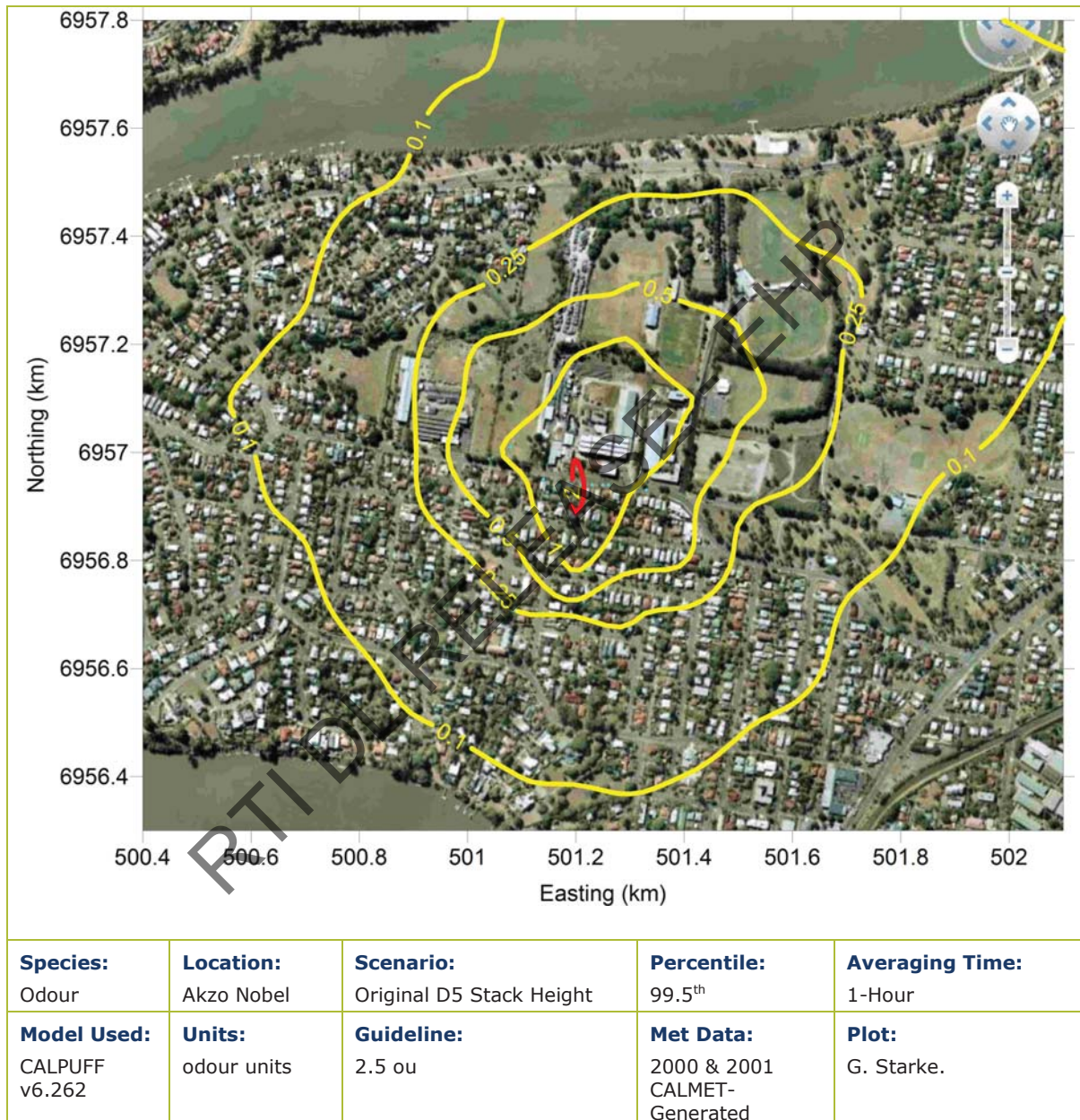


Figure 3.1: All sources- Model Output – Original Stack Height

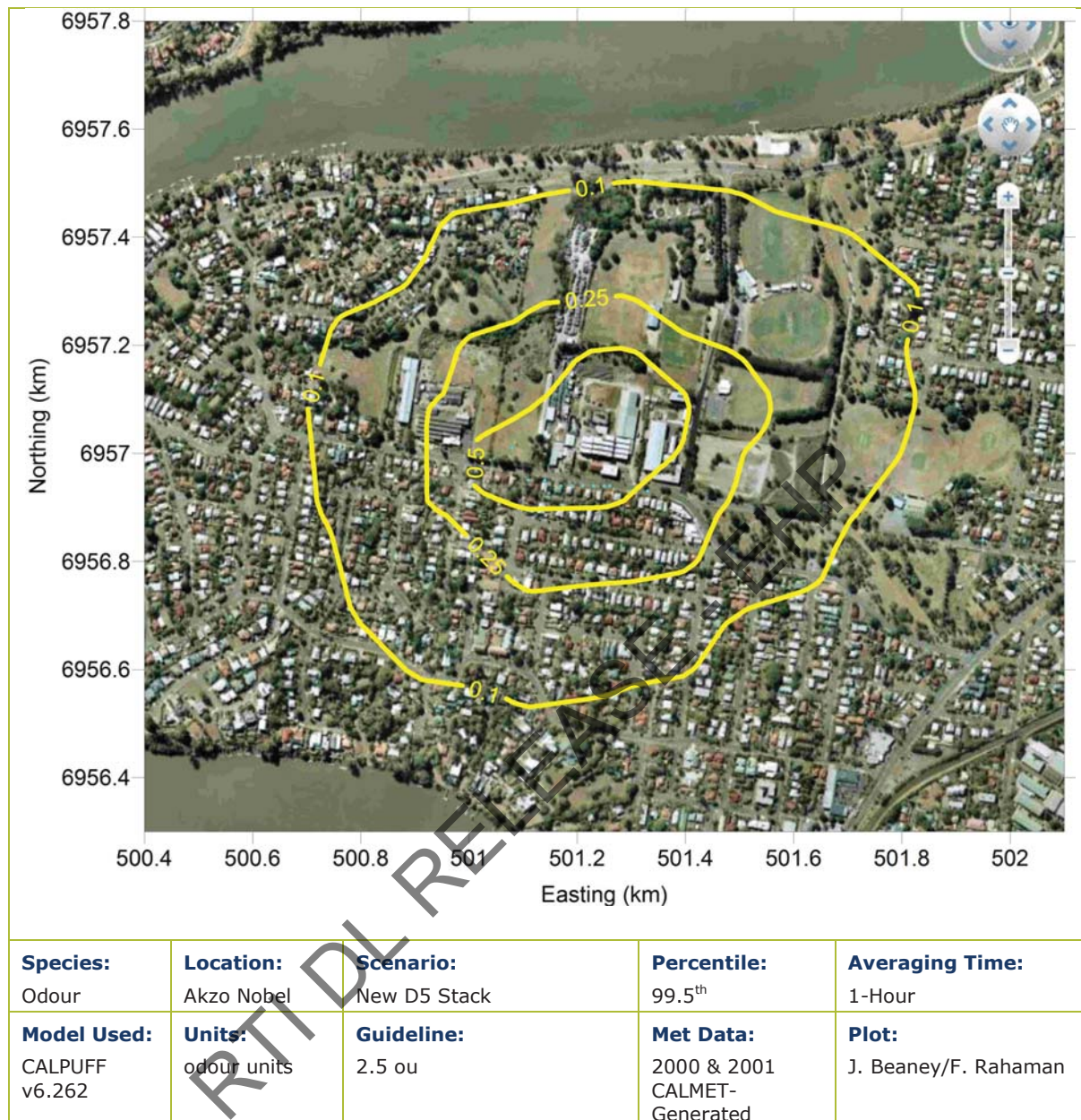


Figure 3.2: All sources- Model Output – New Stack Height

4 CONCLUSIONS

Odour modelling has been performed to verify the performance of the D5 stack at the Akzo Nobel site and Yeronga. As expected, the modelling has shown that the increase in height of the D5 stack has reduced the odour levels around the site by approximately 60 percent.

On the basis of available VOC and odour data for D5, the new results are very likely to be a conservative representation of odour impact.

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5 REFERENCES

newEQ (2010) Source emissions sampling conducted at the Akzo Nobel facility, Yeronga. Project ID 00986, Issue 2, 18 June 2010

PAEHolmes (2009) Job 2718 – Akzo Nobel Odour Environmental Evaluation. PAEHolmes, Brisbane Queensland.

Queensland EPA 2004, *Odour Impact Assessment from Developments*, Environmental Protection Agency, Brisbane.

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(18)

Butcher Paul

From: Brodie, Frances [Frances.Brodie@akzonobel.com]
Sent: Friday, 15 October 2010 11:37 AM
To: Butcher Paul
Subject: TEP Response re Outstanding Items
Attachments: Akzo Nobel TEP styrene response.pdf; 05238-1 report.pdf

Hi Paul,

Please find attached our response in relation to the outstanding TEP items, as well as the emission monitoring results from newEQ.

If you have any questions please do not hesitate to contact me.

Regards,
Frances

Frances Brodie

Health, Safety and Environment Manager Australasia
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AkzoNobel

Tomorrow's Answers Today

Mr Paul Butcher
Environmental Officer
Brisbane South Region – Environmental Services
Environmental Protection Agency
GPO Box 2771
Brisbane 4001

15 October 2010

Dear Paul,

RE: TEP NUMBER TEP5100000007

This letter serves as the formal report on the performance of Aim 5 of the Transitional Environmental Programme (TEP) TEP5100000007 for the Yeronga site of Akzo Nobel Pty Limited.

The status of TEP Aims 1 to 4 and their associated actions were reported in our letter dated 3 August 2010 which demonstrated that the required emission levels had been met. Aim 5 was incomplete at the time of our previous letter and is therefore reported in this communication.

Aim 5 relates to the reduction of styrene odour being emitted from stacks on the Yeronga site. Styrene-based products are manufactured approximately once every 2 months, in either 610 L or 1220 L batches. Approximately 290 kg of styrene is added to a 610 L batch, with twice that volume for the larger batch.

During the process, the batch is manufactured at a high speed disperser connected to stack D5, and filled at a bay connected to stack H8. Consequently, the styrene abatement systems have been installed on these stacks and both of these stacks were monitored on Thursday 19 August 2010 during the manufacture of a 1220 L batch to give the worst-case results.

The abatement system works by atomising a styrene-reacting solution (called Ecosorb 206) in the stack, which mixes with the styrene in the emitted air stream and reacts to form other, non-hazardous, non-odorous substances. A report published by the Delaware State University (Dr Donald R. Wilkinson *et al*, *The Use of Ecosorb® 206 in Controlling Styrene Odors*, dated 25/02/00) shows a styrene reduction of between 59.40% and 81.60% for the solution concentration used on the Yeronga site.

Aim 5 of TEP5100000007 requires a 50% reduction in styrene emissions.

The following table lists the specific actions associated with Aim 5 of the TEP.

Aim 5

Aim 5 was to reduce styrene odour being emitted from stacks. This aim was divided into 4 actions:

Action	Status
1. Manufacture of 'Ecosorb' styrene removal system.	Two Ecosorb systems were manufactured.
2. Installation of styrene removal system and associated services, commissioning of systems.	Two systems were installed and commissioned – one on D5 and one on H8.
3. Monitor styrene emissions from stacks D5 and H8 to determine effectiveness of actions as per performance indicators.	Monitoring of styrene emissions from stacks D5 and H8 was undertaken on 19 August 2010. The results are in the attached newEQ report dated 05/10/10. For details relating to the effectiveness of the actions, refer to the <i>Performance Indicator</i> lines below.
4. Report findings of monitoring to the administering authority.	This letter forms the required report.
Performance Indicators:	
(a) System installed and operating.	The systems have been installed and are in operation during styrene-based product manufacture. The manufacturing and filling instruction cards used by Operators have been modified to include the requirement to turn these systems on and off as appropriate.
(b) Reduction of styrene emissions from D5 by at least 50% from EE report levels.	The single measurement on 19/08/10 identified a styrene concentration of 6.36 g/min. Styrene emission results relating to the manufacture of styrene-based products are not available in the EE report and consequently there is no baseline data from which to calculate the overall percent reduction of styrene emissions.
(c) Reduction of styrene emissions from H8 by at least 50% from EE report levels.	The single measurement on 19/08/10 identified a styrene concentration of 0.62 g/min. Styrene emission results relating to the filling of styrene-based products are not available in the EE report and consequently there is no baseline data from which to calculate the overall percent reduction of styrene emissions.

Although baseline comparisons are not possible, the total styrene emission can be calculated. Using the worst-case scenario of a 1220 L batch, which requires a manufacturing time of 3 hours and a filling time of 1 hour, the total styrene emissions were:

Manufacturing: $6.36 \text{ g/min} \times 180 \text{ minutes} = 1144.80 \text{ g}$

Filling: $0.62 \text{ g/min} \times 60 \text{ minutes} = \underline{37.20 \text{ g}}$

Total 1182.00 g or 1.182 kg

This represents 0.2% of the styrene added to the batch.

The fact that styrene was still present in the stack emission surprised us given the efficiency figures provided to us by the Ecosorb supplier. We therefore contacted the supplier who informed us that the solution takes up to 2 minutes to react with the styrene. The monitoring ports on stacks D5 and H8 are located approximately 2.5 metres and 1 metre respectively above the injection ports of the Ecosorb 206, and based on the velocity of the air stream within each stack, this puts the monitoring ports at 31 seconds and 17 seconds respectively above the injection point. Consequently this means that the reaction will not have finished at the point of monitoring, which explains why styrene was present in both samples.

If the reaction time had elapsed and the reaction had the average effectiveness reported by *Wilkinson et al* above (equalling 70.6%), we would expect the emission to be:

$$1182 \times (1 - 0.706) = 347.5 \text{ g}$$

Based on the market demand for these products, we alternate between 610 L and 1220 L batches once every ~8 weeks, or 6 times per year. If we were to use a worst-case scenario of all 6 batches being 1220 L, this would result in a total of 2.08 kg per annum of styrene being emitted to atmosphere. Using the worst effectiveness figure above (59.6%) the total styrene emission for 6 x 1220 L batches is still only 2.86 kg per annum.

This absolute worst-case figure represents only 0.5% of the styrene added to the batch, meaning that even at the worst possible effectiveness, our combined processes are 99.5% successful at capturing the styrene. And given that half the batches are at half that volume, the total styrene emissions will be correspondingly lower.

Due to the relative stack heights and velocities, we now know that the best method of monitoring styrene concentrations in our emissions is to take a grab sample and let it rest for several minutes before analysis, because the air stream exits the top of the stack before the reaction is completed. A grab sample will provide a more accurate analysis of the styrene concentration being emitted to atmosphere, and therefore this method will be used for future monitoring.

Akzo Nobel remains committed to VOC emission reduction across the site. The solvent-free pot washing equipment mentioned in our communication dated 3 August is due to arrive on site within the next month and will be installed during the Christmas shutdown. The first sets of enclosed filling equipment has been ordered, with more included in the 2011 budget. Both of these initiatives will further reduce VOC and odour emissions from the site.

If you have any questions about this report, please contact the undersigned.

Regards,

sch4p4(6) Personal information

Frances Brodie

*Health, Safety and Environmental Manager
Marine and Protective Coatings, Australasia*

project ID 05238
issue number 1
client Akzo Nobel
issue date 5th October 2010
testing date 19th August 2010
contact Ms. Frances Brodie



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Source emissions sampling conducted at the Akzo Nobel facility, Yeronga
conducted on D5 and H8 Stacks while using Styrene product

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This report is an initial release

Prepared by

sch4p4(6) Personal information

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15438

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Technical Officer

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EXECUTIVE SUMMARY

Tables 1 and 2 are a summary of results from testing conducted on 19th August, 2010. The TVOC results presented in this executive summary are the values obtained using an FID analyser and are referenced to n-hexane. The results are the average of all data logged values for the testing period. The odour results presented are grab samples which represent an average over an approximate 5 minute interval where the sampling officer identified there was relatively high VOC emissions.

Table 1: Concentration Summary

Source	Parameter	2010 result	Unit of measure
D5	TVOC (FID)	2,133	mg/Nm ³
	Odour	4,590	OU
H8	TVOC (FID)	54.5	mg/Nm ³
	Odour	2,029	OU

Table 2: Emission Rate Summary

Source	Parameter	2010 result	Unit of measure
D5	TVOC	383	g/min
	Odour	13,932	OU/sec
H8	TVOC	14.0	g/min
	Odour	8,847	OU/sec

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1.0 INTRODUCTION

New Environmental Quality (newEQ) was commissioned by Akzo Nobel to sample source emissions from the Akzo Nobel paint manufacturing facility located in Yeronga, Queensland. Release points D5 (Baghouse stack) and H8 (Filling Room stack) were the subject of this project whilst a batch of styrene based paint was being mixed and filled into cans.

Each release point was sampled over the course of one batch and was monitored for the parameters listed in table 3. This sampling took place from 19th August, 2010. A total organic carbon analyser utilising a flame ionisation detector (FID) was set up on each of these release points for the entire testing period to monitor total VOC; the read out of this instrument was monitored for visible peaks in emissions. Once a peak was reached, often during high production times, and from consultation with area supervisors and operators, further samples were extracted from the release point and later analysed for odour concentration via AS 4323.3 along with TVOC and speciation of the volatiles via USEPA Method 18.

newEQ was responsible for the collection and analysis of all samples. The collected samples remained sealed and preserved in the appropriate manner. Upon return to the laboratory the samples were prepared and analysed by the correct methodologies.

newEQ did not record any of the operating conditions for the testing period. It was entrusted to the operators and supervisors of the different site locations to log the product being made or machinery being used, at the times of testing.

2.0 TEST METHODS

Unless otherwise stated, the following test methods meet the requirements of the Queensland EPA. All sampling and analysis was conducted by newEQ unless otherwise stated. The results presented in this report are related to one or more reference calibrations held by newEQ.

Table 3: Test Methods

Parameter	Test Method	Deviations	Analysis	NATA
Traverse point selection	AS4323.1	Nil	1	Yes
Gas Velocity and Temperature	USEPA Method 2	Nil	1	Yes
Stack gas density	USEPA Method 3A	Nil	1	Yes
Moisture	USEPA Method 4	A	1	Yes
TVOC (tube sampling technique)	USEPA Method 18	Nil	1 & 2	Yes
TVOC (FID instrumental method)	USEPA Method 25A	B	1	Yes
Odour	AS4323.3	Nil	1	Collection only

Table 4: Analysis Notes

Note	Company	NATA Accreditation ID	Report Number
1	newEQ	15438	05238
2	SGS Environmental	2562 (4354)	SE80835-[R00]

Table 5: Deviation Notes

Deviation	Note
A	Moisture determination based on wet and dry bulb measurements and calculations based on ASME steam table data.
B	Two point calibration (zero & span) and drift test conducted on-site at the beginning of each shift.

3.0 QUALITY ASSURANCE & QUALITY CONTROL (QA/QC)

newEQ operates within a quality system based upon the requirements of ISO17025. Our quality system defines specific procedures and methodologies to ensure any project undertaken by newEQ is conducted with the highest level of quality given the specific confines of each project

The overall objective of our QA/QC procedures is to representatively sample and accurately analyse components in the gas streams and therefore report valid measurements of emission concentrations. To ensure representativeness of field work, our quality procedures target correct sampling locations, time, frequencies and methods. Along with appropriate sample preservation, chain of custody, sample preparation and analytical techniques.

newEQ maintains strict quality assurance throughout all its sampling programs, covering on-site 'field work' and the analytical phase of our projects. Our QA program covers the calibration of all sampling and analytical apparatus, where applicable, and the use of spikes, replicate sample and reference standards.

The test methodologies used for this project are outlined in **table 3** of this document. Field test data has been recorded and calculated using direct entry into Microsoft Excel spreadsheets following the procedures of the appropriate test methods.

QA/QC checks for this project will use validation techniques and criteria appropriate to the type of data and the purpose of the measurement to approve the test report. Records of all data will be maintained. Complete chain of custody (COC) procedures has been followed to document the entire custodial history of each sample. The COC forms also served as a laboratory sheet detailing sample ID and analysis requirements.

Table 6: Sampling data QA/QC checklist

Sampling Data QA/QC Checklist	Comment
use of appropriate test methods	Yes
'normal' operation of the process being tested	Yes
Use of properly operating and calibrated test equipment	Yes
Use of high purity reagents	Yes
Performance of leak checks post sample (at least)	Yes

Table 7: Laboratory Data QA/QC checklist

Laboratory Data QA/QC Checklist	
Use of appropriate analytical methods	Yes
Use of properly operating and calibrated analytical equipment	Yes
Precision and accuracy comparable to that achieved in similar projects	Yes

RTI DL RELEASE - EHP

4.0 DEFINITIONS

The following terms and abbreviations may be used in this report:

Table 8: Definitions

Symbol	Definition
<	The analytes tested for was not detected; the value stated is the reportable limit of detection
Am ³	Gas volume in cubic metres at measured conditions
AS	Australian Standard
BH	Back half of sample train (filter holder and impingers) (referred to during sample recovery)
°C	Degrees Celsius
dscm	dry standard cubic meters
FH	Front half of sample train (probe and filter holder) (referred to during sample recovery)
g	Grams
kg	Kilograms
m	Metres
m ³	actual gas volume in cubic metres as measured
mb	Millibars
mg	Milligrams (10 ⁻³ grams)
min	Minute
ml	Millilitres
mmH ₂ O	Millimetres of water
Mole	SI unit that measures the amount of substance
N/A	Not applicable
ng	Nanograms (10 ⁻⁹ grams)
Nm ³	Gas volume in dry cubic metres at standard temperature and pressure (0°C and 101.3 kPa)
PM	Particulate matter
ppm-c	Parts per million referenced to carbon
ppm-p	Parts per million referenced to propane
ppm-h	Parts per million referenced to n-hexane
sec	Second
Sm ³	Gas volume in dry cubic metres at standard temperature and pressure (0°C and 101.3 kPa) and corrected to a standardised value (e.g. 7% O ₂)
STP	Standard temperature and pressure (0°C and 101.3 kPa)
TVOC	Total volatile organic compounds
USEPA	United States Environmental Protection Authority

5.0 TEST RESULTS

Table 9: Emission Results for the D5 & H8 Release Points

Parameter		D5-baghouse	H8-Filling Room
Average Stack Gas Velocity	m/sec	12.50	16.90
Barometric pressure	mb	1013.00	1013.00
Static pressure	mmH2O	-1.2	10.00
Temperature	oC	24.00	21.20
Stack Diameter/Dimensions	m	0.580	0.60
Stack Cross-Sectional Area	m ²	0.264	0.28
Actual Stack Flow Rate	m ³ /min	198.16	281.94
Wet Standard Stack Flow Rate	Nm ³ /min-wet	182.14	261.63
Moisture	%v/v	1.50	1.50
Dry Standard Stack Flow Rate	Nm ³ /min-dry	179.41	257.70
Odour & VOC Sample Date		19/08/2010	20/08/2010
Odour Sample Time		9:25-9:29	13:21-13:25
Odour conc	OU	4,590	2,029
Odour emission rate	OU/sec	13,932	8,847
Average odour conc	OU	4,590	2,029
Average odour emission rate	OU/sec	13,932	8,847
		Concentration	Concentration
Acetone	mg/Nm ³	< 1.419	< 1.066
Acrylonitrile	mg/Nm ³	< 1.419	< 1.066
Methylisobutylketone (MIBK)	mg/Nm ³	26.603	< 1.066
Benzene	mg/Nm ³	< 1.419	< 1.066
Benzyl chloride	mg/Nm ³	< 1.419	< 1.066
Butylacetate	mg/Nm ³	< 1.419	< 1.066
Carbon tetrachloride	mg/Nm ³	< 1.419	< 1.066
Chlorobenzene	mg/Nm ³	< 1.419	< 1.066
Isopropylbenzene (Cumene)	mg/Nm ³	2.660	< 1.066
Cyclohexane	mg/Nm ³	< 1.419	< 1.066
Cyclohexanone	mg/Nm ³	< 1.419	< 1.066
Diisobutylketone (DIBK)	mg/Nm ³	< 1.419	< 1.066
1,2-Dichloroethane	mg/Nm ³	< 1.419	< 1.066
Epichlorohydrin	mg/Nm ³	< 1.419	< 1.066
Ethylacetate	mg/Nm ³	< 1.419	< 1.066
Ethyl acrylate	mg/Nm ³	< 1.419	< 1.066
Ethylbenzene	mg/Nm ³	212.821	6.396
Hexane	mg/Nm ³	< 1.419	< 1.066
Methylethylketone (MEK)	mg/Nm ³	< 1.419	< 1.066
a-Methylstyrene	mg/Nm ³	< 1.419	< 1.066
Nonane	mg/Nm ³	< 1.419	< 1.066
Propylene Oxide	mg/Nm ³	< 1.419	< 1.066
Styrene	mg/Nm ³	35.470	2.398
Tetrachloroethene	mg/Nm ³	< 1.419	< 1.066
Toluene	mg/Nm ³	4.611	< 1.066
Total Xylenes (o,m&p)	mg/Nm ³	351.154	22.918
Trichloroethene	mg/Nm ³	< 1.419	< 1.066
VOC's as n-Hexane	mg/Nm ³	1094.607	175.613

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Table 10: Emission Results for the D5 & H8 Release Point, continued

		D5 Emission Rate	H8 Emission Rate
Acetone	g/min	< 0.25455	< 0.27469
Acrylonitrile	g/min	< 0.25455	< 0.27469
Methylisobutylketone (MIBK)	g/min	4.77280	< 0.27469
Benzene	g/min	< 0.25455	< 0.27469
Benzyl chloride	g/min	< 0.25455	< 0.27469
Butylacetate	g/min	< 0.25455	< 0.27469
Carbon tetrachloride	g/min	< 0.25455	< 0.27469
Chlorobenzene	g/min	< 0.25455	< 0.27469
Isopropylbenzene (Cumene)	g/min	0.47728	< 0.27469
Cyclohexane	g/min	< 0.25455	< 0.27469
Cyclohexanone	g/min	< 0.25455	< 0.27469
Diisobutylketone (DIBK)	g/min	< 0.25455	< 0.27469
1,2-Dichloroethane	g/min	< 0.25455	< 0.27469
Epichlorohydrin	g/min	< 0.25455	< 0.27469
Ethylacetate	g/min	< 0.25455	< 0.27469
Ethyl acrylate	g/min	< 0.25455	< 0.27469
Ethylbenzene	g/min	38.18238	1.64816
Hexane	g/min	< 0.25455	< 0.27469
Methylethylketone (MEK)	g/min	< 0.25455	< 0.27469
a-Methylstyrene	g/min	< 0.25455	< 0.27469
Nonane	g/min	< 0.25455	< 0.27469
Propylene Oxide	g/min	< 0.25455	< 0.27469
Styrene	g/min	6.36373	0.61806
Tetrachloroethene	g/min	< 0.25455	< 0.27469
Toluene	g/min	0.82728	< 0.27469
Total Xylenes (o,m&p)	g/min	63.00093	5.90591
Trichloroethene	g/min	< 0.25455	< 0.27469
VOC's as n-Hexane	g/min	196.38473	45.25575
		FID	FID
Average TVOC - FID	ppm-hex	555	14.2
Average TVOC - FID	mg/Nm3	2,133	54.5
Average TVOC - FID	g/min	383	0 14.0

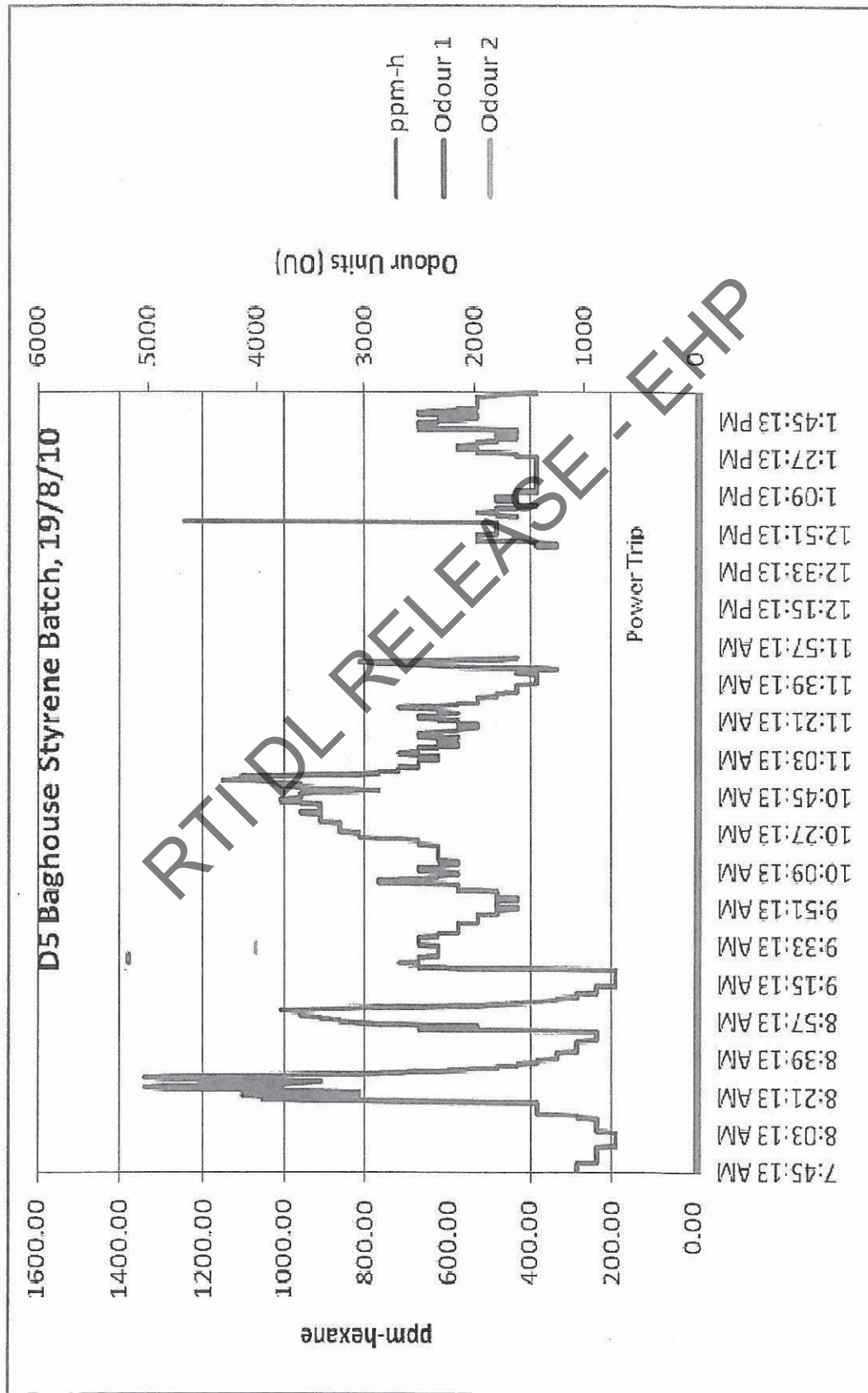


Figure 1: D5 TVOC & Odour Chart

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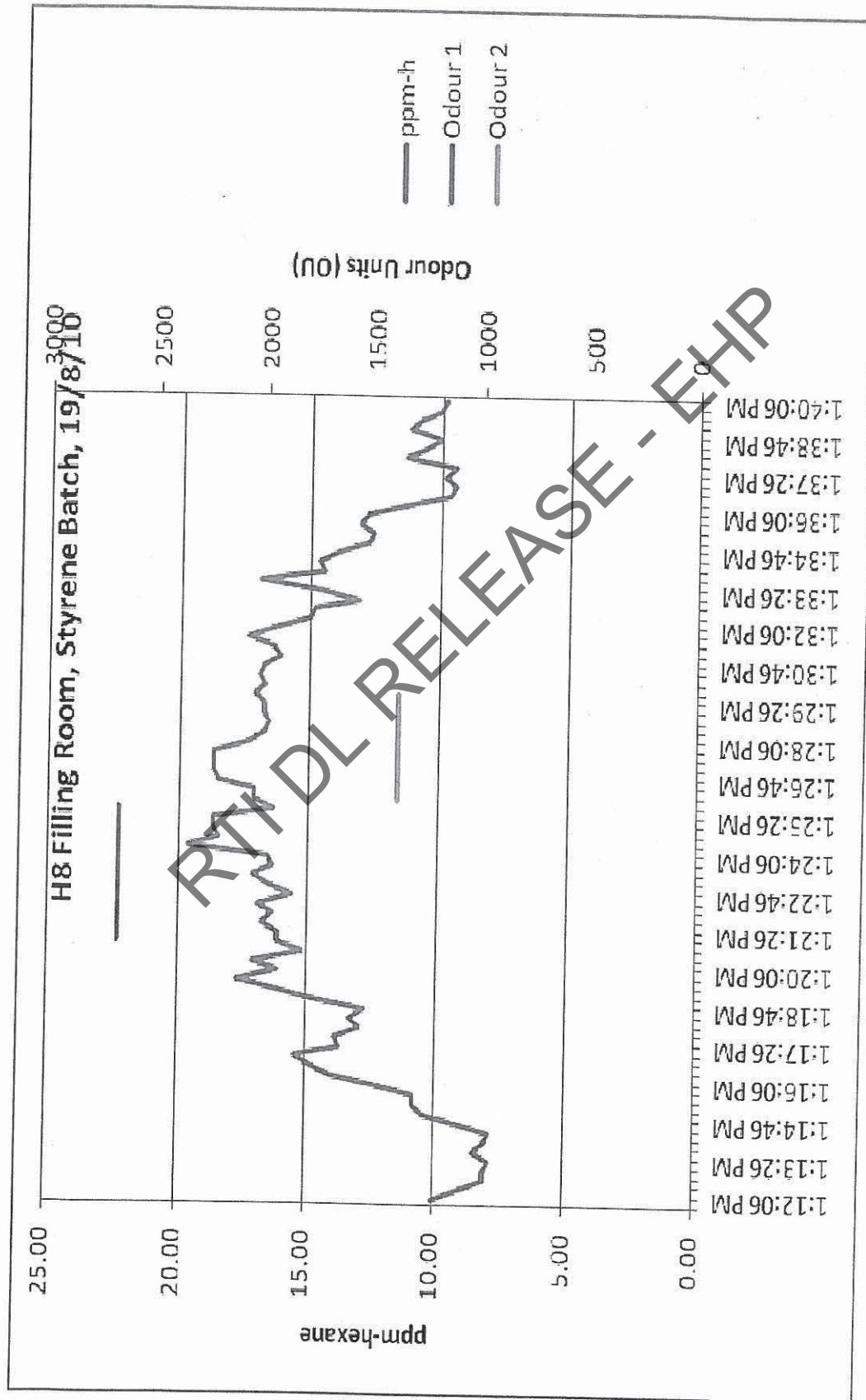


Figure 2: H8 TVOC & Odour Chart

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Table 11: Document Control

Report ID	Date	Comment	Prepared	Quality	Released to
05238-1	5 th October 2010	Initial release	DA	BT	Frances Brodie

Table 12: Supporting Documentation

File Name	Released By	Description
05238 SGS COC.xls	newEQ	SGS COC form
05238 Odour Panel Results001.pdf	newEQ	newEQ odour panel results
SE80835-[R00].PDF	SGS Environmental	Carbon tube analytical results
05238 results summary -1.xlsx	newEQ	Results summary and calculation spreadsheet

Butcher Paul

From: [REDACTED] sch3(10)(1)(b) Confidential source of information
Sent: Friday, 26 November 2010 1:12 PM
To: Butcher Paul
Subject: RE: Akzo Nobel Pty Ltd - Transitional Environmental Program

Paul

Following on from our discussion the other day, I just thought I'd advise that the Saturday morning where there were strong paint smells coming from the direction of Akzo Noble was 30 October 2010. I'd be interested to know if they advise that they were not operating on that day.

[REDACTED] sch4p4(6) Personal information I'll be only contactable on my private number from today onwards.

Many thanks
 [REDACTED]

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Thank you.

Butcher Paul

From: Brodie, Frances [Frances.Brodie@akzonobel.com]
Sent: Thursday, 2 December 2010 4:38 PM
To: Butcher Paul
Subject: Odour complaint

Hi Paul,

Our site worked a skeleton crew of 12 people on Saturday 30 October, from 6 am to 12 noon in manufacturing, filling and pot wash.

The products we made and filled are ones we make regularly so we're not sure why it caused an issue on that day.

Regards,
Frances

Frances Brodie
Health, Safety and Environment Manager Australasia
Marine and Protective Coatings

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<http://www.akzonobel.com/international>

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Recording odour nuisance at complaint premises

This form is to be used to record the investigation of an alleged odour nuisance at a complainant's premises under the *Environmental Protection Act 1994*.

Part A – Person completing this form

Name of Investigating Officer Paul Butcher
Name of any other authorised officer present Ashleigh Fowler
Date 4/2/11
Time of arrival at complainants premises 11:37am
Time of departure from complainants premise 11:52am

Part B – Details of complainant

Title & Full Name: _____
Residential Address: sch3(10)(1)(b) Confidential source of information

Postal Address: _____

Phone/fax contact details:

Home _____ Work _____
Fax _____ Mobile _____

Part C – Review of initial information provided by complainant

Is the complainant present? ☐ Yes ☒ No
Name of any other affected person present sch4p4(6) Personal information
Assess the preliminary data provided by the complainant and make note of any amendments necessary.

Part D – Verification of odour nuisance by investigating officer

- Is the alleged odour nuisance detectable? ☒ Yes ☐ No
- Record the time/s odour is detected? 11:38am
- How would you describe the current odour intensity on a scale of 0 to 6:
- ☐ 0 - *Not perceptible*: Odour is not detectable, cannot be perceived by the sense of smell.
 - ☐ 1 - *Very Weak*: Odour is just detectable in the outdoor air and activates the sense of smell.
 - ☒ 2 - *Weak*: Odour is detectable in the outdoor air, but is not clearly distinguishable, noxious or offensive.
 - ☐ 3 - *Distinct*: Odour is present in the outdoor air, easily activates the sense of smell, is very distinct and clearly distinguishable.
 - ☐ 4 - *Strong*: Odour is present in the outdoor air and would be noxious or offensive and cause a person to attempt to avoid it completely.
 - ☐ 5 - *Very Strong*: Strong odour present in the outdoor air, which is so strong it is overpowering and intolerable for any length of time.
 - ☐ 6 - *Extremely strong*: Extremely strong odour in the outdoor air, which is immediately intolerable.
- If the odour is still occurring, has it decreased or increased in intensity since first reported? N/A



Recording odour nuisance at complaint premises

➤ Is it a continuous or fluctuating odour? Fluctuating

➤ How would you describe the odour's characteristics and qualities?

- | | | |
|---|--|---|
| ☐ Fragrant (perfumy) | ☐ Garlic, onion | ☐ Oily, fatty |
| ☐ Sweet | ☐ Cooking odour | ☐ Like gasoline, solvent |
| ☐ Fruity | ☐ Chemical | ☐ Fishy |
| ☐ Bakery (fresh bread) | ☐ Etherish, anaesthetic | ☐ Putrid, foul, decayed |
| ☐ Coffee-like | ☐ Sour, acid, vinegar | ☐ Decayed Cabbage |
| ☐ Spicy | ☐ Like blood, raw meat | ☐ Pungent, fruity |
| ☐ Meat (cooked, good) | ☐ Rubbish | ☐ Pungent, irritating |
| ☐ Sea/marine | ☐ Compost | ☒ Paint-like |
| ☐ Herbal, green, cut grass | ☐ Silage | ☐ Rancid |
| ☐ Bark-like, birch bark | ☐ Sickening | ☐ Sulphidic |
| ☐ Wood, resinous | ☐ Musty, earth, mouldy | ☐ Dead animal |
| ☐ Medicinal | ☐ Sharp, pungent, acid | ☐ Faecal (like manure) |
| ☐ Burnt, smoky | ☐ Metallic | ☐ Ammonia |
| ☐ Burnt rubber | ☐ Tar-like | ☐ Sewer odour |
| ☐ Soapy | ☐ Hydrocarbons | ☐ Rotten eggs (H2S) |
| ☐ Other (specify): _____ | | |

➤ Is the odour causing any physical effects?

- ☐ Nausea
☐ Headache
☐ Discomfort
☐ Other (specify) No

➤ What are the current weather conditions?

Wind Speed <u>Strong</u>	Wind Direction <u>NE to E</u>	Is wind aligned with alleged source? <u>Y sometimes</u>
0 to 3 on scale	NE to E	
Temperature <u>Hot 30+</u>	Cloud Cover <u>No</u>	

➤ How do you describe odour offensiveness at the complainant's premises on a scale of 0 to 6?

- ☒ 0. Pleasant
☒ 1. Neutral
☐ 2. Slightly unpleasant
☐ 3. Offensive
☐ 4. Strongly offensive
☐ 5. Noxious
☐ 6. Extremely offensive or noxious

Any other comment on the alleged odour nuisance? Odour smelled on slight breeze
not on strong breeze. 3 times in 12 minutes

Owner not home or asleep so observation from back yard
AN is directly north

Authorised officer name: Paul Butcher

Signature: _____

sch4p4(6) Personal information

Date: 3.2.11

Consultant bubble calcs

Butcher Paul

From: Brodie, Frances [Frances.Brodie@akzonobel.com]

Sent: Wednesday, 18 May 2011 4:35 PM

To: Butcher Paul

Subject: Akzo Nobel Yeronga bubble emission calculation

Attachments: 05952 Akzo site emission calcs.xlsx *→ see elec. file → May 11*

Hi Paul,

Please find attached the calculations for the bubble emission total for our site. As requested, this calculation has been completed using the 2010 stack testing data.

Since our last meeting, the design of some projects occurring on our site has progressed, and we have identified the need for additional stacks to our site. Two of these relate to increasing the ventilation in two flammable stores to comply with the requirements of our dangerous goods licence from the Brisbane City Council. The other one which has been indicated is a new fume cupboard in the laboratory.

I was thinking that it would be better to add any new stacks while we are still in the draft stage of the DA. However I don't know what impact this will have on the bubble calculation and overall emission limits, which is why I'm raising this now.

I was wondering if you could please tell me how we progress getting the approval for these additional stacks? I am happy to put through a formal request to modify our DA, but I'm unsure if this is required since the document is being rewritten anyway. Your guidance on this will be appreciated.

If you have any questions on this, please do not hesitate to contact me.

Regards,
Frances

From: David Arbuckle [mailto:David@neweq.com.au]

Sent: Monday, 16 May 2011 1:59 PM

To: Brodie, Frances

Subject: emission calc

Hi Frances,

My apologies for the time delay getting this to you, my reviewer took a little longer than expected.

Regards,
David

David Arbuckle

Managing Director

New Environmental Quality (a PEL company www.pelgroup.com)

NATA accreditation: 15438

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(Phone: +61 (0) 7 3452 4700

r Fax: +61 (0) 7 3277 4795

* Office Address: Unit 1, 20 Meadow Avenue, Coopers Plains, Queensland, 4108, Australia

* Postal Address: PO Box 119, Coopers Plains, Queensland, 4108, Australia
* Email: david@neweq.com.au
@ Web: www.neweq.com.au

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RTI DL RELEASE - EHP

Annual Return

Environmental Protection Act 1994

Registration Certificate

OFFICIAL USE ONLY
DATE RECEIVED:

FILE REF:

PROJECT REF:

COMPLETE FORM

☐

ADMINISTERING REGION:

Land Centre

ENTERED BY [SIGNATURE]

sch4p4(6) Personal information

DATE:

28 | 5 | 12

Important information for holders of a Registration Certificate

This form must be completed and submitted to the administering authority each year by the holder of a Registration Certificate and submitted with the appropriate payment under the *Environmental Protection Act 1994*.

For help in completing this form please refer to the **Guidance Notes** on the left of each page or if you have any questions about this annual return or any supporting information required please contact Permit and Licence Management on 1300 130 372.

The completed Annual Return is to be sent to: Permit and Licence Management, Implementation and Support Unit, Department of Environment and Resource Management, GPO Box 2454, Brisbane Qld 4001.

GUIDANCE NOTES

List the full names of the holders of the Registration Certificate. Where there is more than one please list all.

Minor changes, such as change of name after marriage, can be made as an amendment by agreement. A change of name and a change in ABN/ACN will require an application to amend the Registration Certificate.

Please contact Permit and Licence Management on 1300 130 372 for more information.

Annual Return details for 21 May 2011 to 20 May 2012

1. Registration Certificate Holders Name

NAME(S):

Akzo Nobel Pty Ltd

ENTERED

22 MAY 2012

BY:

4116855

2. Registration Certificate Number

NUMBER(S):

ENRE00666107

RECEIVED

23 MAY 2012

PaLM

BS71326

3. Principal holder

Where there is more than one holder, all joint holders may appoint one holder as the principal holder to act on behalf of them all. The appointment may be made by giving DERM written confirmation signed by all the holders of the Registration Certificate. Please update contact details if incorrect by crossing out the details and printing the correct details beneath or on an attached sheet of paper.

NAME OR NAME OF COMPANY AND CONTACT PERSON: Akzo Nobel Pty Ltd	
REGISTERED BUSINESS ADDRESS: 8 Kellaway Place WETHERILL PARK NSW 2164	
FULL POSTAL ADDRESS (WHERE DIFFERENT): PO Box 6048 FAIRFIELD GARDENS QLD 4103	
TELEPHONE: 07 3892 8888	FACSIMILE: 07 3892 1689
MOBILE TELEPHONE:	EMAIL:

Please update details if incorrect by crossing out the details and printing the correct details beneath or on an attached sheet of paper.

4. Contact Person (where applicable)

NAME: Frances Brodie	
POSITION AND COMPANY: Akzo Nobel Pty Ltd	
FULL POSTAL ADDRESS: PO Box 6048 FAIRFIELD GARDENS QLD 4103	
TELEPHONE: 07 3892 8898	FACSIMILE: 07 3892 1689
MOBILE TELEPHONE:	EMAIL: frances.brodie@akzonobel.com

sch4p4(6) Personal information

Annual Return
Registration Certificate

5. Do you have a copy of the Development Approval/s or Code of Environmental Compliance to which your Registration Certificate applies?

☒ YES

☐ NO

6. Have any of the activities on your Registration Certificate altered since the time it was issued?

☒ YES

→ Your Development Approval and Registration Certificate may need to be amended. Contact Permit and Licence Management for advice.

☐ NO

AMENDMENT DISCUSSIONS UNDERWAY

7. Does your Registration Certificate include an activity with an aggregate environmental score?

☒ YES

→ Go to question 8.

☐ NO

→ Go to question 9.

8. Are you claiming a reduced annual fee under sections 121-127 of the Environmental Protection Regulation 2008?

☐ YES

→ A reduced annual fee cannot be claimed unless *Appendix A - Claiming a reduced annual fee* is completed. Please complete Appendix A and return it together with this annual return form.

☒ NO

For details of the eligibility criteria please refer to the information sheet *Paying a reduced annual fee* which is available from the department's website.

NOTE: The reduced annual fee does not apply if the annual return and fees are not submitted by the due date or if there is no aggregate environmental score.

Registration Certificate

Section 320 of the EP Act imposes a duty on the holder of a Registration Certificate to report serious or material environmental harm caused or threatened in the carrying out of an activity unless that harm is specifically authorised under a Development Approval or Code of Environmental Compliance.

9. Since your last annual return, have you fully complied with the conditions of your Development Approval or Code of Environmental Compliance and your general environmental duty?

☒ YES

☐ NO → For each condition of the DA or Code of Environmental Compliance with which the holder has not complied, please attach the following

- a) a statement of whether or not the non-compliance/incident has been previously reported;
- b) a statement describing the non-compliance/incident including photographs where appropriate;
- c) a statement describing the environmental impacts resulting from the non-compliance/incident;
- d) a statement describing the actions taken to repair any damage to the environment resulting from the non-compliance/incident

☐ Tick to indicate that the required statements are attached

Please do not submit an annual report, required by a condition of an DA or Code of Environmental Compliance, with this annual return. Annual reports are to be stored for viewing by DERM officers upon request.

10. Does a condition of your Development Approval or Code of Environmental Compliance require you to carry out any monitoring and/or prepare reports on the activities for which you hold a Registration Certificate?

☒ YES

☐ NO → Go to question 15.

Monitoring data that has been submitted electronically to the Point Source Data Base in accordance with a written agreement with DERM does not need to be resubmitted.

11. Do you provide reports directly to the point source database?

☐ YES → Go to question 16, if no other monitoring is required to be undertaken.

☒ NO

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 DERM on request or when the Registration Certificate has been surrendered or cancelled.

12. Has all of the necessary environmental monitoring been carried out and all the reports prepared in accordance with your Development Approval or Code of Environmental Compliance?

☒ YES

☐ NO → Provide details below explaining why this has not occurred. If you require more space, attach additional information.

Registration Certificate

13. Please provide details of the titles of all the monitory data compiled and the reports prepared since your last annual return. Please provide details of where the monitoring data and reports are kept.

Table 1 List of Monitoring data required

NATURE OF REPORT AND /OR MONITORING	PREPARED BY	LOCATION OF REPORT	DATES COVERED
SOURCE EMISSION SAMPLING	NEWELL	HSE'S MANAGER'S OFFICE 115 WIDE RD, VERONG, A 4104	28/7/11 - 04/10/11

Please do not submit the report(s) with this annual return - fill out the information below. If you require more space, attach additional information.

14. Has the monitoring that has been carried out shown any exceedance of the environmental limits set in the conditions of your Development Approval or Code of Environmental Compliance?

- ☐ YES → Please attach a copy of the notification of the exceedance that you gave to the administering authority.
- ☒ NO

15. Is this return for ERA 57 - Regulated waste transport?

- ☐ YES → Go to Question 16.
- ☒ NO → Go to Question 18.

Registration Certificate

16. Have the details of your waste vehicles changed from the list provided in the Annual Notice?

- ☐ YES → Complete table below including the details of all vehicles to be covered by this Registration Certificate. Attach additional information if required.
- ☐ NO

Table 2 - Waste Vehicle Details

Status - existing, new, removed	Type of vehicle e.g. tanker, truck	Make of vehicle	Year of manufacture	Vehicle registration number

Note: ERA 57 - Regulated waste transport contains three thresholds, 57-(2a), 57-(2b) and 57-(2c). These thresholds represent the number of vehicles that a holder of a Registration Certificate may operate and the annual fees change according to the threshold. If the number of vehicles listed on your Registration Certificate falls above or below your listed activity you are required to amend your Registration Certificate.

17. The fee for ERA 57 - Regulated waste transport is based on the number of vehicles on your Registration Certificate. If you increase or decrease the number of vehicles, this may result in a change to the fee payable. Where a change in the number of vehicles has changed the ERA threshold which applies, your Registration Certificate will be amended. Please tick the boxes below to signify your agreement to this action being taken by the administering authority on the basis of the information you have provided in this annual return.

The fees payable are: ERA Threshold 57-(2a) Regulated waste transport 1 to 5 vehicles \$1493.8, 57-(2b) Regulated waste transport 6 to 35 vehicles \$4481.4, 57-(2c) Regulated waste transport > 36 vehicles \$8962.8.

- ☐ I agree to amendments to my Registration Certificate to reflect the change in accordance with the number of vehicles listed in this return and understand that this may change my obligations under the Code of Environmental Compliance.
- ☐ I have paid a reduced/increased fee for the coming year in accordance with the number of vehicles listed in this return.

Please read carefully through the declaration before signing.

Under section 480 of the EP Act, it is an offence to knowingly give the administering authority information that is false, misleading or incomplete in any material particular.

18. Declaration

- I / We, being the holders identified at Section 1, acknowledge that all information supplied on or with this application form may be made available upon request, subject to the provisions of the *Right to Information Act 2009* and the *Evidence Act 1977*.
- I am the holder or the appointed signatory for the Registration Certificate.
- I am aware that under section 480 of the *Environmental Protection Act 1994*, it is an offence to knowingly give the administering authority information that I know is false, misleading or incomplete in any material particular.
- I have supplied all of the required information.

SIGNATURE:

sch4p4(6) Personal information

NAME OF SIGNATORY:

FRANCOIS BRODIE

POSITION OF SIGNATORY (IE DIRECTOR, MANAGER, OWNER, PARTNER, CEO ETC):

HEALTH, SAFETY, ENVIRONMENT AND SECURITY
MANAGER AUSTRALASIA

DATE:

17/05/11

Please return your completed annual return to:

Permit and Licence Management
Implementation and Support Unit
Department of Environment and Resource Management
GPO Box 2454
Brisbane Queensland 4001
Enquiries: 1300 130 372
Facsimile: (07) 3896 3342
E-mail: palm@derm.qld.gov.au

Registration Certificate

Appendix A: Claiming a reduced Annual Fee

This appendix is to be used to claim a reduced annual fee under sections 121-127 of the *Environmental Protection Regulation 2008* and is to be attached to the annual return for a Registration Certificate or Environmental Authority (the authority). Refer to the *Information Sheet: Paying a reduced annual fee* for details of the eligibility criteria for claiming a reduced annual fee and the information to accompany the annual return before completing this appendix.

1. Eligibility for a reduced annual fee

I am eligible to claim a reduced annual fee as I meet all the following:

- ☐ in the 3 years immediately before this annual return and fee is due (or for the duration of the authority if it is less than 3 years old), no compliance action event (see section 3) has occurred for this authority;
- ☐ the ERA has an aggregate environmental score (AES);
- ☐ the ERA is administered by the Department of Environment and Resource Management (DERM);
- ☐ the reduced annual fee will be paid by the due date;
- ☐ the annual return will be completed and submitted by the due date;
- ☐ I am eligible under one or more of the criteria in section 2; and
- ☐ I have attached the documentation required in section 2.

2. Criteria for the reduced annual fee claimed

I am claiming a reduced annual fee for the following criteria and have attached the documents as required:

- ☐ **Approved partner (ecoBiz) - 10% discount**
 - ☐ a copy of the letter from DERM confirming status as an ecoBiz partner.
- ☐ **Approved environmental management system (EMS) - 20% discount**
 - ☐ I operate under an EMS certified by an accredited body as being compliant with ASNZ ISO: 14001: 2004 Environmental Management Systems.
 - ☐ I have included a statutory declaration, completed by an appropriately qualified person (see section 4), verifying that-
 - All the activities carried out under this Registration Certificate were carried out in accordance with the prescribed EMS last year; and
 - I am complying with the conditions of the authority.

☐ Reduced emissions profile - 20% discount

- ☐ I have included a statutory declaration, completed by an appropriately qualified person (see section 4), verifying that-
- The relevant activity, or the activity with the highest AES, has an emissions score (see section 5) that is at least 25% less than the emissions score stated to apply for the activity under the environmental emission profile; and
 - The data used to calculate the emissions score (see section 5) for the relevant activity is accurate and has been obtained by a method appropriate for the type of activity.

Declaration

- I do solemnly and sincerely declare that the information provided is true and correct to the best of my knowledge. I understand that it is an offence under section 480 of the *Environmental Protection Act 1994* to give to the administering authority, or an authorised person, a document containing information that I know is false, misleading or incomplete in a material particular.
- I understand that all information supplied on or with this application form may be disclosed publicly in accordance with the *Right to Information Act 2009* and the *Evidence Act 1977*.

APPLICANTS SIGNATURE	
APPLICANTS NAME	DATE

Checklist

- ☐ If claiming as an approved partner, a copy of the letter confirming status as an ecoBiz partner.
- ☐ If claiming for environmental management system, a statutory declaration as outlined above in section 2.
- ☐ If claiming for reduced emissions profile, a statutory declaration as outlined above in section 2.

Additional Explanation of Requirements for Claiming a Reduced Annual Fee

Definition of compliance event

A compliance action event, for the holder of a relevant authority, means any of the following directly relating to an activity carried out or a thing omitted to be done under the authority-

- (a) the serving of an infringement notice, under the *State Penalties Enforcement Act 1999*, on the holder for an offence;
- (b) the issuing of an environmental protection order to the holder;
- (c) the holder-
 - (i) has voluntarily submitted a draft transitional environmental program; or
 - (ii) is acting under an approved transitional environmental program; or
 - (iii) is required to prepare a transitional environmental program; or
 - (iv) has, under section 350 of the *Environmental Protection Act 1994* (EP Act), given the administering authority a program notice;
- (d) the issue of a cost recovery notice to the holder unless-
 - (i) the amount claimed under the notice has been fully paid; or
 - (ii) the notice has been withdrawn or has otherwise stopped having effect;
- (e) the holder has been issued with a direction notice under section 363B of the EP Act and-
 - (i) the holder complies with the notice; or
 - (ii) a proceeding for an offence against section 363E¹ of the EP Act has not started;
- (f) a proceeding for an environmental offence or an offence under section 363E¹, 363I² or 363L³ of the EP Act (a notice offence), is started or continued against the holder and has not finished;
- (g) the holder is convicted of an environmental offence or a notice offence.

If a registered operator has two sites (e.g. Site A and Site B) and two separate Registration Certificates or Environmental Authorities, then a compliance event on Site A will not affect access to the discounts for the annual fee on Site B. If both Site A and Site B are licensed under a single Registration Certificate or Environmental Authority, a compliance action event at either site will render the registered operator or Environmental Authority holder ineligible for a reduced annual fee.

Criteria for appropriately qualified person

An appropriately qualified person must be an independent third party who is not an employee of the holder of the authority.

They must also be a member of one of the following organisations as set out in schedule 8 of the *Environmental Protection Regulation 2008*:

- Australasian Radiation Protection Society
- Australian Institute of Agricultural Science and Technology
- Australian Institute of Geoscientists
- Australian Society of Soil Science

¹ Section 363E (Offence not to comply with a direction notice).

² Section 363I (Offence not to comply with clean-up notice).

³ Section 363L (Obstruction of recipient complying with notice).

- Engineers Australia
- Environmental Health Australia
- Environment Institute of Australia and New Zealand
- Institute of Explosives Engineers
- Institutions of Chemical Engineers Australia
- Institute of Engineering and Mining Surveyors Australia
- Planning Institute of Australia
- South Pacific Environmental Radioactivity Association
- The Australian Institute of Mining and Metallurgy
- The Institution of Surveyors Australia
- The Royal Australian Chemical Institute

For the approved EMS discount, the appropriately qualified person should have demonstrated experience and qualifications that relate to the development and operation of environmental management systems, and the assessment of compliance with the conditions of a Development Approval or an Environmental Authority.

For a lower emissions score an appropriately qualified person (in chemical, soil, water or air quality science) should have knowledge of, and experience in, interpreting and analysing emissions monitoring data.

Information on the emissions score

The emissions score for a relevant activity, means the emissions score component of the aggregate environmental score (AES) for the activity. The AES was calculated by DERM and is scheduled in the *Environmental Protection Regulation 2008* (next to the environmentally relevant activity (ERA) definitions in Schedule 2, 5 and 6).

The AES is made up of two components:

- the emissions score; and
- the site attributes score.

The emissions score is the average annual emissions to air, land and water, and a detailed breakdown of contaminants and volumes is provided for each ERA on the DERM website at www.derm.qld.gov.au.

Data should be based on the annual average emissions for each contaminant in order to accommodate seasonality and other fluctuations. It does not matter how the emissions reduction is achieved or how many contaminants contribute to the overall reduction.

Data collection should be consistent with the guidelines and methodologies contained in:

- Air Quality Sampling Manuals and Water Quality Sampling Manuals prepared by the Queensland Government, which are available on the DERM website at www.derm.qld.gov.au
- Annual reporting data from the National Pollutant Inventory for the previous reporting year.

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Meeting conversation record

Use this form to record meetings and telephone conversations. Select responses from dropdown options and clear/complete fields as required. Free text area may be used to include diagrams, images or any other type of entry.

File ID: BST1326	Mail ID:	Other Reference: CA26197
Date: 19/09/12 Time: 2.00pm	Location: 115 Hyde Road, Yeronga	

Between	April Hoyles	of	Senior Environmental Officer, EHP
and	Rebecca Walton	of	Environmental Officer, EHP
and	Frances Brodie	of	Health, Safety, Environment and Security Manager, Akzo Nobel

Subject: Level A inspection and amendment to current DA

Notes:

- Reviewed latest version of the amended DA (ENDC00662207) and addressed Akzo Nobel's concerns:

Air schedule

- Reviewed email from Suhail Khan:
 - Confirmed that the stack heights in Schedule B – Table 1 were based on the Odour Environmental Evaluation Report of 30 March 2009.
 - Confirmed that the minimum efflux velocity for H2 should be 8.
 - Confirmed that if H15, H16 and H17 are small sources of VOC they can be added to Schedule B – Table 1 but are not required to have release limits and monitoring conditions so won't be added to Schedule B – Table 2 or Schedule H – Table 1.
 - Confirmed that items iii, v and vii can be removed from condition B10.
- Frances raised concerns about efflux velocity at S1, H2, H8 and H11 where the 2012 and 2011 efflux velocities are below the minimum in the DA (see table below).

Source description	Release point number and stack description	Minimum efflux velocity (metres/second)	2012 measured efflux velocity
R&D Spray Booth	S1	11	8.35
Floor scale, opposite HSD2	H2	8	7.24
Filling area	H8	16	15.42
QC lab fume hood	H11	9	4.85

- April said that we would present this information to Suhail. H2 and H8 may not be a problem but they will probably need to improve their fan system for S1 and H11 as the minimum efflux velocities were able to be met in 2009 and the 2012 results are way too low.
- Frances provided detail on H15, H16 and H17 to be added to Schedule B – Table 1 (see table below). H15 is a vent on the cold store and is only activated in case of a spill. H16 and H17 were added as per the

Dangerous Goods licence and are vents for the DG store where all containers are closed. They are all small sources of VOC. *Since the meeting, Frances confirmed the addition of another stack (H18) that is being installed – details below.*

Source description	Release point number and stack description	Minimum release height from ground level (metres)	Minimum efflux velocity (metres/second)
Cold store	H15	Frances to confirm	0
Laboratory flammable store	H16	15.1	5.24
Laboratory tint base store	H17	15.1	5.4
R&D Fume Hood	H18	12.3	9

Noise

- Agreed not to update the noise conditions.

Stormwater

- Agreed to review stormwater management system on site tour.
- Stormwater collected in Bund 1 and Bund 2 is pumped to a grassed area (see photos 1 and 2). A pump is wheeled to the outlet valve and a hose is laid out along the road to the grassed area. Water is pumped out at a single location (for each bund) across the grassed area. The grassed area is sloped to a road, and there is a stormwater drain along the road. Frances advised that when they are pumping out the bunds, there is a person monitoring to see when the water overflows onto the road and then the water is pumped into drums for collection. Frances advised that the bunds are emptied every time it rains (sometimes while it is raining, and the grassed area is already wet).
- In addition to Bunds 1 and 2, there is a smaller bund located behind the finished goods warehouse. The ground is sloped to a central point where there are two stormwater drains (see photo 3). One has been sealed off with a steel plate and the other one can be manually opened. There is a small bund around the manual drain to prevent spills from entering (see photo 4). In the event of rainfall, the water collects at this location. Currently, Akzo Nobel tests the pH of the water with a calibrated meter before manually opening the drain so the water can drain to stormwater.
- EHP to discuss current stormwater management system and suggest amended permit conditions as appropriate.

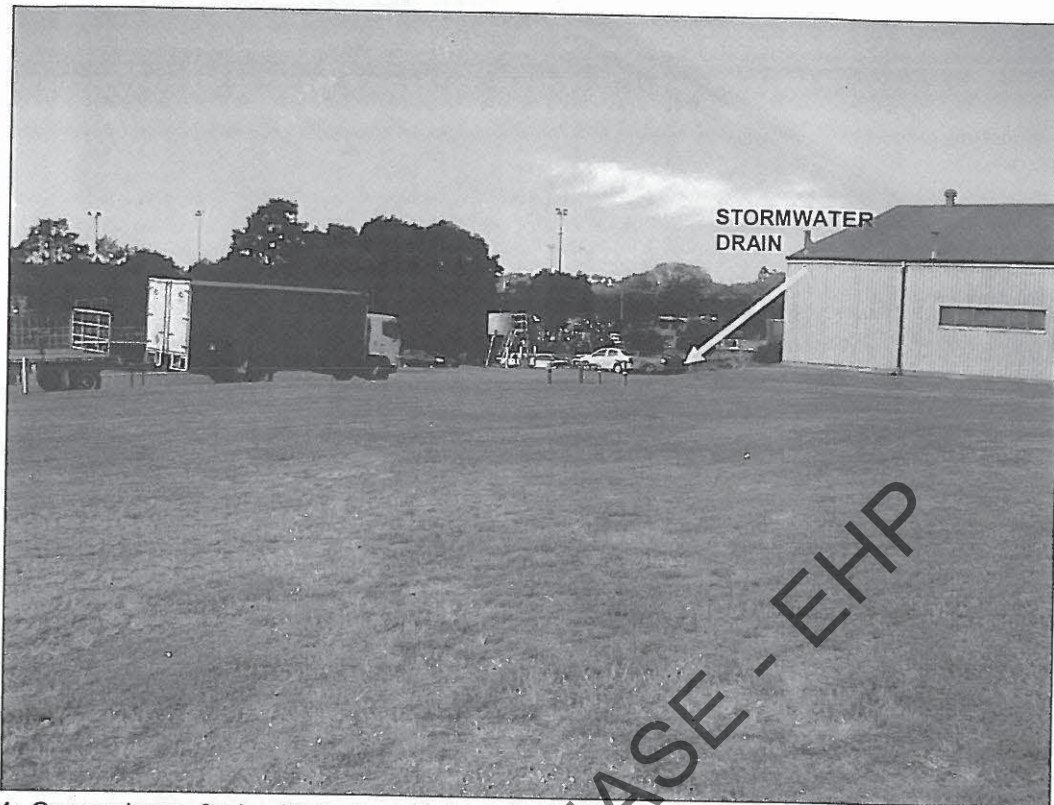


Photo 1: Grassed area for land irrigation of stormwater collected in bunds 1 and 2. Photo taken from the release point for Bund 1 looking downhill towards the road and stormwater drain.

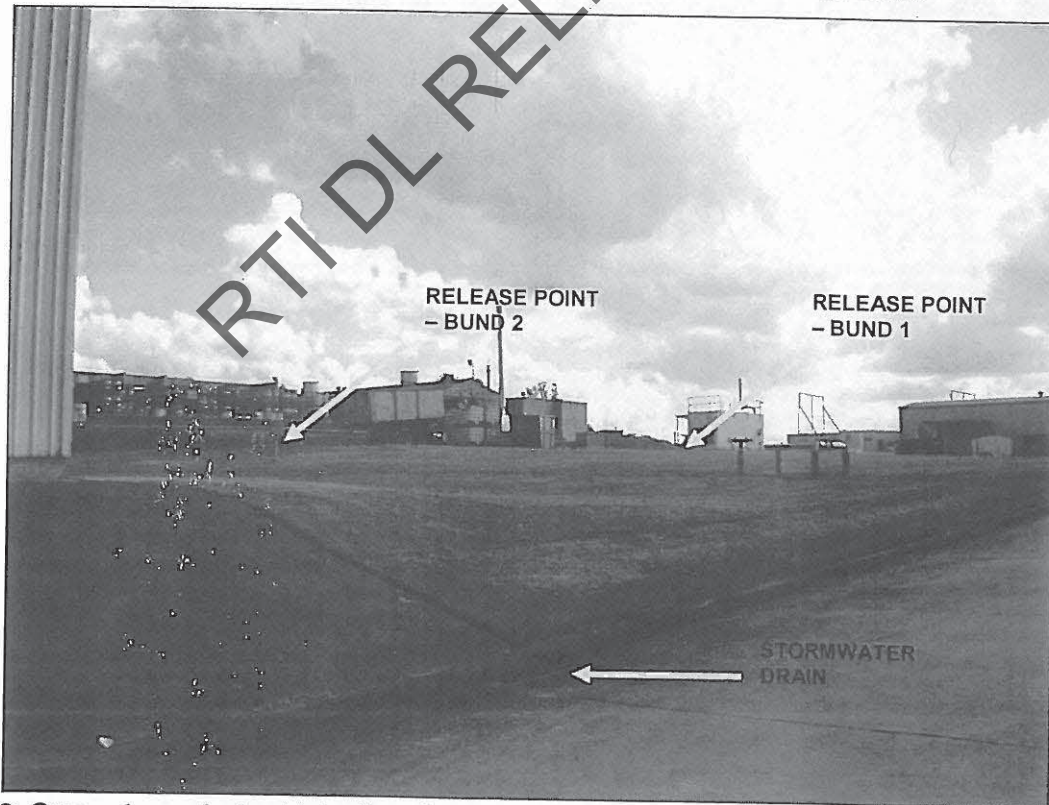


Photo 2: Grassed area for land irrigation of stormwater collected in bunds 1 and 2. Photo taken from the stormwater drain looking uphill towards release points.



Photo 3: Area behind finished goods warehouse.

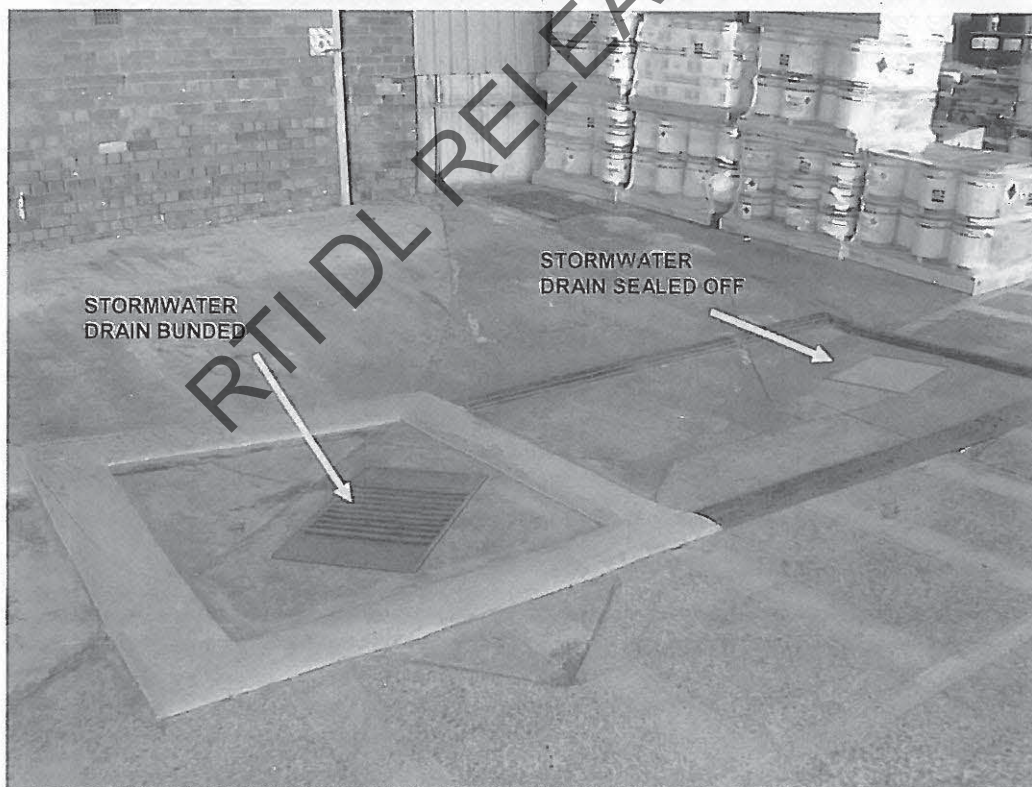


Photo 4: Stormwater drains behind finished goods warehouse.

April Hoyles	sch4p4(6) Personal information	02 Oct 2012
Name	Signature	Date

Copy provided to other parties? No

RTI DL RELEASE - EHP