APPENDIX 1

a. SUMMARY OF APPLICATION METHOD ADJUSTMENT FACTORS AND METHOD USE FRACTIONS
b. PRE-2024 FIELD FUMIGATION METHODS (FFM), FFM CODE FOR PESTICIDE USE REPORTING, AND EMISSION RATING
c. 2024 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 combined.

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. 7 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. 8 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 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 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 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 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.

APPENDIX 1b - 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

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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 1c - California Department of Pesticide Regulation

Volatile Organic Compound Regulations Field Fumigation Methods (FFM), FFM Codes 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)**	**1101-1190**	**---**
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 – Noble plow	1103	48
6447.3(a)(3)	Tarpaulin/shallow/broadcast – Noble plow – strip	1104*	74
6447.3(a)(3)	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
6447.3(a)(5)	Tarpaulin/deep/broadcast – strip	1108*	74
6447.3(a)(6)	Drip system – hot gas	1109*	100
6447.3(a)(3)	Tarpaulin/shallow/broadcast – Noble plow – with tarp eligible for 60% credit	1143	48
6447.3(a)(3)	Tarpaulin/shallow/broadcast – Noble plow – strip – with tarp eligible for 60% credit	1144*	74
6447.3(a)(3)	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
6447.3(a)(5)	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**	

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† Method prohibited since 2015

Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6448.2	**1,3-dichloropropene fumigation methods (with or without chloropicrin)**	**1201-1290**	**---**
6448.2(d)(1)	Nontarpaulin/shallow/broadcast or bed	1201*	49
6448.2(d)(2)	Tarpaulin/shallow/broadcast	1202*	40
6448.2(d)(2)	Tarpaulin/shallow/bed	1203*	46
6448.2(d)(3)	Nontarpaulin/shallow/broadcast or bed/three water treatments	1204	35
6448.2(d)(4)	Tarpaulin/shallow/bed/three water treatments	1205*	45
6448.2(d)(5)	Nontarpaulin/deep/broadcast (without chloropicrin)	1206	29
6448.2(d)(5)	Nontarpaulin/deep/broadcast (with chloropicrin)	1206*	29
6448.2(d)(6)	Tarpaulin/deep/broadcast	1207	25
6448.2(d)(6)	Tarpaulin/deep/bed	1208	33
6448.2(d)(7)	Chemigation (drip system)/tarpaulin	1209*	52
6448.2(d)(5)	Nontarpaulin/deep/strip	1210	29
6448.2(d)(5)	Nontarpaulin/deep/GPS targeted	1211	29
6448.2(d)(5)	Nontarpaulin/24 inches deep/broadcast (without chloropicrin)	1224	19
6448.2(d)(5)	Nontarpaulin/24 inches deep/broadcast (with chloropicrin)	1224*	19
6448.2(d)(5)	Tarpaulin/24 inches deep/broadcast	1225	17
6448.2(d)(5)	Nontarpaulin/24 inches deep/strip (without chloropicrin)	1226	19
6448.2(d)(5)	Nontarpaulin/24 inches deep/strip (with chloropicrin)	1226*	19
6448.2(d)(5)	Nontarpaulin/24 inches deep/GPS targeted (without chloropicrin)	1227	19
6448.2(d)(5)	Nontarpaulin/24 inches deep/GPS targeted (with chloropicrin)	1227*	19
Interim approval‡	Nontarpaulin/tree-hole	1230	14
6448.2(d)(2)	Tarpaulin/shallow/broadcast – with tarp eligible for 60% credit	1242	11
6448.2(d)(2)	Tarpaulin/shallow/bed – with tarp eligible for 60% credit	1243	18
6448.2(d)(4)	Tarpaulin/shallow/bed/three water treatments – with tarp eligible for 60% credit	1245	15
6448.2(d)(6)	Tarpaulin/deep/broadcast – with tarp eligible for 60% credit	1247	8
6448.2(d)(6)	Tarpaulin/deep/bed – with tarp eligible for 60% credit	1248	17
6448.2(d)(6)	Tarpaulin/deep/strip – with tarp eligible for 60% credit	1249	9
6448.2(d)(5)	40% TIF tarpaulin/deep/broadcast	1250	20
6448.2(d)(7)	Chemigation (drip system)/TIF tarpaulin	1259	16
6448.2(d)(5)	40% TIF tarpaulin/24 inches deep/broadcast	1264	14
	Other label method for 1,3-dichloropropene (with or without chloropicrin)	1290††	

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‡https://www.cdpr.ca.gov/docs/county/cacltrs/exec/2024/13-d_tree_hole_interim_approval_letter.pdf
††Method prohibited since 2024

Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6449.1	**Chloropicrin fumigation methods**	**1101-1390**	---
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
6447.3(a)(3)	Tarpaulin/shallow/broadcast – Nobel plow – strip	1104*	64
6447.3(a)(3)	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
6447.3(a)(5)	Tarpaulin/deep/broadcast – strip	1108*	64
6447.3(a)(3)	Tarpaulin/shallow/broadcast – Noble plow – with tarp eligible for 60% credit	1143	7
6447.3(a)(3)	Tarpaulin/shallow/broadcast – Noble plow – strip – with tarp eligible for 60% credit	1144	7
6447.3(a)(3)	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
6447.3(a)(5)	Tarpaulin/deep/broadcast – strip – with tarp eligible for 60% credit	1148	7
6448.2(d)(1)	Nontarpaulin/shallow/broadcast or bed	1201*	64
6448.2(d)(2)	Tarpaulin/shallow/broadcast	1202	44
6448.2(d)(2)	Tarpaulin/shallow/bed	1203*	64
6448.2(d)(3)	Nontarpaulin/shallow/broadcast or bed/three water treatments	1204	43
6448.2(d)(4)	Tarpaulin/shallow/bed/three water treatments	1205	43
6448.2(d)(5)	Nontarpaulin/deep/broadcast	1206*	64
6448.2(d)(6)	Tarpaulin/deep/broadcast	1207	44
6448.2(d)(6)	Tarpaulin/deep/bed	1208	44
6448.2(d)(7)	Chemigation (drip system)/tarpaulin	1209	12
6448.2(d)(5)	Nontarpaulin/deep/broadcast/strip	1210	64
6448.2(d)(5)	Nontarpaulin/deep/broadcast/GPS targeted	1211	64
6448.2(d)(5)	Nontarpaulin/24 inches deep/broadcast	1224*	64
6448.2(d)(5)	Tarpaulin/24 inches deep/broadcast	1225	44
6448.2(d)(5)	Nontarpaulin/24 inches deep/strip	1226*	64
6448.2(d)(5)	Nontarpaulin/24 inches deep/GPS targeted	1227*	64

*Method prohibited within the San Joaquin Valley, Southeast Desert, and Ventura nonattainment areas during May 1 – October 31.
†Method prohibited since 2015

Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6448.2(d)(2)	Tarpaulin/shallow/broadcast – with tarp eligible for 60% credit	1242	7
6448.2(d)(2)	Tarpaulin/shallow/bed – with tarp eligible for 60% credit	1243	7
6448.2(d)(4)	Tarpaulin/shallow/bed/three water treatments – with tarp eligible for 60% credit	1245	7
6448.2(d)(6)	Tarpaulin/deep/broadcast – with tarp eligible for 60% credit	1247	7
6448.2(d)(6)	Tarpaulin/deep/bed – with tarp eligible for 60% credit	1248	7
6448.2(d)(6)	Tarpaulin/deep/strip – with tarp eligible for 60% credit	1249	7
6448.2(d)(5)	40% TIF tarpaulin/deep/broadcast	1250	44
6448.2(d)(7)	Chemigation (drip system)/TIF tarpaulin	1259	7
6448.2(d)(5)	40% TIF tarpaulin/24 inches deep/broadcast	1264	44
	Other label method for chloropicrin	1390**	

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Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6450.1	**Metam-sodium and metam-potassium fumigation methods**	**1401-1490**	**---**
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
6450.1(d)(7)	Chemigation (drip system) nontarpaulin	1408	9
6450.1(d)(8)	Rotary tiller	1409	14
6450.1(d)(8)	Power mulcher	1410	14
6450.1(d)(8)	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% credit	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**	

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Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6450.2	**Dazomet fumigation methods**	**1501-1590**	**---**
	Soil incorporation	1501	17
	Surface application – water incorporation	1502	17
	Other label method for dazomet	1590**	
6451.1	**Sodium tetrathiocarbonate fumigation methods**	**1601-1690**	**---**
	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**	**1701-1705**	**---**
	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