098301

Date Out EFB: JAN 19 1982

TO: Product Manager 12 Ellenberger
TS-767

FROM: Dr. Willa Garner
Chief, Review Section No. 1
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 264-330, 264-331

Chemical: Aldicarb

Type Product: Insecticide

Product Name: Temik

Company Name: Union Carbide

Submission Purpose: Groundwater and Soil Analyses for Samples taken from Wisconsin and Florida (Applied in 1981)

ZBB Code: Other

ACTION CODE: 435

Date in: 11/18/81

EFB # 69, 70

Date Completed: ~~JAN 19~~ 1982

TAIS (level II) 60

Days 5

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1.0 INTRODUCTION

Union Carbide submitted soil and ground water monitoring data for aldicarb accompanied by a letter dated July 24, 1981. The package was received in the EFB on 11/18/81 (PM #52325, 52328; EFB #82-69, 82-70).

Data submitted were from Florida, Virginia, and Wisconsin which represent a 3-year use history (1979-81). It is presumed that sampling and analyses were performed in a manner identical to the 1980 monitoring program. Instrumentation sensitivity were also the same which is 1 ppb in water and 5 ppb in soil (see foot-notes in the attached Tables).

2.0 DISCUSSION OF DATA

2.1 Florida (Six Tables)

The attached tables give test location, use site, use history, the 1981 dosage, dates of application and sampling, water source, and results. Approximate sampling dates were: pretreatment; one week after application; one, three, and five months after application.

It could be seen from the tables that aldicarb residues were virtually undetectable in water. One sample from a ditch had 3 ppb and 4 samples were at the detectable level of 1 ppb. The remaining samples which include irrigation wells canals, store wells, barn well, grove wells, lakes, home wells, and swamps were all negative. Aldicarb residues in soils remained in the upper soil profile. This was true even at a later sampling in September. One exception however, was found in Hillsborough County where at the 6-8 feet of soil profile, aldicarb residues reached 109 and 122 ppb in sites I and II respectively. In the 4-6 feet of soil substratum, residues were determined at 212 ppb in site III. The average for the 4-6 feet and 6-8 feet was 112 and 115 ppb respectively. Ground water was encountered at the depths indicated in sites II and III.

It should be noted here that aldicarb residues in soil samples showed a pattern different than the 1980 data. In the 1981 data, the bulk of residues remained in the upper soil profile regardless of time of sampling; whereas, the 1980 data showed leaching of residues to the 4-8 feet of soil profile as shown in early September sampling (approximately 180 days after application). No information were provided on the recharge rate during 1981.

2.2 Virginia (Three Tables)

The attached tables gives test location, use site, use history, dosages, dates of application in 1979 and 1980 but not in 1981, water source, and results. Sampling dates were reported as: pretreatment, 1st post-treatment on May 28, and 3 1/4 month

post-treatment on July 17. It would seem that treatment was made on or around April 10, 1981.

It could be seen from the tables that monitoring for aldicarb residues in water in one location was discontinued because of lack of wells and similarity to the other two locations. Water residues from the other two locations (all three locations are within Accomack County), showed a pretreatment level of 10 and 20 ppb that might have persisted from the 1979-80 treatment. Also, levels of 10, 11 and 13 ppb were reported for the May 28 sampling (1 1/2 months after treatment). Late sampling showed one sample containing 2 ppb and 2 samples had no dectable aldicarb residues.

Soil samples showed aldicarb residues to be concentrated in the upper one foot of soil profile. Exceptions were seen in the location where sampling for water residues was discontinued [redacted] The average residues were as follows: 104, 19 14, 9, 3 ppb, and non-detectable in the 0-1, 1-2, 2-4, 4-6, 6-8, and 8-9 feet of soil profile respectively. Ground water was encountered at 4-6 feet in site III.

2.3 Wisconsin (Seven Tables)

Data submitted were from four locations in Portage county and three locations in Waushara county. The attached tables give test location, use site, use history, dosages, dates of application and sampling, water source, and results. Sampling dates were reported as: pretreatment, early post-treatment, and late post-treatment which extended 13 1/2 months after application in some locations:

The following tables give a summary of aldicarb residues in water samples:

County	Farm	contaminate Samples	
		% of Total	ppb, range
Portage	[redacted]	NA	ND
		69	2-7
		50	2-3
		25	2-38
Waushara		38	3-8
		11	5-12
		8	5

Soil samples showed what was expected, a reasonable distribution of aldicarb residues in the soil profile somewhat similar to the 1980 data. In the 4-6 feet of soil profile, aldicarb residues of 54-66 ppb were detected in [redacted] where ground water was encountered. In the 6-8 feet level, residues of 30-34 ppb were detectable in [redacted] and [redacted] where ground water was encountered.

In another test 116 potable well water samples were collected from 23 locations in Portage county on June 5-10, 1981. The samples, along with 8 spiked controls were sent to Union Carbide's Laboratory for analysis. Test results showed that the percentage of contaminated samples was 8.6% and that the level of aldicarb residues ranged from 3-85 ppb. In 4.3% of the samples aldicarb residues exceeded the SNARL level of 10 ppb.

3.0 DATA GAPS

3.1 The following data gaps were noted in the 1981 monitoring data from Florida, Virginia, and Wisconsin:

3.1.1 Florida - The 1981 data from Florida were similar to the 1980 data in that no aldicarb residues were detected in water samples. Unlike the 1980 data, however, soil residues remained virtually in the upper soil profile; whereas, in 1980 aldicarb residues leached to the 4-8 feet substratum. In both years, we noted that Union Carbide sampled the aquifer in the range of 100-500 feet deep. No sampling or anlyses for residues were performed in the saturated zone at or below the 225 centimeter of soil surface. In many locations ground water encountered at 120 centimeters from the surface.

In our opinion, aldicarb residues may not leach to a 100 feet depth or if it happens, it may take several years to reach a detectable level (if considerations were given to dissipation by other means such as diffusion and dispersion).

Accordingly, we recommend that the bulk of that analyses for aldicarb residues (parent and metabolites) in ground water, should be performed in the saturated zone at or below 225 centimeter below the surface or wherever ground water is encountered. We request that additional water residue data must be submitted as a follow-up for the 1981 data from Florida. We also request an explanation as to why the 1981 soil residues were inconsistent with those of 1980. What was the recharge rate in each of the sampled locations in 1981?

3.1.2 Virginia and Wisconsin

Submit additional water residue data from the saturated zone at or below 225 centimeter below the surface or wherever ground water is encountered.

3.2 Union Carbide must comply with data gaps listed in our 7/31/81

Addendum to the 4/8/81 EFB review. Briefly, these are:

3.2.2 All the programs agreed upon between EPA and Union Carbide in Suffolk County, New York, including the filter monitoring program.

3.2.3 Confirmatory soil analyses requested by the state of Idaho.

3.2.4 Additional water samplings for potential aldicarb registration on hops from Washington, Oregon and Idaho.

3.2.5 Results of the data from the Experimental Use Permit granted during the latter part of 1979 in Long Island.

3.2.6 The laboratory studies of factors affecting aldicarb movement and degradation in soils for the purpose of developing a mathematical model. Most important, use of such data to calculate the degradation rate constant for aldicarb.

3.2.7 Soil and water residue data from high-use counties.

4.0 RECOMMENDATIONS

4.1 Union Carbide must comply with all data gaps listed above under 3.0.

4.2 Union Carbide must respond to our 7/31/81 recommendations to restrict aldicarb use in Wisconsin, Missouri and the entire Eastern Seaboard of the United States extending from Maine to Florida, as well as prohibit use on all coarse soils or on soils with less than 2% organic matter.

Sami Malak

Sami Malak, Chemist
Review Section #1
Environmental Fate Branch/HED

TEMIK MONITORING PROGRAM

Location: [redacted] Indian River County, Florida

Site History: 1979 No Temik applied to oranges this year or before.
1980 Temik 15G at 67 lb/A applied at Spring flush about April 1, 1980.
1981 Temik 15G at 67 lb/A applied at Spring flush, March 6 to 12, 1981.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldicar I	II	III	IV	V	VI
June 4, 1980 2 mo Post Trt	Canal NW	1	0-1	ND	33	586			2(
	Soil Site I	ND	1-2	ND	16	22			
	Irrig. well	ND	2-4	ND	ND	33			
			4-6	ND/w	ND/w	ND/w			NC
Sept. 9, 1980 5 mo Post Trt	Canal NW	ND	0-1	ND	46	92			4
	Irrig. well	ND	1-2	8	18	40			2
			2-4	33	11	33			2
			4-6		8	ND/w			
			6-8		20/w				2
March 2, 1981 Pretreat	Canal NW	ND	0-1	ND	ND	11			
	Canal E	ND	1-2	ND	ND	17			
	Well SE	ND	2-4	ND/w	ND	5			
	Pump house #8	ND	4-6		ND/w	ND/w			ND
May 11, 1981 1st Post Trt	E ditch	ND	0-1	633	26	787			48
	Irrig. well/grove	ND	1-2	48	6	247			10
	S ditch	1	2-4	ND/w	ND	14			
	N drainage ditch	ND	4-6		ND/w	11/w			
June 2, 1981 2nd Post Trt	N canal	ND	0-1	155	68	48			9(
	S ditch	3/	1-2	201	51	68			10
	Irrig. well	ND	2-4	33/w	ND/w	ND/w			
	E canal	ND							

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

PRIVACY ACT EXEMPTION

Location: [redacted] St. Lucie County, Florida

Site History: 1980 Temik 15G at 67 lb/A applied at Spring flush about April 1, 1980.
1981 Temik 15G at 67 lb/A applied at Spring flush, May 15 to 21, 1981.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldica I	II	III	IV	V
June 4, 1980 1st Post Trt	Canal S	ND	0-1	2954	345	537		
	Irrig. well	ND	1-2	178	140	79		
			2-4	217	11	ND		
			4-6	148	10/r	ND		
			6-8	ND/r		13		
Sept. 9, 1980 2nd Post Trt	Canal S	ND	0-1	565	72	16		
	Irrig. well	ND	1-2	270	83	102		
			2-4	198	11	127		
			4-6	63	25/r	6		
			6-8	33		9		
March 3, 1981 Pretreat**	Canal S	ND	0-1	76	ND	ND		
	Irrig. well NE	ND	1-2	30	194	ND		
	Ditch Hwy 70	ND	2-4	8	7	105		
	Canal S, at outlet	ND	4-6	ND	ND/r	15		
	Country store	ND	6-8	ND		ND		ND
May 11, 1981 1st Post Trt	[redacted]	ND	0-1	11	5	ND		
	Canal S, at bridge	ND	1-2	ND	39	788		
	Irrig. well E	ND	2-4	7	ND	69		
			4-6	ND	ND/r	ND		
			6-8	ND/r		ND		
June 2, 1981 2nd Post Trt	South Canal S	ND	0-1	58	969	ND		
	East Irrig. well	ND	1-2	9	22	ND		
			2-4	ND	ND	ND		
			4-6	ND	ND	ND		
			6-8	ND	ND	ND		

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

**Also sampled and found ND residue:
Ft. Pierce Municipal Water,
Ft. Pierce Municipal water,
[redacted]

Location: [redacted] Hendry County, Florida

Site History: 1979
1980
1981 45 lb Temik 15G/A banded to oranges at Spring flush, April 15.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldicar I	II	III	IV	V	A
May 12, 1981 1 mo Post Trt	Canal, Site III	ND	0-1	51	19	6			2
	Office well	ND	1-2	15	221	10			2
	Ditch at Site I	ND	2-4	ND/w	ND/w	21/w			
	Canal, Site II	ND							
June 3, 1981 1-3/4 mo Post Trt	Canal, Site III	ND	0-1	178	11	24			7
	Office well	ND	1-2	138	ND	8			4
			2-4	11/w	ND/w	13/w			

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

TEMIK MONITORING PROGRAM

Location: [redacted] Polk County, Florida

Site History: 1979 Temik 15G at 67 lb/A applied at Spring flush, March 15-April 1.
1980 Temik 15G at 45 lb/A at Spring flush March 15, plus 22 lb applied July 19, 1980.
1981 Temik 15G at 33 lb/A applied at Spring flush, May 26 to 27, 1981.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Alidic I	II	III	IV	/	
June 3, 1980	Swamp	ND	0-1	7	16	60			
	Irrig. well	ND	1-2	ND	ND	245			
	Barn well	ND	2-4	ND	ND	6			
			4-6	ND	ND	8			
			6-8	ND	ND	ND			
Sept. 10, 1980	Swamp	ND	0-1	16	7	128			
	Irrig. well	ND	1-2	13	13	17			
	Barn well	ND	2-4	ND	18	8			
			4-6	ND	ND	ND			
			6-8	13	17	ND			
March 4, 1981 Pretreat	Pond by barn	ND	0-1	9	9	9	12	15	
	Irrig. well	ND	1-2	ND	ND	ND	ND	7	
	Barn well	ND	2-4	ND	ND	ND	ND	ND	
	E grove well	ND	4-6	ND	ND	ND	ND	9	
			6-8	ND	ND	ND	ND	ND	
May 12, 1981 1st Post	Swamp	Dry	0-1	ND	ND	6	ND	55	
	Irrig. Well	ND	1-2	ND	ND	ND	ND	36	
	Barn well	ND	2-4	ND	ND	ND	ND	5	
	Store well	ND	4-6	ND	ND	14	ND	ND	
			6-8	ND	ND	ND	ND	ND	
June 3, 1981 2nd Post	Irrig. well	ND	0-1	521	944	216	550	1530	
	Barn well	ND	1-2	484	ND	158	41	33	
			2-4	448	ND	5	5	ND	
			4-6	359	ND	ND	ND	ND	
			6-8	ND	ND	ND	ND	ND	

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

PRIVACY ACT EXEMPTION

Location: [redacted] Polk County, Florida

Site History: 1980 45 lb Temik 15G banded to oranges at Spring flush March 15 and 22 lb Temik 15G banded on July 29.
1981 Monitoring discontinued because no irrigation and proximity to [redacted] location.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldicarb I	II	III	IV	V	
June 5, 1980	Store well	ND	0-1	98	105	107			
			1-2	42	25	70			
			2-4	114	280	62			
			4-6	ND	98	60			
			6-8	23	11	65			
Sept. 10, 1980	Store well	ND	0-1	39	11	29			
			1-2	41	ND	20			
			2-4	56	ND	133			
			4-6	28	ND	30			
			6-8	14	ND	32			

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

PRIVACY ACT EXEMPTION

Location: [redacted] Hillsborough County, Florida

Site History: 1979 65 lb/A Temik 15G banded to oranges late February.
1980 67 lb/A Temik 15G banded to oranges March 15, 1980.
1981 67 lb/A Temik 15G banded to oranges _____.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldic I	II	III	IV	V
June 5, 1980 3+ mo Post Trt	Lake	ND	0-1	676	233	18		
	Outside well	ND	1-2	244	26	ND		
	House tap	ND	2-4	6	14	29		
			4-6	ND	ND	67		
			6-8	ND	ND	ND		
Sept. 10, 1980 6+ mo Post Trt	Lake	ND	0-1	27	31	48		
	Outside well	ND	1-2	28	27	116		
	House tap	ND	2-4	48	22	98		
			4-6	77	47	212/w		
			6-8	109	122/w			
March 4, 1981 Pretreat	Lake	ND	0-1	6	34	ND		
	Grove well	1	1-2	ND	5	ND		
	Well, SW house	ND	2-4	33	ND	ND		
	Well, NE. house	ND	4-6	47	5	ND		
			6-8	64	45	ND		
May 13, 1981	Lake	ND	0-1	19	ND	1244		
	Grove well	ND	1-2	ND	ND	8		
	Well, SW house	1	2-4	ND	ND	7		
	Well, NE house	ND	4-6	ND	ND	ND		
			6-8	ND	ND	ND		
June 4, 1981	Lake	ND	0-1	1670	226	2093		
	Grove well	ND	1-2	32	41	7		
	Well, SW house	ND	2-4	ND	10	ND		
	Well, NE house	ND	4-6	ND	ND	ND		
			6-8	ND	51	ND		

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

TEMIK MONITORING PROGRAM

Location: [redacted] Accomack County, Virginia, [redacted]

Site History: 1979 Temik 15G at 15 lb/A applied at planting to potatoes, March 10.
1980 Temik 15G at 15 lb/A applied at planting to potatoes, April 10.
1981 Temik 15G at 15 lb/A applied at planting to potatoes.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldic: I	II	III	IV	V
July 17, 1980 3-1/4 mo Post Trt	[redacted] house	2	0-1	150	202	266		
			1-2	ND	ND	44		
			2-4	ND	ND	ND		
			4-6	ND/w	ND/w	ND/w		
March 9-10 1981 Pretrt	[redacted] house	ND	0-1	ND	ND	5	ND	ND
	corral	20	1-2	ND	ND	ND	ND	ND
	house	ND	2-4	ND	6	ND	ND	ND
	house	2	4-6	ND/w	5	ND/w	ND/w	ND/w
			608		ND/w			
May 28, 1981 1st Post Trt	[redacted] house	ND	0-1	694	321	1372	387	402
	corral A	13	1-2	9	30	ND	5	ND
	corral B	11	2-4	ND	ND/w	ND	ND	ND
	house	ND	4-6	ND/w		ND/w	ND/w	ND/w
	house	ND						

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

PRIVACY ACT EXEMPTION

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TEMIK MONITORING PROGRAM

Location: [redacted] Accomack County, Virginia, [redacted]

Site History: 1979 Temik 15G at 15 lb/A applied at planting to potatoes March 10, 1979.
1980 Temik 15G at 15 lb/A applied at planting to potatoes April 10, 1980.
1981 Temik 15G at 15 lb/A applied at planting to potatoes.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldicar I	II	III	IV	V	Av
July 17, 1980 3-1/4 mo Post Trt	Shop well (270')	ND	0-1	16	8	ND			
	NW Labor house (60')	ND	1-2	ND	ND	ND			
			2-4	ND	ND	ND			
			4-6	ND/w	ND/w	ND/w			
March 9-10 1981 Pretreat	Shop well	1	0-1	ND	ND	ND	ND	ND	NC
	NW Labor house	(10)	1-2	ND	ND	ND	ND	ND	NC
	E House well	ND	2-4	ND/w	ND/w	ND/w	ND/w	ND	NC
	S Labor house well	ND						ND/w	ND
May 28, 1981 1st Post	Shop well	Lost	0-1	170	119	289	401	385	27
	NW Labor house A	(10)	1-2	ND	ND	9	9	12	
	NW Labor house B	(10)	2-4	ND/w	ND	ND/w	ND	ND	ND
	E House	ND	4-6		ND/w		ND/w	ND/w	ND
	S Labor House	ND							

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable.. Soil core terminated by groundwater (/w) or by rock (/r).

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Location: [redacted] Accomack County, Virginia.

Site History: 1979 Temik 15G at 15 lb/A applied at planting to potatoes, March 10.
1980 Temik 15G at 15 lb/A applied at planting to potatoes, April 10.
1981 Monitoring discontinued due to lack of appropriately located wells for sampling and similarity to other two locations.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldicarb I	II	III	IV	V	A
July 17, 1980 3-1/4 mo Post Trt	None (Uncontaminated)	N/A	0-1	120	50	143			1
			1-2	38	8	12			
			2-4	7	17	19			
			4-6	ND	26/w	ND			
			6-8	ND/w		7			
			8-9			ND/w			N

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

PRIVACY ACT EXEMPTION

7/24/81

Location: [redacted] Portage County, Wisconsin

Site History: 1979 Temik 15G at 20 lb/A in-furrow at potato planting.
1980 Snap beans, no Temik applied.
1981 Temik 15G at 20 lb/A in-furrow at potato planting in April.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldicarb I	II	III	IV	V	Avg
April 14, 1981 Pretreat	[redacted]	ND	0-1	ND	ND	ND	ND	6	
			1-2	ND	ND	ND	ND	ND	ND
			2-4	ND	ND	ND	ND	ND	ND
			4-6	5/w	ND	ND	ND	ND/w	
			6-8		ND	21/w	ND/w		
May 18, 1981 1st Post Trt	[redacted]	ND	0-1	1011	1082	2393	506	398	10
		ND	1-2	ND	ND	ND	ND	ND	ND
			2-4	ND	ND	ND	ND	ND	ND
			4-6	ND/w	ND	ND	ND	ND/w	ND
			6-8		ND	ND/w	ND/w		ND
June 9, 1981 2nd Post Trt	[redacted]	ND	0-1						
		ND	1-2						
		ND	2-4						
		ND	4-6						
			6-8						

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

PRIVACY ACT EXEMPTION

7/24/81

Location: [redacted] Portage County, Wisconsin

Site History:
1978 Temik 15G at 20 lb/A in-furrow at planting of potatoes in April.**
1979 Snap beans, no Temik.***
1980 Temik 15G at 20 lb/A in-furrow at planting of potatoes, April 22.
1981 Oats replanted to snap beans, no Temik applied.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Alcica I	II	III	IV	V	A
July 1, 1980 2-1/4 mo Post Trt	NW irrig. well	2	0-1	139	100	463			2
	Center pivot well	3	1-2	127	8	ND			
	[redacted] well	2	2-4	13	ND	ND			
	[redacted] well	2	4-6	ND	ND	ND			N
	[redacted] well	4	6-8	ND	ND	ND			N
Sept 2, 1980 4-1/4 mo Post Trt	NW irrig. well	2	0-1	ND	39	239			
	Center pivot well	1	1-2	29	128	73			
	[redacted] well	3	2-4	ND	38	13			
	[redacted] well	ND	4-6	ND	24	31			
	[redacted] well	2	6-8	ND	13	7			
April 14, 1981 12 mo Post Trt	NW irrig well	closed	0-1	120	ND	6	23	8	
	Center pivot well	closed	1-2	19	ND	ND	ND	6	
	[redacted] well	1	2-4	5	ND	ND	ND	ND	
	[redacted] well	4	4-6	6	ND	ND	6	8	
			6-8	5	ND	5	7	11	
May 18, 1981 13 mo Post Trt	NW irrig. well	closed	0-1	6	ND	6	ND	18	
	Center pivot well	closed	1-2	ND	ND	ND	6	ND	
	[redacted] well	ND	2-4	ND	ND	ND	ND	6	
	[redacted] well	3	4-6	ND	13	14	ND	9	
			6-8	ND	15	7/w	8	30/w	
June 9, 1981 13-1/2 mo Post Trt	NW irrig. well	closed	0-1						
	Center pivot well	closed	1-2						
	[redacted] well	ND	2-4						
	[redacted] well	7	4-6						
			6-8						

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil. ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

**Same treatment also applied in 1976.

***Same for 1977.

Additional Sites Sampled May 18, 1981 and Included in Calculating Average:

VI	VII
11	ND
ND	ND
ND	ND
ND	ND
ND/w	ND

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PRIVACY ACT EXEMPTION

TEMIK MONITORING PROGRAM

Location: [redacted] Portage County, Wisconsin

Site History: 1979 Temik 15G at 20 lb/A in-furrow at planting of potatoes, April 25-28.
1980 Temik 15G at 20 lb/A in-furrow at planting of potatoes, April 15-28.
1981 Monitoring discontinued due to excessive rock and proximity to [redacted] field.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldica I	II	III	IV	V	A
July 1, 1980 2 mo Post Trt	NE house	ND	0-1	149	1115	433			5
	Center pivot well	3	1-2	203	267	175			2
			2-4	54	ND	ND			
			4-6	30/r	38/r	13/w			
Sept. 2, 1980 4 mo Post Trt	NE house	1	0-1	8	24	304			1
	Center pivot well	2	1-2	14	11	131			
			2-4	ND	43	57/w			
			4-6	41	24/w				
			6-8	34/w					

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

PRIVACY ACT EXEMPTION

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7/24/81

Location: [redacted] Portage County, Wisconsi

Site History:
- 1976 and 1977 — Temik 15G at 16 lb/A in-furrow at potato planting in April, west half of field only.
- 1978 — Temik 15G at 17 lb/A in-furrow at potato planting in April, entire field.
- 1979 — Temik 15G at 18 lb/A in-furrow at planting of potatoes in April entire field.
- 1980 — Temik 15G at 18 lb/A in-furrow at planting of potatoes, April 21-23, 1980.
- 1981 — Peas replanted to _____. No Temik applied.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldica: I	II	III	IV	V	A
July 2, 1980	Garden well	ND	0-1	289	695	1382			7
	[redacted] well	ND	1-2	165	280	33			
2-1/2 mo	Center pivot well	10	2-4	105	134	53			
Post Trt			4-6	14	12	80			
			6-8	11	ND	11			
Sept. 3, 1980	Garden well	ND	0-1	24	99	32			
	[redacted] well	ND	1-2	12	153	24			
4-1/2 mo	Shop well	ND	2-4	42	140	9			
Post Trt	Center pivot well	ND	4-6	16/w	54/w	21/w			
April 13, 1981	[redacted] house	2	0-1	8	43	8	ND	ND	1
			1-2	ND	ND	ND	ND	ND	ND
12 mo			2-4	ND	ND	ND	ND	ND	ND
Post Trt			4-6	ND/w	6/w	13/w	ND/w	ND/w	
May 18, 1981	[redacted] house	ND	0-1	ND	25	8	11	11	1
	Garden well	ND	1-2	ND	ND	ND	14	24	
13 mo	Shop well	38	2-4	20	ND	ND	6	6	
Post Trt			4-6	ND/w	9/w	7/w	(66/w	75/w	3
June 9, 1981	[redacted] house	lost	0-1						
	Garden well	ND	1-2						
13-1/2 mo	Shop well	ND	2-4						
Post Trt	Center pivot well	1	4-6						
	[redacted] shop	ND	6-8						

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppo in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

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7/24/81

Location: [redacted] Waushara County, Wisconsin

Site History: 1978 Temik 15G at 18 lb/A in-furrow at potato planting in April.
1979 Soybeans, no Temik.
1980 Temik 15G at 18 lb/A in-furrow at planting of potatoes in April.
1981 Corn, no Temik.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldica: I	II	III	IV	V	A
July 2, 1980 Approx. 2-1/2 mo Post Trt	[redacted] well Center pivot well	1 (8)	0-1	30	298	779			3
			1-2	45	56	50			
			2-4	121	294	46			
			4-6	21	42	9/w			
			6-8	ND/r	14/r				
Sept. 3, 1980 Approx. 4-1/2 mo Post Trt	[redacted] well Center pivot	ND 6	0-1	25	123	68			
			1-2	20	62	ND			
			2-4	40	ND	84/w			
			4-6	32/r	9				
			6-8		25/r				
April 13, 1981 Approx. 12 mo Post Trt	[redacted] well	1	0-1	ND	8	ND	ND		
			1-2	ND	ND	ND	ND		ND
			2-4	ND	ND	ND	ND		ND
			4-6	ND/r	ND/w	ND	ND		ND
			6-8			ND/w	18/w		
May 19, 1981 Approx. 13 mo Post Trt	[redacted] well	ND	0-1	ND	ND	ND	6		
			1-2	ND	ND	ND	ND		ND
			2-4	ND	ND	ND	6		
			4-6	ND	ND	ND	11		
			6-8	ND/r	ND/r	ND/r	14		
June 10, 1981 Approx. 14 mo Post Trt	[redacted] well Center pivot well	ND 3	0-1						
			1-2						
			2-4						
			4-6						
			6-8						

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

Location: [redacted] Waushara County, Wisconsin

Site History: 1976-78 Snap beans, No Temik.
1979 Temik 15G at 20 lb/A in-furrow at potato planting.
1980 Temik 15G at 20 lb/A in-furrow at potato planting.
1981 Soybeans, no Temik applied.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aloica I	II	III	IV	V	A
July 2, 1980 Approx. 2-1/2 mo Post Trt	[redacted] Center pivot	ND ND 12	0-1 1-2 2-4 4-6	526 137 22/w	178 ND 8/r	759 36 ND ND/w			4 N
Sept. 3, 1980 Approx. 4-1/2 mo Post Trt	[redacted] Center pivot	ND ND ND	0-1 1-2 2-4 4-6	38 52 122/w	10 19 22/w	12 10 27 13/w			
April 13, 1981 Approx. 12 mo Post Trt	[redacted]	1 ND 1	0-1 1-2 2-4	ND ND 6/w	ND ND ND/w	ND ND ND/w	9 ND ND/w	6 ND ND/w	NI
May 19, 1981 Approx. 13 mo Post Trt	[redacted] Standard gas	ND ND ND ND	0-1 1-2 2-4 4-6	ND ND 7/w	ND ND 19/w	ND ND ND/w	ND ND ND/w	ND ND ND/w	NI NI
June 10, 1981 Approx. 14 mo Post Trt	[redacted] Standard gas Center pivot	ND ND ND ND 5	0-1 1-2 2-4 4-6 6-8						

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).

Location: [redacted] Waushara County, Wisconsin

Site History: 1979 Snap beans planted, no Temik applied.
1980 Soybeans planted, no Temik applied.
1981 Temik 15G at 20 lb/A in-furrow at potato planting, April 14, 1981.

Monitoring Results:

Sampling date	Water source	ppb* in water	Soil strata in feet	Soil Sampling Sites and ppb in Aldica I	II	III	IV	V	A
April 13, 1981 Pretrt	[redacted]	1	0-1	ND	ND	ND	ND	ND	N
		ND	1-2	ND/w	ND/w	ND/w	ND/w	ND/w	N
		1	2-4					ND/w	N
May 19, 1981 1 mo Post Trt	[redacted] Standard gas	ND	0-1	133	1154	101	1277	2698	1
		ND	1-2	ND/w	ND	ND	ND	8	
		ND	2-4		ND/w	ND/w	ND/w	ND/w	N
		ND	4-6						
June 10, 1981 2 mo Post Trt	[redacted] Standard gas Center pivot	NO	0-1						
		ND	1-2						
		ND	2-4						
		ND	4-6						
		5	6-8						

*Total toxic aldicarb residues. Method sensitivity 1 ppb in water; 5 ppb in soil.
ND = non-detectable. Soil core terminated by groundwater (/w) or by rock (/r).