



# Department of Pesticide Regulation



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Governor

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## MEMORANDUM

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SUBJECT: EVALUATION OF AMBIENT AIR MONITORING AND TOWNSHIP-MONTH USE POUND DISTRIBUTION OF METHYL BROMIDE FOR SUBCHRONIC EXPOSURE ASSESSMENT

In this analysis, township-monthly use levels of methyl bromide in California were calculated for year 2001, and maximum monthly average air concentrations for each township were estimated with the maximum monthly methyl bromide use of that township. The estimation was based on an empirical relationship between ambient air concentration and use in a 6x6<sup>2</sup> mile area. Also evaluated was the representativeness of the methyl bromide air monitoring by the Air Resources Board (ARB) and the Alliance of the Methyl Bromide Industry (AMBI) in 2001. Based on the Pesticide Use Report (PUR) database of 2001, a frequency distribution curve of township-monthly use was derived, and townships with the highest subchronic exposure levels were identified.

### Introduction

Subchronic air exposure of methyl bromide has been a concern in heavy use agricultural areas. At the request of the Department of Pesticide Regulation (DPR), ARB conducted ambient air monitoring in Monterey, Santa Cruz, and Kern counties in 2000 and 2001 [1,2,3,4]. The Alliance of the Methyl Bromide Industry (AMBI) conducted similar monitoring in Ventura and Santa Barbara counties in 2001 [5], and in Ventura, Santa Cruz and Monterey counties in 2002 [6]. DPR staff analyzed the air monitoring data and established some empirical relationships between the ambient air concentration and the use in certain areas and periods [7,8]. The township use limit, corresponding to a reference concentration, was back-calculated based on a regression model between air concentration and use in a 6x6 area, which was interpolated from uses in 5x5 and 7x7 areas [9]. The air monitoring was intended to cover heavy use areas and periods in California. At the time of monitoring, however, it was uncertain to what extent the surrounding use around monitoring sites would represent a heavy use scenario. Now that the year 2001 PURs have been collected and are available in the PUR database, we can evaluate the use intensity (defined as applied methyl bromide mass in a unit area and in a unit time,



the use intensity (defined as applied methyl bromide mass in a unit area and in a unit time, or lbs/township-month) near the monitoring sites in relation to those in other areas and time periods in California. Moreover, the point measurements at these monitoring sites and the empirical models derived from these measurements could be used to evaluate exposure risks at other times and places in the State. Therefore, the purpose of this analysis is (1) to evaluate the degree of use surrounding the monitoring sites, (2) to estimate the township-month use level and its frequency distribution, and (3) to identify the townships with the highest subchronic air concentration levels in 2001.

## **Material and Methods**

### Regression Model

The regression model between air concentration and use over 6x6 mile<sup>2</sup> area over an 8-week period is described in equation (1). The model was derived using 2000 and 2001 ARB monitoring data and AMBI 2002 monitoring data [9].

$$Y = 0.732 + 0.0000721X \quad (1)$$

where Y represents the mean of weekly average air concentrations over a period of eight weeks, and X is the mean of weekly use pounds over the 6x6 mile<sup>2</sup> area in the same period (lbs/6x6sections-week). A conversion coefficient of 4.286 is applied to equation (1) to estimate the monthly average air concentration for the center of a township from the township-monthly use pounds. One month is counted as 30 days in this conversion.

### Reference Concentration and Township Use Level for Subchronic Exposure

DPR proposed nine parts per billion (ppb) as a regulatory reference concentration for subchronic exposure of methyl bromide. The proposed township use limit corresponding to the nine ppb regulatory goal is 266,194 lbs/township-month [9].

### Township-Monthly Use Distribution

Methyl bromide use records of 2001 were queried from the PUR database and summarized by township and month. The resultant list consists of total use pounds for each unique combination of township and month. The list was sorted based on use pounds by ascending order and the cumulative frequency of distribution was calculated and plotted.

### Evaluation of Relative Use Around Ambient Air Monitoring Sites

The monthly use of townships with monitoring sites was compared to township-monthly use distribution to gauge the representativeness of location and time of monitoring. This comparison offered an assessment of whether the monitoring was indeed conducted in heavy use townships and months.

### Subchronic Air Exposure Level Assessment

From the township-monthly use frequency distribution curve and the use-concentration relationship, air concentration levels for subchronic exposure can be evaluated with respect to the cumulative frequency distribution of methyl bromide use. For any given concentration, a percentage of township-monthly use that might result in a higher concentration level can be determined.

## **Results**

### Township-Monthly Use Frequency Distribution

For each township with positive use in year 2001, the use in each month was calculated. The cumulative frequency distribution of township-monthly use in 2001 for the whole state is shown in Figure 1. Although the use pound covers a big range, from 0 to 202,385 lbs/township-month, 90% is less than 17,174 lbs/township-month, and 95% is less than 34,265 lbs/township-month. Of the 860 township-months with methyl bromide use in 2001, no township-monthly use exceeded the proposed use cap (266,194 lbs/township-month).

The maximum monthly use for each township in 2001 was listed in Table 1a, with the estimated air concentration using equation (1). The maximum township-monthly use was 202,385 lbs and the estimated air concentration at this level of use was 4.14 ppb. There were 52 townships with estimated air concentration equal or greater than one ppb for at least one month. This number was 83 in 2000 (Table 1b). The spatial distribution of maximum monthly township use for the state was also shown in Figure 2, and Figure 3-4 shown the maximum monthly township uses for Monterey/Santa Cruz counties and Santa Barbara/Ventura counties. There are only a few townships where the maximum monthly use exceeds 90,000 lbs/township-month or 2.24 ppb of air concentration.

### Top Annual Use Townships

Townships are sorted based on their annual total use pounds in 2001, and townships with one or more months of use exceeding the one ppb township-monthly use level are listed in Table 1. The townships monitored by the ARB and the AMBI are marked in the second column with the monitoring sites. All top eight townships of use in 2001 were monitored by either ARB or AMBI and the monitoring took place in months with the heaviest use. The top 15 annual use townships for the year 2000 were also presented in Table 4. The top five use townships remained unchanged from 2000 to 2001, but the use amount decreased.

### Percentiles of Monitored Township-Monthly Uses

The ARB air monitoring in Monterey and Santa Cruz was primarily in September and October, and during July and August in Kern County. The AMBI air monitoring in Ventura and Santa

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Barbara was primarily in August and September. The monitored township-monthly use was compared to the township-monthly use distribution curve derived from the whole State, and the percentile of top township-monthly use pounds of monitoring are listed in Table 3. Some monitoring sites are not shown in Table 3 because of their relative low percentile of township-monthly use. All top four cases of township-monthly use were monitored. The percentiles of township-monthly use pounds were above 95% for most monitoring sites. In other words, 95% of township-month use pounds in California in 2001, were lower than those of monitored townships and months. Therefore, the monitored sites and months were well chosen. Most of these heavy use cases were in areas of Monterey/Santa Cruz and Ventura/Santa Barbara.

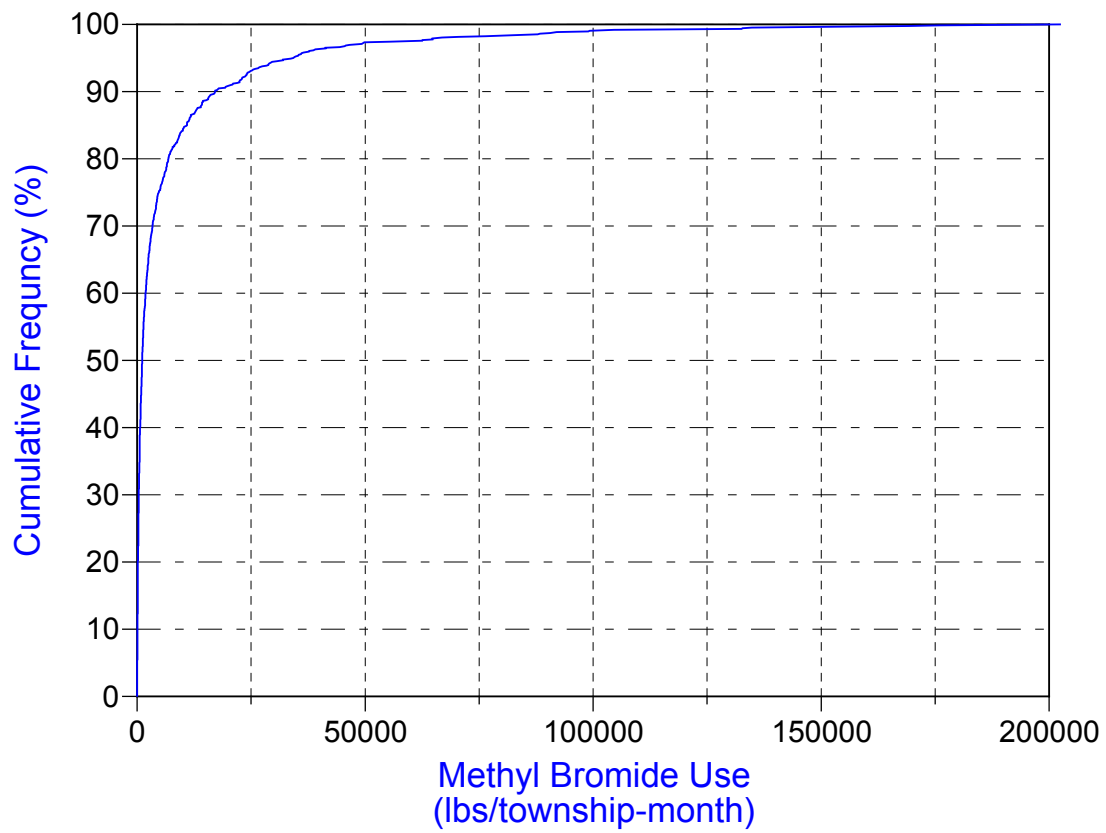
### **Conclusions**

The ambient air monitoring by the ARB and the AMBI was conducted in high-use areas during high-use periods. The monitoring locations and periods covered the townships and months with the top use intensity. The air monitoring captured the heaviest use scenarios in California in 2001.

bcc: Segawa Surname File

## References

- [1] ARB, 2001. Ambient air monitoring for methyl bromide and 1,3-Dichloropropene in Monterey/Santa Cruz Counties - Fall 2000. California Air Resources Board. Sacramento, CA.
- [2] ARB, 2001. Ambient air monitoring for methyl bromide and 1,3-Dichloropropene in Kern County - Summer 2000. California Air Resources Board. Sacramento, CA.
- [3] ARB, 2002. Ambient air monitoring for methyl bromide and 1,3-Dichloropropene in Monterey/Santa Cruz Counties - Fall 2001. California Air Resources Board. Sacramento, CA.
- [4] ARB, 2002. Ambient air monitoring for methyl bromide and 1,3-Dichloropropene in Kern County - Summer 2001. California Air Resources Board. Sacramento, CA.
- [5] Alliance of the Methyl Bromide Industry, 2002. Methyl bromide ambient air monitoring in Oxnard/Camarillo and Santa Maria, August-October, 2001. Alliance of the Methyl Bromide Industry, Sacramento, CA.
- [6] Alliance of the Methyl Bromide Industry, 2003. Methyl bromide air monitoring: Ventura, Santa Cruz, and Monterey Counties, July-October, 2002. Alliance of the Methyl Bromide Industry, Sacramento, CA.
- [7] LinYing Li, Bruce Johnson and Randy Segawa, 2001. Empirical relationships between use, area, and ambient air concentration of methyl bromide for subchronic exposure concerns. California Department of Pesticide Regulation, Sacramento, CA.
- [8] LinYing Li, Bruce Johnson and Randy Segawa, 2002. Analysis of methyl bromide ambient air concentration data monitored by the Air Resources Board and the Alliance of Methyl Bromide Industry in year 2001(draft). California Department of Pesticide Regulation, Sacramento, CA.
- [9] Memorandum: Bruce Johnson and Lin Ying Li to Randy Segawa: Calculation of a tolerance interval for a township limit on methyl bromide use to control subchronic exposure. California Department of Pesticide Regulation, Sacramento, CA



**Figure 1. Frequency Distribution of township-monthly use of methyl bromide in the State of California in 2001**

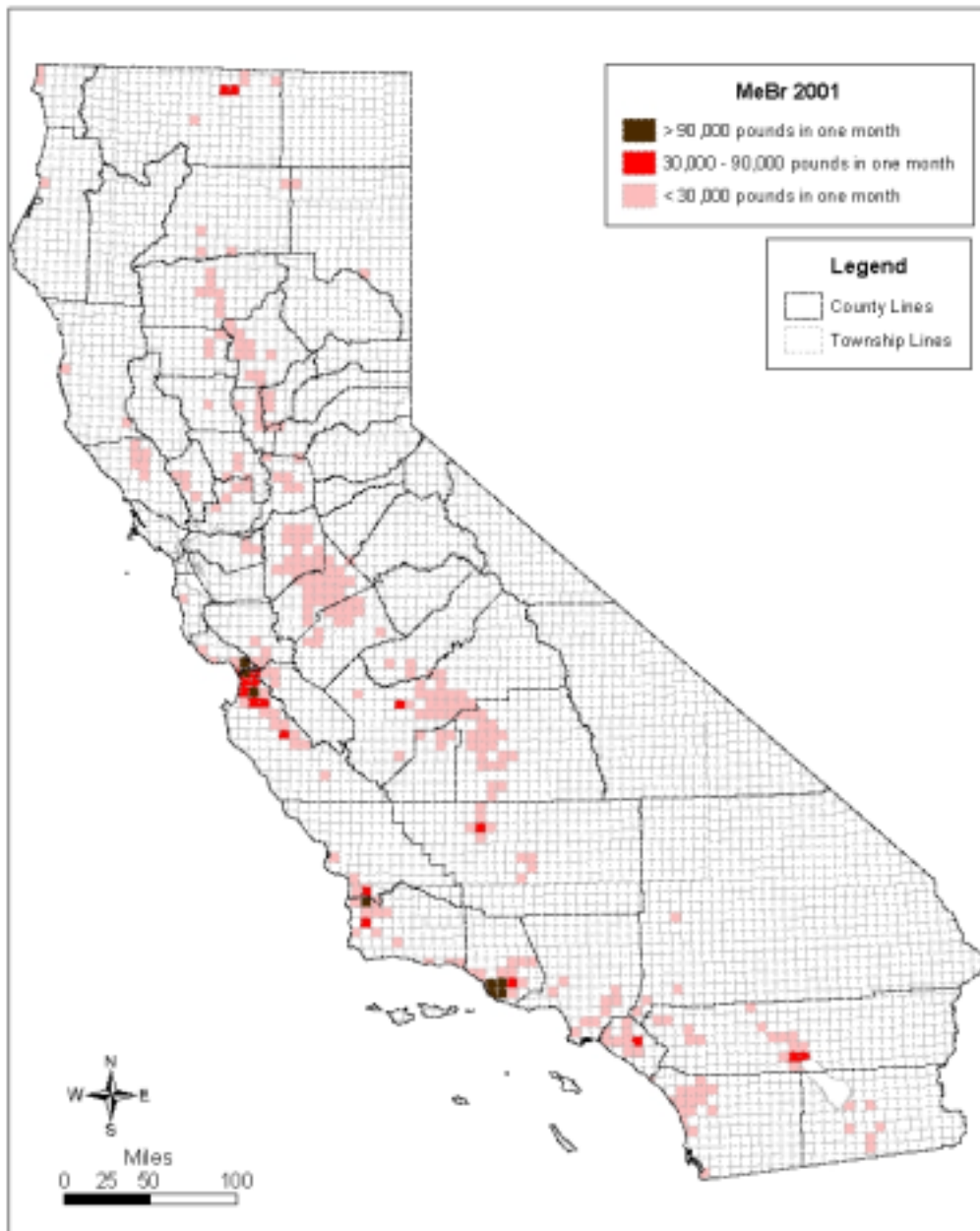


Figure 2. Township use map of methyl bromide in three consecutive months in California in 2001





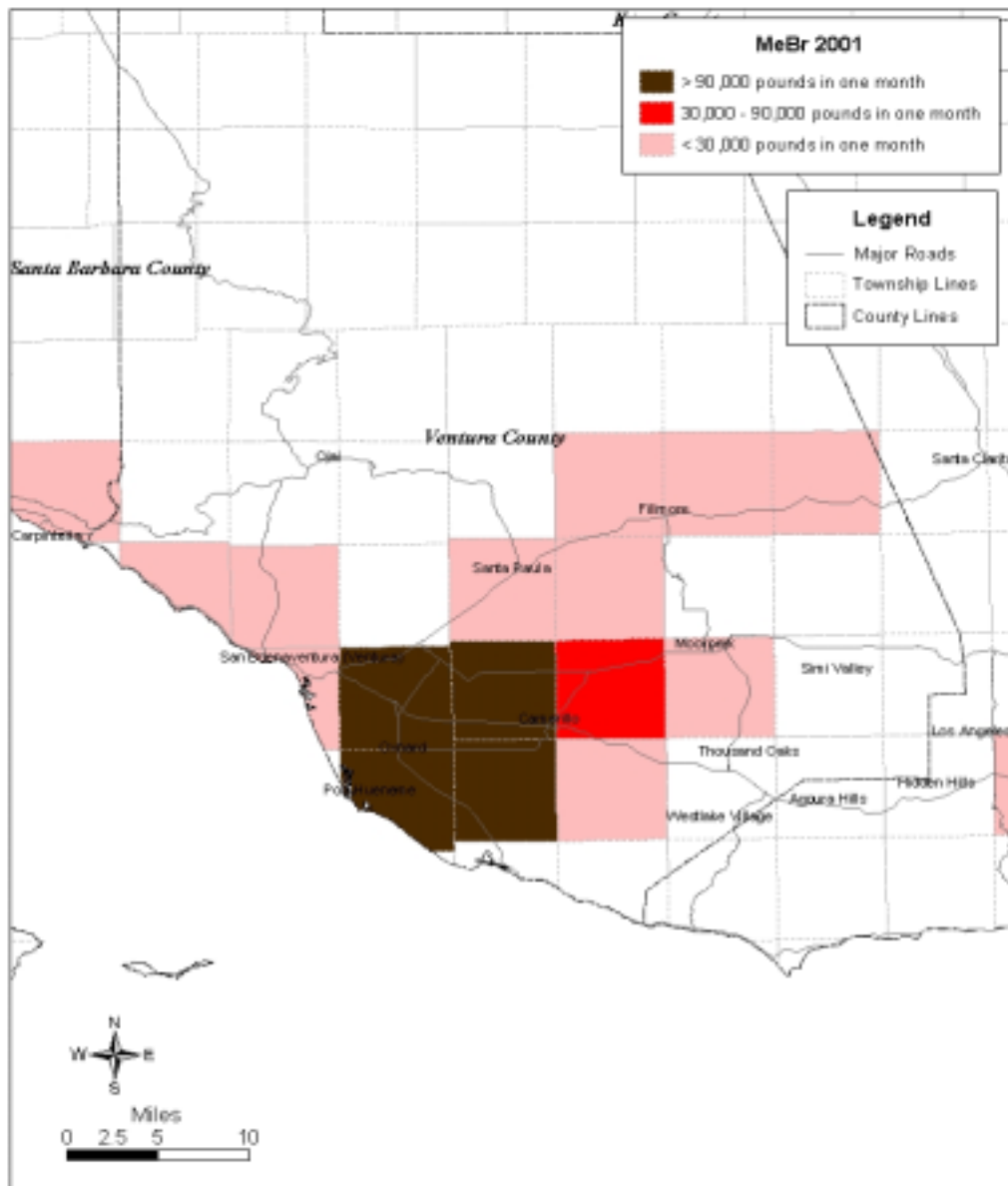


Figure 4. Township use map of methyl bromide in three consecutive months in Santa Barbara and Ventura counties in 2001

Table 1a. Townships with estimated air concentration  $\geq 1$  ppb for at least one month in 2001

Rank	Township	County	Max Month Use Concentration	
			(lbs/mo)	(ppb)
1	M12S02E	MONTEREY/SANTA CRUZ	202,385	4.14
2	S01N21W	VENTURA	176,181	3.70
3	S02N21W	VENTURA	169,171	3.58
4	S02N22W	VENTURA	154,797	3.34
5	S10N34W	SANTA BARBARA	132,579	2.96
6	M14S03E	MONTEREY	104,603	2.49
7	M11S02E	SANTA CRUZ	91,984	2.28
8	S01N22W	VENTURA	90,635	2.26
9	M15S17E	SANTA CRUZ	88,350	2.22
10	M46N01W	SISKIYOU	87,881	2.21
11	M15S04E	MONTEREY	70,446	1.92
12	M14S02E	MONTEREY	64,815	1.82
13	M13S02E	MONTEREY	62,607	1.79
14	M12S01E	MONTEREY/SANTA CRUZ	62,554	1.78
15	S05S08W	ORANGE	46,617	1.52
16	M13S03E	MONTEREY	45,740	1.50
17	M12S03E	MONTEREY/SANTA CRUZ	45,565	1.50
18	S07S09E	RIVERSIDE	37,783	1.37
19	S11N34W	SAN LUIS OBISPO	36,475	1.35
20	M27S25E	KERN	36,136	1.34
21	S08N34W	SANTA BARBARA	35,946	1.34
22	M18S06E	MONTEREY	34,802	1.32
23	M15S03E	MONTEREY	34,265	1.31
24	S02N20W	VENTURA	33,693	1.30
25	S07S08E	RIVERSIDE	32,069	1.27
26	M46N02W	SISKIYOU	30,714	1.25
27	M37N05E	SHASTA	29,613	1.23
28	M04S11E	STANISLAUS	29,313	1.23
29	M15S18E	FRESNO	28,962	1.22
30	M02S09E	SAN JOAQ / STANISLAUS	28,763	1.22
31	S10S04W	SAN DIEGO	26,545	1.18
32	M43N05W	SISKIYOU	25,467	1.16
33	M32S29E	KERN	25,245	1.16
34	M19S25E	TULARE	24,858	1.15
35	M08S15E	MERCED	24,709	1.15
36	S10N33W	SANTA BARBARA	24,161	1.14
37	S09N33W	SANTA BARBARA	23,845	1.13
38	S01N20W	VENTURA	23,667	1.13
39	M26N03W	TEHAMA	23,076	1.12
40	M25S25E	KERN	22,995	1.12
41	M14S19E	FRESNO	22,537	1.11
42	S02N23W	VENTURA	22,479	1.11

Rank	Township	County	Max Month Use Concentration	
			(lbs/mo)	(ppb)
43	S06S08W ORANGE		21,059	1.09
44	M14S23E FRESNO		20,893	1.08
45	S11S05W SAN DIEGO		20,461	1.08
46	M14S04E MONTEREY		19,417	1.06
47	M21N03W GLENN		17,558	1.03
48	M03S12E STANISLAUS		17,176	1.02
49	S08S08E RIVERSIDE		17,041	1.02
50	S03N21W VENTURA		16,151	1.00
51	M11S04E SAN BENITO		16,029	1.00
52	H18N01W DEL NORTE		15,646	1.00

Table 1b. Townships with estimated air concentration  $\geq 1$  ppb for at least one month in 2000

Rank	Township	County	Max Month Use Concentration	
			(lbs/mo)	(ppb)
1	S02N22W VENTURA		204,198	4.17
2	M12S02E MONTEREY / SANTA CRUZ		201,165	4.12
3	S01N21W VENTURA		176,720	3.71
4	S10N34W SAN LUIS OBISPO / SANTA BARBARA		167,183	3.54
5	M07S11E MERCED		109,625	2.58
6	S02N20W VENTURA		93,091	2.30
7	S02N21W VENTURA		90,127	2.25
8	M14S03E MONTEREY		88,833	2.23
9	M27S25E KERN		86,883	2.19
10	M15S18E FRESNO		85,849	2.18
11	S10N33W SAN LUIS OBISPO / SANTA BARBARA		83,351	2.13
12	M13S02E MONTEREY		82,321	2.12
13	S01N22W VENTURA		73,580	1.97
14	M14S02E MONTEREY		70,393	1.92
15	M25S26E TULARE		68,150	1.88
16	M23S26E TULARE / KERN		61,856	1.77
17	M37N05E LASSEN / SHASTA		61,406	1.77
18	S07S09E RIVERSIDE		60,760	1.75
19	S11N34W SAN LUIS OBISPO / SANTA BARBARA		58,040	1.71
20	M12S03E MONTEREY / SAN BENITO / SANTA CLARA / SANTA CRUZ		57,443	1.70
21	H18N01W DEL NORTE		56,183	1.68
22	M11S02E SANTA CLARA / SANTA CRUZ		54,187	1.64
23	M46N01W SISKIYOU		52,741	1.62
24	S08S08E RIVERSIDE / SAN DIEGO		46,526	1.51
25	S05S08W ORANGE		45,874	1.50
26	M14S04E MONTEREY/SAN BENITO		44,968	1.49
27	M28S21E KERN		44,901	1.49
28	M13S03E MONTEREY / SAN BENITO		44,796	1.49

Rank	Township	County	Max Month Use Concentration	
			(lbs/mo)	(ppb)
29	S05S07E	RIVERSIDE	43,794	1.47
30	S07S08E	RIVERSIDE	43,457	1.46
31	M14S19E	FRESNO	42,723	1.45
32	S11S05W	SAN DIEGO	41,456	1.43
33	M26S24E	KERN	39,957	1.40
34	M02S07E	SAN JOAQUIN / STANISLAUS	38,198	1.37
35	S06S08W	ORANGE	38,024	1.37
36	S14S13E	IMPERIAL	37,810	1.37
37	M27S24E	KERN	37,103	1.36
38	S02N23W	VENTURA	36,849	1.35
39	S09N34W	SANTA BARBARA	36,616	1.35
40	M15S17E	FRESNO	36,333	1.34
41	M14S23E	FRESNO	36,118	1.34
42	M09S16E	MADERA / MERCED	34,291	1.31
43	M27S26E	KERN	32,131	1.27
44	M15S04E	MONTEREY	31,403	1.26
45	M08S15E	MERCED	31,400	1.26
46	M31S29E	KERN	30,930	1.25
47	M19S25E	TULARE	30,720	1.25
48	S10S04W	SAN DIEGO	29,994	1.24
49	M02S11E	STANISLAUS	29,510	1.23
50	S06S08E	RIVERSIDE	29,361	1.23
51	M04S10E	STANISLAUS	28,734	1.22
52	M12S01E	MONTEREY / SANTA CRUZ	28,163	1.21
53	M14S17E	FRESNO	28,098	1.20
54	M04S11E	STANISLAUS	27,562	1.20
55	M05S11E	MERCED / STANISLAUS	27,296	1.19
56	S01N20W	VENTURA	27,146	1.19
57	S03N21W	VENTURA	27,109	1.19
58	S11N18W	KERN	26,680	1.18
59	M06S12E	MERCED	26,532	1.18
60	M15S23E	FRESNO	25,897	1.17
61	S02S07W	RIVERSIDE / SAN BERNARDINO	25,554	1.16
62	M28N03W	TEHAMA	24,819	1.15
63	M11S03E	SANTA CLARA / SANTA CRUZ	24,165	1.14
64	S06S07E	RIVERSIDE	23,324	1.12
65	M06S11E	MERCED	22,218	1.11
66	M13N11W	LAKE / MENDOCINO	22,137	1.10
67	M15S03E	MONTEREY	22,118	1.10
68	M05S10E	MERCED / STANISLAUS	21,753	1.10
69	M14N03E	SUTTER / YUBA	21,468	1.09
70	M22S10E	MONTEREY	18,816	1.05
71	M43N05W	SISKIYOU	18,494	1.04
72	M11S01E	SANTA CRUZ	18,450	1.04

Rank	Township	County	Max Month Use Concentration	
			(lbs/mo)	(ppb)
73	M32S29E	KERN	18,291	1.04
74	S05S10W	ORANGE	18,109	1.04
75	S12S04W	SAN DIEGO	17,640	1.03
76	S08S09E	SAN DIEGO	17,630	1.03
77	M07N05W	NAPA	17,083	1.02
78	S09N33W	SANTA BARBARA	16,976	1.02
79	M01S06E	SAN JOAQUIN	16,903	1.02
80	M03N05E	SAN JOAQUIN	16,772	1.01
81	S01N23W	VENTURA	16,243	1.01
82	M03S12E	STANISLAUS	16,135	1.00
83	M46N02W	SISKIYOU	15,700	1.00

Table 2. Top 10 townships of annual methyl bromide use (lbs/township) in 2001 and use distribution in each month

<u>County</u>	<u>Site</u>	<u>Township</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>Total</u>
Monterey/Santa Cruz	PMS <sup>a</sup>	M12S02E	0	0	1842	811	2049	12927	10957	<b>132797</b>	<b>202385</b>	<b>82054</b>	3411	0	449233
Ventura	ABD <sup>b</sup>	S02N22W	675	0	1216	761	11528	<b>99007</b>	<b>134842</b>	<b>154797</b>	<b>34564</b>	3315	984	1037	442726
Ventura	PVW <sup>b</sup>	S01N21W	140	0	921	<b>24221</b>	2978	<b>27455</b>	<b>76384</b>	<b>176181</b>	12623	534	6631	553	328621
Monterey	SAL <sup>a</sup> ,LJE <sup>a</sup>	M14S03E	0	0	0	0	8395	<b>49590</b>	<b>39132</b>	<b>104603</b>	<b>66897</b>	<b>38722</b>	2753	0	310092
Santa Barbara	EDW <sup>b</sup>	S10N34W	0	0	0	0	3283	1250	0	<b>17174</b>	<b>132579</b>	<b>99241</b>	1873	0	255400
Ventura	UWC <sup>b</sup>	S02N21W	0	0	0	2351	6449	2258	<b>55625</b>	<b>169171</b>	15205	402	0	225	251686
Santa Cruz	SES <sup>a</sup> ,MES <sup>a</sup>	M11S02E	0	0	0	2135	4342	7662	<b>17005</b>	<b>49269</b>	<b>91984</b>	<b>41379</b>	2503	0	216279
Ventura	SHA <sup>b</sup>	S01N22W	225	74	2344	3544	7214	<b>64818</b>	<b>25936</b>	<b>90635</b>	<b>17771</b>	1345	1111	331	215348
Santa Cruz		M12S01E	0	0	0	259	12795	5985	13970	<b>24036</b>	<b>62554</b>	<b>41366</b>	0	0	160965
Monterey		M13S02E	0	0	0	4494	3571	0	0	<b>21978</b>	<b>62607</b>	<b>49809</b>	0	0	142459

<sup>a</sup> ARB monitoring sites, <sup>b</sup> AMBI monitoring sites

\* Numbers in bold font indicate the township-month use might result in an air concentration higher than 1 ppb

Table 3. The percentile of township-monthly use cases monitored by ARB and AMBI in top eight use townships in 2001

<u>County</u>	<u>Site</u>	<u>Township</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>Total</u>
Monterey/Santa Cruz	PMS <sup>a</sup>	M12S02E									100.00	98.37			
Ventura	ABD <sup>b</sup>	S02N22W								99.65	95.12				
Ventura	PVW <sup>b</sup>	S01N21W								99.88	86.74				
Monterey	SAL <sup>a</sup> ,LJE <sup>a</sup>	M14S03E									98.02	96.16			
Santa Barbara	EDW <sup>b</sup>	S10N34W								90.00	99.30				
Ventura	UWC <sup>b</sup>	S02N21W								99.77	88.72				
Santa Cruz	SES <sup>a</sup> ,MES <sup>a</sup>	M11S02E									98.84	96.51			
Ventura	SHA <sup>b</sup>	S01N22W								98.72	90.35				

<sup>a</sup> ARB monitoring sites, and monitoring was primarily in September and October

<sup>b</sup> AMBI monitoring sites, and monitoring was primarily in August and September

Table 4. Top 15 townships of annual methyl bromide use (lbs/township) in 2000 and use distribution in each month

<u>County</u>	<u>Site</u>	<u>Township</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>Total</u>
Ventura	ABD <sup>b</sup>	S02N22W	11708	450	8594	9485	<b>27986</b>	<b>100431</b>	<b>201165</b>	<b>149593</b>	<b>82298</b>	4604	4565	4570	605449
Monterey/Santa Cruz	PMS <sup>a</sup>	M12S02E	0	0	1233	2035	9159	<b>21324</b>	5546	<b>85307</b>	<b>204198</b>	<b>130315</b>	8525	804	468446
Ventura	PVW <sup>b</sup>	S01N21W	681	0	8058	<b>17955</b>	<b>25089</b>	<b>27212</b>	<b>66077</b>	<b>176720</b>	<b>41847</b>	3825	7136	1013	375613
Ventura	EDW <sup>b</sup>	S10N34W	4031	0	0	0	8817	4688	0	643	<b>129447</b>	<b>167183</b>	6415	11000	332224
Monterey	SAL <sup>a</sup> ,LJE <sup>a</sup>	M14S03E	0	0	0	0	<b>23664</b>	<b>48373</b>	<b>40439</b>	<b>43784</b>	<b>90127</b>	<b>34506</b>	774	0	281667
Merced		M07S11E	<b>50607</b>	<b>85849</b>	<b>40554</b>	<b>51774</b>	8678	0	0	0	0	0	0	<b>24154</b>	261616
Monterey		M13S02E	0	0	0	0	1867	<b>14466</b>	5159	<b>51416</b>	<b>79043</b>	<b>88833</b>	<b>19081</b>	0	259865
Santa Cruz	SES <sup>a</sup> ,MES <sup>a</sup>	M11S02E	274	0	2486	12010	2620	0	9363	<b>38763</b>	<b>82321</b>	<b>76281</b>	5626	0	229744
Monterey		M14S02E	0	0	<b>48106</b>	1632	6567	1981	1008	8556	<b>50604</b>	<b>83351</b>	<b>15532</b>	0	217337
Ventura	UWC <sup>b</sup>	S02N21W	0	0	2728	<b>24053</b>	7169	3645	<b>20765</b>	<b>109625</b>	<b>47674</b>	1444	0	51	217154
Kern	CRS <sup>a</sup>	M27S25E	0	0	5695	0	<b>31211</b>	<b>23419</b>	<b>70393</b>	<b>25915</b>	8149	0	1184	<b>36417</b>	202383
Monterey		M12S01E	0	0	2165	4442	5809	14793	<b>28382</b>	<b>43148</b>	<b>54187</b>	<b>30012</b>	9682	0	192620
Ventura	SHA <sup>b</sup>	S01N22W	2152	23	13112	<b>19910</b>	<b>20738</b>	<b>17899</b>	1727	<b>73580</b>	<b>21591</b>	6863	2808	275	180678
San Luis Obispo	PLN <sup>b</sup>	S10N33W	0	2250	1575	0	0	858	0	<b>21825</b>	<b>86883</b>	<b>37639</b>	0	0	151030
Monterey		M13S03E	0	0	0	0	0	0	0	4029	<b>58040</b>	<b>39720</b>	21291	0	123080

<sup>a</sup> ARB monitoring sites, <sup>b</sup> AMBI monitoring sites

\* Numbers in bold font indicate the township-month use might result in an air concentration higher than 1 ppb