APPENDIX 1

a. SUMMARY OF APPLICATION METHOD ADJUSTMENT FACTORS AND METHOD USE FRACTIONS
b. FIELD FUMIGATION METHODS (FFM), FFM CODE FOR PESTICIDE USE REPORTING, AND EMISSION RATING

APPENDIX 1a – SUMMARY OF APPLICATION METHOD ADJUSTMENT FACTORS AND METHOD USE FRACTIONS

Table A1 - 1. Application Method Adjustment Factors (AMAF) for 2004 - 2007.

	AMAF					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam**	**Dazomet**	**Na Tetrathio carbonate**
Shallow injection w/ high permeability tarp or no tarp-broadcast	61*	64*	74*	not applicable	not applicable	not applicable
Shallow injection w/ low permeability tarp-broadcast	not applicable	44	48	not applicable	not applicable	not applicable
Shallow injection w/ high permeability tarp or no tarp-bed	not applicable	64*	100*	77*	not applicable	not applicable
Shallow injection w/ low permeability tarp-bed	not applicable	64*	100*	not applicable	not applicable	not applicable
Shallow injection w/ water treatments	41	20	not applicable	21	not applicable	not applicable
Shallow injection w/ soil cap	not applicable	not applicable	not applicable	14	not applicable	not applicable
Deep injection w/ high permeability tarp or no tarp-broadcast	41	64*	74*	not applicable	not applicable	not applicable
Deep injection w/ low permeability tarp-broadcast	not applicable	44	48	not applicable	not applicable	not applicable
Deep injection w/ water treatments	27	20	not applicable	not applicable	not applicable	not applicable
Rotovate/rototill	not applicable	not applicable	not applicable	14	17	not applicable
Sprinkler	not applicable	not applicable	not applicable	77*	not applicable	10
Sprinkler w/ water treatments	not applicable	not applicable	not applicable	21	not applicable	not applicable
Flood	not applicable	not applicable	not applicable	77*	not applicable	10
Drip w/ high permeability tarp or no tarp	29	not applicable	not applicable	9	not applicable	10
Drip w/ low permeability tarp	not applicable	15	not applicable	9	not applicable	not applicable
Non-field soil (structural/post-harvest)	not applicable	100	100	not applicable	not applicable	not applicable

* These are considered “high-emission” fumigation methods and are prohibited within the San Joaquin Valley, Southeast Desert, and Ventura NAAs during May-October.

Table A1 - 2. 1990 frequency of fumigation methods used (method use fractions) in the Sacramento Metro nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D[2]**	**Chloropicrin**	**Methyl Bromide**	**Metam[3]**	**Dazomet**	**Na Tetrathio carbonate[4]**
Shallow injection w/ high permeability tarp or no tarp-broadcast		42	37			
Shallow injection w/ low permeability tarp-broadcast						
Shallow injection w/ high permeability tarp or no tarp-bed		42	36	3		
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				15		
Deep injection w/ high permeability tarp or no tarp-broadcast		16	14			
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill				2	100	
Sprinkler				55		33
Sprinkler w/ water treatments						
Flood				10		33
Drip w/ high permeability tarp or no tarp				10		34
Drip w/ low permeability tarp				5		
Non-field soil (structural/post-harvest)			13			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] Use of 1,3-D was suspended in early 1990.
[3] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[4] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 3. 1990 frequency of fumigation methods used (method use fractions) in the San Joaquin Valley nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D[2]**	**Chloropicrin**	**Methyl Bromide**	**Metam[3]**	**Dazomet**	**Na Tetrathio carbonate[4]**
Shallow injection w/ high permeability tarp or no tarp-broadcast		29	29			
Shallow injection w/ low permeability tarp-broadcast						
Shallow injection w/ high permeability tarp or no tarp-bed		29	29	8		
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				25		
Deep injection w/ high permeability tarp or no tarp-broadcast		42	42			
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill				3	100	
Sprinkler				60		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp				2		34
Drip w/ low permeability tarp				2		
Non-field soil (structural/post-harvest)						

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] Use of 1,3-D was suspended in early 1990.
[3] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[4] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 4. 1990 frequency of fumigation methods used (method use fractions) in the Southeast Desert nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D[2]**	**Chloropicrin**	**Methyl Bromide**	**Metam[3]**	**Dazomet**	**Na Tetrathio carbonate[4]**
Shallow injection w/ high permeability tarp or no tarp-broadcast		50	35			
Shallow injection w/ low permeability tarp-broadcast						
Shallow injection w/ high permeability tarp or no tarp-bed		50	34	10		
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast						
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				30		33
Sprinkler w/ water treatments						
Flood				50		33
Drip w/ high permeability tarp or no tarp				5		34
Drip w/ low permeability tarp				5		
Non-field soil (structural/post-harvest)			31			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] Use of 1,3-D was suspended in early 1990.
[3] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[4] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 5. 1990 frequency of fumigation methods used (method use fractions) in the Ventura nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D[2]**	**Chloropicrin**	**Methyl Bromide**	**Metam[3]**	**Dazomet**	**Na Tetrathio carbonate[4]**
Shallow injection w/ high permeability tarp or no tarp-broadcast		50	49			
Shallow injection w/ low permeability tarp-broadcast						
Shallow injection w/ high permeability tarp or no tarp-bed		50	49	20		
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast						
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				50		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp				15		34
Drip w/ low permeability tarp				15		
Non-field soil (structural/post-harvest)			3			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] Use of 1,3-D was suspended in early 1990.
[3] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[4] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 6. 1990 frequency of fumigation methods used (method use fractions) in the South Coast nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D[2]**	**Chloropicrin**	**Methyl Bromide**	**Metam[3]**	**Dazomet**	**Na Tetrathio carbonate[4]**
Shallow injection w/ high permeability tarp or no tarp-broadcast		50	3			
Shallow injection w/ low permeability tarp-broadcast						
Shallow injection w/ high permeability tarp or no tarp-bed		50	3	20		
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast						
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				50		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp				15		34
Drip w/ low permeability tarp				15		
Non-field soil (structural/post-harvest)			95			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] Use of 1,3-D was suspended in early 1990.
[3] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[4] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 7. 2005 frequency of fumigation methods used (method use fractions) in the Sacramento Metro nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		56.0	11.3			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed		33.0	6.3			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				15		
Deep injection w/ high permeability tarp or no tarp-broadcast	99					
Deep injection w/ low permeability tarp-broadcast			11.4			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				45		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	1			9		34
Drip w/ low permeability tarp		11.0		10		
Non-field soil (structural/post-harvest)			70.9			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 8. 2005 frequency of fumigation methods used (method use fractions) in the San Joaquin Valley nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	2					
Shallow injection w/ low permeability tarp-broadcast		97.0	79.5			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed			0.6			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				20		
Deep injection w/ high permeability tarp or no tarp-broadcast	97	1.0				
Deep injection w/ low permeability tarp-broadcast		1.0	16.3			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				35		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	1			14		34
Drip w/ low permeability tarp				10		
Non-field soil (structural/post-harvest)		1.0	3.7			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 9. 2005 frequency of fumigation methods used (method use fractions) in the Southeast Desert nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		88	77.1			
Shallow injection w/ high permeability tarp or no tarp-bed				6		
Shallow injection w/ low permeability tarp-bed			18.9			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	10					
Deep injection w/ low permeability tarp-broadcast			1.1			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				75		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	90	5		7		34
Drip w/ low permeability tarp		5		12		
Non-field soil (structural/post-harvest)		2	2.9			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 10. 2005 frequency of fumigation methods used (method use fractions) in the Ventura nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	1					
Shallow injection w/ low permeability tarp-broadcast		67	100.0			
Shallow injection w/ high permeability tarp or no tarp-bed						
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments				25		
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	4					
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler						33
Sprinkler w/ water treatments				20		
Flood						33
Drip w/ high permeability tarp or no tarp	95			5		34
Drip w/ low permeability tarp		33		50		
Non-field soil (structural/post-harvest)						

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 11. 2005 frequency of fumigation methods used (method use fractions) in the South Coast nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		40	60.9			
Shallow injection w/ high permeability tarp or no tarp-bed				25		
Shallow injection w/ low permeability tarp-bed		36	30.8			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	2					
Deep injection w/ low permeability tarp-broadcast			0.5			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				20		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	98			5		34
Drip w/ low permeability tarp		24		50		
Non-field soil (structural/post-harvest)			7.8			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 12. 2006 frequency of fumigation methods used (method use fractions) in the Sacramento Metro nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	3					
Shallow injection w/ low permeability tarp-broadcast		56.0	11.3			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed		33.0	6.3			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				15		
Deep injection w/ high permeability tarp or no tarp-broadcast	95					
Deep injection w/ low permeability tarp-broadcast			11.4			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				45		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	2			9		34
Drip w/ low permeability tarp		11.0		10		
Non-field soil (structural/post-harvest)			70.9			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 13. 2006 frequency of fumigation methods used (method use fractions) in the San Joaquin Valley nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	2					
Shallow injection w/ low permeability tarp-broadcast		97.0	79.5			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed			0.6			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				20		
Deep injection w/ high permeability tarp or no tarp-broadcast	97	1.0				
Deep injection w/ low permeability tarp-broadcast		1.0	16.3			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				35		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	1			14		34
Drip w/ low permeability tarp				10		
Non-field soil (structural/post-harvest)		1.0	3.7			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 14. 2006 frequency of fumigation methods used (method use fractions) in the Southeast Desert nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		88.0	77.1			
Shallow injection w/ high permeability tarp or no tarp-bed				6		
Shallow injection w/ low permeability tarp-bed			18.9			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	16					
Deep injection w/ low permeability tarp-broadcast		0.2	1.1			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				75		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	84	5.0		7		34
Drip w/ low permeability tarp		5.0		12		
Non-field soil (structural/post-harvest)		2.0	2.9			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 15. 2006 frequency of fumigation methods used (method use fractions) in the Ventura nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		67.0	100.0			
Shallow injection w/ high permeability tarp or no tarp-bed						
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments				25		
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	7					
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler						33
Sprinkler w/ water treatments				20		
Flood						33
Drip w/ high permeability tarp or no tarp	93			5		34
Drip w/ low permeability tarp		33.0		50		
Non-field soil (structural/post-harvest)						

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 16. 2006 frequency of fumigation methods used (method use fractions) in the South Coast nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		40.0	60.9			
Shallow injection w/ high permeability tarp or no tarp-bed				25		
Shallow injection w/ low permeability tarp-bed		36.0	30.8			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast						
Deep injection w/ low permeability tarp-broadcast			0.5			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				20		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	100			5		34
Drip w/ low permeability tarp		24.0		50		
Non-field soil (structural/post-harvest)			7.8			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 17. 2007 frequency of fumigation methods used (method use fractions) in the Sacramento Metro nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	0.0					
Shallow injection w/ low permeability tarp-broadcast		56.0	11.3			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed		33.0	6.3			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				15		
Deep injection w/ high permeability tarp or no tarp-broadcast	99.9					
Deep injection w/ low permeability tarp-broadcast			11.4			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				45		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	0.1			9		34
Drip w/ low permeability tarp		11.0		10		
Non-field soil (structural/post-harvest)			70.9			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 18. 2007 frequency of fumigation methods used (method use fractions) in the San Joaquin Valley nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	0.3					
Shallow injection w/ low permeability tarp-broadcast		97.0	79.5			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed			0.6			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				20		
Deep injection w/ high permeability tarp or no tarp-broadcast	99.3	1.0				
Deep injection w/ low permeability tarp-broadcast		1.0	16.3			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				35		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	0.4			14		34
Drip w/ low permeability tarp				10		
Non-field soil (structural/post-harvest)		1.0	3.7			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 19. 2007 frequency of fumigation methods used (method use fractions) in the Southeast Desert nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	0.4					
Shallow injection w/ low permeability tarp-broadcast		88.0	77.1			
Shallow injection w/ high permeability tarp or no tarp-bed				6		
Shallow injection w/ low permeability tarp-bed			18.9			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	0.0					
Deep injection w/ low permeability tarp-broadcast		0.2	1.1			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				75		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	99.6	5.0		7		34
Drip w/ low permeability tarp		5.0		12		
Non-field soil (structural/post-harvest)		2.0	2.9			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 20. 2007 frequency of fumigation methods used (method use fractions) in the Ventura nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		67.0	100.0			
Shallow injection w/ high permeability tarp or no tarp-bed						
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments				25		
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	5.0					
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler						33
Sprinkler w/ water treatments				20		
Flood						33
Drip w/ high permeability tarp or no tarp	94.9			5		34
Drip w/ low permeability tarp		33.0		50		
Non-field soil (structural/post-harvest)						

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 21. 2007 frequency of fumigation methods used (method use fractions) in the South Coast nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam [2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		40.0	60.9			
Shallow injection w/ high permeability tarp or no tarp-bed				25		
Shallow injection w/ low permeability tarp-bed		36.0	30.8			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast						
Deep injection w/ low permeability tarp-broadcast			0.5			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				20		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	100.0			5		34
Drip w/ low permeability tarp		24.0		50		
Non-field soil (structural/post-harvest)			7.8			

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 22. Application Method Adjustment Factors (AMAF) for 2008.

		AMAF						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip System)/Tarpaulin	1209	19	12					
Chemigation (Drip)	1601							10
Chemigation (mini-sprinkler)	1602							10
Day Chemigation (Drip System) Nontarpaulin	1408				9	9		
Day Chemigation (Drip System) Tarpaulin	1407				9	9		
Day Drench	1413				100	100		
Day Nontarpaulin/Shallow/ Broadcast or Bed /Two Water Treatments	1405				28			
Day Nontarpaulin/Shallow/ Broadcast or Bed/Three Water Treatments	1406				21	21		
Day Power Mulcher	1410				14	14		
Day Rotary Tiller	1409					14		
Day Soil Capping	1411				14	14		
Day Sprinkler/Broadcast or Bed/One Water Treatment	1401				77	77		
Day Sprinkler/Broadcast or Bed/Three Water Treatments	1403				21	21		
Day Sprinkler/Broadcast or Bed/Two Water Treatments	1402				28	28		
Day or Night Flood	1412				77			
Night 4 A.M. Start/Sprinkler/ Broadcast or Bed/Two Water treatments	1472				35			
Night Nontarpaulin/Shallow/	1455				13	13		

Broadcast or Bed/Two Water Treatments								
Night Sprinkler/Broadcast or Bed/Two Water Treatments	1452				77			
Nontarpaulin/Deep/ Broadcast or Bed	1206	26	64					
Other label method - Methyl Bromide	1190		100	100				
Tarpaulin/Deep/Bed	1208	26						
Tarpaulin/Deep/ Broadcast	1207	26						
Tarpaulin/Shallow/Bed	1106							10
Tarpaulin/Deep/Broad cast	1107			48				
Tarpaulin/Shallow/ Broadcast – Nobel Plow	1103		44	48				

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 23. 2008 frequency of fumigation methods used (method use fractions) in the Sacramento Metro nonattainment area.

		% of Amount Applied						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip System)/Tarpaulin	1209	3.0	9.6					
Day Chemigation (Drip System) Nontarpaulin	1408					16.5		
Day Chemigation (Drip System) Tarpaulin	1407				83.2			
Day Rotary Tiller	1409				16.8	83.5		
Nontarpaulin/Deep/ Broadcast or Bed	1206	97.0	55.7					
Tarpaulin/Deep/ Broadcast	1107			74.8				
Tarpaulin/Shallow/ Broadcast – Nobel Plow	1103		34.8	25.2				
Chemigation (Drip System)/Tarpaulin	1209	3.0	9.6					

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 24. 2008 frequency of fumigation methods used (method use fractions) in the San Joaquin Valley nonattainment area.

		% of Amount Applied						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip)	1601							97.1
Chemigation (mini-sprinkler)	1602							2.9
Day Chemigation (Drip System) Nontarpaulin	1408				1.3	10.5		
Day Chemigation (Drip System) Tarpaulin	1407				0.1	0.2		
Day Drench	1413					5.1		
Day Nontarpaulin/Shallow/ Broadcast or Bed /Two Water Treatments	1405				0.2			
Day Nontarpaulin/Shallow/ Broadcast or Bed/Three Water Treatments	1406				9.4	2.4		
Day Power Mulcher	1410				3.5	42.5		
Day Rotary Tiller	1409					5.2		
Day Soil Capping	1411				3.0	1.3		
Day Sprinkler/Broadcast or Bed/One Water Treatment	1401				1.4	7.6		
Day Sprinkler/Broadcast or Bed/Three Water Treatments	1403				14.3	0.7		
Day Sprinkler/Broadcast or Bed/Two Water Treatments	1402				7.7	7.1		
Day or Night Flood	1412							
Night 4 A.M. Start/Sprinkler/Broadcast or Bed/Two Water treatments	1472							
Night Nontarpaulin/Shallow/ Broadcast or Bed/Two Water Treatments	1455				58.7	17.4		

Night Sprinkler/Broadcast or Bed/Two Water Treatments	1452				0.3			
Nontarpaulin/Deep/ Broadcast or Bed	1206	98.0	19.5					
Other label method - Methyl Bromide	1190		0.4	0.3				
Tarpaulin/Deep/Bed	1208	1.2						
Tarpaulin/Deep/ Broadcast	1207	0.9						
Tarpaulin/Shallow/ Broadcast – Nobel Plow	1103		80.1	99.7				

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 25. 2008 frequency of fumigation methods used (method use fractions) in the Southeast Desert nonattainment area.

		% of Amount Applied						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip System)/Tarpaulin	1209	88.3	100.0					
Day Chemigation (Drip System) Nontarpaulin	1408				57.1			
Day Sprinkler/Broadcast or Bed/Three Water Treatments	1403				34.2			
Day Sprinkler/Broadcast or Bed/Two Water Treatments	1402				1.3			
Night 4 A.M. Start/Sprinkler/ Broadcast or Bed/Two Water treatments	1472				7.4			
Nontarpaulin/Deep/ Broadcast or Bed	1206	11.7						
Tarpaulin/Deep/ Broadcast	1107			37.4				
Tarpaulin/Shallow/Bed	1106							100.0

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 26. 2008 frequency of fumigation methods used (method use fractions) in the Ventura nonattainment area.

		% of Amount Applied						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip System)/Tarpaulin	1209	99.5	89.1					
Chemigation (mini-sprinkler)	1602							100.0
Day Chemigation (Drip System) Nontarpaulin	1408				0.2			
Day Chemigation (Drip System) Tarpaulin	1407				99.8	100.0		
Nontarpaulin/Deep/ Broadcast or Bed	1206	0.5	0.1					
Tarpaulin/Shallow/ Broadcast – Nobel Plow	1103		10.8	100.0				

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 27. 2008 frequency of fumigation methods used (method use fractions) in the South Coast nonattainment area.

		% of Amount Applied						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip System)/Tarpaulin	1209	100.0	63.4					
Other label method - Methyl Bromide	1190		0.9	2.3				
Tarpaulin/Deep/ Broadcast	1107		0.5	4.8				
Tarpaulin/Shallow/ Broadcast – Nobel Plow	1103		35.2	92.9				

[1] Fumigation methods are described in detail in the memo Barry et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

California Department of Pesticide Regulation
Volatile Organic Compound Regulations
Field Fumigation Methods (FFM), FFM Code for Pesticide Use Reporting, and Emission ratings

Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6447.3	**Methyl Bromide Fumigation Methods (With or without chloropicrin)**	**1100 series**	
6447.3(a)(1)	Nontarpaulin/Shallow/Bed	1101†	100*
6447.3(a)(2)	Nontarpaulin/Deep/Broadcast	1102	74*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow	1103	48
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip	1104	74*
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller	1105†	100*
6447.3(a)(4)	Tarpaulin/Shallow/Bed	1106	100*
6447.3(a)(5)	Tarpaulin/Deep/Broadcast	1107	48
	Tarpaulin/Deep/Broadcast – Strip	1108	74*
6447.3(a)(6)	Drip System - Hot Gas	1109	100*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow–with tarp eligible for 60%	1143	48
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip –with tarp eligible for 60% credit	1144	74*
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller–with tarp eligible for 60% credit	1145	100*
6447.3(a)(4)	Tarpaulin/Shallow/Bed –with tarp eligible for 60% credit	1146	100*
6447.3(a)(5)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1147	48
	Tarpaulin/Deep/Broadcast-Strip–with tarp eligible for 60% credit	1148	74*
6447.3(a)(6)	Drip System - Hot Gas –with tarp eligible for 60% credit	1149	100*
	Other label method for Methyl Bromide (with or without chloropicrin)**	1190	---
6448.1	**1,3-Dichloropropene Fumigation Methods (with or without chloropicrin)**	**1200 series**	
6448.1(d)(1)	Nontarpaulin/Shallow/Broadcast or Bed	1201	65*
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast	1202	65*
	Tarpaulin/Shallow/Bed	1203	65*
6448.1(d)(3)	Nontarpaulin/Shallow/Broadcast /Three Water Treatments	1204	44
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment	1205	44
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast (without chloropicrin)	1206	26
	Nontarpaulin/Deep/Broadcast (with chloropicrin)	1206	64*
6448.1(d)(6)	Tarpaulin/Deep/Broadcast	1207	26
	Tarpaulin/Deep/Bed	1208	26
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin	1209	29

* Method prohibited within the San Joaquin Valley, Southeast Desert, and Ventura nonattainment areas during May 1 – October 31.

** For use only outside of the May 1 – October 31 time period: or areas outside of the nonattainment areas; or for exempted applications (such as described in Sections 6447, 6448, 6449, 6450, and 6451)

† Method no longer allowed. Codes are for applications that were made before 2015 when the method was allowed.

Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6448.1(d)(5)	Nontarpaulin/Deep/Strip	1210	26
6448.1(d)(5)	Nontarpaulin/Deep/GPS-targeted	1211	26
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast –with tarp eligible for 60% credit	1242	10
	Tarpaulin/Shallow/Bed–with tarp eligible for 60% credit	1243	65*
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment –with tarp eligible for	1245	44
6448.1(d)(6)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1247	10
	Tarpaulin/Deep/Bed–with tarp eligible for 60% credit	1248	26
6448.1(d)(6)	Tarpaulin/Deep/Broadcast-strip –with tarp eligible for 60% credit	1249	21
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin –with tarp eligible for 60% credit	1259	29
	Other label method for 1,3-Dichloropropene (with or without	1290	---
6449.1	**Chloropicrin-Fumigation Methods**	**1100-1300**	
6447.3(a)(1)	Nontarpaulin/Shallow/Bed	1101†	64*
6447.3(a)(2)	Nontarpaulin/Deep/Broadcast	1102	64*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow	1103	44
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip	1104	64*
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller	1105†	64*
6447.3(a)(4)	Tarpaulin/Shallow/Bed	1106	64*
6447.3(a)(5)	Tarpaulin/Deep/Broadcast	1107	44
	Tarpaulin/Deep/Broadcast – Strip	1108	64*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow–with tarp eligible for 60% credit	1143	7
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip –with tarp eligible for 60% credit	1144	7
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller–with tarp eligible for 60% credit	1145†	7
6447.3(a)(4)	Tarpaulin/Shallow/Bed –with tarp eligible for 60% credit	1146	7
6447.3(a)(5)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1147	7
	Tarpaulin/Deep/Broadcast – Strip –with tarp eligible for 60% credit	1148	7
6448.1(d)(1)	Nontarpaulin/Shallow/Broadcast or Bed	1201	64*
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast	1202	44
	Tarpaulin/Shallow/Bed	1203	64*
6448.1(d)(3)	Nontarpaulin/Shallow/Broadcast /Three Water Treatments	1204	43
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment	1205	43
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast	1206	64*
6448.1(d)(6)	Tarpaulin/Deep/Broadcast	1207	44
	Tarpaulin/Deep/Bed	1208	44

* Method prohibited within the San Joaquin Valley, Southeast Desert, and Ventura nonattainment areas during May 1 – October 31.

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† Method no longer allowed. Codes are for applications that were made before 2015 when the method was allowed.

Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin	1209	12
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast/Strip	1210	64
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast/GPS-targeted	1211	64
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast –with tarp eligible for 60% credit	1242	7
	Tarpaulin/Shallow/Bed–with tarp eligible for 60% credit	1243	7
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment –with tarp eligible for 60% credit	1245	7
6448.1(d)(6)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1247	7
	Tarpaulin/Deep/Bed–with tarp eligible for 60% credit	1248	7
6448.1(d)(6)	Tarpaulin/Deep/Broadcast-strip –with tarp eligible for 60% credit	1249	7
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin –with tarp eligible for 60% credit	1259	7
	Other label method for Chloropicrin**	1390	---
6450.1	**Metam-Sodium and Metam-Potassium Fumigation Methods**	**1400 series**	
6450.1(d)(1)	Sprinkler/Broadcast or Bed/One Water Treatment	1401	77*
6450.1(d)(2)	Sprinkler/Broadcast or Bed/Two Water Treatments	1402	28
6450.1(d)(3)	Sprinkler/Broadcast or Bed/Three Water Treatments	1403	21
6450.1(d)(4)	Nontarpaulin/Shallow/Broadcast or Bed/One Water Treatment	1404	77*
6450.1(d)(5)	Nontarpaulin/Shallow/Broadcast or Bed /Two Water Treatments	1405	28
6450.1(d)(6)	Nontarpaulin/Shallow/Broadcast or Bed/Three Water Treatments	1406	21
6450.1(d)(7)	Chemigation (Drip System) Tarpaulin	1407	9
	Chemigation (Drip System) Nontarpaulin	1408	9
6450.1(d)(8)	Rotary Tiller	1409	14
	Power Mulcher	1410	14
	Soil Capping	1411	14
6450.1(d)(9)	Flood	1412	77*
6450.1(d)(12)	Drench	1413	100
6450.1(d)(7)	Chemigation (Drip System) Tarpaulin –with tarp eligible for 30%	1447	9
6450.1(d)(2)	Night 1A.M. Start/Sprinkler/Broadcast or Bed/Two Water Treatments	1452	77*
6450.1(d)(10)	1A.M. Start/Nontarpaulin/Shallow/Broadcast or Bed/Two Water Treatments	1455	13
6450.1(d)(11)	4A.M. Start/sprinkler/Broadcast or Bed/Two Water Treatments	1472	35
	Other label method for Metam-Sodium and Metam-Potassium**	1490	---

* Method prohibited within the San Joaquin Valley, Southeast Desert, and Ventura nonattainment areas during May 1 – October 31.

** For use only outside of the May 1 – October 31 time period: or areas outside of the nonattainment areas; or for exempted applications (such as described in Sections 6447, 6448, 6449, 6450, and 6451)

Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6450.2	**Dazomet Fumigation Methods**	**1500 series**	
	Soil incorporation	1501	17
	Surface application – water incorporation	1502	17
	Other label method for Dazomet**	1590	---
6451.1	**Sodium Tetrathiocarbonate Fumigation Methods**	**1600 series**	
	Chemigation (Drip)	1601	10
	Chemigation (mini-sprinkler)	1602	10
	Chemigation (flood, basin)	1603	10
	Chemigation (furrow, border)	1604	10
	Chemigation (foggers, jets, misters, other)	1605	10
	Other label method for Sodium Tetrathiocarbonate**	1690	---
6446.1	**Methyl Iodide Fumigation Methods**	**1700 Series**	
	Day Tarpaulin/Shallow/Broadcast***	1701	100
	Day Tarpaulin/Shallow/Bed***	1702	100
	Day Tarpaulin/Deep/Broadcast***	1703	100
	Day Chemigation (Drip)/Tarpaulin***	1704	100
	Day Auger-Probe***	1705	100

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***Methyl Iodide is no longer registered. Codes are for applications that were made in 2011 when the chemical

APPENDIX 2

SUMMARY OF UNADJUSTED PESTICIDE VOC EMISSIONS

APPENDIX 2 – SUMMARY OF UNADJUSTED PESTICIDE VOC EMISSIONS

1. Sacramento Metropolitan Area - NAA 1

TABLE A2-1a: Top ten primary active ingredients (AI) contributing to *unadjusted* **2015** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 1 May – Oct 2015 emissions
1,3-DICHLOROPROPENE	0.104	7.761
METHYL BROMIDE	0.099	7.386
PROPANIL	0.092	6.843
ABAMECTIN	0.082	6.088
PERMETHRIN	0.063	4.673
BIFENTHRIN	0.054	4.021
THIOBENCARB	0.048	3.601
OXYFLUORFEN	0.048	3.573
CHLORPYRIFOS	0.045	3.333
CHLOROPICRIN	0.042	3.153

TABLE A2-1b: Top ten primary active ingredients (AI) contributing to *unadjuste*d **2016** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 1 May – Oct 2016 emissions
1,3-DICHLOROPROPENE	0.104	7.76
METHYL BROMIDE	0.099	7.38
PROPANIL	0.092	6.84
ABAMECTIN	0.082	6.08
PERMETHRIN	0.063	4.68
BIFENTHRIN	0.054	3.99
THIOBENCARB	0.048	3.60
OXYFLUORFEN	0.048	3.57
CHLORPYRIFOS	0.045	3.33
CHLOROPICRIN	0.042	3.15

TABLE A2-1c: Top ten primary active ingredients (AI) contributing to *unadjusted* **2017** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 1 May – Oct 2017 emissions
METHYL BROMIDE	0.271	18.418
ETHALFLURALIN	0.081	5.468
TRIFLURALIN	0.074	5.020
ABAMECTIN	0.071	4.801
THIOBENCARB	0.071	4.799
BIFENTHRIN	0.053	3.588
PROPANIL	0.051	3.449
1,3-DICHLOROPROPENE	0.043	2.890
OXYFLUORFEN	0.041	2.794
HEXYTHIAZOX	0.041	2.774

TABLE A2-1d: Top ten primary active ingredients (AI) contributing to *unadjusted* **2018** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 1 May – Oct 2018 emissions
1,3-DICHLOROPROPENE	0.389	24.491
CHLOROPICRIN	0.082	5.154
THIOBENCARB	0.074	4.669
PROPANIL	0.062	3.926
METHYL BROMIDE	0.057	3.580
ABAMECTIN	0.055	3.491
BIFENTHRIN	0.054	3.371
GLYPHOSATE, ISOPROPYLAMINE SALT	0.043	2.700
TRIFLURALIN	0.042	2.649
OXYFLUORFEN	0.040	2.526

TABLE A2-1e: Top ten pesticide application sites contributing to *unadjusted* **2015** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Application Site	Emissions (tons/day)	Percent of all NAA 1 May – Oct 2015 emissions
RICE (ALL OR UNSPEC)	0.271	20.186
WALNUT (ENGLISH, PERSIAN)	0.141	10.527
UNCULTIVATED AGRICULTURAL AREAS*	0.135	10.042
TOMATOES, FOR PROCESSING/CANNING	0.131	9.791
GRAPES, WINE	0.126	9.391
STRUCTURAL PEST CONTROL	0.118	8.801
ALMOND	0.100	7.451
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.086	6.407
RIGHTS OF WAY	0.039	2.888
LANDSCAPE MAINTENANCE	0.033	2.462

* Treatment of an area prior to a crop being planted.

TABLE A2-1f: Top ten pesticide application sites contributing to *unadjusted* **2016** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Application Site	Emissions (tons/day)	Percent of all NAA 1 May – Oct 2016 emissions
RICE (ALL OR UNSPEC)	0.354	24.511
ALMOND	0.148	10.222
WALNUT (ENGLISH, PERSIAN)	0.140	9.683
GRAPES, WINE	0.132	9.100
TOMATOES, FOR PROCESSING/CANNING	0.118	8.196
STRUCTURAL PEST CONTROL	0.086	5.983
UNCULTIVATED AGRICULTURAL AREAS*	0.064	4.455
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.054	3.719
RIGHTS OF WAY	0.044	3.061
LANDSCAPE MAINTENANCE	0.040	2.789

* Treatment of an area prior to a crop being planted.

TABLE A2-1g: Top ten pesticide application sites contributing to *unadjusted* **2017** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Application Site	Emissions (tons/day)	Percent of all NAA 1 May – Oct 2017 emissions
RICE (ALL OR UNSPEC)	0.205	13.928
UNCULTIVATED AGRICULTURAL AREAS*	0.180	12.239
WALNUT (ENGLISH, PERSIAN)	0.162	10.989
SOIL APPLICATION, PREPLANT-OUTDOOR*	0.134	9.065
TOMATOES, FOR PROCESSING/CANNING	0.121	8.225
GRAPES, WINE	0.117	7.938
ALMOND	0.111	7.543
SUNFLOWER, GENERAL	0.078	5.293
STRUCTURAL PEST CONTROL	0.076	5.184
LANDSCAPE MAINTENANCE	0.050	3.375

* Treatment of an area prior to determining a crop being planted.

TABLE A2-1h: Top ten pesticide application sites contributing to *unadjusted* **2018** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Application Site	Emissions (tons/day)	Percent of all NAA 1 May – Oct 2018 emissions
WALNUT (ENGLISH, PERSIAN)	0.563	35.414
RICE (ALL OR UNSPEC)	0.273	17.181
ALMOND	0.121	7.603
TOMATOES, FOR PROCESSING/CANNING	0.094	5.895
GRAPES, WINE	0.090	5.670
SOIL APPLICATION, PREPLANT-OUTDOOR*	0.057	3.556
STRUCTURAL PEST CONTROL	0.054	3.386
LANDSCAPE MAINTENANCE	0.046	2.912
UNCULTIVATED AGRICULTURAL AREAS*	0.033	2.089
RIGHTS OF WAY	0.033	2.083

* Treatment of an area prior to a crop being planted.

TABLE A2-1i: *Unadjusted* **2015** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**, by ARB emission inventory classification (tons per day).

NAA 1 - 2015	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.074	0.000
NON-METHYL BROMIDE EMISSIONS	1.124	0.118

TABLE A2-1j: *Unadjusted* **2016** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**, by ARB emission inventory classification (tons per day).

NAA 1 - 2016	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.097	0.000
NON-METHYL BROMIDE EMISSIONS	1.233	0.087

TABLE A2-1k: *Unadjusted* **2017** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**, by ARB emission inventory classification (tons per day).

NAA 1 - 2017	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.217	0.000
NON-METHYL BROMIDE EMISSIONS	1.125	0.076

TABLE A2-1l: *Unadjusted* **2018** May–October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**, by ARB emission inventory classification (tons per day).

NAA 1 - 2018	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.043	0.000
NON-METHYL BROMIDE EMISSIONS	1.479	0.054

2. San Joaquin Valley - NAA 2

TABLE A2-2a: Top ten primary active ingredients (AI) contributing to *unadjusted* **2015** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 2 May – Oct 2015 emissions
1,3-DICHLOROPROPENE	8.998	33.920
POTASSIUM N-METHYLDITHIOCARBAMATE	3.290	12.403
METAM-SODIUM	1.599	6.027
METHYL BROMIDE	1.289	4.858
HEXYTHIAZOX	0.859	3.238
FENPYROXIMATE	0.799	3.012
CHLOROPICRIN	0.754	2.841
ABAMECTIN	0.740	2.789
CHLORPYRIFOS	0.715	2.696
BIFENTHRIN	0.591	2.226

TABLE A2-2b: Top ten primary active ingredients (AI) contributing to *unadjusted* **2016** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 2 May – Oct 2016 emissions
1,3-DICHLOROPROPENE	8.612	32.899
POTASSIUM N-METHYLDITHIOCARBAMATE	2.939	11.227
METAM-SODIUM	1.564	5.975
METHYL BROMIDE	1.204	4.601
ABAMECTIN	0.758	2.895
CHLORPYRIFOS	0.755	2.883
GLYPHOSATE, ISOPROPYLAMINE SALT	0.697	2.661
HEXYTHIAZOX	0.687	2.625
CHLOROPICRIN	0.663	2.533
BIFENTHRIN	0.652	2.490

TABLE A2-2c: Top ten primary active ingredients (AI) contributing to *unadjusted* **2017** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 2 May – Oct 2017 emissions
1,3-DICHLOROPROPENE	7.809	28.485
POTASSIUM N-METHYLDITHIOCARBAMATE	3.440	12.549
METAM-SODIUM	1.678	6.121
METHYL BROMIDE	1.107	4.037
ABAMECTIN	1.005	3.666
GLYPHOSATE, ISOPROPYLAMINE SALT	0.915	3.336
CHLORPYRIFOS	0.853	3.112
BIFENTHRIN	0.720	2.625
HEXYTHIAZOX	0.646	2.358
GLUFOSINATE-AMMONIUM	0.639	2.331

TABLE A2-2d: Top ten primary active ingredients (AI) contributing to *unadjusted* **2018** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 2 May – Oct 2018 emissions
1,3-DICHLOROPROPENE	8.356	31.745
POTASSIUM N-METHYLDITHIOCARBAMATE	2.502	9.507
METAM-SODIUM	1.569	5.962
ABAMECTIN	1.041	3.956
METHYL BROMIDE	0.985	3.742
GLYPHOSATE, ISOPROPYLAMINE SALT	0.934	3.548
BIFENTHRIN	0.843	3.202
GLUFOSINATE-AMMONIUM	0.719	2.733
CHLOROPICRIN	0.682	2.589
HEXYTHIAZOX	0.639	2.427

TABLE A2-2e: Top ten pesticide application sites contributing to *unadjusted* **2015** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Application Site	Emissions (tons/day)	Percent of all NAA 2 May – Oct 2015 emissions
ALMOND	5.865	22.107
SOIL APPLICATION, PREPLANT-OUTDOOR*	4.529	17.072
CARROTS, GENERAL	3.918	14.768
WALNUT (ENGLISH, PERSIAN)	1.047	3.946
COTTON, GENERAL	1.029	3.879
TOMATOES, FOR PROCESSING/CANNING	0.973	3.669
GRAPES	0.946	3.564
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.872	3.288
ORANGE (ALL OR UNSPEC)	0.651	2.454
PISTACHIO (PISTACHE NUT)	0.650	2.449

* Treatment of an area prior to a crop being planted.

TABLE A2-2f: Top ten pesticide application sites contributing to *unadjusted* **2016** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Application Site	Emissions (tons/day)	Percent of all NAA 2 May – Oct 2016 emissions
ALMOND	6.167	23.557
CARROTS, GENERAL	4.373	16.706
SOIL APPLICATION, PREPLANT-OUTDOOR*	2.463	9.410
COTTON, GENERAL	1.283	4.903
N-OUTDR CONTAINER/FLD GRWN PLANTS	1.057	4.039
TOMATOES, FOR PROCESSING/CANNING	0.996	3.805
WALNUT (ENGLISH, PERSIAN)	0.840	3.209
ORANGE (ALL OR UNSPEC)	0.803	3.066
PISTACHIO (PISTACHE NUT)	0.799	3.052
TANGERINE	0.794	3.033

* Treatment of an area prior to a crop being planted.

TABLE A2-2g: Top ten pesticide application sites contributing to *unadjusted* **2017** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Application Site	Emissions (tons/day)	Percent of all NAA 2 May – Oct 2017 emissions
ALMOND	6.971	25.426
CARROTS, GENERAL	3.939	14.368
COTTON, GENERAL	2.045	7.460
SOIL APPLICATION, PREPLANT-OUTDOOR*	2.045	7.458
GRAPES	1.051	3.834
PISTACHIO (PISTACHE NUT)	0.971	3.542
WALNUT (ENGLISH, PERSIAN)	0.819	2.988
ORANGE (ALL OR UNSPEC)	0.768	2.802
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.717	2.615
GRAPES, WINE	0.560	2.044

* Treatment of an area prior to a crop being planted.

TABLE A2-2h: Top ten pesticide application sites contributing to *unadjusted* **2018** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Application Site	Emissions (tons/day)	Percent of all NAA 2 May – Oct 2018 emissions
ALMOND	8.244	31.319
CARROTS, GENERAL	3.476	13.207
COTTON, GENERAL	1.718	6.526
SOIL APPLICATION, PREPLANT-OUTDOOR*	1.507	5.725
PISTACHIO (PISTACHE NUT)	1.145	4.350
WALNUT (ENGLISH, PERSIAN)	1.098	4.172
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.963	3.657
GRAPES	0.821	3.118
ORANGE (ALL OR UNSPEC)	0.675	2.563
N-OUTDR GRWN TRNSPLNT/PRPGTV MTRL	0.486	1.848

* Treatment of an area prior to a crop being planted.

TABLE A2-2i: *Unadjusted* **2015** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**, by ARB emission inventory classification (tpd).

NAA 2 - 2015	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	1.130	0.000
NON-METHYL BROMIDE EMISSIONS	25.012	0.228

TABLE A2-2j: *Unadjusted* **2016** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**, by ARB emission inventory classification (tpd).

NAA 2 - 2016	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	1.086	0.000
NON-METHYL BROMIDE EMISSIONS	24.749	0.225

TABLE A2-2k: *Unadjusted* **2017** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**, by ARB emission inventory classification (tpd).

NAA 2 - 2017	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.952	0.000
NON-METHYL BROMIDE EMISSIONS	26.114	0.195

TABLE A2-2l: *Unadjusted* **2018** May–October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**, by ARB emission inventory classification (tpd).

NAA 2 - 2018	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.895	0.000
NON-METHYL BROMIDE EMISSIONS	25.124	0.212

3. Southeast Desert - NAA 3

TABLE A2-3a: Top ten primary active ingredients (AI) contributing to *unadjusted* **2015** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 3 May – Oct 2015 emissions
1,3-DICHLOROPROPENE	0.138	22.833
METAM-SODIUM	0.112	18.666
CHLOROPICRIN	0.066	10.955
CYPERMETHRIN	0.025	4.174
BENSULIDE	0.023	3.782
GLYPHOSATE, ISOPROPYLAMINE SALT	0.022	3.570
ACETIC ACID	0.020	3.395
BIFENTHRIN	0.020	3.353
DAZOMET	0.019	3.123
MEFENOXAM	0.010	1.692

TABLE A2-3b: Top ten primary active ingredients (AI) contributing to *unadjusted* **2016** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 3 May – Oct 2016 emissions
METAM-SODIUM	0.146	32.209
CHLOROPICRIN	0.061	13.369
METHYL BROMIDE	0.044	9.721
BENSULIDE	0.014	3.172
GLYPHOSATE, ISOPROPYLAMINE SALT	0.014	3.154
DAZOMET	0.014	3.077
GLYPHOSATE, POTASSIUM SALT	0.010	2.252
BIFENTHRIN	0.008	1.863
SULFUR	0.008	1.759
MEFENOXAM	0.008	1.690

TABLE A2-3c: Top ten primary active ingredients (AI) contributing to *unadjusted* **2017** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 3 May – Oct 2017 emissions
METAM-SODIUM	0.176	36.504
METHYL BROMIDE	0.035	7.169
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.032	6.625
GLYPHOSATE, POTASSIUM SALT	0.027	5.679
GLYPHOSATE, ISOPROPYLAMINE SALT	0.024	5.009
BENSULIDE	0.017	3.542
DISODIUM OCTABORATE TETRAHYDRATE	0.016	3.325
DAZOMET	0.014	2.954
CAPRYLIC ACID	0.008	1.699
EPTC	0.008	1.626

TABLE A2-3d: Top ten primary active ingredients (AI) contributing to *unadjusted* **2018** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 3 May – Oct 2018 emissions
METAM-SODIUM	0.170	42.605
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.026	6.593
GLYPHOSATE, ISOPROPYLAMINE SALT	0.019	4.737
BENSULIDE	0.013	3.199
CAPRYLIC ACID	0.012	3.000
EPTC	0.011	2.665
IMIDACLOPRID	0.009	2.336
MEFENOXAM	0.009	2.279
PYRIPROXYFEN	0.007	1.789
BIFENTHRIN	0.007	1.733

TABLE A2-3e: Top ten pesticide application sites contributing to *unadjusted* **2015** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Application Site	Emissions (tons/day)	Percent of all NAA 3 May – Oct 2015 emissions
GRAPES	0.141	23.425
PEPPERS (FRUITING VEGETABLE)	0.091	15.166
STRUCTURAL PEST CONTROL	0.089	14.793
STRAWBERRY (ALL OR UNSPEC)	0.067	11.061
RIGHTS OF WAY	0.032	5.276
LANDSCAPE MAINTENANCE	0.022	3.723
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.022	3.643
LEMON	0.021	3.504
WATERMELONS	0.020	3.282
UNCULTIVATED AGRICULTURAL AREAS*	0.015	2.452

* Treatment of an area prior to a crop being planted.

TABLE A2-3f: Top ten pesticide application sites contributing to *unadjusted* **2016** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Application Site	Emissions (tons/day)	Percent of all NAA 3 May – Oct 2016 emissions
PEPPERS (FRUITING VEGETABLE)	0.114	25.228
STRAWBERRY (ALL OR UNSPEC)	0.061	13.394
ORNAMENTAL TURF (ALL OR UNSPEC)	0.044	9.748
STRUCTURAL PEST CONTROL	0.041	9.024
GRAPES	0.039	8.630
RIGHTS OF WAY	0.035	7.646
LANDSCAPE MAINTENANCE	0.022	4.832
CARROTS, GENERAL	0.022	4.747
LEMON	0.014	3.034
LETTUCE, LEAF (ALL OR UNSPEC)	0.008	1.694

TABLE A2-3g: Top ten pesticide application sites contributing to *unadjusted* **2017** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Application Site	Emissions (tons/day)	Percent of all NAA 3 May – Oct 2017 emissions
PEPPERS (FRUITING VEGETABLE)	0.171	35.446
STRUCTURAL PEST CONTROL	0.077	15.945
ORNAMENTAL TURF (ALL OR UNSPEC)	0.040	8.367
RIGHTS OF WAY	0.035	7.205
LANDSCAPE MAINTENANCE	0.024	4.963
LETTUCE, LEAF (ALL OR UNSPEC)	0.024	4.887
CARROTS, GENERAL	0.020	4.126
UNCULTIVATED AGRICULTURAL AREAS*	0.016	3.276
ALFALFA (FORAGE - FODDER)	0.015	3.010
LEMON	0.010	2.082

* Treatment of an area prior to a crop being planted.

TABLE A2-3h: Top ten pesticide application sites contributing to *unadjusted* **2018** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Application Site	Emissions (tons/day)	Percent of all NAA 3 May – Oct 2018 emissions
PEPPERS (FRUITING VEGETABLE)	0.172	43.075
STRUCTURAL PEST CONTROL	0.067	16.698
LANDSCAPE MAINTENANCE	0.025	6.175
LEMON	0.021	5.249
CARROTS, GENERAL	0.019	4.653
RIGHTS OF WAY	0.015	3.844
UNCULTIVATED AGRICULTURAL AREAS*	0.013	3.295
DATE	0.008	2.042
LETTUCE, LEAF (ALL OR UNSPEC)	0.007	1.738
EGGPLANT (ORIENTAL EGGPLANT)	0.005	1.200

* Treatment of an area prior to a crop being planted.

TABLE A2-3i: *Unadjusted* **2015** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**, by ARB emission inventory classification (tpd).

NAA 3 - 2015	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.001	0.000
NON-METHYL BROMIDE EMISSIONS	0.513	0.089

TABLE A2-3j: *Unadjusted* **2016** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**, by ARB emission inventory classification (tpd).

NAA 3 - 2016	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.043	0.000
NON-METHYL BROMIDE EMISSIONS	0.368	0.041

TABLE A2-3k: *Unadjusted* **2017** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**, by ARB emission inventory classification (tpd).

NAA 3 - 2017	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.034	0.000
NON-METHYL BROMIDE EMISSIONS	0.371	0.077

TABLE A2-3l: *Unadjusted* **2018** May–October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**, by ARB emission inventory classification (tpd).

NAA 3 - 2018	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.000	0.000
NON-METHYL BROMIDE EMISSIONS	0.333	0.067

4. Ventura - NAA 4

TABLE A2-4a: Top ten primary active ingredients (AI) contributing to *unadjusted* **2015** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 4 May – Oct 2015 emissions
CHLOROPICRIN	4.077	52.329
METHYL BROMIDE	1.870	24.002
METAM-SODIUM	0.976	12.520
1,3-DICHLOROPROPENE	0.338	4.337
POTASSIUM N-METHYLDITHIOCARBAMATE	0.071	0.907
MINERAL OIL	0.064	0.819
CHLORPYRIFOS	0.034	0.441
ABAMECTIN	0.027	0.350
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.022	0.282
NOVALURON	0.016	0.212

TABLE A2-4b: Top ten primary active ingredients (AI) contributing to *unadjusted* **2016** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 4 May – Oct 2016 emissions
CHLOROPICRIN	4.922	72.954
METHYL BROMIDE	0.778	11.532
1,3-DICHLOROPROPENE	0.302	4.481
METAM-SODIUM	0.235	3.477
POTASSIUM N-METHYLDITHIOCARBAMATE	0.086	1.269
MINERAL OIL	0.068	1.003
CHLORPYRIFOS	0.033	0.488
ABAMECTIN	0.020	0.298
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.017	0.254
POTASH SOAP	0.016	0.230

TABLE A2-4c: Top ten primary active ingredients (AI) contributing to *unadjusted* **2017** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 4 May – Oct 2017 emissions
CHLOROPICRIN	5.145	79.322
METAM-SODIUM	0.402	6.199
1,3-DICHLOROPROPENE	0.210	3.243
POTASSIUM N-METHYLDITHIOCARBAMATE	0.197	3.040
MINERAL OIL	0.068	1.048
ABAMECTIN	0.067	1.034
CHLORPYRIFOS	0.038	0.589
THIRAM	0.028	0.428
GLYPHOSATE, ISOPROPYLAMINE SALT	0.017	0.267
CAPTAN	0.017	0.258

TABLE A2-4d: Top ten primary active ingredients (AI) contributing to *unadjusted* **2018** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 4 May – Oct 2018 emissions
CHLOROPICRIN	4.872	76.450
METAM-SODIUM	0.558	8.749
1,3-DICHLOROPROPENE	0.357	5.607
POTASSIUM N-METHYLDITHIOCARBAMATE	0.176	2.756
MINERAL OIL	0.056	0.885
GLYPHOSATE, ISOPROPYLAMINE SALT	0.027	0.430
THIRAM	0.022	0.353
ABAMECTIN	0.019	0.302
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.017	0.272
IMIDACLOPRID	0.014	0.227

TABLE A2-4e. Top ten pesticide application sites contributing to *unadjusted* **2015** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Application Site	Emissions (tons/day)	Percent of all NAA 4 May – Oct 2015 emissions
STRAWBERRY (ALL OR UNSPEC)	7.044	90.400
RASPBERRY (ALL OR UNSPEC)	0.183	2.347
PEPPERS (FRUITING VEGETABLE)	0.130	1.664
LEMON	0.127	1.627
N-OUTDR GRWN CUT FLWRS OR GREENS	0.074	0.953
STRUCTURAL PEST CONTROL	0.029	0.377
CELERY, GENERAL	0.024	0.307
AVOCADO (ALL OR UNSPEC)	0.021	0.268
CARROTS, GENERAL	0.018	0.231
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.016	0.205

TABLE A2-4f. Top ten pesticide application sites contributing to *unadjusted* **2016** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Application Site	Emissions (tons/day)	Percent of all NAA 4 May – Oct 2016 emissions
STRAWBERRY (ALL OR UNSPEC)	6.017	89.182
RASPBERRY (ALL OR UNSPEC)	0.142	2.101
PEPPERS (FRUITING VEGETABLE)	0.139	2.057
LEMON	0.126	1.860
N-OUTDR GRWN CUT FLWRS OR GREENS	0.076	1.126
SOIL APPLICATION, PREPLANT-OUTDOOR*	0.036	0.536
STRUCTURAL PEST CONTROL	0.018	0.267
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.017	0.251
AVOCADO (ALL OR UNSPEC)	0.017	0.251
CELERY, GENERAL	0.015	0.226

* Treatment of an area prior to a crop being planted.

TABLE A2-4g. Top ten pesticide application sites contributing to *unadjusted* **2017** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Application Site	Emissions (tons/day)	Percent of all NAA 4 May – Oct 2017 emissions
STRAWBERRY (ALL OR UNSPEC)	5.719	88.176
RASPBERRY (ALL OR UNSPEC)	0.173	2.669
LEMON	0.119	1.842
N-OUTDR GRWN CUT FLWRS OR GREENS	0.090	1.392
PEPPERS (FRUITING VEGETABLE)	0.083	1.277
AVOCADO (ALL OR UNSPEC)	0.067	1.039
CELERY, GENERAL	0.025	0.393
STRUCTURAL PEST CONTROL	0.025	0.388
LANDSCAPE MAINTENANCE	0.020	0.312
CABBAGE	0.018	0.281

TABLE A2-4h. Top ten pesticide application sites contributing to *unadjusted* **2018** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Application Site	Emissions (tons/day)	Percent of all NAA 4 May – Oct 2018 emissions
STRAWBERRY (ALL OR UNSPEC)	5.884	92.321
LEMON	0.078	1.224
PEPPERS (FRUITING VEGETABLE)	0.073	1.153
N-OUTDR GRWN CUT FLWRS OR GREENS	0.054	0.846
RASPBERRY (ALL OR UNSPEC)	0.045	0.702
STRUCTURAL PEST CONTROL	0.028	0.434
AVOCADO (ALL OR UNSPEC)	0.027	0.420
CELERY, GENERAL	0.023	0.367
CABBAGE	0.015	0.228
ORNAMENTAL TURF (ALL OR UNSPEC)	0.013	0.199

TABLE A2-4i: *Unadjusted* **2015** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**, by ARB emission inventory classification (tpd).

NAA 4 - 2015	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.981	0.000
NON-METHYL BROMIDE EMISSIONS	5.892	0.029

TABLE A2-4j: *Unadjusted* **2016** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**, by ARB emission inventory classification (tpd).

NAA 4 - 2016	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.425	0.000
NON-METHYL BROMIDE EMISSIONS	5.951	0.018

TABLE A2-4k: *Unadjusted* **2017** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**, by ARB emission inventory classification (tpd).

NAA 4 - 2017	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.006	0.000
NON-METHYL BROMIDE EMISSIONS	6.454	0.025

TABLE A2-4l: *Unadjusted* **2018** May–October (ozone season) VOC emissions in the Ventura **NAA (4)**, by ARB emission inventory classification (tpd).

NAA 4 - 2018	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.004	0.000
NON-METHYL BROMIDE EMISSIONS	6.340	0.028

5. South Coast - NAA 5

TABLE A2-5a: Top ten primary active ingredients (AI) contributing to *unadjusted* **2015** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 5 May – Oct 2015 emissions
METHYL BROMIDE	0.240	16.282
BIFENTHRIN	0.109	7.383
PERMETHRIN	0.103	7.014
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.103	6.986
DAZOMET	0.098	6.649
CYPERMETHRIN	0.075	5.062
DISODIUM OCTABORATE TETRAHYDRATE	0.067	4.574
D-TRANS ALLETHRIN	0.059	3.975
FIPRONIL	0.046	3.105
PIPERONYL BUTOXIDE	0.045	3.070

TABLE A2-5b: Top ten primary active ingredients (AI) contributing to *unadjusted* **2016** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 5 May – Oct 2016 emissions
METHYL BROMIDE	0.382	29.963
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.084	6.587
METAM-SODIUM	0.076	5.944
DISODIUM OCTABORATE TETRAHYDRATE	0.069	5.438
BIFENTHRIN	0.056	4.380
PIPERONYL BUTOXIDE	0.044	3.417
PERMETHRIN	0.040	3.175
CYFLUTHRIN	0.031	2.466
DICHLOBENIL	0.030	2.323
GLYPHOSATE, POTASSIUM SALT	0.029	2.279

TABLE A2-5c: Top ten primary active ingredients (AI) contributing to *unadjusted* **2017** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 5 May – Oct 2017 emissions
CHLOROPICRIN	0.361	23.386
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.242	15.657
METAM-SODIUM	0.122	7.884
DISODIUM OCTABORATE TETRAHYDRATE	0.090	5.796
METHYL BROMIDE	0.065	4.217
BIFENTHRIN	0.044	2.849
PIPERONYL BUTOXIDE	0.038	2.487
DICHLOBENIL	0.038	2.432
GLYPHOSATE, POTASSIUM SALT	0.037	2.392
CYFLUTHRIN	0.026	1.671

TABLE A2-5d: Top ten primary active ingredients (AI) contributing to *unadjusted* **2018** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 5 May – Oct 2018 emissions
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.218	17.689
CHLOROPICRIN	0.172	14.005
METHYL BROMIDE	0.113	9.158
FIPRONIL	0.054	4.426
PIPERONYL BUTOXIDE	0.052	4.257
BIFENTHRIN	0.050	4.071
DISODIUM OCTABORATE TETRAHYDRATE	0.042	3.382
PERMETHRIN	0.030	2.454
DICHLOBENIL	0.029	2.361
IMIDACLOPRID	0.028	2.265

TABLE A2-5e: Top ten pesticide application sites contributing to *unadjusted* **2015** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Application Site	Emissions (tons/day)	Percent of all NAA 5 May – Oct 2015 emissions
STRUCTURAL PEST CONTROL	0.810	54.977
STRAWBERRY (ALL OR UNSPEC)	0.187	12.723
LANDSCAPE MAINTENANCE	0.154	10.448
RIGHTS OF WAY	0.150	10.197
FUMIGATION, OTHER	0.057	3.893
COMMODITY FUMIGATION	0.019	1.307
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.014	0.982
AVOCADO (ALL OR UNSPEC)	0.009	0.589
POTATO (WHITE, IRISH, RED, RUSSET)	0.008	0.545
PEPPERS (FRUITING VEGETABLE)	0.007	0.499

TABLE A2-5f: Top ten pesticide application sites contributing to *unadjusted* **2016** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Application Site	Emissions (tons/day)	Percent of all NAA 5 May – Oct 2016 emissions
STRUCTURAL PEST CONTROL	0.464	36.408
STRAWBERRY (ALL OR UNSPEC)	0.341	26.770
LANDSCAPE MAINTENANCE	0.149	11.669
RIGHTS OF WAY	0.083	6.499
CARROTS, GENERAL	0.070	5.484
FUMIGATION, OTHER	0.058	4.533
COMMODITY FUMIGATION	0.025	1.950
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.013	1.010
PEPPERS (FRUITING VEGETABLE)	0.011	0.898
AVOCADO (ALL OR UNSPEC)	0.007	0.565

TABLE A2-5g: Top ten pesticide application sites contributing to *unadjusted* **2017** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Application Site	Emissions (tons/day)	Percent of all NAA 5 May – Oct 2017 emissions
STRUCTURAL PEST CONTROL	0.592	38.343
STRAWBERRY (ALL OR UNSPEC)	0.380	24.609
LANDSCAPE MAINTENANCE	0.189	12.247
CARROTS, GENERAL	0.122	7.897
RIGHTS OF WAY	0.103	6.682
FUMIGATION, OTHER	0.040	2.584
COMMODITY FUMIGATION	0.025	1.641
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.015	0.988
AVOCADO (ALL OR UNSPEC)	0.010	0.677
GRAPEFRUIT	0.009	0.612

TABLE A2-5h: Top ten pesticide application sites contributing to *unadjusted* **2018** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Application Site	Emissions (tons/day)	Percent of all NAA 5 May – Oct 2018 emissions
STRUCTURAL PEST CONTROL	0.627	50.958
LANDSCAPE MAINTENANCE	0.173	14.050
STRAWBERRY (ALL OR UNSPEC)	0.173	14.016
FUMIGATION, OTHER	0.087	7.102
RIGHTS OF WAY	0.063	5.156
COMMODITY FUMIGATION	0.026	2.089
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.016	1.332
AVOCADO (ALL OR UNSPEC)	0.008	0.681
ORANGE (ALL OR UNSPEC)	0.007	0.599
TURF, GOLF COURSE (FAIRWAYS, GREENS, ROUGH)	0.007	0.531

TABLE A2-5i: *Unadjusted* **2015** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**, by ARB emission inventory classification (tpd).

NAA 5 - 2015	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.159	0.000
NON-METHYL BROMIDE EMISSIONS	0.423	0.810

TABLE A2-5j: *Unadjusted* **2016** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**, by ARB emission inventory classification (tpd).

NAA 5 - 2016	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.232	0.000
NON-METHYL BROMIDE EMISSIONS	0.428	0.464

TABLE A2-5k: *Unadjusted* **2017** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**, by ARB emission inventory classification (tpd).

NAA 5 - 2017	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.065	0.000
NON-METHYL BROMIDE EMISSIONS	0.887	0.592

TABLE A2-5l: *Unadjusted* **2018** May–October (ozone season) VOC emissions in the South Coast **NAA (5)**, by ARB emission inventory classification (tpd).

NAA 5 - 2018	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.113	0.000
NON-METHYL BROMIDE EMISSIONS	0.491	0.628

APPENDIX 3

SUMMARY OF ADJUSTED PESTICIDE VOC EMISSIONS

APPENDIX 3 – SUMMARY OF ADJUSTED PESTICIDE VOC EMISSIONS

1. Sacramento Metropolitan Area - NAA 1

Table A3-1a: Top ten primary active ingredients (AI) contributing to *adjusted* **2015** May-October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 1 May – Oct 2015 Adjusted Emissions
PROPANIL	0.092	7.719
ABAMECTIN	0.082	6.867
PERMETHRIN	0.063	5.272
BIFENTHRIN	0.054	4.536
THIOBENCARB	0.048	4.063
OXYFLUORFEN	0.048	4.031
CHLORPYRIFOS	0.045	3.760
TRIFLURALIN	0.041	3.480
HEXYTHIAZOX	0.038	3.222
METHYL BROMIDE	0.036	3.036

Table A3-1b: Top ten primary active ingredients (AI) contributing to *adjusted* **2016** May-October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 1 May – Oct 2016 Adjusted Emissions
PROPANIL	0.122	9.317
ABAMECTIN	0.076	5.759
THIOBENCARB	0.074	5.634
PENOXSULAM	0.054	4.122
TRIFLURALIN	0.054	4.087
CHLORPYRIFOS	0.053	4.011
METHYL BROMIDE	0.051	3.912
OXYFLUORFEN	0.045	3.437
HEXYTHIAZOX	0.043	3.262
BIFENTHRIN	0.042	3.237

Table A3-1c: Top ten primary active ingredients (AI) contributing to *adjusted* **2017** May-October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 1 May – Oct 2017 Adjusted Emissions
METHYL BROMIDE	0.107	8.224
ETHALFLURALIN	0.081	6.214
TRIFLURALIN	0.074	5.705
ABAMECTIN	0.071	5.456
THIOBENCARB	0.071	5.454
BIFENTHRIN	0.053	4.077
PROPANIL	0.051	3.920
OXYFLUORFEN	0.041	3.175
HEXYTHIAZOX	0.041	3.152
GLYPHOSATE, ISOPROPYLAMINE SALT	0.040	3.106

Table A3-1d: Top ten primary active ingredients (AI) contributing to *adjusted* **2018** May-October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 1 May – Oct 2018 Adjusted Emissions
1,3-DICHLOROPROPENE	0.100	8.179
THIOBENCARB	0.074	6.041
PROPANIL	0.062	5.080
ABAMECTIN	0.055	4.516
BIFENTHRIN	0.054	4.362
CHLOROPICRIN	0.053	4.347
GLYPHOSATE, ISOPROPYLAMINE SALT	0.043	3.494
TRIFLURALIN	0.042	3.428
OXYFLUORFEN	0.040	3.269
GLUFOSINATE-AMMONIUM	0.040	3.258

Table A3-1e: Top ten pesticide application sites contributing to *adjusted* **2015** May-October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 1 May – Oct 2015 Adjusted Emissions
RICE (ALL OR UNSPEC)	0.271	22.713
WALNUT (ENGLISH, PERSIAN)	0.141	11.845
TOMATOES, FOR PROCESSING/CANNING	0.131	11.017
GRAPES, WINE	0.126	10.566
STRUCTURAL PEST CONTROL	0.118	9.902
ALMOND	0.078	6.527
UNCULTIVATED AGRICULTURAL AREAS*	0.068	5.675
RIGHTS OF WAY	0.039	3.250
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.035	2.916
LANDSCAPE MAINTENANCE	0.033	2.770

*Treatment of an area prior to a crop being planted.

Table A3-1f: Top ten pesticide application sites contributing to *adjusted* **2016** May-October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 1 May – Oct 2016 Adjusted Emissions
RICE (ALL OR UNSPEC)	0.354	26.941
WALNUT (ENGLISH, PERSIAN)	0.140	10.643
GRAPES, WINE	0.119	9.045
TOMATOES, FOR PROCESSING/CANNING	0.118	9.009
ALMOND	0.109	8.254
STRUCTURAL PEST CONTROL	0.086	6.574
RIGHTS OF WAY	0.044	3.364
LANDSCAPE MAINTENANCE	0.040	3.066
UNCULTIVATED AGRICULTURAL AREAS*	0.037	2.817
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.035	2.628

*Treatment of an area prior to a crop being planted.

Table A3-1g: Top ten pesticide application sites contributing to *adjusted* **2017** May-October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 1 May – Oct 2017 Adjusted Emissions**
RICE (ALL OR UNSPEC)	0.205	15.800
WALNUT (ENGLISH, PERSIAN)	0.146	11.250
TOMATOES, FOR PROCESSING/CANNING	0.121	9.330
GRAPES, WINE	0.117	9.004
ALMOND	0.111	8.557
UNCULTIVATED AGRICULTURAL AREAS*	0.098	7.527
SUNFLOWER, GENERAL	0.078	6.004
STRUCTURAL PEST CONTROL	0.076	5.880
SOIL APPLICATION, PREPLANT-OUTDOOR*	0.065	5.032
LANDSCAPE MAINTENANCE	0.050	3.828

*Treatment of an area prior to a crop being planted.

Table A3-1h: Top ten pesticide application sites contributing to *adjusted* **2018** May-October (ozone season) VOC emissions in the Sacramento Metro **NAA (1)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 1 May – Oct 2018 Adjusted Emissions**
RICE (ALL OR UNSPEC)	0.205	15.01
WALNUT (ENGLISH, PERSIAN)	0.147	10.79
ALMOND	0.146	10.68
TOMATOES, FOR PROCESSING/CANNING	0.122	8.90
GRAPES, WINE	0.117	8.54
STRUCTURAL PEST CONTROL	0.111	8.12
LANDSCAPE MAINTENANCE	0.098	7.15
RIGHTS OF WAY	0.075	5.52
SUNFLOWER, GENERAL	0.065	4.78
SOIL APPLICATION, PREPLANT-OUTDOOR*	0.050	3.64

*Treatment of an area prior to a crop being planted.

2. San Joaquin Valley - NAA 2

Table A3-2a: Top ten primary active ingredients (AI) contributing to *adjusted* **2015** May-October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 2 May – Oct 2015 Adjusted Emissions
1,3-DICHLOROPROPENE	2.270	15.022
HEXYTHIAZOX	0.859	5.683
FENPYROXIMATE	0.799	5.286
POTASSIUM N-METHYLDITHIOCARBAMATE	0.790	5.230
ABAMECTIN	0.740	4.896
CHLORPYRIFOS	0.715	4.732
METHYL BROMIDE	0.608	4.020
BIFENTHRIN	0.591	3.907
GLYPHOSATE, ISOPROPYLAMINE SALT	0.528	3.492
CHLOROPICRIN	0.517	3.422

Table A3-2b: Top ten primary active ingredients (AI) contributing to *adjusted* **2016** May-October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 2 May – Oct 2016 Adjusted Emissions
1,3-DICHLOROPROPENE	2.270	15.01
HEXYTHIAZOX	0.859	5.68
FENPYROXIMATE	0.799	5.28
POTASSIUM N-METHYLDITHIOCARBAMATE	0.790	5.22
ABAMECTIN	0.740	4.89
CHLORPYRIFOS	0.715	4.73
METHYL BROMIDE	0.608	4.02
BIFENTHRIN	0.602	3.98
GLYPHOSATE, ISOPROPYLAMINE SALT	0.528	3.49
CHLOROPICRIN	0.517	3.42

Table A3-2c: Top ten primary active ingredients (AI) contributing to *adjusted* **2017** May-October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 2 May – Oct 2017 Adjusted Emissions
1,3-DICHLOROPROPENE	1.987	11.866
ABAMECTIN	1.005	6.000
GLYPHOSATE, ISOPROPYLAMINE SALT	0.915	5.460
CHLORPYRIFOS	0.853	5.093
POTASSIUM N-METHYLDITHIOCARBAMATE	0.803	4.794
BIFENTHRIN	0.720	4.297
HEXYTHIAZOX	0.646	3.859
GLUFOSINATE-AMMONIUM	0.639	3.815
METHYL BROMIDE	0.546	3.257
MINERAL OIL	0.450	2.688

Table A3-2d: Top ten primary active ingredients (AI) contributing to *adjusted* **2018** May-October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 2 May – Oct 2018 Adjusted Emissions
1,3-DICHLOROPROPENE	2.082	13.062
ABAMECTIN	1.041	6.532
GLYPHOSATE, ISOPROPYLAMINE SALT	0.934	5.857
BIFENTHRIN	0.843	5.286
GLUFOSINATE-AMMONIUM	0.719	4.512
HEXYTHIAZOX	0.639	4.007
METHYL BROMIDE	0.527	3.307
CHLORPYRIFOS	0.518	3.246
POTASSIUM N-METHYLDITHIOCARBAMATE	0.503	3.153
MINERAL OIL	0.444	2.788

Table A3-2e: Top ten pesticide application sites contributing to *adjusted* **2015** May-October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 2 May – Oct 2015 Adjusted Emissions
ALMOND	4.313	28.065
SOIL APPLICATION, PREPLANT-OUTDOOR*	1.479	9.623
COTTON, GENERAL	1.029	6.696
CARROTS, GENERAL	0.729	4.746
WALNUT (ENGLISH, PERSIAN)	0.672	4.369
PISTACHIO (PISTACHE NUT)	0.650	4.227
ORANGE (ALL OR UNSPEC)	0.620	4.037
GRAPES	0.619	4.029
TOMATOES, FOR PROCESSING/CANNING	0.578	3.762
GRAPES, WINE	0.497	3.235

* Treatment of an area prior to crop being planted.

Table A3-2f: Top ten pesticide application sites contributing to *adjusted* **2016** May-October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 2 May – Oct 2016 Adjusted Emissions
ALMOND	4.339	28.129
COTTON, GENERAL	1.283	8.320
CARROTS, GENERAL	0.833	5.401
PISTACHIO (PISTACHE NUT)	0.799	5.179
ORANGE (ALL OR UNSPEC)	0.757	4.905
SOIL APPLICATION, PREPLANT-OUTDOOR*	0.735	4.766
WALNUT (ENGLISH, PERSIAN)	0.661	4.283
TOMATOES, FOR PROCESSING/CANNING	0.557	3.611
GRAPES	0.556	3.604
GRAPES, WINE	0.438	2.841

* Treatment of an area prior to crop being planted.

Table A3-2g: Top ten pesticide application sites contributing to *adjusted* **2017** May-October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 2 May – Oct 2017 Adjusted Emissions**
ALMOND	4.840	28.521
COTTON, GENERAL	2.045	12.051
PISTACHIO (PISTACHE NUT)	0.971	5.721
CARROTS, GENERAL	0.733	4.318
ORANGE (ALL OR UNSPEC)	0.732	4.314
GRAPES	0.718	4.228
SOIL APPLICATION, PREPLANT-OUTDOOR*	0.674	3.973
WALNUT (ENGLISH, PERSIAN)	0.664	3.915
TOMATOES, FOR PROCESSING/CANNING	0.472	2.781
GRAPES, WINE	0.451	2.656

* Treatment of an area prior to crop being planted.

Table A3-2h: Top ten pesticide application sites contributing to *adjusted* **2018** May-October (ozone season) VOC emissions in the San Joaquin Valley **NAA (2)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 2 May – Oct 2018 Adjusted Emissions**
ALMOND	5.257	32.502
COTTON, GENERAL	1.718	10.620
PISTACHIO (PISTACHE NUT)	1.145	7.080
WALNUT (ENGLISH, PERSIAN)	0.713	4.411
ORANGE (ALL OR UNSPEC)	0.621	3.838
GRAPES	0.594	3.674
CARROTS, GENERAL	0.578	3.573
SOIL APPLICATION, PREPLANT-OUTDOOR*	0.472	2.919
GRAPES, WINE	0.444	2.746
TOMATOES, FOR PROCESSING/CANNING	0.396	2.448

* Treatment of an area prior to crop being planted.

3. Southeast Desert - NAA 3

Table A3-3a: Top ten primary active ingredients (AI) contributing to *adjusted* **2015** May-October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 3 May – Oct 2015 Adjusted Emissions
1,3-DICHLOROPROPENE	0.043	12.173
CYPERMETHRIN	0.025	7.203
METAM-SODIUM	0.023	6.652
BENSULIDE	0.023	6.526
GLYPHOSATE, ISOPROPYLAMINE SALT	0.022	6.159
ACETIC ACID	0.020	5.858
BIFENTHRIN	0.020	5.784
DAZOMET	0.019	5.389
MEFENOXAM	0.010	2.920
CAPRYLIC ACID	0.007	2.046

Table A3-3b: Top ten primary active ingredients (AI) contributing to *adjusted* **2016** May-October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 3 May – Oct 2016 Adjusted Emissions
METAM-SODIUM	0.024	9.622
METHYL BROMIDE	0.021	8.360
BENSULIDE	0.014	5.706
GLYPHOSATE, ISOPROPYLAMINE SALT	0.014	5.673
DAZOMET	0.014	5.535
GLYPHOSATE, POTASSIUM SALT	0.010	4.051
BIFENTHRIN	0.008	3.348
SULFUR	0.008	3.163
MEFENOXAM	0.008	3.039
ABAMECTIN	0.007	2.891

Table A3-3c: Top ten primary active ingredients (AI) contributing to *adjusted* **2017** May-October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 3 May – Oct 2017 Adjusted Emissions
METAM-SODIUM	0.074	20.841
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.032	8.979
GLYPHOSATE, POTASSIUM SALT	0.027	7.697
GLYPHOSATE, ISOPROPYLAMINE SALT	0.024	6.789
BENSULIDE	0.017	4.801
METHYL BROMIDE	0.016	4.607
DISODIUM OCTABORATE TETRAHYDRATE	0.016	4.506
DAZOMET	0.014	4.004
CAPRYLIC ACID	0.008	2.303
EPTC	0.008	2.204

Table A3-3d: Top ten primary active ingredients (AI) contributing to *adjusted* **2018** May-October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 3 May – Oct 2018 Adjusted Emissions**
METAM-SODIUM	0.040	15.295
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.026	9.958
GLYPHOSATE, ISOPROPYLAMINE SALT	0.019	7.154
BENSULIDE	0.013	4.833
CAPRYLIC ACID	0.012	4.532
EPTC	0.011	4.026
IMIDACLOPRID	0.009	3.526
MEFENOXAM	0.009	3.442
PYRIPROXYFEN	0.007	2.702
BIFENTHRIN	0.007	2.615

Table A3-3e: Top ten pesticide application sites contributing to *adjusted* **2015** May-October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 3 May – Oct 2015 Adjusted Emissions**
STRUCTURAL PEST CONTROL	0.089	24.963
GRAPES	0.042	11.901
RIGHTS OF WAY	0.032	8.909
PEPPERS (FRUITING VEGETABLE)	0.023	6.434
LANDSCAPE MAINTENANCE	0.022	6.284
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.022	6.151
LEMON	0.021	5.917
STRAWBERRY (ALL OR UNSPEC)	0.015	4.073
CARROTS, GENERAL	0.014	4.014
LETTUCE, LEAF (ALL OR UNSPEC)	0.014	3.818

Table A3-3f: Top ten pesticide application sites contributing to *adjusted* **2016** May-October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 3 May – Oct 2016 Adjusted Emissions**
STRUCTURAL PEST CONTROL	0.041	15.913
RIGHTS OF WAY	0.035	13.502
ORNAMENTAL TURF (ALL OR UNSPEC)	0.022	8.594
LANDSCAPE MAINTENANCE	0.022	8.528
CARROTS, GENERAL	0.022	8.382
PEPPERS (FRUITING VEGETABLE)	0.019	7.440
LEMON	0.014	5.358
STRAWBERRY (ALL OR UNSPEC)	0.013	5.009
GRAPES	0.009	3.639
LETTUCE, LEAF (ALL OR UNSPEC)	0.008	2.992

Table A3-3g: Top ten pesticide application sites contributing to *adjusted* **2017** May-October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 3 May – Oct 2017 Adjusted Emissions**
STRUCTURAL PEST CONTROL	0.077	21.552
PEPPERS (FRUITING VEGETABLE)	0.066	18.490
RIGHTS OF WAY	0.035	9.747
LANDSCAPE MAINTENANCE	0.024	6.711
ORNAMENTAL TURF (ALL OR UNSPEC)	0.023	6.411
LETTUCE, LEAF (ALL OR UNSPEC)	0.020	5.724
CARROTS, GENERAL	0.020	5.581
UNCULTIVATED AGRICULTURAL AREAS*	0.016	4.432
ALFALFA (FORAGE - FODDER) (ALFALFA HAY)	0.015	4.072
LEMON	0.010	2.817

* Treatment of an area prior to crop being planted.

Table A3-3h: Top ten pesticide application sites contributing to *adjusted* **2018** May-October (ozone season) VOC emissions in the Southeast Desert **NAA (3)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 3 May – Oct 2018 Adjusted Emissions**
STRUCTURAL PEST CONTROL	0.067	25.198
PEPPERS (FRUITING VEGETABLE)	0.037	14.043
LANDSCAPE MAINTENANCE	0.025	9.323
LEMON	0.021	7.929
CARROTS, GENERAL	0.019	7.029
RIGHTS OF WAY	0.015	5.806
UNCULTIVATED AGRICULTURAL AREAS*	0.013	4.977
DATE	0.008	3.084
LETTUCE, LEAF (ALL OR UNSPEC)	0.007	2.625
EGGPLANT (ORIENTAL EGGPLANT)	0.005	1.813

* Treatment of an area prior to crop being planted.

4. Ventura - NAA 4

Table A3-4a: Top ten primary active ingredients (AI) contributing to *adjusted* **2015** May-October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 4 May – Oct 2015 Adjusted Emissions
METHYL BROMIDE	0.472	31.276
CHLOROPICRIN	0.388	25.741
1,3-DICHLOROPROPENE	0.093	6.162
METAM-SODIUM	0.089	5.900
MINERAL OIL	0.064	4.231
CHLORPYRIFOS	0.034	2.277
ABAMECTIN	0.027	1.807
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.022	1.458
NOVALURON	0.016	1.093
GLYPHOSATE, ISOPROPYLAMINE SALT	0.013	0.893

Table A3-4b: Top ten primary active ingredients (AI) contributing to *adjusted* **2016** May-October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 4 May – Oct 2016 Adjusted Emissions
CHLOROPICRIN	0.348	30.460
METHYL BROMIDE	0.204	17.846
1,3-DICHLOROPROPENE	0.136	11.923
MINERAL OIL	0.068	5.926
CHLORPYRIFOS	0.033	2.883
METAM-SODIUM	0.022	1.966
ABAMECTIN	0.020	1.757
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.017	1.503
POTASH SOAP	0.016	1.360
NOVALURON	0.014	1.211

Table A3-4c: Top ten primary active ingredients (AI) contributing to *adjusted* **2017** May-October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 4 May – Oct 2017 Adjusted Emissions
CHLOROPICRIN	0.329	31.941
1,3-DICHLOROPROPENE	0.114	11.066
MINERAL OIL	0.068	6.596
ABAMECTIN	0.067	6.506
CHLORPYRIFOS	0.038	3.705
METAM-SODIUM	0.036	3.510
THIRAM	0.028	2.695
POTASSIUM N-METHYLDITHIOCARBAMATE	0.022	2.107
GLYPHOSATE, ISOPROPYLAMINE SALT	0.017	1.680
CAPTAN	0.017	1.625

Table A3-4d: Top ten primary active ingredients (AI) contributing to *adjusted* **2018** May-October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 4 May – Oct 2018 Adjusted Emissions
CHLOROPICRIN	0.307	33.677
1,3-DICHLOROPROPENE	0.130	14.261
MINERAL OIL	0.056	6.193
METAM-SODIUM	0.050	5.509
GLYPHOSATE, ISOPROPYLAMINE SALT	0.027	3.012
THIRAM	0.022	2.467
ABAMECTIN	0.019	2.114
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.017	1.901
POTASSIUM N-METHYLDITHIOCARBAMATE	0.016	1.735
IMIDACLOPRID	0.014	1.588

Table A3-4e: Top ten pesticide application sites contributing to *adjusted* **2015** May-October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 4 May – Oct 2015 Adjusted Emissions
STRAWBERRY (ALL OR UNSPEC)	1.192	71.497
LEMON	0.127	7.601
RASPBERRY (ALL OR UNSPEC)	0.063	3.770
PEPPERS (FRUITING VEGETABLE)	0.054	3.244
STRUCTURAL PEST CONTROL	0.029	1.761
CELERY, GENERAL	0.024	1.436
AVOCADO (ALL OR UNSPEC)	0.021	1.253
N-OUTDR GRWN CUT FLWRS OR GREENS	0.016	0.987
LANDSCAPE MAINTENANCE	0.016	0.937
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.011	0.640

Table A3-4f: Top ten pesticide application sites contributing to *adjusted* **2016** May-October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 4 May – Oct 2016 Adjusted Emissions
STRAWBERRY (ALL OR UNSPEC)	0.943	69.132
LEMON	0.123	9.003
PEPPERS (FRUITING VEGETABLE)	0.048	3.519
RASPBERRY (ALL OR UNSPEC)	0.035	2.593
STRUCTURAL PEST CONTROL	0.018	1.319
AVOCADO (ALL OR UNSPEC)	0.017	1.240
CELERY, GENERAL	0.015	1.118
N-OUTDR GRWN CUT FLWRS OR GREENS	0.015	1.090
CABBAGE	0.014	1.002
TOMATO	0.013	0.924

Table A3-4g: Top ten pesticide application sites contributing to *adjusted* **2017** May-October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 4 May – Oct 2017 Adjusted Emissions**
STRAWBERRY (ALL OR UNSPEC)	0.761	61.287
LEMON	0.119	9.624
AVOCADO (ALL OR UNSPEC)	0.067	5.430
RASPBERRY (ALL OR UNSPEC)	0.029	2.301
CELERY, GENERAL	0.025	2.052
STRUCTURAL PEST CONTROL	0.025	2.029
PEPPERS (FRUITING VEGETABLE)	0.021	1.712
LANDSCAPE MAINTENANCE	0.020	1.632
CABBAGE	0.017	1.333
N-OUTDR GRWN CUT FLWRS OR GREENS	0.016	1.304

Table A3-4h: Top ten pesticide application sites contributing to *adjusted* **2018** May-October (ozone season) VOC emissions in the Ventura **NAA (4)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 4 May – Oct 2018 Adjusted Emissions**
STRAWBERRY (ALL OR UNSPEC)	0.779	68.514
LEMON	0.078	6.859
STRUCTURAL PEST CONTROL	0.028	2.433
AVOCADO (ALL OR UNSPEC)	0.027	2.355
CELERY, GENERAL	0.023	2.053
RASPBERRY (ALL OR UNSPEC)	0.021	1.807
PEPPERS (FRUITING VEGETABLE)	0.020	1.724
CABBAGE	0.015	1.275
ORNAMENTAL TURF (ALL OR UNSPEC)	0.013	1.117
CITRUS FRUITS (ALL OR UNSPEC)	0.012	1.060

5. South Coast - NAA 5

Table A3-5a: Top ten primary active ingredients (AI) contributing to *adjusted* **2015** May-October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 5 May – Oct 2015 Adjusted Emissions
METHYL BROMIDE	0.117	8.779
BIFENTHRIN	0.109	8.150
PERMETHRIN	0.103	7.743
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.103	7.712
DAZOMET	0.098	7.340
CYPERMETHRIN	0.075	5.588
DISODIUM OCTABORATE TETRAHYDRATE	0.067	5.050
D-TRANS ALLETHRIN	0.059	4.388
FIPRONIL	0.046	3.427
PIPERONYL BUTOXIDE	0.045	3.389

Table A3-5b: Top ten primary active ingredients (AI) contributing to *adjusted* **2016** May-October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 5 May – Oct 2016 Adjusted Emissions
METHYL BROMIDE	0.154	15.432
METAM-SODIUM	0.085	8.470
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.084	8.391
DISODIUM OCTABORATE TETRAHYDRATE	0.069	6.927
BIFENTHRIN	0.056	5.580
PIPERONYL BUTOXIDE	0.044	4.353
PERMETHRIN	0.040	4.044
CYFLUTHRIN	0.031	3.142
GLYPHOSATE, POTASSIUM SALT	0.029	2.904
2,4-D, 2-ETHYLHEXYL ESTER	0.022	2.206

Table A3-5c: Top ten primary active ingredients (AI) contributing to *adjusted* **2017** May-October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 5 May – Oct 2017 Adjusted Emissions
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.242	21.998
DISODIUM OCTABORATE TETRAHYDRATE	0.090	8.144
METHYL BROMIDE	0.065	5.925
METAM-SODIUM	0.063	5.742
BIFENTHRIN	0.044	4.003
PIPERONYL BUTOXIDE	0.038	3.494
GLYPHOSATE, POTASSIUM SALT	0.037	3.361
CYFLUTHRIN	0.026	2.347
PERMETHRIN	0.024	2.173
2,4-D, 2-ETHYLHEXYL ESTER	0.024	2.152

Table A3-5d: Top ten primary active ingredients (AI) contributing to *adjusted* **2018** May-October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 5 May – Oct 2018 Adjusted Emissions
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.218	20.302
METHYL BROMIDE	0.113	10.510
FIPRONIL	0.054	5.080
PIPERONYL BUTOXIDE	0.052	4.886
BIFENTHRIN	0.050	4.672
DISODIUM OCTABORATE TETRAHYDRATE	0.042	3.881
METAM-SODIUM	0.032	2.992
PERMETHRIN	0.030	2.816
IMIDACLOPRID	0.028	2.599
PYRIPROXYFEN	0.023	2.187

Table A3-5e: Top ten pesticide application sites contributing to *adjusted* **2015** May-October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 5 May – Oct 2015 Adjusted Emissions
STRUCTURAL PEST CONTROL	0.810	60.630
LANDSCAPE MAINTENANCE	0.154	11.522
RIGHTS OF WAY	0.150	11.246
FUMIGATION, OTHER	0.057	4.293
STRAWBERRY (ALL OR UNSPEC)	0.050	3.749
COMMODITY FUMIGATION	0.019	1.442
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.014	1.083
AVOCADO (ALL OR UNSPEC)	0.009	0.650
POTATO (WHITE, IRISH, RED, RUSSET)	0.008	0.601
PEPPERS (FRUITING VEGETABLE)	0.007	0.550

Table A3-5f: Top ten pesticide application sites contributing to *adjusted* **2016** May-October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 5 May – Oct 2016 Adjusted Emissions
STRUCTURAL PEST CONTROL	0.810	60.63
LANDSCAPE MAINTENANCE	0.154	11.52
RIGHTS OF WAY	0.150	11.25
FUMIGATION, OTHER	0.057	4.29
STRAWBERRY (ALL OR UNSPEC)	0.050	3.75
COMMODITY FUMIGATION	0.019	1.44
N-OUTDR CONTAINER/FIELD GRWN PLANTS	0.014	1.08
AVOCADO (ALL OR UNSPECIFIED)	0.009	0.65
POTATO (WHITE, IRISH, RED, RUSSET)	0.008	0.60
PEPPERS (FRUITING VEGETABLE)	0.007	0.55

Table A3-5f: Top ten pesticide application sites contributing to *adjusted* **2017** May-October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 5 May – Oct 2017 Adjusted Emissions**
STRUCTURAL PEST CONTROL	0.592	53.563
LANDSCAPE MAINTENANCE	0.189	17.109
RIGHTS OF WAY	0.103	9.335
FUMIGATION, OTHER	0.040	3.609
STRAWBERRY (ALL OR UNSPEC)	0.039	3.541
CARROTS, GENERAL	0.026	2.330
COMMODITY FUMIGATION	0.025	2.293
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.015	1.380
AVOCADO (ALL OR UNSPEC)	0.010	0.946
GRAPEFRUIT	0.009	0.855

Table A3-5h: Table A3-5f: Top ten pesticide application sites contributing to *adjusted* **2018** May-October (ozone season) VOC emissions in the South Coast **NAA (5)**.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 5 May – Oct 2018 Adjusted Emissions**
STRUCTURAL PEST CONTROL	0.627	58.352
LANDSCAPE MAINTENANCE	0.173	16.089
FUMIGATION, OTHER	0.087	8.133
RIGHTS OF WAY	0.063	5.904
COMMODITY FUMIGATION	0.026	2.393
STRAWBERRY (ALL OR UNSPEC)	0.017	1.539
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.016	1.525
AVOCADO (ALL OR UNSPEC)	0.008	0.779
ORANGE (ALL OR UNSPEC)	0.007	0.687
TURF, GOLF COURSE	0.007	0.608

APPENDIX 4

LIST OF HIGH-VOC, LOW-VOC, AND EXCLUDED NON-FUMIGANT PRODUCTS

Department of Pesticide Regulation
Nonfumigant volatile organic compound (VOC) regulations
Product list (updated September 6, 2019)

The Department of Pesticide Regulation's (DPR's) nonfumigant VOC regulations (California Code of Regulations (CCR) sections 6452.2, 6558, 6577, 6880, 6881, 6883, 6884 and 6886) include sales and use restrictions for certain agricultural use products containing any of the following pesticides as the primary active ingredient provided certain criteria are met.

Primary Active Ingredient	Emission Potential (EP) Threshold (%)
Abamectin	35
Chlorpyrifos	25
Gibberellins	25
Oxyfluorfen	15

If a product contains more than one active ingredient, the primary active ingredient is the one present at the highest percentage in a product. These criteria do not apply to products that contain an active ingredient listed above, but not as the primary active ingredient, including products with one or more active ingredients present at the same percentage.

The emission potential (EP) is an estimate of the product VOC content and is normally determined by the registrant using thermogravimetric analysis, with the test results reviewed and approved by DPR.

Products labeled only for non-agricultural uses are excluded from the proposed regulations. Non-agricultural uses include: a) home use; b) use in structural pest control; c) industrial or institutional use; d) control of an animal pest under the written prescription of a veterinarian; or e) vector control. All other uses are considered agricultural.

DPR classifies products containing any of the four pesticides into three groups:

High-VOC product: a) contains any of the four pesticides as a primary active ingredient; and b) labeled for agricultural use; and c) the EP is greater than the threshold.

Low-VOC product: a) contains any of the four pesticides as a primary active ingredient; and b) labeled for agricultural use; and c) the EP is equal to or less than the threshold.

Excluded product: a) contains any of the four pesticides, but not as a primary active ingredient; or b) labeled only for non-agricultural use.

The nonfumigant VOC restrictions only apply to high-VOC products. Low-VOC products or excluded products have no restrictions.

Department of Pesticide Regulation
Nonfumigant volatile organic compound (VOC) regulations
Product list (updated September 6, 2019)

Actively registered products containing **abamectin**. Products are listed in order by EP. Products highlighted in orange and marked "*New" indicate a change from the last list. If a product was only recently registered or has an inactive registration it may not appear on the list below. Agricultural products with inactive registrations are considered high-VOC unless they are listed below as low-VOC, formulated as a solid (e.g., powder, granule), or meet the criteria for excluded products.

Low-VOC Abamectin Products, EP ≤ 35.0% (19)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Abacide 2	7946-27-AA	J.J. Mauget Co.	Solution/Liquid	0.00
Abacide 2 HP	7946-30-AA	J.J. Mauget Co.	Solution/Liquid	0.00
Wipe Out	90326-1-AA	B & K Distributors	Solution/Liquid	3.00
Epi-Mek SCL	100-1439-AA	Syngenta Crop Protection, LLC	Other (Liquid Suspension)	3.08
Clinch Ant Bait	100-894-ZB	Syngenta Crop Protection, LLC	Granular/Flake	3.70
Advance 375A Granular Ant Bait	499-370-ZD	BASF Corporation	Granular/Flake	3.70
Ascend Fire Ant Granular Bait	499-370-ZE	BASF Corporation	Granular/Flake	3.70
Willowood Abamectin 0.7SC	87290-36-AA	Willowood, LLC	Aqueous Suspension	4.62
Avert DF Dry Flowable Cockroach Bait	499-294-ZB	BASF Corporation	Dust/Powder	5.55
Divanem	100-1611-AA	Syngenta Crop Protection, LLC	Aqueous Suspension	5.63
Agri-Mek SC Miticide/Insecticide	100-1351-ZA	Syngenta Crop Protection, LLC	Aqueous Suspension	5.63
Willowood Abamectin 0.15LV	87290-68-AA	Willowood, LLC	Liquid Concentrate	7.61
Abamex Miticide/Insecticide	228-734-AA	Nufarm Americas Inc.	Liquid Concentrate	24.10
Minx 2 Miticide/Insecticide	228-736-AA	Nufarm Americas Inc.	Liquid Concentrate	24.10
Abacus V	83100-32-AA-83979	Rotam North America, Inc.	Emulsifiable Concentrate	27.26
Timectin 0.15 EC Ag Insecticide/Miticide	84229-2-AA	Tide International USA, Inc.	Emulsifiable Concentrate	29.75
Timectin 0.15 EC T&O Insecticide/Miticide	84229-1-AA	Tide International USA, Inc.	Emulsifiable Concentrate	29.75
Reaper Clearform	34704-1078-ZA	Loveland Products Inc.	Liquid Concentrate	31.08
Abba Ultra Miticide/Insecticide	5481-621-AA	AMVAC Chemical Corporation	Emulsifiable Concentrate	34.18

Department of Pesticide Regulation
Nonfumigant volatile organic compound (VOC) regulations
Product list (updated September 6, 2019)

High-VOC Abamectin Products, EP > 35.0% (12)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Abamectin 0.15EC Select	89442-20-AA	Prime Source, LLC.	Emulsifiable Concentrate	46.70
Aracinate	74779-1-AA	Rainbow Treecare Scientific	Other (Liquid)	55.10
Ardent 0.15 EC Miticide/Insecticide	100-896-ZC	Syngenta Crop Protection, LLC	Emulsifiable Concentrate	55.10
Avid 0.15EC Miticide/Insecticide	100-896-ZD	Syngenta Crop Protection, LLC	Emulsifiable Concentrate	55.10
Abacus Agricultural Miticide/Insecticide	83100-4-AA-83979	Rotam North America, Inc.	Emulsifiable Concentrate	60.54
Lucid Ornamental Miticide/Insecticide	83100-5-AA-83979	Rotam North America, Inc.	Emulsifiable Concentrate	60.54
Avensis Insecticide/ Miticide	5481-627-AA	AMVAC Chemical Corporation	Emulsifiable Concentrate	62.62
Quali-Pro Abamectin 0.15 EC	53883-371-AA	Control Solutions, Inc.	Emulsifiable Concentrate	62.62
*NEW Quali-Pro Todal	53883-410-AA	Control Solutions, Inc.	Emulsifiable Concentrate	62.62
Reaper 0.15 EC	34704-923-AA	Loveland Products, Inc.	Emulsifiable Concentrate	73.33
Reaper Advance	34704-923-ZA	Loveland Products, Inc.	Emulsifiable Concentrate	73.33
Aim A Abamectin	88050-3-AA	SmartVet USA, Inc.	Solution/Liquid	98.00

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Actively registered products containing **chlorpyrifos**. Products are listed in order by EP. Products highlighted in orange and marked "*NEW" indicate a change from the last list. If a product was only recently registered or has an inactive registration it may not appear on the list below. Agricultural products with inactive registration are considered high-VOC unless they are listed below as low-VOC, formulated as a solid (e.g., powder, granule), or meet the criteria for excluded products.

Low-VOC Chlorpyrifos Products, EP ≤ 25.0% (18)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Duraguard ME Microencapsulated Insecticide	499-367-ZB	BASF Corporation	Aqueous Concentrate	0.00
Durashield CS Controlled Release Insecticide	499-419-ZC	BASF Corporation	Microencapsulated	0.00
Lorsban 50W In Water Soluble Packets	62719-221-ZA	Dow AgroSciences LLC	Wettable Powder	3.03
CPF 15G	83222-34-AA	Direct Ag Source LLC	Granular/Flake	3.70
Rainbow Fire Ant & Insect Killer	13283-14-ZA	Rainbow Technology Corporation	Granular/Flake	3.70
Andersons Golf Products Insecticide III	9198-167-AA	Andersons, Inc.	Granular/Flake	3.70
Lorsban 75WG	62719-301-AA	Dow AgroSciences LLC	Granular/Flake	3.70
Lorsban 75WG	62719-301-AA-10163	Gowan Company	Granular/Flake	3.70
Lorsban 15G Smartbox	5481-525-AA	Amvac Chemical Corporation	Granular/Flake	3.70
Drexel Chlorpyrifos 15G	19713-505-AA	Drexel Chemical Company	Granular/Flake	3.70
Lorsban 15G Granular Insecticide	62719-34-ZA	Dow AgroSciences LLC	Granular/Flake	5.33
Dursban 50W In Water Soluble Packets	62719-72-ZA	Dow AgroSciences LLC	Wettable Powder	10.80
Warhawk Clearform	34704-1077-AA	Loveland Products, Inc.	Emulsifiable Concentrate	17.89
Drexel Chlorpyrifos 4E-Ag	19713-520-AA	Drexel Chemical Company	Emulsifiable Concentrate	18.20
Drexel Lambdafos Insecticide	19713-671-AA	Drexel Chemical Company	Emulsifiable Concentrate	18.30
Lorsban Advanced	62719-591-AA	Dow AgroSciences LLC	Aqueous Concentrate	18.45
Lock-On Insecticide	62719-79-ZA	Dow AgroSciences LLC	Emulsifiable Concentrate	20.90
Vulcan	66222-233-AA	Makhteshim-Agan of North America	Emulsifiable Concentrate	24.24

High-VOC Chlorpyrifos Products, EP > 25.0% (14)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Cobalt Advanced	62719-615-AA	Dow AgroSciences LLC	Emulsifiable Concentrate	37.42
Govern 4E Insecticide	62719-220-AA-55467	Tenkoz Inc.	Emulsifiable Concentrate	50.00
Whirlwind	62719-220-AA-5905	Helena Chemical Company	Emulsifiable Concentrate	50.00
Yuma 4E	62719-220-ZA-1381	Winfield Solutions LLC	Emulsifiable Concentrate	50.00
Hatchet	62719-220-ZC	Dow AgroSciences LLC	Emulsifiable Concentrate	50.00
CPF 4E	83222-20-AA	Direct Ag Source, LLC	Emulsifiable Concentrate	50.83
Lorsban-4E	62719-220-ZA	Dow AgroSciences LLC	Emulsifiable Concentrate	51.32
Chlorpyrifos 4E Ag	66222-19-AA	Makhteshim-Agan of North America	Emulsifiable Concentrate	52.90
Quali-Pro Chlorpyrifos 4E	66222-19-ZA	Makhteshim-Agan of North America	Emulsifiable Concentrate	52.90
Warhawk	34704-857-AA	Loveland Products, Inc.	Aqueous Concentrate	54.41
Stallion Brand Insecticide	279-9545-ZA	FMC Corporation	Emulsifiable Concentrate	55.45
Cobalt	62719-575-AA	Dow AgroSciences LLC	Emulsifiable Concentrate	68.61
Bolton Insecticide	279-3581-AA	FMC Corp. Agricultural Products Group	Emulsifiable Concentrate	70.39
Duraplex TR Total Release Insecticide	499-405-ZA	BASF Corporation	Pressurized Liquid	100.0

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Actively registered products containing **gibberellins**. Products are listed in order by EP. Products highlighted in orange and marked "*NEW" indicate a change from the last list. If a product was only recently registered or has an inactive registration it may not appear on the list below. Agricultural products with inactive registrations are considered high-VOC unless they are listed below as low-VOC, formulated as a solid (e.g., powder, granule), or meet the criteria for excluded products.

Low-VOC Gibberellins Products, EP ≤ 25.0% (10)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Gibgro 20% Powder	55146-53-ZA	Nufarm Americas Inc.	Dust/Powder	0.00
Novagib 5L	62097-47-AA-82917	Fine Americas, Inc.	Liquid	0.39
Falgro 20SP	62097-3-AA-82917	Fine Americas, Inc.	Soluble Powder	1.15
Falgro OD	62097-49-AA-82917	Fine Americas, Inc.	Emulsifiable Concentrate	1.41
Provide 10 SG	73049-409-AA	Valent Biosciences Corp.	Granular/Flake	3.70
Progibb 40% Plant Growth Regulator Water Soluble Granule	73049-1-ZA	Valent Biosciences Corp.	Granular/Flake	3.70
Progibb 40PH Post Harvest Plant Growth Regulator Water Soluble Granule	73049-492-AA	Valent Biosciences LLC	Granular/Flake	3.70
X-Pand	57538-63-AA	Stoller Enterprises, Inc.	Aqueous Concentrate	4.72
Progibb LV Plus Plant Growth Regulator Solution	73049-498-AA	Valent Biosciences Corp.	Aqueous Concentrate	11.54
Falgro 2X LV	62097-32-AA-82917	Fine Americas, Inc.	Aqueous Concentrate	22.95

High-VOC Gibberellins Products, EP > 25.0% (14)

Product Name	Registration Number	Registrant	Formulation	EP (%)
N-Large Premier	57538-20-AA	Stoller Enterprises, Inc.	Aqueous Concentrate	79.02
Gibbmax	69766-1-AA	Advanced Foliar Nutrients Systems	Other (Liquid)	92.43
Falgro 4L	62097-2-AA-82917	Fine Americas, Inc.	Solution/Liquid	93.82
Florgib 4L	62097-10-AA-82917	Fine Americas, Inc.	Aqueous Concentrate	93.82
Pro-Gibb 4% Plant Growth Regulator Solution	73049-15-AA	Valent Biosciences Corp.	Aqueous Concentrate	94.13
Progibb T & O Plant Growth Regulator (PGR) Solution	73049-15-ZA	Valent Biosciences LLC	Aqueous Concentrate	94.13
Progibb TVO Plant Growth Regulator Solution	73049-15-ZB	Valent Biosciences LLC	Aqueous Concentrate	94.13
Gibgro 4LS	55146-62-ZA	Nufarm Americas Inc.	Flowable Concentrate	94.87
Chrysal BVB	72992-10-AA	Chrysal International BV	Aqueous Concentrate	95.30
Fascination Plant Growth Regulator (PGR)	73049-41-ZA	Valent Biosciences Corp.	Aqueous Concentrate	95.58
Promalin Plant Growth Regulator Solution	73049-41-AA	Valent Biosciences Corp.	Aqueous Concentrate	95.58
Fresco	62097-6-ZA-82917	Fine Americas, Inc.	Aqueous Concentrate	95.85
Perlan	62097-6-AA-82917	Fine Americas, Inc.	Aqueous Concentrate	95.85
Novagib 10L	62097-7-AA-82917	Fine Americas, Inc.	Aqueous Concentrate	98.91

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Actively registered products containing **oxyfluorfen**. Products are listed in order by EP. Products highlighted in orange and marked "*NEW" indicate a change from the last list. If a product was only recently registered or has an inactive registration it may not appear on the list below. Agricultural products with inactive registrations are considered high-VOC unless they are listed below as low-VOC, formulated as a solid (e.g., powder, granule), or meet the criteria for excluded products.

Low-VOC Oxyfluorfen Products, EP ≤ 15% (8)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Galigan H2O	66222-140-AA	Makhteshim-Agan of North America	Aqueous Concentrate	1.64
Nufarm Double O SPC Herbicide	228-632-AA	Nufarm Americas Inc.	Granular/Flake	3.70
Biathlon Ornamental Herbicide	59807-12-AA	OHP, Inc.	Granular/Flake	3.70
Goaltender	62719-447-ZA	Dow Agrosciences LLC	Flowable Concentrate	8.28
Rout Ornamental Herbicide	58185-27-ZA	Everiss NA, Inc.	Granular/Flake	8.60
Pindar GT	62719-611-AA	Dow Agrosciences LLC	Aqueous Suspension	10.60
Cleantraxx	62719-702-AA	Dow Agrosciences, LLC	Aqueous Suspension	10.60
Oxystar 4L	42750-199-AA	Albaugh, Inc.	Emulsifiable Concentrate	10.63

High-VOC Oxyfluorfen Products, EP > 15.0% (7)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Willowood Oxyflo 2 EC	87290-8-AA	Willowood, LLC	Emulsifiable Concentrate	60.00
Oxyfluorfen 2E Herbicide	87290-8-AA-84237	Solera ATO, LLC	Emulsifiable Concentrate	60.00
Goal 2XL	62719-424-AA	Dow Agrosciences LLC	Emulsifiable Concentrate	62.30
Collide Herbicide	70506-295-AA	United Phosphorous, Inc.	Emulsifiable Concentrate	66.08
Galigan 2E Herbicide	66222-28-ZA	Makhteshim-Agan of North America	Emulsifiable Concentrate	66.15
Galigan 2E	66222-28-ZB	Makhteshim-Agan of North America	Emulsifiable Concentrate	66.15
Oxystar 2E	42750-136-AA	Albaugh, LLC	Emulsifiable Concentrate	73.09

Appendix 5

RESPONSES TO COMMENTS ON THE 2018 VOC INVENTORY REPORT

Appendix 5 – Reponses to Comments on the 2018 VOC Inventory Report

#	Comment	Response	Action
1.	**From Western Plant Health Association (WPHA):** **Nonattainment area designation –** Are the "nonattainment areas" still in nonattainment, and if not should that designation be reconsidered?	The nonattainment area (NAA) designation refers to areas that have not attained the federal standard for ozone. As part of the pesticide element of California's ozone State Implementation Plan (SIP), the California Department of Pesticide Regulation committed to reducing emissions from agricultural and commercial-structural pesticide applications within five ozone NAAs between May and October of each year. Exceedances from other emissions sources and threshold may contribute to the area's designation as NAA.	No changes to report are needed.
2.	**From Western Plant Health Association (WPHA):** **Nonfumigant restrictions determination –** Western Plan Health Association decided not to push back against the nonfumigant VOC regulations. They have been successful according to the numbers. The trigger level hasn't been exceeded in 5 years, and stakeholders wonder why nonfumigant restrictions persist despite this. What is behind the determination to maintain restrictions?	According to 3 California Code of Regulations (CCR) 6884(c): "If prohibitions for high-VOC nonfumigant products are in effect pursuant to section 6452.2(f), those prohibitions must remain in effect until the hypothetical VOC emissions shown in the Annual VOC Emissions Inventory Report comply with the limit specified in section 6452.2(f) for at least two consecutive years."	No changes to report are needed.
3.	**From Western Plant Health Association (WPHA):** **Nonfumigant restrictions determination –** Crop changes and weather have a huge impact on emissions. Chlorpyrifos was a significant contributor to emissions even in the low-VOC formulations, and now it's being removed from the marketplace. There are several factors that would affect emissions, which is why we're hesitant to ask for a relook at this at this time.	Comment acknowledged by DPR. No response required.	No changes to report are needed.

#	Comment	Response	Action
4.	**From Californians for Pesticide Reform (CPR) and Central Valley Air Quality Coalition (CVAQ):** **San Joaquin Valley Nonattainment Area Emissions Reduction Goal –** San Joaquin Valley is disproportionately exposed to ozone pollution, impacted by negative health effects linked to ozone pollution, and faced with social burdens such as lack of access to healthcare. Increased exposure to air pollution may also be linked to increased risk from COVID-19. For these reasons, the reductions required in San Joaquin should be made equitable by increasing them to 20% to match other nonattainment areas, through a State Implementation Plan revision.	The VOC emissions-reduction targets set by California State Implementation Plan (SIP) were negotiated with US EPA, CARB, and other stakeholders. DPR does not have the ability to unilaterally increase an emissions target. Any such updates have to be negotiated through the SIP process.	No changes to report are needed.
5.	**From CPR and CVAQ:** **Nonfumigant restrictions –** The restrictions on use of high-VOC formulation nonfumigant products should be made permanent.	As mentioned in the Response to Comment 2, 3 California Code of Regulations (CCR) 6884(c) states that active prohibitions on high-VOC nonfumigant products must remain active until "hypothetical VOC emissions shown in the Annual VOC Emissions Inventory Report comply with the limit specified in section 6452.2(f) for at least two consecutive years." The prohibition timeframe requirement is part of the California State Implementation Plan (SIP), negotiated with USEPA, CARB, and other stakeholders. DPR does not have the ability to unilaterally increase or extend an emissions target. Any such updates have to be negotiated through the SIP process.	No changes to report are needed.

#	Comment	Response	Action
6.	**From CPR:** **Chlorpyrifos reformulation –** On page 19, the draft report states that new formulations of chlorpyrifos (along with other active ingredients) continue to be registered by CDPR. Because of chlorpyrifos' well-documented health hazards and the actions taken by California to end sales and use of chlorpyrifos (see https://www.cdpr.ca.gov/docs/pressrls/2019/100919.htm) we request that no new chlorpyrifos products be registered, and that the report reflect that fact.	According to the Notice of Use and Sale Conditions for Chlorpyrifos Products dated October 9, 2019, sales and use of products listed in the Notice are prohibited. DPR has cancelled virtually all agricultural use of chlorpyrifos, including the majority of high-VOC chlorpyrifos products. Products not listed in the cancellation order may continue to be registered and may elect to reformulate; however, these products generally have non-agricultural uses that are outside the scope of the VOC Inventory Report.	No changes to report are needed.
7.	**From CPR and CVAQ:** **Expedited report and data –** CDPR should expedite public availability of data by releasing reports sooner and shortening of the lag time between data collection.	The VOC Inventory Report relies on several distinct data sources and requires substantial quality controls. The current time lag between the end of each year of data and the subsequent release of a VOC Inventory Report for that data year ensures the completeness of VOC emissions estimates. The accuracy of emissions estimates is vital since these estimates are used to determine whether to activate or maintain regulatory restrictions on fumigant or nonfumigant pesticide applications. Every effort is made to provide a complete and thorough report in the shortest amount of time possible.	No changes to report are needed.