

CHEMRAT and Updating Air Force Manuals 10-2602 & 10-2517



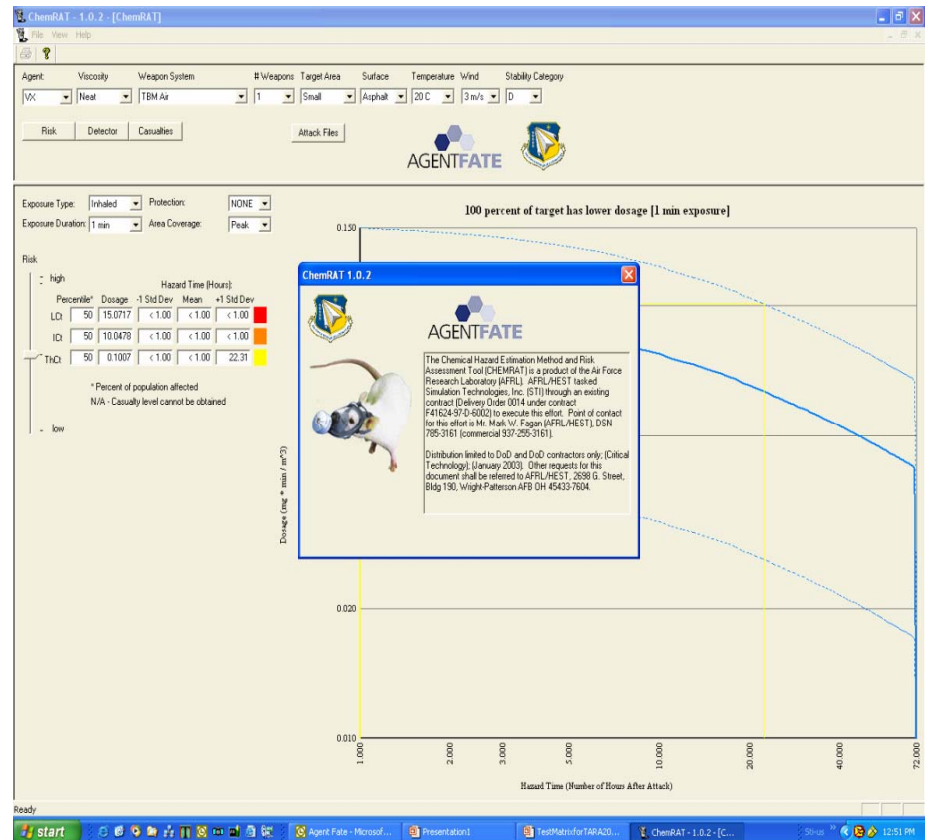
**Maj William Greer
AFRL HEPC CBD**



Decision Aiding Analysis & Tools

CHEMRAT

- CHEMRAT initiated by warfighter urgent need request
- Ver 1.0 Developed and fielded in 3 months
 - Released in Jan 2003
 - Deployed to OIF
- Interim accredited by DATSD-CBD in April 2003
- Transitioned to JOEF in FY05
- Currently used by USAF, USN, NORTHCOM, DHS, DOE
- Ver 1.5 to be released this quarter





Decision Aiding Analysis & Tools

AFMAN 10-2602 Table Updates

- **USAF guidance manuals being updated with revised hazard prediction tables**
 - **AFMAN 10-2502**
 - **AFMAN 10-2517**
- **Estimates derived from updated VLSTRACK predictions**
- **Incorporates newest agent fate data**
- **Scheduled release in Dec 2005**

Vapor Hazard VX On Concrete EC1 16									
		Stability		PSC D	PSC F	PSC D	PSC F	PSC D	PSC F
		Wind Speed (knots)		2		6		10	
Agent	Release	Munition	Temp °C (°F)						
VX	Low Alt.	TBM	-5 (23)	0.21	0	0.0	0	0.03	0
VX	High Alt.	TBM	-5 (23)	0	0	0.0	0	0	0
VX	Low Alt.	TBM	10 (50)	24.0	16	0.49	0	0.3	0.1
VX	High Alt.	TBM	10 (50)	9	0	0	0	0.1	0.0
VX	Low Alt.	TBM	25 (77)	72	72	3.57	1.5	1.88	0.9
VX	High Alt.	TBM	25 (77)	72	20	4.6	0.43	0.6	0.22
VX	Low Alt.	TBM	50 (122)	72	72	56.19	72	45.19	22.19
VX	High Alt.	TBM	50 (122)	72	72	43.19	16	7.8	13.5



Decision Aiding Analysis Revised C-CW CONOPS and TTPs

- Leveraged live agent outdoor tests to quantify and assess detection levels of:
 - CAMs
 - M-22 ACADAs
 - M-8 paper
 - M-256A kits
 - HAPSITE
 - M-279 surface sampler
- Determine droplet spread factors
- Quantify transfer of liquid agent by vehicles
- Determine effectiveness of foot/glove decon procedure



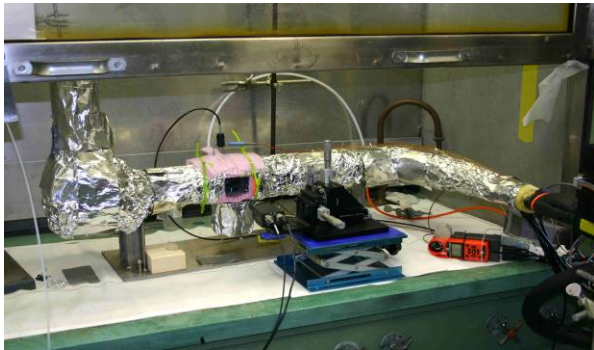
Transfer of liquid VX agent after different exposure time from the metal painted surfaces onto the M8 paper (hand touch simulation).

Drop Size	Exposure Time	GLASS	AGE GREEN	DEFT CHEM	A-10 GRAY	BOMB GREEN
0.01 uL	10 min					
0.01 uL	20 min					
0.01 uL	40 min					
0.1 uL	10 min					
0.1 uL	20 min					
0.1 uL	40 min					



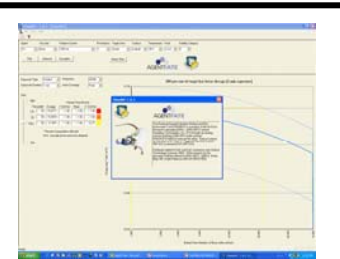
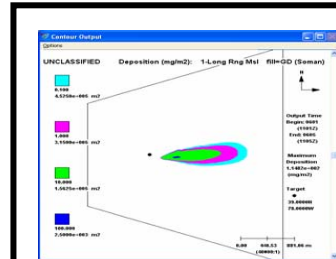
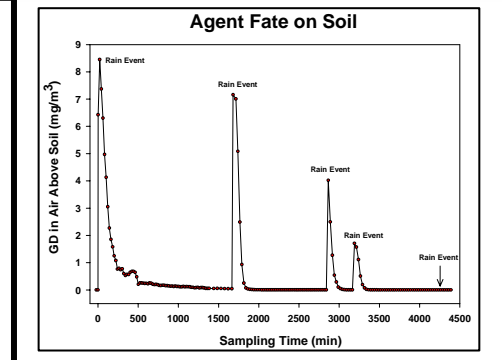
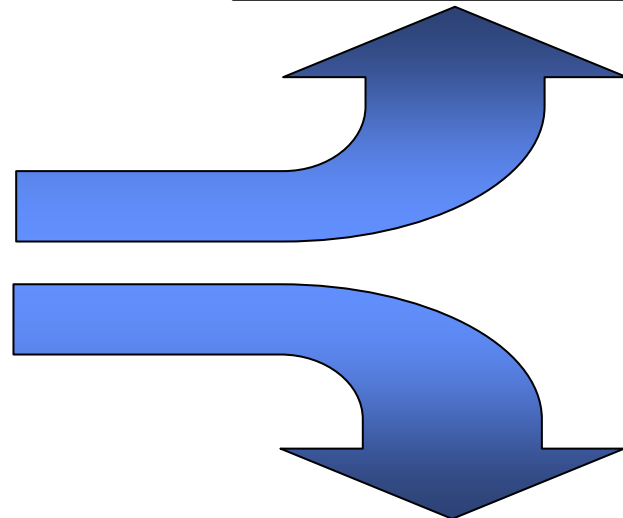


Transitioning CW Agent Fate S&T Into Products For CBBDP Users



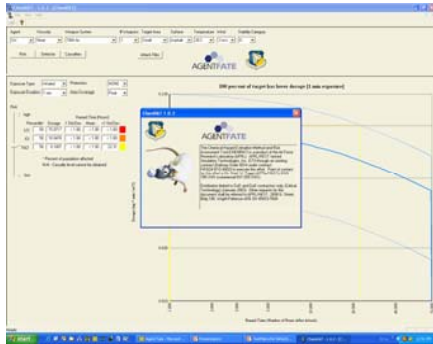
Vapor Hazard VX On Concrete B216

Agent	Release	Munition	Temp (°C/F)	Stability					
				PSCD		PSCF		PSCF	
				Wind Speed (knots)					
				2		6		10	
VX	Low Alt.	TEB1	-5 (23)	0.21	0	0.0	0	0.0	0
VX	High Alt.	TEB1	-5 (23)	0	0	0.0	0	0	0
VX	Low Alt.	TEB1	10 (50)	24.0	16	0.49	0	0.3	0.1
VX	High Alt.	TEB1	10 (50)	9	0	0	0	0.1	0.0
VX	Low Alt.	TEB1	25 (77)	72	72	3.57	1.5	1.88	0.9
VX	High Alt.	TEB1	25 (77)	72	20	4.6	0.4	0.6	0.22
VX	Low Alt.	TEB1	50 (122)	72	72	58.19	72	48.19	22.19
VX	High Alt.	TEB1	50 (122)	72	72	43.19	16	7.8	13.5

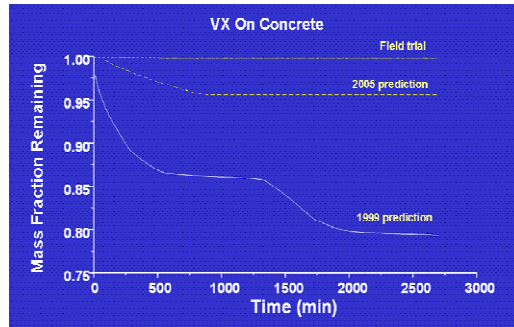




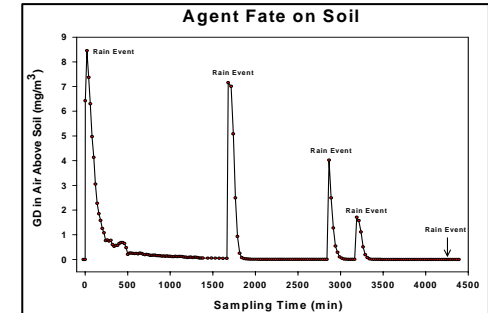
Agent Fate Program Products



**CHEMTRAT 1.0
CHEMTRAT 1.5**



**New version of VLSTRACK
(June 2004)**



**Rain event added to
AFMAN 10-2502 & 10-2517
(Dec 2005 release)**

Vapor Hazard VX On Concrete ECI 16											
Agent	Release	Munition	Stability Temp °C(°F)	PSCD		PSCF		PSCD		PSCF	
				Wind Speed (knots)		2		6		10	
				2	10	2	10	2	10		
VX	Low Alt.	TBM	-5(23)	0.21	0	0.0	0	0.0	0	0.0	0
VX	High Alt.	TBM	-5(23)	0	0	0.0	0	0	0	0	0
VX	Low Alt.	TBM	10(50)	24.0	16	0.49	0	0.3	0.1	0.3	0.1
VX	High Alt.	TBM	10(50)	9	0	0	0	0.1	0.0	0.1	0.0
VX	Low Alt.	TBM	25(77)	72	72	3.57	15	1.88	0.9	1.88	0.9
VX	High Alt.	TBM	25(77)	72	20	4.6	0.43	0.5	0.22	0.5	0.22
VX	Low Alt.	TBM	50(122)	72	72	56.19	72	45.19	22.19	45.19	22.19
VX	High Alt.	TBM	50(122)	72	72	43.19	16	7.8	13.5	7.8	13.5

**AFMAN 10-2502 & 10-2517
Vapor hazard persistence
tables updated
(Dec 2005 release)**



**Publications on agent fate
(technical reports, scientific
papers, etc.)**



C-CW CONOPS & TTPs



Questions?