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14 January 2009

Mr Andrew Gee
ABB

By email

Cc Philip Paton: Cardno

Re: Response to objections to Joe White Maltings proposed Malting Plant at Minto

Dear Andrew,

This letter provides a response to the technical reports prepared on behalf of Lipa Pharmaceuticals Ltd (Lipa) in support of an objection to the proposed Joe White Malting Plant (JWM) at Minto. The reports were prepared by Mr Alex Jochelson of Pollution Control Consultancy and Design and Dr Richard Oppenheim, Principal of Dr Richard C Oppenheim. They relate to potential air quality impacts of the proposed plant on the Lipa plant which is adjacent to the JWM site.

REPORT BY ALEX JOCHELSON

The report prepared by Mr Jochelson addresses the need for an odour assessment and the assessment of the impacts of nitrogen oxides.

A detailed odour assessment according to the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South (DECC, 2005)* was not prepared as this was not one of the specific Director General's requirements. Furthermore DECC did not specify a quantitative assessment.

While it is the case that the JWM plant does have odour emissions, they are not of an inherently objectionable nature. According to Mr Jochelson's report, LIPA staff work three 8-hour shifts therefore there would be no possibility of anyone at the LIPA plant being exposed 24-hours a day to odours from the JWM plant.

Modelling of oxides of nitrogen was originally carried for both a 50 m and 20 metre grid spacing. Building wakes were included in the modelling. An output file is attached with the details. The maximum predicted concentration of total NO_x was slightly less than 300 $\mu g/m^3$ for both grid spacings.

We have also carried out a modelling runs with a 10 m spacing as suggested by Mr Jochelson and the maximum concentration is 310 $\mu g/m^3$. Model runs were also carried out for heights above ground level of 3 and 6 metres and the maximum predicted concentrations were 301 and 310 $\mu g/m^3$

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respectively. Therefore the maximum predicted concentrations of NO_x at the Lipa site were captured in the original modelling.

The impacts of JWM NO_x emission are very localised and would not have any substantial regional effects. Background levels will be variable but the most significant contributor to NO_x in Sydney is roadway traffic rather than industrial sources and there is no reason to believe that local levels would be substantially different from other DECC monitoring sites in Sydney. The DECC Campbelltown site was in fact operated by Pilkington, the major point source in the area referred to by Mr Jochelson and is therefore likely to capture the impacts of this source.

Mr Jochelson is correct in assuming that the exit velocity is not correct. The modelled exit velocity was 26.9 m/s and the exhaust air temperature was 27^o C. There were typographic errors in Table 8 of our report.

REPORT BY RICHARD OPPENHEIM

The report by Dr Oppenheim discusses the potential for contamination of Lipa products with odorous material in JWM plant emissions. The report provides detailed information about the senses of taste and smell and the potential consequences of odour from JWM emissions being adsorbed or absorbed by any of the material used in the production of the therapeutic goods.

As Dr Oppenheim noted, contamination is theoretically possible but the extent of the contamination (if any) and its consequences in terms of acceptability for Lipa product users, is very difficult to quantify at this stage. However given the quality of the odour and the fact that the odour concentrations in the emissions are likely to be relatively low, in my view the risk of unacceptable contamination is also likely to be low.

The Lipa plant is in an industrial location with other emission sources, next to a railway which carries diesel-powered goods trains. The existing plant is therefore potentially already affected by odour from other sources.

Nevertheless JWM may wish to carry out an odour assessment based on emissions from the JWM plant in Perth to further satisfy concerns. This would require odour emission measurements to be made and dispersion modelling to be undertaken. This would provide additional quantitative information about the risks of contamination. Whilst this additional work will take some time to complete it could be a proponent commitment so as not to delay approval of the application.

Yours faithfully,
Holmes Air Sciences

Kerry Holmes

Kerry Holmes PhD
Environmental Chemist

AUSPLUME OUTPUT FILE

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Minto Nox

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Concentration or deposition                         Concentration
Emission rate units                                 grams/second
Concentration units                                 microgram/m3
Units conversion factor                             1.00E+06
Constant background concentration                            0.00E+00
Terrain effects                                     None
Smooth stability class changes?                     No
Other stability class adjustments ("urban modes")   None
Ignore building wake effects?                       No
Decay coefficient (unless overridden by met. file)  0.000
Anemometer height                                   10 m
Roughness height at the wind vane site              0.300 m
Use the convective PDF algorithm?                   No

                   DISPERSION CURVES
Horizontal dispersion curves for sources <100m high  Pasquill-Gifford
Vertical  dispersion  curves for sources <100m high  Pasquill-Gifford
Horizontal dispersion curves for sources >100m high  Briggs Rural
Vertical  dispersion  curves for sources >100m high  Briggs Rural
Enhance horizontal plume spreads for buoyancy?      Yes
Enhance  vertical  plume spreads for buoyancy?      Yes
Adjust horizontal P-G formulae for roughness height? Yes
Adjust  vertical  P-G formulae for roughness height? Yes
Roughness height                                    0.800m
Adjustment for wind directional shear               None

                    PLUME RISE OPTIONS
Gradual plume rise?                                 Yes
Stack-tip downwash included?                        Yes
Building downwash algorithm:                       PRIME method.
Entrainment coeff. for neutral & stable lapse rates 0.60,0.60
Partial penetration of elevated inversions?         No
Disregard temp. gradients in the hourly met. file?  No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:
```

Wind Speed Category	A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

Stability Class

```
WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are:  1.54,  3.09,  5.14,  8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
 1 hour
 average over all hours
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Minto Nox

SOURCE CHARACTERISTICS

STACK SOURCE: 1

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
300591	6231793	0m	24m	0.60m	27C	26.9m/s

______ Effective building dimensions (in metres) ______

Flow direction	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width	34	38	41	42	43	42	40	36	31	31	35	38
Effective building height	22	22	22	22	22	22	22	22	22	22	22	22
Along-flow building length	30	35	38	41	42	41	40	37	33	34	38	41
Along-flow distance from stack	-14	-13	-10	-7	-4	-1	2	5	8	8	5	2
Across-flow distance from stack	-25	-24	-23	-20	-18	-14	-11	-7	-3	1	5	10

Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width	41	42	41	40	37	33	34	38	41	42	43	42
Effective building height	22	22	22	22	22	22	22	22	22	22	22	22
Along-flow building length	42	42	42	39	36	31	31	35	38	40	41	41
Along-flow distance from stack	-1	-4	-7	-9	-11	-13	-16	-23	-29	-33	-37	-40
Across-flow distance from stack	13	16	19	22	24	25	25	24	22	20	18	14

Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	39	36	31	31	35	38	41	42	41	40	37	33
Effective building height	22	22	22	22	22	22	22	22	22	22	22	22
Along-flow building length	40	37	33	34	38	41	42	43	42	40	36	31
Along-flow distance from stack	-42	-42	-41	-42	-43	-43	-42	-39	-35	-31	-25	-18
Across-flow distance from stack	11	7	3	-1	-5	-9	-13	-16	-20	-22	-24	-25

(Constant) emission rate = 8.30E-01 grams/second
No gravitational settling or scavenging.

STACK SOURCE: 3

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
300591	6231784	0m	24m	0.60m	27C	26.9m/s

______ Effective building dimensions (in metres) ______

Flow direction	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width	34	38	41	42	43	42	40	36	31	31	35	38
Effective building height	22	22	22	22	22	22	22	22	22	22	22	22
Along-flow building length	30	35	38	41	42	41	40	37	33	34	38	41
Along-flow distance from stack	-6	-4	-2	-1	2	3	5	7	8	6	2	-2
Across-flow distance from stack	-23	-21	-18	-15	-11	-7	-2	2	7	10	14	17

Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width	41	42	41	40	37	33	34	38	41	42	43	42
Effective building height	22	22	22	22	22	22	22	22	22	22	22	22
Along-flow building length	42	42	42	39	36	31	31	35	38	40	41	41
Along-flow distance from stack	-7	-10	-14	-18	-20	-22	-25	-31	-36	-40	-43	-45
Across-flow distance from stack	20	22	24	25	25	25	23	21	18	15	11	7

Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	39	36	31	31	35	38	41	42	41	40	37	33
Effective building height	22	22	22	22	22	22	22	22	22	22	22	22
Along-flow building length	40	37	33	34	38	41	42	43	42	40	36	31
Along-flow distance from stack	-45	-44	-41	-40	-40	-38	-36	-32	-28	-22	-16	-9
Across-flow distance from stack	2	-2	-7	-10	-14	-17	-20	-22	-24	-25	-25	-25

(Constant) emission rate = 8.30E-01 grams/second
No gravitational settling or scavenging.

STACK SOURCE: 2

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
300591	6231804	0m	24m	0.60m	27C	26.9m/s

______ Effective building dimensions (in metres) ______

Flow direction	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width	34	38	41	42	43	42	40	36	31	31	35	38
Effective building height	22	22	22	22	22	22	22	22	22	22	22	22
Along-flow building length	30	35	38	41	42	41	40	37	33	34	38	41
Along-flow distance from stack	-25	-23	-20	-16	-11	-7	-2	3	8	10	9	8
Across-flow distance from stack	-26	-28	-28	-27	-26	-24	-21	-17	-14	-10	-5	0

Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width	41	42	41	40	37	33	34	38	41	42	43	42
Effective building height	22	22	22	22	22	22	22	22	22	22	22	22
Along-flow building length	42	42	42	39	36	31	31	35	38	40	41	41
Along-flow distance from stack	7	5	3	2	0	-2	-6	-12	-19	-25	-30	-35
Across-flow distance from stack	5	9	14	18	22	25	26	28	28	28	26	24

Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	39	36	31	31	35	38	41	42	41	40	37	33
Effective building height	22	22	22	22	22	22	22	22	22	22	22	22
Along-flow building length	40	37	33	34	38	41	42	43	42	40	36	31
Along-flow distance from stack	-38	-40	-41	-43	-47	-48	-49	-48	-45	-41	-36	-29
Across-flow distance from stack	21	18	14	10	5	1	-5	-9	-14	-18	-22	-25

(Constant) emission rate = 8.30E-01 grams/second
No gravitational settling or scavenging.

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Minto Nox

RECEPTOR LOCATIONS

The Cartesian receptor grid has the following x-values (or eastings):

299600.m 299620.m 299640.m 299660.m 299680.m 299700.m 299720.m
299740.m 299760.m 299780.m 299800.m 299820.m 299840.m 299860.m
299880.m 299900.m 299920.m 299940.m 299960.m 299980.m 300000.m
300020.m 300040.m 300060.m 300080.m 300100.m 300120.m 300140.m
300160.m 300180.m 300200.m 300220.m 300240.m 300260.m 300280.m
300300.m 300320.m 300340.m 300360.m 300380.m 300400.m 300420.m
300440.m 300460.m 300480.m 300500.m 300520.m 300540.m 300560.m
300580.m 300600.m 300620.m 300640.m 300660.m 300680.m 300700.m
300720.m 300740.m 300760.m 300780.m 300800.m 300820.m 300840.m
300860.m 300880.m 300900.m 300920.m 300940.m 300960.m 300980.m
301000.m 301020.m 301040.m 301060.m 301080.m 301100.m 301120.m
301140.m 301160.m 301180.m 301200.m 301220.m 301240.m 301260.m
301280.m 301300.m 301320.m 301340.m 301360.m 301380.m 301400.m
301420.m 301440.m 301460.m 301480.m 301500.m 301520.m 301540.m
301560.m 301580.m 301600.m

and these y-values (or northings):

6230800.m 6230820.m 6230840.m 6230860.m 6230880.m 6230900.m 6230920.m
6230940.m 6230960.m 6230980.m 6231000.m 6231020.m 6231040.m 6231060.m
6231080.m 6231100.m 6231120.m 6231140.m 6231160.m 6231180.m 6231200.m
6231220.m 6231240.m 6231260.m 6231280.m 6231300.m 6231320.m 6231340.m
6231360.m 6231380.m 6231400.m 6231420.m 6231440.m 6231460.m 6231480.m
6231500.m 6231520.m 6231540.m 6231560.m 6231580.m 6231600.m 6231620.m
6231640.m 6231660.m 6231680.m 6231700.m 6231720.m 6231740.m 6231760.m
6231780.m 6231800.m 6231820.m 6231840.m 6231860.m 6231880.m 6231900.m
6231920.m 6231940.m 6231960.m 6231980.m 6232000.m 6232020.m 6232040.m
6232060.m 6232080.m 6232100.m 6232120.m 6232140.m 6232160.m 6232180.m
6232200.m 6232220.m 6232240.m 6232260.m 6232280.m 6232300.m 6232320.m
6232340.m 6232360.m 6232380.m 6232400.m 6232420.m 6232440.m 6232460.m
6232480.m 6232500.m 6232520.m 6232540.m 6232560.m 6232580.m 6232600.m

METEOROLOGICAL DATA : Campbelltown 1989

1 Peak values for the 100 worst cases (in microgram/m3)
Averaging time = 1 hour

Rank	Value	Time Recorded hour,date	Coordinates (* denotes polar)
1	2.94E+02	17,04/04/89	(300260, 6232040, 0.0)
2	2.90E+02	24,23/02/89	(300400, 6232140, 0.0)
3	2.77E+02	17,13/06/89	(300280, 6231520, 0.0)
4	2.75E+02	24,14/12/89	(300360, 6232120, 0.0)
5	2.67E+02	24,23/11/89	(300340, 6232100, 0.0)
6	2.59E+02	20,28/10/89	(300460, 6232160, 0.0)
7	2.55E+02	18,13/05/89	(300420, 6232160, 0.0)
8	2.55E+02	24,21/12/89	(300280, 6232060, 0.0)
9	2.43E+02	12,10/12/89	(300640, 6231760, 0.0)
10	2.43E+02	22,15/11/89	(300480, 6232180, 0.0)
11	2.41E+02	23,24/01/89	(300300, 6232060, 0.0)
12	2.41E+02	12,10/01/89	(300640, 6231740, 0.0)
13	2.41E+02	17,06/05/89	(300940, 6232080, 0.0)
14	2.41E+02	14,22/08/89	(300640, 6231740, 0.0)
15	2.41E+02	13,22/08/89	(300640, 6231740, 0.0)
16	2.40E+02	22,07/01/89	(300880, 6232120, 0.0)
17	2.37E+02	07,02/02/89	(300920, 6232100, 0.0)
18	2.37E+02	11,15/10/89	(300640, 6231760, 0.0)
19	2.36E+02	02,06/11/89	(300300, 6232080, 0.0)
20	2.36E+02	13,08/09/89	(300640, 6231740, 0.0)
21	2.36E+02	21,23/11/89	(300940, 6232080, 0.0)
22	2.35E+02	23,30/06/89	(300400, 6232160, 0.0)
23	2.34E+02	13,21/04/89	(300640, 6231760, 0.0)
24	2.34E+02	05,15/03/89	(300400, 6232140, 0.0)
25	2.34E+02	23,05/11/89	(300400, 6232140, 0.0)
26	2.34E+02	11,11/04/89	(300640, 6231820, 0.0)
27	2.34E+02	13,08/10/89	(300640, 6231820, 0.0)
28	2.33E+02	15,11/07/89	(300640, 6231740, 0.0)
29	2.33E+02	15,17/07/89	(300640, 6231740, 0.0)
30	2.33E+02	24,04/11/89	(300360, 6232120, 0.0)
31	2.33E+02	16,03/05/89	(300760, 6231500, 0.0)
32	2.32E+02	14,10/01/89	(300640, 6231760, 0.0)
33	2.32E+02	20,01/04/89	(300840, 6232140, 0.0)
34	2.31E+02	23,10/11/89	(300220, 6231700, 0.0)
35	2.31E+02	12,10/05/89	(300640, 6231820, 0.0)
36	2.31E+02	10,11/04/89	(300640, 6231820, 0.0)
37	2.30E+02	10,05/03/89	(300640, 6231820, 0.0)
38	2.30E+02	12,28/05/89	(300640, 6231820, 0.0)
39	2.30E+02	21,21/03/89	(300920, 6231520, 0.0)
40	2.29E+02	07,23/01/89	(300640, 6231820, 0.0)
41	2.29E+02	13,10/12/89	(300640, 6231760, 0.0)
42	2.29E+02	09,26/12/89	(300640, 6231820, 0.0)
43	2.29E+02	23,14/02/89	(300400, 6231460, 0.0)
44	2.29E+02	14,10/12/89	(300640, 6231760, 0.0)
45	2.28E+02	05,13/01/89	(300880, 6232080, 0.0)
46	2.28E+02	12,14/05/89	(300640, 6231820, 0.0)
47	2.28E+02	15,11/06/89	(300640, 6231820, 0.0)
48	2.28E+02	21,17/01/89	(300240, 6231620, 0.0)
49	2.28E+02	13,03/08/89	(300640, 6231820, 0.0)
50	2.28E+02	14,08/08/89	(300640, 6231760, 0.0)
51	2.28E+02	09,30/09/89	(300640, 6231820, 0.0)
52	2.27E+02	23,20/12/89	(300800, 6231520, 0.0)
53	2.27E+02	11,04/08/89	(300640, 6231820, 0.0)
54	2.27E+02	06,23/01/89	(300640, 6231820, 0.0)
55	2.27E+02	11,31/05/89	(300640, 6231820, 0.0)
56	2.26E+02	13,16/02/89	(300660, 6231820, 0.0)
57	2.26E+02	12,16/12/89	(300640, 6231740, 0.0)
58	2.26E+02	06,02/02/89	(300960, 6232060, 0.0)
59	2.26E+02	02,10/03/89	(300860, 6232140, 0.0)
60	2.25E+02	06,01/04/89	(300900, 6232100, 0.0)
61	2.25E+02	05,12/11/89	(300900, 6232100, 0.0)
62	2.25E+02	11,05/03/89	(300640, 6231820, 0.0)
63	2.25E+02	10,12/05/89	(300640, 6231820, 0.0)
64	2.25E+02	01,25/11/89	(300400, 6232160, 0.0)
65	2.24E+02	15,11/04/89	(300660, 6231820, 0.0)

66	2.24E+02	14,05/07/89	(300640,	6231820,	0.0)
67	2.24E+02	12,05/03/89	(300660,	6231820,	0.0)
68	2.24E+02	13,10/01/89	(300640,	6231760,	0.0)
69	2.24E+02	21,15/10/89	(300260,	6232020,	0.0)
70	2.24E+02	13,14/10/89	(300640,	6231820,	0.0)
71	2.24E+02	12,24/07/89	(300640,	6231820,	0.0)
72	2.24E+02	06,15/02/89	(300940,	6232040,	0.0)
73	2.24E+02	04,10/01/89	(300840,	6232040,	0.0)
74	2.24E+02	13,05/07/89	(300640,	6231820,	0.0)
75	2.24E+02	20,17/07/89	(300840,	6232120,	0.0)
76	2.23E+02	14,08/10/89	(300640,	6231820,	0.0)
77	2.23E+02	12,08/04/89	(300660,	6231820,	0.0)
78	2.23E+02	19,18/06/89	(300800,	6232040,	0.0)
79	2.23E+02	04,02/02/89	(300980,	6232020,	0.0)
80	2.23E+02	15,08/08/89	(300640,	6231740,	0.0)
81	2.23E+02	11,04/07/89	(300640,	6231820,	0.0)
82	2.23E+02	21,06/04/89	(300300,	6232080,	0.0)
83	2.23E+02	08,26/12/89	(300660,	6231820,	0.0)
84	2.23E+02	09,26/03/89	(300660,	6231820,	0.0)
85	2.22E+02	09,18/12/89	(300640,	6231820,	0.0)
86	2.22E+02	10,20/08/89	(300640,	6231820,	0.0)
87	2.22E+02	23,25/02/89	(300260,	6231560,	0.0)
88	2.22E+02	21,18/05/89	(300820,	6232080,	0.0)
89	2.22E+02	22,18/04/89	(300940,	6232040,	0.0)
90	2.22E+02	23,19/09/89	(300840,	6232140,	0.0)
91	2.22E+02	06,12/02/89	(300420,	6232180,	0.0)
92	2.21E+02	07,11/09/89	(300280,	6232060,	0.0)
93	2.21E+02	16,15/11/89	(300640,	6231740,	0.0)
94	2.21E+02	08,16/02/89	(300660,	6231820,	0.0)
95	2.21E+02	11,13/09/89	(300640,	6231760,	0.0)
96	2.21E+02	05,26/11/89	(300860,	6232140,	0.0)
97	2.21E+02	10,22/11/89	(300640,	6231800,	0.0)
98	2.20E+02	09,22/11/89	(300660,	6231820,	0.0)
99	2.20E+02	06,17/12/89	(300640,	6231820,	0.0)
100	2.20E+02	22,15/10/89	(300780,	6232040,	0.0)