

---

---

# ACTION MEMORANDUM

for the

Pesticide Contamination at Building IN-1-6, Site 0A07  
Additional and Uncharacterized Sites Operable Unit

Crab Orchard National Wildlife Refuge NPL Site  
Marion, Illinois (Williamson County)

---

---



U.S. Fish and Wildlife Service  
Crab Orchard National Wildlife Refuge  
Marion, Illinois

August 2003

18280-1/1



## **TABLE OF CONTENTS**

---

<b>SECTION I.</b>	<b>PURPOSE.....</b>	<b>1</b>
<b>SECTION II.</b>	<b>SITE DESCRIPTION/REMOVAL SITE EVALUATION.....</b>	<b>1</b>
	A. HISTORY.....	1
	1. AUS OU PA/SI, 2000.....	4
	2. Post-PA/SI 2001.....	5
	3. NOH Report, November 2001.....	7
	4. Additional Sampling Inside Buildings, 2002.....	7
	5. Sorting and Cleaning of Boxes, 2002.....	8
	6. Remaining Materials in Building IN-1-6.....	9
	B. PHYSICAL LOCATION.....	10
<b>SECTION III.</b>	<b>RELEASE OR THREATENED RELEASE INTO THE ENVIRONMENT OF A HAZARDOUS SUBSTANCE, OR POLLUTANT OR CONTAMINANT .....</b>	<b>10</b>
	A. HAZARDOUS SUBSTANCE.....	10
	B. RELEASE OR THREATENED RELEASE INTO THE ENVIRONMENT.....	10
<b>SECTION IV.</b>	<b>THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITY .....</b>	<b>11</b>
<b>SECTION V.</b>	<b>PROPOSED ACTION .....</b>	<b>11</b>
	A. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES CONSIDERED.....	11
	B. CONTRIBUTION TO REMEDIAL PERFORMANCE.....	12
	C. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs).....	12
	D. PROPOSED SCHEDULE.....	12
<b>SECTION VI.</b>	<b>EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN.....</b>	<b>12</b>
<b>SECTION VII.</b>	<b>OUTSTANDING POLICY ISSUES .....</b>	<b>12</b>
<b>SECTION VIII.</b>	<b>RECOMMENDATION .....</b>	<b>13</b>

**ACTION MEMORANDUM  
PESTICIDE CONTAMINATION AT BUILDING IN-1-6  
SITE 0A07, ADDITIONAL AND UNCHARACTERIZED SITES OPERABLE UNIT  
SANGAMO DUMP/CRAB ORCHARD NATIONAL WILDLIFE REFUGE  
AUGUST 2003**

**I. PURPOSE**

The United States Department of Interior (USDOI) plans to conduct a removal action to address pesticide contamination on certain boxes and other materials located inside Building IN-1-6 at Site 0A07, also known as Area 7. Area 7 is part of the Additional and Uncharacterized Sites Operable Unit (AUS OU) at the National Priorities List (NPL) site known as the Sangamo Dump/Crab Orchard National Wildlife Refuge NPL Site, Marion,<sup>1</sup> Illinois (Refuge). The Refuge is administered by the U.S. Fish and Wildlife Service (USFWS). USFWS, as the lead agency for the AUS OU, is undertaking this action under § 104(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA). The United States Environmental Protection Agency (USEPA), Region 5 and the Illinois EPA (IEPA) are support agencies for the AUS OU.

Four buildings at Area 7, Buildings IN-1-3, IN-1-4, IN-1-5, and IN-1-6, were previously used for pesticide storage. The soil adjacent to the buildings and well as the interior of the buildings and materials inside the buildings are impacted by pesticide residues. This removal action addresses only materials inside the buildings. Soils adjacent to the buildings and the buildings themselves will be addressed at a later date.

**II. SITE DESCRIPTION/REMOVAL SITE EVALUATION**

The USEPA Identification Project (CERCLIS) Number for this NPL site is IL8143609487. The action to be taken is a time-critical removal. The objective of the time-critical removal action is to prevent the threat of a release to the environment, in accordance with the National Contingency Plan (NCP), 40 CFR §300.415(b)(1).

**A. History**

This NPL site was the Illinois Ordnance Plant (IOP) during World War II. Area 7 was the Inert Storage Area for the IOP and was used for warehousing metal parts and other inert materials used in the production of ordnance.<sup>2</sup> The original building complex consisted of about 40 identical buildings in 6 rows, each about 50 ft by 200 ft in plan dimension. All building numbers in this area were prefixed with "IN" (for Inert Storage). Grassed areas and gravel roads separate the warehouses in Area 7.

In 1947 an Act of Congress transferred the old IOP area, together with an additional 21,500 acres, to the USDOI, thereby creating the Crab Orchard National Wildlife Refuge. The enabling

<sup>1</sup> In CFR listing for this NPL site location is Carterville, Illinois. However, the site currently has a Marion, Illinois address.

<sup>2</sup> U.S. Army Corps of Engineers, 1944, War Department Facilities Inventory of the Illinois Ordnance Plant Carbondale, Illinois, Part I, Section 5, Page 5; and Part I, Section 9, Page 5.

legislation assigned USFWS the responsibility of managing the area as a wildlife refuge, with the additional missions of supporting recreation, agriculture and industrial use.<sup>3</sup> As part of its industrial mission, the Refuge leased these warehouses to industrial tenants.

Great Lakes Terminal & Transport (GLT&T) leased Buildings IN-1-3 through IN-1-6 for storage of pesticides during the 1950s to the early 1970s. In response to a CERCLA §104(e) information request, GLT&T reported storing the following products, among others, at the Refuge: technical aldrin, 94-97%; technical bidrin; ciodrin 2-3%; ciovap; technical dieldrin 100%; technical endrin 95-99%; technical nemagon; phosdrin; technical planavin; planavin 75%; rabon; vapona 1%; technical vapona; allyl alcohol; Azordin; compound 4072; halbard; technical methyl parathion; 10% parathion 1% telodrin; niran 10-G; SD-8447 2lb/gal solution XP-837; SD-8447 4lb/gal solution XP-783; SD-8447 75% wetttable powder code 3-15-24-1; vapona smear XP-246; vapona in petrolatum XP-507; vapona 50% solution XP-465; vapona 90% solution XP-409; 20% vapona resin XP-555; vapona 0.5% dieldrin-0.5% spray solution.<sup>4</sup>

Some of these pesticides are highly toxic and/or probable carcinogens and have been banned. For example, USEPA banned all uses of aldrin and dieldrin in 1987.<sup>5</sup>

GLT&T lease dates are as follows: Building IN-1-3, 1961-1966; Building IN-1-5, either 1951 or 1961, through 1966; Building IN-1-5, 1951-1971; and Building IN-1-6, 1951-1971.

The following investigations and activities, discussed in more detail below, have addressed the pesticide contamination, or occurred as a result of such contamination, that was found in and around the buildings used for pesticide storage:

- Additional and Uncharacterized Sites (AUS) Operable Unit (OU) Preliminary Assessment/Site Inspection (PA/SI)<sup>6</sup>. Sampling done in 2000 indicated the presence of pesticides in soil in the vicinity of buildings used for pesticide storage.
- Post-PA/SI investigation in Area 7, in the vicinity of the buildings used for pesticide storage.<sup>7</sup> Sampling was done in the spring of 2001. In addition to more soil sampling, which helped delineate the extent of soil contamination, samples of dust and wipe samples taken from walls and floors indicated the presence of pesticides inside the buildings. At that time, Building IN-1-3 was leased by Maytag and used for storage of washers and dryers. Buildings IN-1-4 and IN-1-5 were used by USFWS for storage. The Illinois Department of Natural Resources (IDNR) also used part of Building IN-1-4 for storage. MDM (The Party Shop) leased Building IN-1-6 for storage of about 50,000 boxes of party supplies. The information obtained from the investigation was shared with these tenants.

<sup>3</sup> Act of August 5, 1947, Public Law No. 80-361, 16 USC §§ 666f-666g.

<sup>4</sup> DPRA Document DOI 001069. Great Lakes Terminal and Transport Corporation's response to 104e request.

<sup>5</sup> U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry. Source: <http://www.atsdr.cdc.gov/tfacts1.html>

<sup>6</sup> 2003. *Final Preliminary Assessment/Site Inspection, Additional and Uncharacterized Sites Operable Unit, Crab Orchard National Wildlife Refuge NPL Site*, June.

<sup>7</sup> 2002. *Draft Post-Preliminary Assessment/Site Inspection in Area 7 (AUS-0107), Additional and Uncharacterized Sites Operable Unit, Crab Orchard National Wildlife Refuge NPL Site*, July.

- On April 11, 2001, letters reporting the presence of pesticide contamination were sent by the Refuge to the affected tenants (IDNR, Maytag, MDM Distributors) and to the following affected USFWS departments: Fisheries, Ecological Services, and CERCLA. The letters recommending minimizing time spent inside buildings and recommending avoiding dust-generating activities such as sweeping, vacuuming, or using fans.
- In June 2001, IEPA conducted an evaluation of the wipe sample results and recommended that worker exposure inside the buildings be limited.<sup>8</sup>
- In June 2001, the USFWS Service Industrial Hygienist sent a memo to the Crab Orchard Refuge Manager recommending that all personnel needing to use Buildings IN-1-3 through -6 adhere to interim guidance which, in addition to the April 11 recommendations, prohibited eating, drinking and smoking; recommended use of Tyvek® suits and booties; and recommending washing face and hands after exiting the buildings.<sup>9</sup> This guidance was distributed to all tenants in the affected buildings.
- On September 17, 2001 USFWS posted signs in front of Buildings IN-3 through -6 warning of the potential pesticide hazards. Mowing in the vicinity of the buildings was prohibited.
- In September 2001, sometime after September 17, MDM decided to discontinue using Building IN-1-6.
- When it was found that there were detectable pesticides inside the buildings that were being used, USFWS requested an evaluation from the U.S. Department of Health and Human Services, Federal Occupational Health (FOH). FOH reported the results of their evaluation in November 2001<sup>10</sup>.
- In November 2001, USFWS Refuge personnel and MDM employees inventoried the party supplies in Building IN-1-6. Packaging of the materials in the building ranged from factory-sealed corrugated cardboard boxes to exposed products (no packaging).
- In January 2002, USFWS conducted additional sampling in Building IN-1-6 to assess risk to workers and to evaluate potential cleaning methods for the stored materials.<sup>11</sup>
- In January 2002, USFWS sampled stored products in Building IN-1-3 to evaluate risk.<sup>12</sup>
- In the fall of 2002, USFWS segregated sealed boxes of materials from the rest of the inventory in Building IN-1-6. These boxes were judged to most likely be suitable for

<sup>8</sup> 2001. Letter from IEPA to USFWS regarding Area 7 pesticides. June 7.

<sup>9</sup> 2001. Memorandum from USFWS Service Industrial Hygienist, Washington, D.C., to Refuge Manager, Crab Orchard, regarding Interim Guidance for Minimizing Potential Exposure to Pesticide Containing Dust. June 28.

<sup>10</sup> 2001. Department of Health and Human Services, Federal Occupational Health, *Crab Orchard Warehouse Evaluation Report*, November.

<sup>11</sup> 2002. Letter from URS Corporation to USFWS regarding Preliminary Sampling, Building IN-1-6, Site AUS-QA07, dated April 9.

<sup>12</sup> 2002. Memorandum from URS to USFWS regarding risk associated with wipe sample results from Maytag boxes, dated April 9.

returning to MDM. They were wiped of visible dust and sampled, both inside and out. Sampling results indicated the material was acceptable for use.<sup>13</sup>

- In the spring of 2003, MDM accepted these materials, which represented about 45 percent of their inventory, and removed them from the site.
- In June 2003, USFWS's contractor recommended that the material remaining in Building IN-1-6 not be released.<sup>14</sup> The objective of this recommendation was to mitigate the threat of release of hazardous substances and exposure to such substances that could result if MDM removed this material from the building. This material remains in the building, and is the subject of the planned removal action.

#### 1. AUS OU PA/SI, 2000

The table below summarizes the results of pesticide detections in soil samples taken from the vicinity of Buildings IN-1-3 through -6. Aldrin and dieldrin were predominant contaminants in soil, with maximum concentrations of 520,000 micrograms per kilogram (ug/kg) and 290,000 ug/kg, respectively.

PESTICIDES IN SOIL, PA/SI 2000		
Analyte	Frequency of Detection	Range of Detections
4,4'-DDD	6/11	1.7 ug/kg to 1,400 ug/kg
4,4'-DDE	6/11	5.4 ug/kg to 290 ug/kg
4,4'-DDT	6/11	1ug/kg to 630 ug/kg
Aldrin	9/11	8.7 ug/kg to 520,000 ug/kg
Alpha Endosulfan	4/11	0.62 ug/kg to 12 ug/kg
Alpha-Chlordane	5/11	0.66 ug/kg to 78 ug/kg
Beta BHC (Beta Hexachlorocyclohexane)	2/11	1.3 ug/kg to 8.4 ug/kg
Beta Endosulfan	1/11	18 ug/kg
Dieldrin	10/11	24 ug/kg to 290,000 ug/kg
Endosulfan Sulfate	1/11	7.7 ug/kg
Endrin	7/11	7.1 ug/kg to 1,100 ug/kg
Endrin Aldehyde	3/11	1.7 ug/kg to 26 ug/kg
Endrin Ketone	9/11	1.9 ug/kg to 840 ug/kg
Gamma BHC (Lindane)	5/11	0.59 ug/kg to 5.6 ug/kg
Gamma-Chlordane	7/11	0.73 ug/kg to 310 ug/kg
Heptachlor	5/11	4 ug/kg to 69 ug/kg
Heptachlor Epoxide	6/11	0.72 ug/kg to 11 ug/kg
Hexachlorobenzene	5/11	4.4 ug/kg to 150 ug/kg
Isodrin	9/11	0.9 ug/kg to 60,000 ug/kg
Methoxychlor	1/11	26 ug/kg

<sup>13</sup> 2002. Letter from URS Corporation to USFWS regarding Box Sorting, Cleaning, Inventorying, and Sampling, Building IN-1-6, Site AUS-0A07, dated November 20.

<sup>14</sup> Letter from URS Corporation to USFWS regarding Building IN-1-6, Area 7 of the Additional and Uncharacterized Sites Operable Unit, Crab Orchard National Wildlife Refuge, dated June 19.

Based on the screening criteria established for the AUS OU PA/SI, the following pesticides were identified as either contaminants of potential concern for human health risk (COPCs) or contaminants of potential concern for ecological risk (COPECs), or both: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, aldrin, alpha-chlordane, beta-BHC, dieldrin, endosulfan sulfate, endrin, endrin aldehyde, gamma BHC, gamma chlordane, heptachlor, heptachlor epoxide, isodrin, and methoxychlor.

## 2. Post-PA/SI, 2001

In the spring of 2001, additional sampling was conducted both inside and outside the buildings. Again, aldrin and dieldrin were predominant, with frequent detections and maximum detections of 1,300,000 ug/kg and 290,000 ug/kg, respectively.

PESTICIDES IN SOIL, POST-PA/SI, 2001		
Analyte	Frequency of Detection	Range of Detections
4,4'-DDD	28/91	1.5 ug/kg to 12,000 ug/kg
4,4'-DDE	17/91	3 ug/kg to 4,800 ug/kg
4,4'-DDT	32/90	1 ug/kg to 100,000 ug/kg
Aldrin	63/90	1.7 ug/kg to 1,300,000 ug/kg
Alpha Endosulfan	4/91	0.62 ug/kg to 12 ug/kg
Alpha-Chlordane	7/91	0.66 ug/kg to 490 ug/kg
Beta BHC (Beta Hexachlorocyclohexane)	2/91	1.3 ug/kg to 8.4 ug/kg
Beta Endosulfan	2/91	5.3 ug/kg to 18 ug/kg
Dieldrin	78/91	2 ug/kg to 290,000 ug/kg
Endosulfan Sulfate	1/91	7.7 ug/kg
Endrin	30/92	5.4 ug/kg to 12,000 ug/kg
Endrin Aldehyde	15/91	1.7 ug/kg to 9,000 ug/kg
Endrin Ketone	31/89	1.9 ug/kg to 20,000 ug/kg
Gamma BHC (Lindane)	5/92	0.59 ug/kg to 5.6 ug/kg
Gamma-Chlordane	12/91	0.73 ug/kg to 1,600 ug/kg
Heptachlor	5/91	4 ug/kg to 69 ug/kg
Heptachlor Epoxide	6/92	0.72 ug/kg to 11 ug/kg
Hexachlorobenzene	11/92	4.4 ug/kg to 2,700 ug/kg
Isodrin	29/90	0.9 ug/kg to 60,000 ug/kg
Methoxychlor	1/92	26 ug/kg

Sediment samples were also obtained from the drainageway that leads from Area 7 to Crab Orchard Lake, approximately 2,000 feet distant. As shown in the table, 4,4'-DDD and 4,4'-DDE were the dominant pesticides in sediment. These two pesticides were detected in a sediment sample about 600 feet downstream (toward the lake) from Area 7. No pesticides were detected in the next sample downstream, which was taken about 1,300 feet downstream from Area 7, nor were pesticides detected in any samples further downstream from that location.

PESTICIDES IN SEDIMENT, POST-PA/SI, 2001		
Analyte	Frequency of Detection	Range of Detections
4,4'-DDD	5/17	2.9 ug/kg to 1,400 ug/kg
4,4'-DDE	2/17	8.3 ug/kg to 400 ug/kg

PESTICIDES IN SEDIMENT, POST-PA/SI, 2001		
Analyte	Frequency of Detection	Range of Detections
4,4'-DDT	3/17	4.7 ug/kg to 48 ug/kg
Aldrin	3/17	8.8 ug/kg to 35 ug/kg
Dieldrin	1/17	16 ug/kg
Methoxychlor	1/17	14 ug/kg

Wipe samples of interior wall and floor surfaces of Buildings IN-1-3 through -6 were also obtained. All wipe samples were collected using a 3" by 3" sterile gauze pad. The contract laboratory, Agriculture and Priority Pollutant Laboratory (APPL) of Fresno, California, prepared the gauze pads used for sample collection. The gauze pads were prepared by adding 1 milliliter (ml) of hexane to a sterile gauze pad and placing the gauze pad into a certified pre-cleaned 4-ounce sample jar. A one-square foot area was marked and wiped with the gauze pad. Wipe sample results are summarized below.

Low levels of aldrin (0.63 ug/wipe) and dieldrin (1.8 mg/wipe) were detected in one wipe sample collected from a box of party supplies in Building IN-1-6.

PESTICIDE RESULTS FROM INTERIOR WIPE SAMPLES, POST-PA/SI, 2001		
Analyte	Frequency of Detections	Range of Detections
4,4'-DDD	4/14	11 ug/wipe to 39 ug/wipe
4,4'-DDT	8/14	3.3 ug/wipe to 59 ug/wipe
Aldrin	11/14	0.63 ug/wipe to 720 ug/wipe
Dieldrin	14/14	1.8 ug/wipe to 590 ug/wipe
Endrin	13/14	1.5 ug/wipe to 99 ug/wipe
Endrin Ketone	12/14	1 ug/wipe to 200 ug/wipe
Isodrin	7/14	0.34 ug/wipe to 110 ug/wipe

Dust samples were also collected. The results are summarized below. Corresponding air samples did not indicate that any Occupational Safety and Health Administration (OSHA) or National Institute for Occupational Safety and Health (NIOSH) levels would be exceeded in the buildings; however, OSHA and NIOSH are not directly applicable.

PESTICIDE RESULTS FROM INTERIOR DUST SAMPLES, POST PA/SI, 2001		
Analyte	Frequency of Detections	Range of Detections
4,4'-DDT	3/4	3,200 ug/kg to 39,000 ug/kg
Aldrin	4/4	4,000 ug/kg to 5,300,000 ug/kg
Dieldrin	4/4	7,500 ug/kg to 460,000 ug/kg
Endrin	3/4	1,200 ug/kg to 45,000 ug/kg
Endrin Ketone	4/4	3,700 ug/kg to 150,000 ug/kg
Isodrin	2/4	910 ug/kg to 2,100 ug/kg



### 3. NOH Report, November 2001

NOH's evaluation resulted in the following recommendations related to Buildings IN-1-3 through -6, included in their report referenced above:

- *Conduct surface, bulk dust and air sampling in Building IN-1-3 according to a protocol developed by FWS in conjunction with Maytag personnel.*

NOH concluded that Building IN-1-3 appeared to be the least contaminated of the four warehouses and thus had the best potential for continued use for storage of spare parts.

- *Relocate FWS and IDNR from Buildings IN-1-4 and -5, and decommission these buildings.*
- *Quarantine products currently in Building IN-1-6. This recommendation was based on the potential for pesticide contamination plus the guano and rodent droppings observed in the building. The report noted that extensive sampling of the material would be needed to assure that the product would not pose significant risk to consumers.*
- *Decommission Building IN-1-6 after a decision has been made reference the fate of the product currently stored therein.*

### 4. Additional Sampling Inside Buildings, 2002

In response to the NOH recommendations, USFWS conducted additional sampling in January 2002 to evaluate potential cleaning methods for the stored material in Building IN-1-6 and to assess the risk from exposure. Wipe samples were also obtained from products stored in Building IN-1-3. The work was done by a USFWS contractor, and results were reported in the April 2002 letters referenced above.

#### Wipe Samples

Twenty wipe samples were taken from the exterior of boxed materials, and two samples were taken of the contents of sealed boxes. The analytical results are summarized below:

- 20 wipe samples were collected, plus one duplicate sample.
- Aldrin, dieldrin, endrin, endrin ketone and heptachlor epoxide were detected at least once in the samples
- Dieldrin was detected in 16 of the 20 samples collected, with a maximum detection of 2.1 micrograms (ug) per wipe.
- Endrin ketone was detected in 12 of the 20 samples with a maximum concentration of 0.76 ug/wipe
- Aldrin was detected in 10 of the 20 samples with a maximum concentration of 0.97 ug/wipe
- Endrin was detected at a concentration of 0.07 ug/wipe in one of the 20 samples
- Heptachlor epoxide was detected at a concentration of 0.05 ug/wipe in one of the 20 samples
- All other organochlorine pesticides and organophosphorous pesticides were reported as nondetect

The results from the samples taken of contents of sealed boxes were nondetect for all pesticides.

### Risk Evaluation

An evaluation of risk to workers was performed using the following assumptions:

- The amount of chemical that was collected on a wipe sample is representative of the amount of pesticide that is readily transferable from 1 square foot of box surface..
- The surface area of an average box is 6 square feet (1 ft x 1 ft x 1 ft)
- When a worker handles a box, he has direct contact with all 6 square feet of box surface (unrealistically conservative assumption).
- 100% of the pesticide residue on the box is transferred to the workers skin (unrealistically conservative assumption).
- 10% of the pesticide on the skin is absorbed (USEPA default assumption for pesticides).

Using these assumptions to estimate daily exposure, a risk evaluation was performed to estimate how many boxes a typical worker could safely handle. It was concluded that, at the pesticide residue concentrations detected in the warehouse, a worker could safely handle:

- more than 37,000 boxes over a lifetime (considering the long-term cancer potential for some of these pesticides), or
- more than 70 boxes a week for weeks on end (considering the chronic non-cancer toxicity), or
- up to several hundred boxes per week for a few weeks at a time (considering the short-term/acute non-cancer toxicity).

### Results from Evaluation of Cleaning Methods

Several methods of removing visible dust from the boxes were evaluated, including vacuuming, paper towels moistened with hexane, paper towels moistened with deionized water, and pre-moistened towelettes. It was found that the premoistened towelettes were most effective in reducing pesticide residue levels on the boxes.

### Results from Building IN-1-3

Wipe samples results from products stored in Building IN-1-3 were approximately an order of magnitude lower than those from Building IN-1-6. Based on these results, USDOJ concluded that the stored materials in Building IN-1-3 did not represent unacceptable risk to workers or end users.

### 5. Sorting and Cleaning of Boxes, 2002

As noted in the NOH report, there are currently no standards for acceptable levels of dust concentrations of chemicals such as these pesticides. Based on the NOH recommendations, USFWS concluded that it would be inadvisable to allow the release to the public of party supplies that contained any reportable levels of pesticides. Considering that the initial sampling of the contents of two sealed boxes indicated no reportable levels of pesticides, USFWS

concluded that all material in sealed boxes might be suitable for release; that is, there may be no reportable concentrations of pesticides on the materials inside the sealed boxes.

In October 2002, USFWS's contractor separated the sealed materials in the warehouse from the unsealed and uncertain material. The criteria for assessing whether a box was sealed or not was very specific. Materials classified as sealed were in boxes with the original factory sealing tape<sup>15</sup> intact and sealed to the box. Boxes that were merely closed (with no sealing tape) were not considered sealed, nor were boxes with any holes including "hand holes" used for carrying. Some boxes were damaged and torn and were classified as unsealed due to holes or openings.

The sealed boxes were wiped of all visible dust with pre-moistened towelettes and stacked on clean plastic, then covered with clean plastic. Wipe samples were then taken of the cleaned box exteriors and also of the contents of boxes. Results are summarized below.

#### Outside Box Samples

- 21 wipe samples were collected.
- Aldrin, dieldrin, endosulfan I, and endrin ketone were detected at least once in the samples.
- Aldrin was detected in 10 of the 21 samples collected, with a maximum detection of 0.18 micrograms ( $\mu\text{g}$ ) per wipe.
- Dieldrin was detected in 12 of the 21 samples collected, with a maximum detection of 0.26  $\mu\text{g}/\text{wipe}$ .
- Endosulfan I was detected at a concentration of 0.04  $\mu\text{g}/\text{wipe}$  in one of the 21 samples.
- Endrin ketone was detected in 9 of the 21 samples with a maximum concentration of 0.12  $\mu\text{g}/\text{wipe}$ .
- All other target pesticides were nondetect.

#### Inside Box Samples

Ten wipe samples were taken from the inside of boxes. All target compounds were reported as nondetect for inside box samples.

#### Risk Evaluation

It was estimated that a worker moving the boxes could potentially be exposed to as many as 1,000 boxes in one day. The risk evaluation showed that this did not present unacceptable risk to the worker. Consumers would be exposed to only the contents of the boxes, which had no reportable pesticides. Based on these results, USFWS concluded that the cleaned boxes could be released to MDM. MDM took possession of these boxes in May 2003.

#### 6. Remaining Materials in Building IN-1-6

As noted in the FOI report, housekeeping in Building IN-1-6 was "extremely poor" and guano and rodent droppings were observed on materials stored in the building. The materials in Building IN-1-6 that were not in sealed cases had been exposed to the pesticide-contaminated

<sup>15</sup> If the sealing tape was judged not to be original, the box was not classified as sealed.

dust in the buildings and potentially to animals and birds. Unlike the sealed cases, which represent a fairly uniform population (clean materials inside boxes with well-defined seals), the unsealed material is in various states, from being fully exposed to partially sealed. USFWS's contractor concluded that for the remaining materials in the building, cleaning them and then verifying that the products were pesticide-free, and assessing worker exposure to the boxes would exceed the value of the materials.

#### B. Physical Location

Area 7 covers about 100 acres and consists of the warehouse buildings described above, surrounding lawns, and interconnecting roadways. Area 7 is in the closed part of the Refuge, which means that it is off limits to the general public. Refuge employees and tenants operating in the area have access.

The site is fairly level and drains to the north, toward Crab Orchard Lake, through an intermittent stream that roughly bisects Area 7 from north to south. Buildings IN-1-3 through -6 are at the north end of the site and about 2000 feet from the lake. The nearest Refuge boundary is over a mile to the east, and the nearest town, Marion, is about 3 miles to the northeast.

### III. RELEASE OR THREATENED RELEASE INTO THE ENVIRONMENT OF A HAZARDOUS SUBSTANCE, OR POLLUTANT OR CONTAMINANT

The party supplies remaining in Building IN-1-6 pose a threat of a release of a hazardous substance to the environment if removed from the building without appropriate precautions. Under CERCLA §104(a), whenever any hazardous substance is released or there is a substantial threat of such release into the environment, a removal action consistent with the national contingency plan can be undertaken, if, in the discretion of the lead agency, such action is necessary to protect public health, welfare, or the environment. USFWS, as lead agency, is authorized to conduct any removal action it determines to be necessary.

#### A. Hazardous Substance

Aldrin and dieldrin, as well as other pesticides found at this site are designated as hazardous substances in accordance with CERCLA.<sup>16</sup> The remaining party supplies in Building IN-1-6 are known to be impacted by dust containing aldrin and dieldrin.

#### B. Release or Threatened Release Into the Environment

Hazardous substances have been released into the environment (the land surface) outside the warehouses in Area 7, and there is a substantial threat of release from the impacted materials remaining in Building IN-1-6 if such materials were removed from the building without suitable precautions.

CERCLA §101(8) defines "environment" as surface water, ground water, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction

---

<sup>16</sup> 40 CFR § 302.4(a)

of the United States. Thus, a release that is confined to a building may not be considered a release into the environment. However, USEPA guidance on releases inside buildings indicates that authority under CERCLA to respond to a release or threat of release from a building exists "if at least one person or the environment outside of the building may be exposed to the release."<sup>17</sup> Since the pesticide-impacted party supplies, if removed from the building, could expose people and the environment outside the building, USEPA guidance indicates that CERCLA response action is authorized.

#### IV. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITY

USFWS, as lead agency, has determined that removal action is necessary to prevent a release or threat of release of pesticide residue on the material inside Building IN-1-6. The proposed removal action is consistent with the NCP as specified by 40 CFR §300.415(b)(1):

At any release, regardless of whether the site is included on the NPL, where the lead agency makes the determination, based on the factors in paragraph (b)(2) that there is a threat to public health or welfare of the United States or the environment, the lead agency may take any appropriate removal action to abate, prevent, minimize, mitigate, or eliminate the release or threat of release."

One of the factors to be considered in evaluating whether a threat exists is "actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants" (40 CFR §300.415(b)(2)(I)). With respect to the contaminated party supplies inside the building, there is potential for exposure to workers and to consumers if these materials are removed from the building and allowed to be sold or otherwise used.

40 CFR §300.410(b)(ii) considers an evaluation by public health agencies of a threat to public health as supporting evidence to warrant a removal action. As discussed above, the U.S. Department of Health and Human Services, Federal Occupational Health (FOH) evaluated this site and recommended quarantining the party supplies to prevent exposure. FOH also recommended extensive sampling to determine what actions could be taken to identify materials that could be salvaged. In accordance with their recommendations, USFWS has cleaned, sampled, and returned to the owner the materials determined to be salvageable. The remaining materials, approximately 55 percent of the estimated 50,000 boxes of materials, are still inside the building.

#### V. PROPOSED ACTION

##### A. Description of Proposed Action and Alternatives Considered

The purpose of this time-critical removal action is to prevent the removal and sale or other use of the materials in Building IN-1-6 in order to prevent or mitigate the release or threat of release of the hazardous substances on this material. In order to accomplish this, USFWS has determined

---

<sup>17</sup> USEPA, 1993. *Response Actions at Sites with Contamination Inside Buildings*, OSWER Directive No. 9360.3-12, August 12.

that it is necessary to take possession of this material, and that it is appropriate to compensate MDM for the value of the material that is confiscated.

The option of cleaning the remaining supplies was evaluated. These materials are not in sealed boxes and are therefore exposed to pesticide-contaminated dust, guano and rodent dropping. The cost of cleaning, then sampling was judged to be significantly greater than the value of the materials. In addition, because of the highly variable nature of the materials, there would be uncertainty associated with the results.

#### **B. Contribution to Remedial Performance**

As required by CERCLA §104(a)(2), this action will contribute to the efficient performance of any long term remedial action with respect to the release or threatened release of hazardous substances in Area 7.

The impacted party supplies are one part of the overall pesticide contamination at Area 7. The overall pesticide contamination is being addressed as part of an on-going remedial investigation/feasibility study (RI/FS). Preventing the removal of the party supplies from the building will mitigate the threat of release; however, it is not a permanent solution. Over time further deterioration of the building will occur and hazardous substances could be released into the environment. Once the immediate objective of containing the materials inside the building is achieved, USFWS will evaluate, in consultation with USEPA and IEPA, additional response actions that will achieve a permanent solution.

#### **C. Applicable or Relevant and Appropriate Requirements (ARARs)**

There are no ARARs for the proposed action.

#### **D. Proposed Schedule**

USDOJ proposes to complete the action within 90 days.

#### **VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

Delayed action will increase the potential for exposure to humans by allowing MDM to decide to take possession of the party supplies and remove them from the building. Also, delay in this action could delay subsequent actions that will further address the overall site risk, thereby increasing the risk of exposure for humans and ecological receptors to the chemicals at the site.

#### **VII. OUTSTANDING POLICY ISSUES**

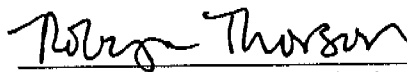
None.

---

VIII. RECOMMENDATION

This decision document represents the selected removal action for pesticide-contaminated party supplies inside Building IN-1-6 at Site AUS-0A07 at the AUS OU, Crab Orchard National Wildlife Refuge NPL site, developed in accordance with CERCLA as amended, and not inconsistent with the NCP.

Conditions at this site meet the NCP criteria for a removal action (40 CFR §300.415(b)(2)), and the undersigned approves the action.

  
\_\_\_\_\_  
Robyn Thorson, Regional Director  
U.S. Fish and Wildlife Service  
Region 3

  
Date