Air Quality Results for a Proposed Coal Sulfur Option
May 2008

Addendum to

Coal Sulfur Levels on the Central Coast – Air Quality Management Options
November 2007

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1. INTRODUCTION

This report is an addendum to the previous report completed in November 2007 (Rae et al. 2007), which examined potential air quality impacts with the three Central Coast power stations operating with coals of varying sulfur content. The current work examines the potential impacts for coal supply scenarios proposed by Delta Electricity.

The reader is referred to the previous report sections 2 and 3 for details on model set-up, including meteorological input and power station characteristics.

2. EMISSIONS

Previously hourly SO_2 emissions from the three power stations in the Central Coast region were modelled at full load for the years 2001 to 2006 using existing, regulated coal sulfur levels.

In this study the results from the modelled results at existing regulated sulfur contents have been scaled through post processing to provide results for the proposed coal sulfur contents as shown below:

Table 2.1 Existing and Proposed Coal Sulfur levels

	Coal sulfur content %		
Power Station	**Existing**	**Proposed 0.7%**	**Proposed 0.75%**
Vales Point	0.5	0.7	0.75
Munmorah	1.0	0.7	0.75
Eraring	0.5	0.5	0.5

3. MODELLING RESULTS

Section 3 provides modelling results for the proposed cases. As requested by the client only data are provided. Analysis and option development is to be provided to Delta Electricity by Malfroy Environmental Strategies.

3.1 Annual averages

For reference in the following report the current NEPM ambient standard for SO_2 is 2pphm annual, 8pphm 24hr average and 20pphm hourly. In addition the WHO goal for 10 minute peak is 25pphm.

Table 3.1: Domain wide statistics for annual averages (pphm) for the Central Coast region

2001	Ave	Stdev	Max	Min
PROPOSED 0.7%	0.13	0.06	0.27	0.04
PROPOSED 0.75%	0.14	0.06	0.27	0.04
CURRENT	0.14	0.06	0.27	0.04
2002	**Ave**	**Stdev**	**Max**	**Min**
PROPOSED 0.7%	0.15	0.07	0.33	0.03
PROPOSED 0.75%	0.16	0.08	0.34	0.03
CURRENT	0.16	0.07	0.33	0.03
2003	**Ave**	**Stdev**	**Max**	**Min**
PROPOSED 0.7%	0.14	0.07	0.36	0.03
PROPOSED 0.75%	0.15	0.07	0.37	0.03
CURRENT	0.15	0.07	0.37	0.03
2004	**Ave**	**Stdev**	**Max**	**Min**
PROPOSED 0.7%	0.15	0.06	0.26	0.03
PROPOSED 0.75%	0.15	0.06	0.27	0.04
CURRENT	0.15	0.05	0.26	0.04
2005	**Ave**	**Stdev**	**Max**	**Min**
PROPOSED 0.7%	0.13	0.05	0.27	0.04
PROPOSED 0.75%	0.14	0.06	0.27	0.04
CURRENT	0.14	0.05	0.27	0.04
2006	**Ave**	**Stdev**	**Max**	**Min**
PROPOSED 0.7%	0.13	0.06	0.31	0.02
PROPOSED 0.75%	0.14	0.06	0.32	0.02
CURRENT	0.14	0.06	0.32	0.02

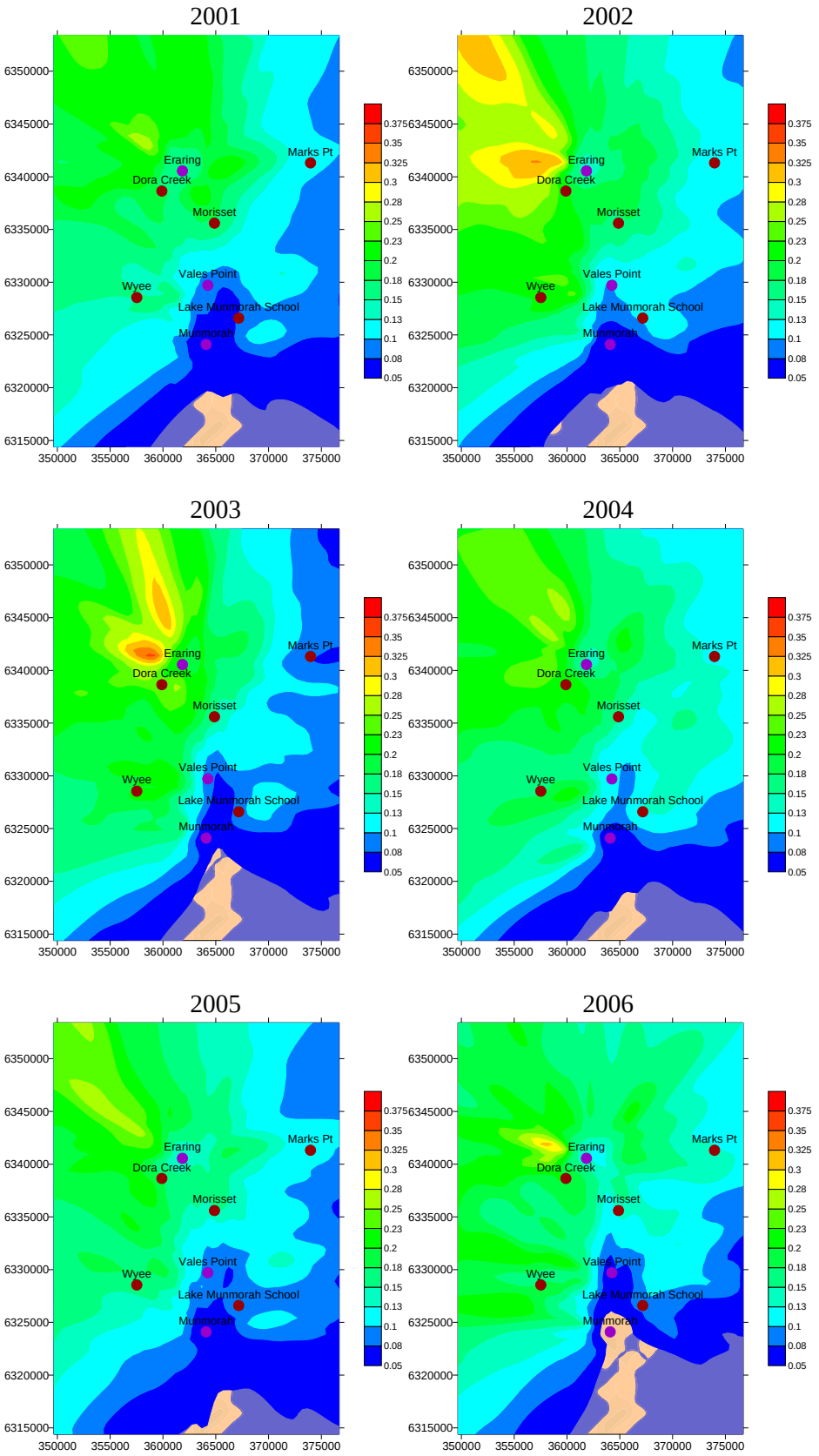

Figure 3.1a. Domain wide annual average concentrations for full load conditions (pphm) with proposed coal sulfur content of 0.7%

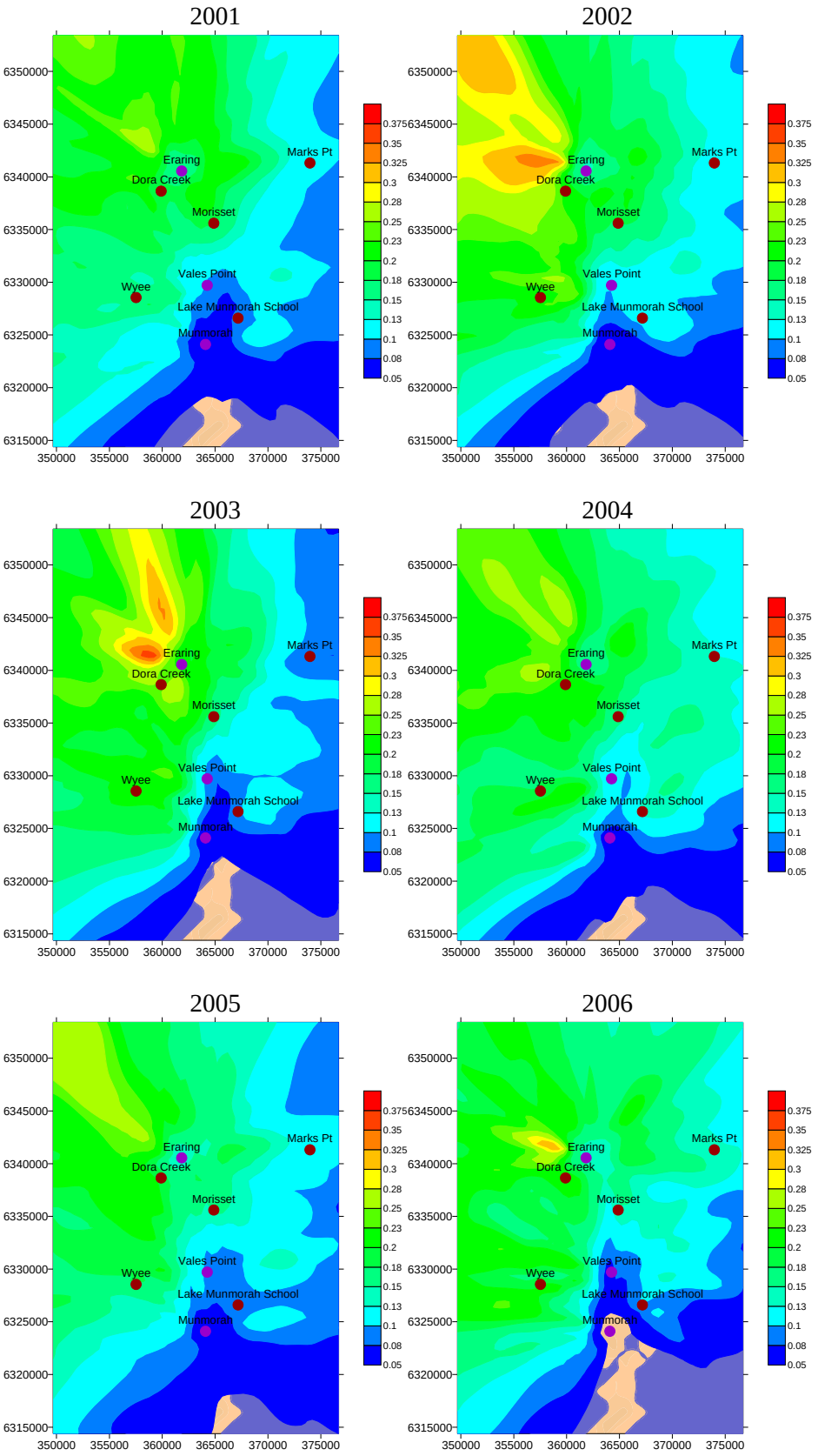

Figure 3.1b. Domain wide annual average concentrations for full load conditions (pphm) with proposed coal sulfur content of 0.75%

3.2 Maximum 24 hour Averages

Table 3.2a: Domain wide statistics for 24 hour averages (pphm) for the Central Coast region

2001	Ave	Stdev	Max	Min
PROPOSED 0.7%	2.49	1.29	8.51	0.84
PROPOSED 0.75%	2.61	1.33	8.51	0.85
CURRENT	2.57	1.26	8.51	0.82
2002	**Ave**	**Stdev**	**Max**	**Min**
PROPOSED 0.7%	2.56	1.13	7.37	0.77
PROPOSED 0.75%	2.67	1.16	7.37	0.80
CURRENT	2.65	1.12	7.37	0.79
2003	**Ave**	**Stdev**	**Max**	**Min**
PROPOSED 0.7%	2.93	1.30	7.79	0.91
PROPOSED 0.75%	3.07	1.34	7.79	0.94
CURRENT	3.01	1.32	7.79	0.95
2004	**Ave**	**Stdev**	**Max**	**Min**
PROPOSED 0.7%	2.89	1.25	9.55	0.82
PROPOSED 0.75%	3.00	1.29	9.74	0.85
CURRENT	2.84	1.19	9.15	0.81
2005	**Ave**	**Stdev**	**Max**	**Min**
PROPOSED 0.7%	2.61	1.11	7.04	1.05
PROPOSED 0.75%	2.71	1.13	7.04	1.09
CURRENT	2.71	1.16	7.15	1.06
2006	**Ave**	**Stdev**	**Max**	**Min**
PROPOSED 0.7%	2.47	1.08	5.65	0.59
PROPOSED 0.75%	2.60	1.12	5.65	0.61
CURRENT	2.54	1.00	6.29	0.59

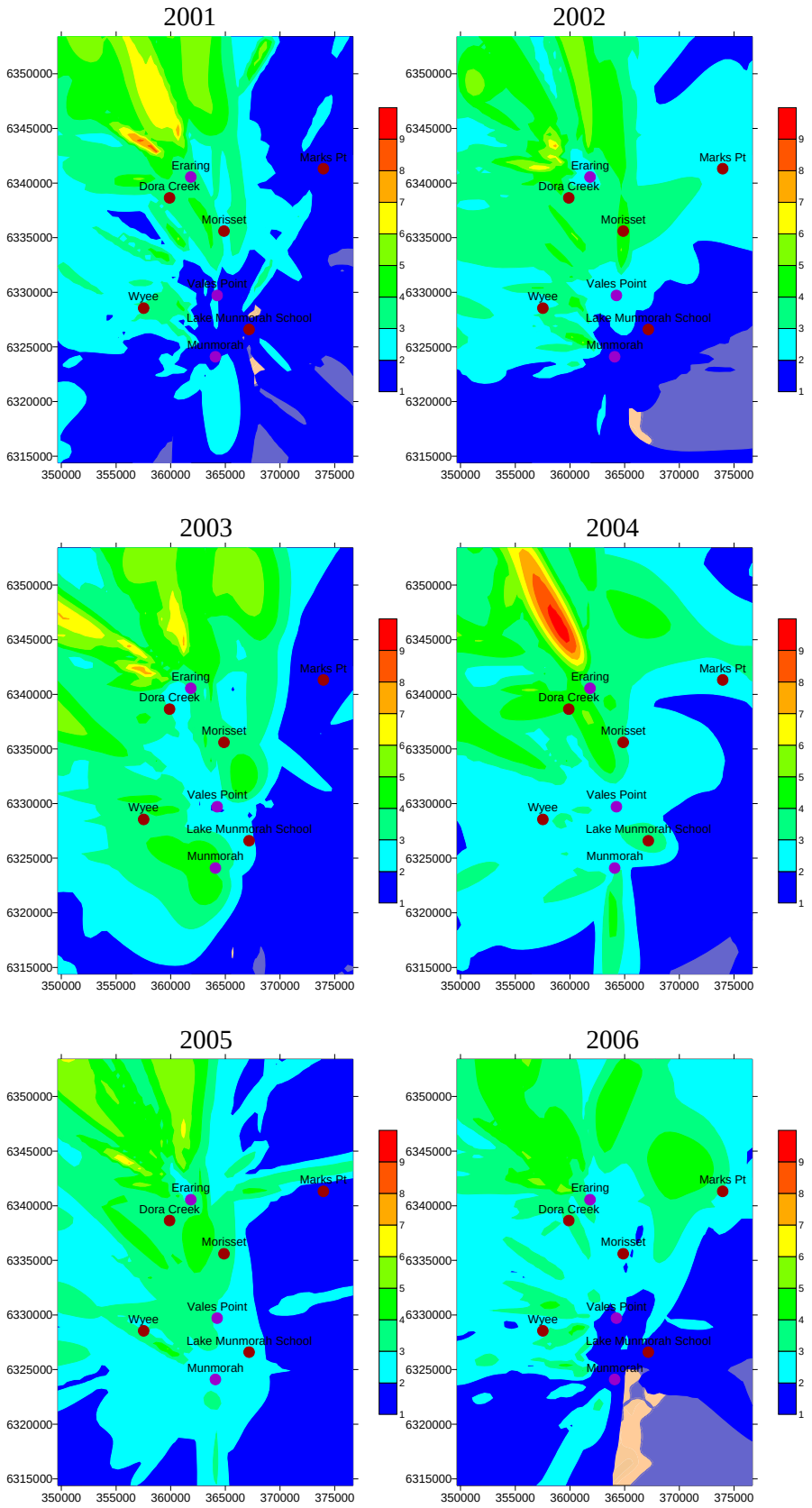

Figure 3.2a: Maximum 24 hour average concentrations (pphm) for full load conditions with proposed coal sulfur content of 0.7%

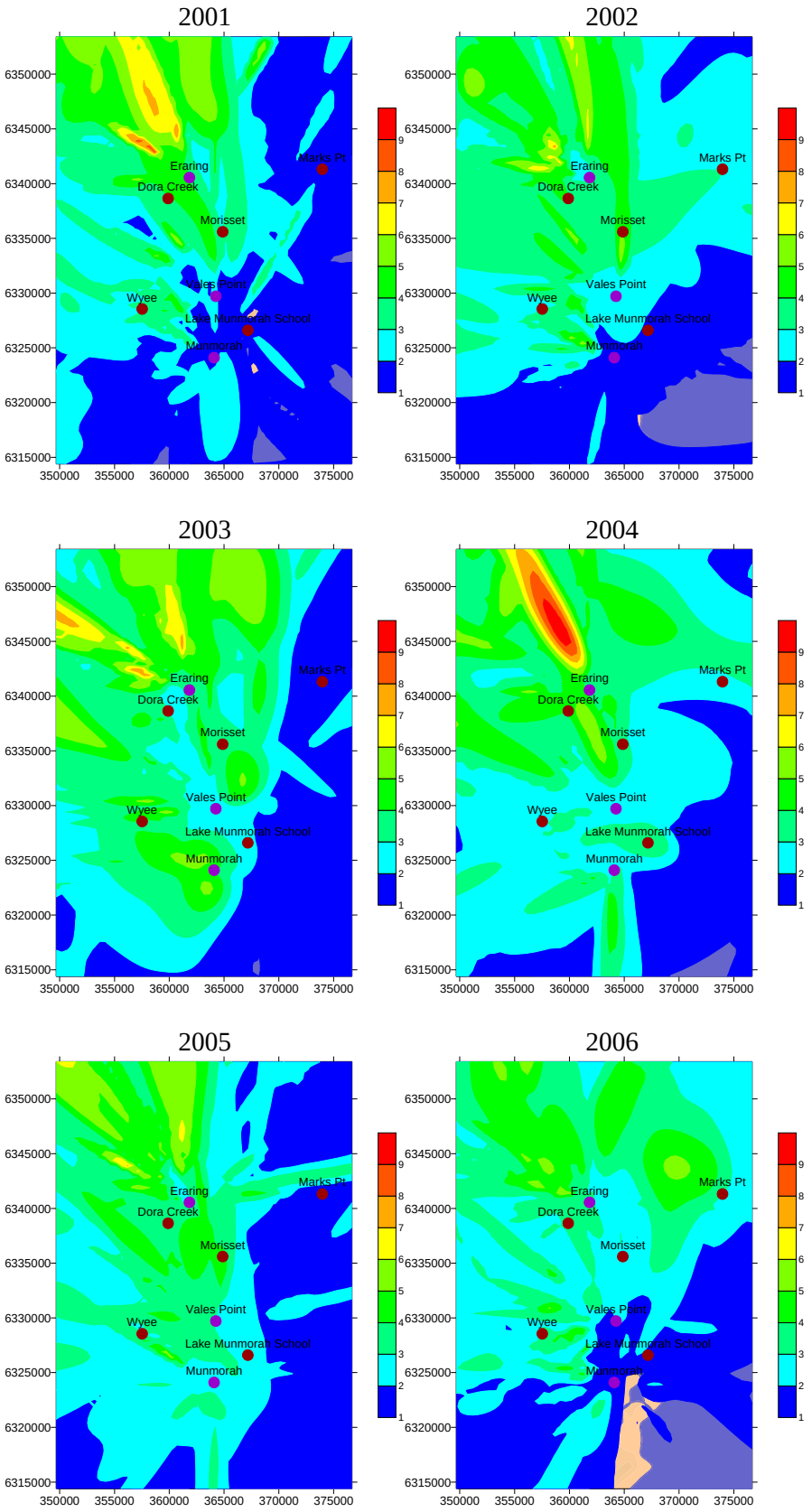

Figure 3.2b: Maximum 24 hour average concentrations (pphm) for full load conditions with proposed coal sulfur content of 0.75%

Table 3.3: Number of 24 hourly averages predicted to exceed 8pphm in the Central Coast region with proposed coal sulfur content

2001	Max
PROPOSED 0.7%	1
PROPOSED 0.75%	1
CURRENT	1
2002	**Max**
PROPOSED 0.7%	0
PROPOSED 0.75%	0
CURRENT	0
2003	**Max**
PROPOSED 0.7%	0
PROPOSED 0.75%	0
CURRENT	0
2004	**Max**
PROPOSED 0.7%	1
PROPOSED 0.75%	1
CURRENT	1
2005	**Max**
PROPOSED 0.7%	0
PROPOSED 0.75%	0
CURRENT	0
2006	**Max**
PROPOSED 0.7%	0
PROPOSED 0.75%	0
CURRENT	0

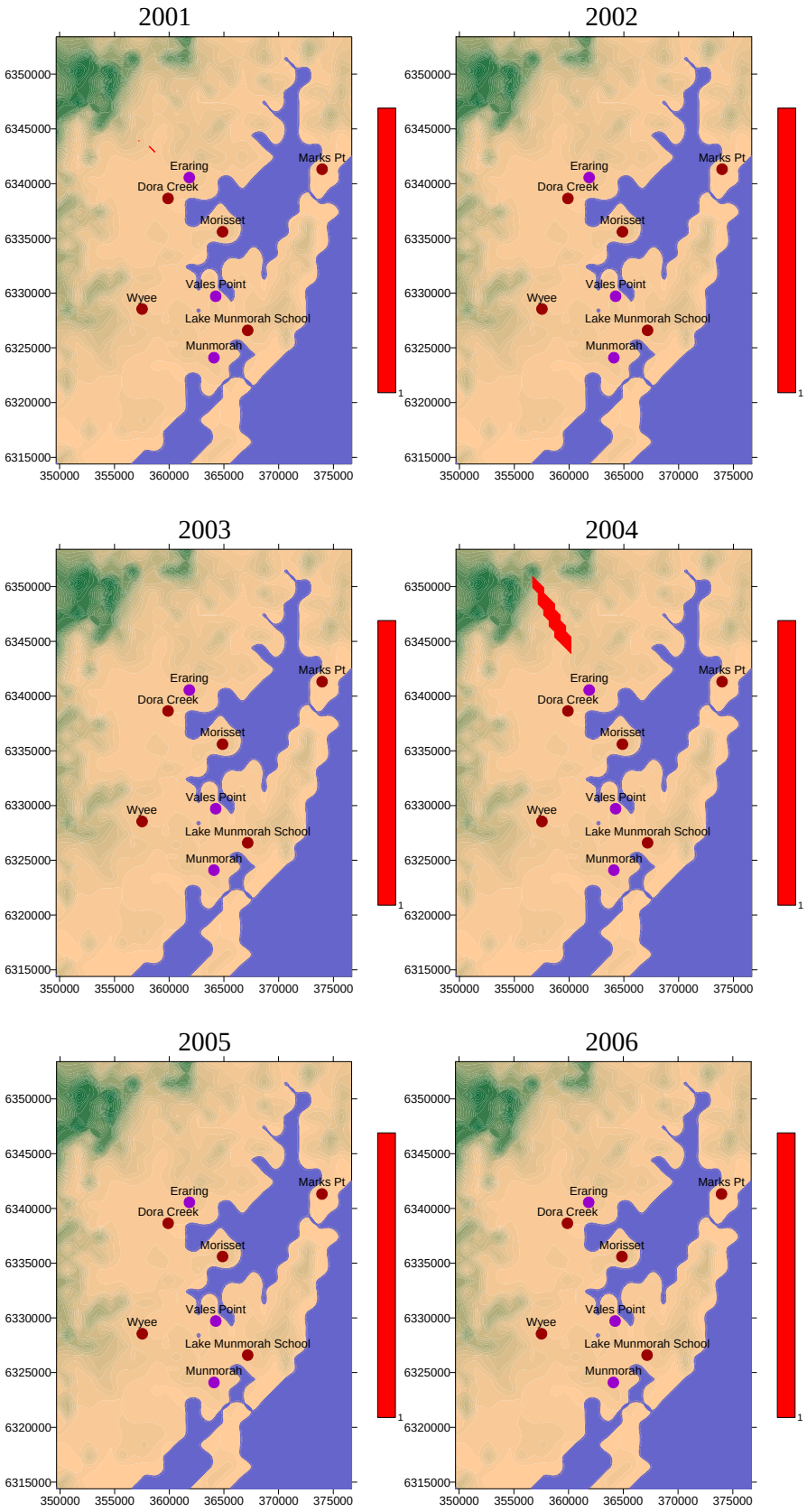

Figure 3.3a: Number of 24 hour maximum averages exceeding 8pphm for full load conditions with proposed coal sulfur content of 0.7%