

## **Appendix G-4**

# **Vertical Layer Definitions for MM5 and CMAQ Modeling Domain**

**Table G-4. OTC Vertical Layer Definition for MM5 Simulations and Approach  
For Reducing CMAQ Layers By Collapsing Multiple MM5 Layers**

MM5					CMAQ				
Layer	Sigma	Pres(mb)	Height(m)	Depth(m)	Layer	Sigma	Pres(mb)	Height(m)	Depth(m)
29	0.000	50	18600	2145	23	0.000	50	18600	4290
28	0.040	88.5	16450	2145					
27	0.080	127.1	14300	1460	21	0.080	127.1	14300	2920
26	0.123	168.5	12800	1460					
25	0.168	211.8	11400	1200	20	0.168	211.8	11400	2390
24	0.218	260.0	10200	1200					
23	0.268	308.1	8990	934	19	0.268	308.1	8990	1870
22	0.318	356.3	8060	934					
21	0.368	404.5	7120	772	18	0.368	404.5	7120	1540
20	0.418	452.6	6350	772					
19	0.468	500.8	5580	662	17	0.468	500.8	5580	1320
18	0.518	549.0	4920	662					
17	0.568	597.1	4250	581	16	0.568	597.1	4250	1160
16	0.618	645.3	3670	581					
15	0.668	693.4	3090	532	15	0.668	693.4	3090	532
14	0.718	741.6	2560	455	14	0.718	741.6	2560	455
13	0.763	785.0	2110	388	13	0.763	785.0	2110	388
12	0.803	823.5	1720	337	12	0.803	823.5	1720	337
11	0.839	858.2	1380	290	11	0.839	858.2	1380	290
10	0.871	889.0	1090	247	10	0.871	889.0	1090	247
9	0.899	916.0	844	207	9	0.899	916.0	844	207
8	0.923	939.1	637	169	8	0.923	939.1	637	169
7	0.943	958.3	468	133	7	0.943	958.3	468	133
6	0.959	973.7	334	107	6	0.959	973.7	334	107
5	0.972	986.3	227	82	5	0.972	986.3	227	82
4	0.982	995.9	145	57	4	0.982	995.9	145	57
3	0.989	1002.6	89	40	3	0.989	1002.6	89	40
2	0.994	1007.5	48	27	2	0.994	1007.5	48	27
1	0.9974	1010.7	21	21	1	0.9974	1010.7	21	21
0	1.000	1013.24	0	0	0	1.000	1013.24	0	0

Note: Layer-top pressures assume a surface pressure of 1013.24 hPa. Layer-top heights are determined by averaging MM5 (CMAQ)-calculated layer-top heights over time (August 2002) and space (the entire 172x172 domain).