FACT SHEET

CRAB ORCHARD
NATIONAL WILDLIFE REFUGE
MISCELLANEOUS AREAS OPERABLE UNIT

Fact Sheet Number 1

March 1994

INTRODUCTION TO CRAB ORCHARD CLEANUP PROJECT

This fact sheet presents the latest findings regarding the environmental investigation for the **MISCELLANEOUS AREAS (MISCA) OPERABLE UNIT** at the Crab Orchard National Wildlife Refuge **(REFUGE)**. It provides background information regarding this project, presents the status of recent analytical data and discusses the next steps in this investigation. Information is provided at the end of the fact sheet on where the public may find additional information on this project in **INFORMATION REPOSITORIES (IRs)** and **ADMINISTRATIVE RECORD FILES (ARFs)** in the area. Key words are printed in **BOLD** type and are defined in the text or a Glossary which is also available.

BACKGROUND ON THE INVESTIGATIONS AT THE REFUGE

The Refuge is administered by the U.S. FISH AND WILDLIFE SERVICE (SERVICE), an agency of the U.S. Department of the Interior. From 1941 to 1945, several wartime industries occupied portions of the present Refuge for the manufacture of explosives and other military supplies, under the jurisdiction of the War Department. After World War II other industries moved onto the Refuge to occupy buildings formerly used by the wartime companies. They manufactured products such as automobile parts, plated metal parts, tape, flares, jet engine starters, fiberglass boats, and electrical components. In 1947, Congress passed Public Law 80-361 to establish the Refuge for the purposes of agriculture, industry, recreation, and wildlife conservation. The Service was designated as the agency to manage the Refuge. The types of materials disposed of on the Refuge reflect the broad range of substances used in various industrial and Refuge activities. In 1987, the Refuge was placed on the **SUPERFUND NATIONAL PRIORITIES LIST (NPL)**, which is a national list of hazardous waste sites prioritized for cleanup. Superfund is the common name for the **COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)** OF 1980 and its amendments. The first step was to conduct a Refuge-wide study to further characterize the contamination on the Refuge. This Study was completed in August, 1989.

PUBLIC MEETING

THE PUBLIC IS ENCOURAGED TO ATTEND A PUBLIC MEETING ON April 5, 1994, at 7:00 pm at the Crab Orchard National Wildlife Refuge Visitor's Center. The U.S. Fish and Wildlife Service will discuss preliminary results regarding the Miscellaneous Areas Operable Unit of the Superfund Project at the Refuge. Personnel will answer questions and discuss and comment on the results. Please attend, ask questions, and make comments.

It recommended that additional study and remediation be divided into four basic projects called **OPERABLE UNITS (OUs)**. (A fifth project, a removal action, was added later.) These five projects are titled:

Miscellaneous Areas (MISCA)
Explosives/Munitions
Manufacturing Areas (EMMA)
Metals Areas (METALS)
PCB Areas (PCBs)
Water Towers Removal Action
(TOWERS)

A **FEDERAL FACILITY AGREEMENT (FFA)** between the **United States Environmental Protection Agency**, the Service, the **Department of the Army (Army)** and the **Illinois Environmental Protection Agency (IEPA)** became effective in 1991 to set forth the role each agency will play in each OU.

Studies for the Metals and PCB OUs have continued since 1990. The **Remedial Investigation/Feasibility Study (RI/FS)** for the EMMA OU was begun in 1991. For more information on these OUs call the contacts listed at the end of this fact sheet.

THE MISCELLANEOUS AREAS (MISCA) OPERABLE UNIT

A specific RI/FS was begun in 1992 for the MISCA OU. The **Remedial Investigation** portion of the RI/FS was divided into two phases. Phase I field work was completed last summer for the sixteen small sites in this OU. The contaminants in these areas vary somewhat, relative to the types of industrial and maintenance activities which were conducted at each location over the decades. This phase of the RI included soil and surface water sampling as well as a preliminary ecological risk assessment. The Phase I investigation also included an initial examination of the wastewater treatment plant and the wood post treatment area. A final Phase I report, summarized below, explains in more detail the analytical results which are available in the **ARFs** and **IRs** listed on page 4.
Eight other areas were also studied and will be addressed in other ways, discussed below.

STUDY LOCATIONS AND RESULTS

The FFA lists twenty-three (23) sites including the wastewater treatment plant which were examined. The wood post treatment facility, Site 22a, was added later. These sites can be located on Figure 1. A brief description of the sites is presented in Table 1.

Sixteen (16) sites were investigated during the Phase I RI. The major conclusions resulting from this study are summarized below:

* **Sites 21, 27** and **35** do not warrant sampling investigations because the visual inspections of the areas demonstrated that no physical evidence of damage was present and no specific areas of concern could be identified.

* **Site 7a** had no contaminants of concern detected and it was tested for all required chemical compounds.

* **Sites 7, 8, 9, 11, 12** and **20:**
  - had concentrations of heavy metals such as silver, thallium, beryllium, and inorganics, such as arsenic, at levels near naturally-occurring background concentrations;
  - had concentrations of volatile organic compounds (VOCs) such as acetone and ketones and semi-volatile organic compounds (SVOCs) such as hydrocarbons below **Preliminary Levels of Concern (PLC);**
  - had no detected concentrations of pesticides, PCBs, or explosives compounds.

* **Sites 10, 14, 16, 22a** and **36** had detectable concentrations of several hazardous constituents in excess of the PLCs. These sites have various combinations of Volatiles, Semi-Volatiles, Metals, PCBs, Dioxins, and Pesticides.

* **Site 11a** had a soil sample with detectable concentrations of an explosive compound (TNT) for which a PLC has not been established. This site also had detectable levels of several hazardous compounds exceeding the PLCs.

The remaining eight (8) sites identified in the FFA for inclusion in the MISCA OU were not investigated during the Phase I RI

for various reasons listed below.

* **Sites 13** and **18** are sites which were used by the War Department and are proposed to be transferred to another OU for further investigation by the Army.

* **Sites 24, 25** and **26** are located off the Refuge and are the responsibility of other jurisdictions. There appears to be no evidence that any materials from past Refuge tenants or operations have contaminated those three sites.

* **Site 34:** This is the Crab Orchard Lake and is being monitored by the Service, IEPA, and the Illinois Departments of Public Health and Conservation. Based on monitoring results future investigations may be conducted.

* **Sites 30** and **31:** These were chosen as control sites, where no contamination above levels of concern has been found, and against which the results of other sites can be gauged.

PRELIMINARY RISK ASSESSMENT

A **Preliminary Ecological Risk Assessment (PERA)** was conducted for the 16 sites. The PERA was performed to determine which of the MISCA OU sites may safely be assumed to pose no threat to plants or animals and which sites may require additional ecological study. This PERA is a desktop assessment that uses data from the Phase I RI Report, information from literature and local experts, and relevant benchmark values to quickly determine whether or not the contaminants pose a threat to plants and animals. The principle goals for the ecological risk assessments of each site include the following: 1) identifying the constituents of concern; 2) identifying and evaluating plants and animals; 3) estimating exposure point concentrations and exposure doses for the constituents of concern; 4) identifying environmental toxicity and 5) characterizing ecological risk. Finally, recommendations for additional field sampling were made based on the PERA. These additional samples will assist in further defining the level of contamination and the potential risk to wildlife and plants.

PROPOSED FUTURE INVESTIGATIONS

Based on the results from the Phase I RI future plans for MISCA OU include:

* **Sites 10, 14, 16, 22a,** and **36:** Additional sampling and waste characterization is planned for these sites during the Phase II RI, scheduled to begin in the summer of 1994.

* **Sites 7, 7a, 8, 9, 11, 11a, 12, 20, 21, 27** and **35:** No additional investigative activities are planned because sufficient data are available to complete the evaluation of these sites.

* An evaluation of potential **Human Health and Environmental Risks** at these sites will be conducted after the Phase II RI sampling is completed. This will include the identification of potential exposure pathways such as through air, surface water, ground water, and direct contact through inhalation, ingestion, or skin absorption. It will also evaluate the toxicity of each contaminant, the points where the contamination is accessible to humans and wildlife, and any Federal and State criteria and standards above which concentrations would be considered unsafe and should be addressed.

NEXT STEPS

1. Feasibility Study

Concurrently with the Phase II RI a **Feasibility Study** will be conducted which will evaluate potential cleanup alternatives and cleanup techniques. These management techniques will include consideration of no action and long term monitoring. They will be evaluated against nine basic criteria mandated by **CERCLA** including Federal and State cleanup criteria and standards, cost effectiveness, long-term effectiveness and others. The selected remedy must also be compatible with the uses of the Refuge.

2. Public Participation

When a recommended remediation program is determined, a Proposed Remedial Action Plan, also known as a **PROPOSED PLAN**, will be issued to the public for review and comment with the RI/FS. The Proposed Plan, the RI/FS reports, and other relevant information will be available for public review in the Administrative Record File and Information Repositories in the area. The public will have an opportunity to comment on the RI/FS and Proposed Plan during a **PUBLIC COMMENT PERIOD** which will be a minimum of thirty (30) days. **NEWSPAPER ADS** will be placed to notify the public of the availability of the documents, of the comment period and offer a public meeting to discuss the results and preferred remedy. A **RESPONSIVENESS SUMMARY**, which presents the comments received during the public comment period, the response to each one and how it will be used in the final cleanup decision, will be sent by the Service to all who submitted comments and will be placed in the ARF.

3. Record of Decision

When public comment has been fully considered, a final cleanup decision will be made and documented in the **RECORD OF DECISION (ROD)**. This includes a summary of the decision, a detailed description of how the chosen remedy will meet the cleanup goals and standards and a copy of the Responsiveness Summary. It will become part of the ARF and will be available for public review. The Public will be notified when the ROD is signed. Plans will then be made to design and implement the remedy outlined in the ROD.

4. Schedule

During 1994, additional soil, sediment, surface and groundwater samples will be taken and analyzed in the areas mentioned above. It is expected that the results of the Phase II RI sampling and analysis will be available in Spring, 1995. They will be combined with the results from Phase I and a full report prepared. We will notify the public through newspaper ads of the availability of the information in the ARF and offer to conduct another public meeting to discuss the results of both Phase I and II sampling and analyses.

FOR FURTHER INFORMATION

Two **ARFs** have been established to provide public access to the legal documents on which a final remedy decision will be based. In addition there are four **IRs** which have additional information such as brochures and other fact sheets which are available for public information. These documents are available at the following locations during normal business hours.

ADMINISTRATIVE RECORD FILES

Morris Library - Fifth Floor
Southern Illinois University
Carbondale, IL 62901
Contact: Reference Librarian
(618) 453-2683

USEPA, Region V
Attn: Eileen Deamer (PS19J)
77 West Jackson Blvd
Chicago, IL 60604-3590
(312) 886-1728

INFORMATION REPOSITORIES

U.S. FWS
Attn: Vanessa Musgrave
RR 3 Box 328
Marion, IL 62959
(618) 997-5491

Marion Carnegie Public Library
206 South Market St.
Marion, IL 62959
Contact Mr. Ronald Reed
(618)993-5935 (618)964-1441

Carbondale Public Library
405 West Main St.
Carbondale, IL 62901
Contact: Mr. Jim Guneter
(618) 457-0354

Marion Federal Penitentiary Library
Department of Justice
Bureau of Prisons
Attn: Steve Fawl
Rt 5 Little Grassy Rd
Marion, IL 62959

Inquiries regarding the Superfund activities can be sent or called to Vanessa Musgrave at the address and phone number at the end of this fact sheet. In addition, each Federal and State agency has a Community Relations Coordinator who serves as a primary point of contact who is also available to assist you:

Eileen Deamer (PS19J)
USEPA, Region V
77 West Jackson Blvd
Chicago, IL 60604-3590
(312) 886-1728

Michelle Nickey-Tebrugge
IEPA
2200 Churchill Road
P.O. Box 19276
Springfield, IL 62794
(217) 524-4825

Betty White
U.S. Army Corps of Engineers
215 North 17th St
Omaha, NE 68102-4978
(402) 221-3916

USEPA offers **TECHNICAL ASSISTANCE GRANTS (TAGs)** to community groups who wish to obtain qualified technical support in reviewing technical study documents generated for a Superfund site. Information about the TAGs is available in the IRs or by the TAG Coordinator, USEPA, Region V at (800) 621-8431.

Each agency has assigned Project Managers to the Crab Orchard environmental studies who serve as key team members. Those Project Managers are Nan Gowda, USEPA; Steve Nussbaum, IEPA; Frank Fischer, USACE; Leanne Moore, Mark Sattelberg, and Vanessa Musgrave, Service. They can be contacted through the Community Relations Coordinators listed above.

If you wish to be placed on the mailing list for the Superfund activities at the Crab Orchard National Wildlife Refuge, please complete the form below and mail to:

Vanessa Musgrave
Crab Orchard National Wildlife Refuge
RR 3 Box 328
Marion, IL 62959
(618) 997-5491

I wish my name to be placed on the mailing list for the Crab Orchard National Wildlife Refuge Superfund Investigations. Please send information to the address listed below.

Name/Title _____

Organization _____

Street Address _____

City/State/Zip _____

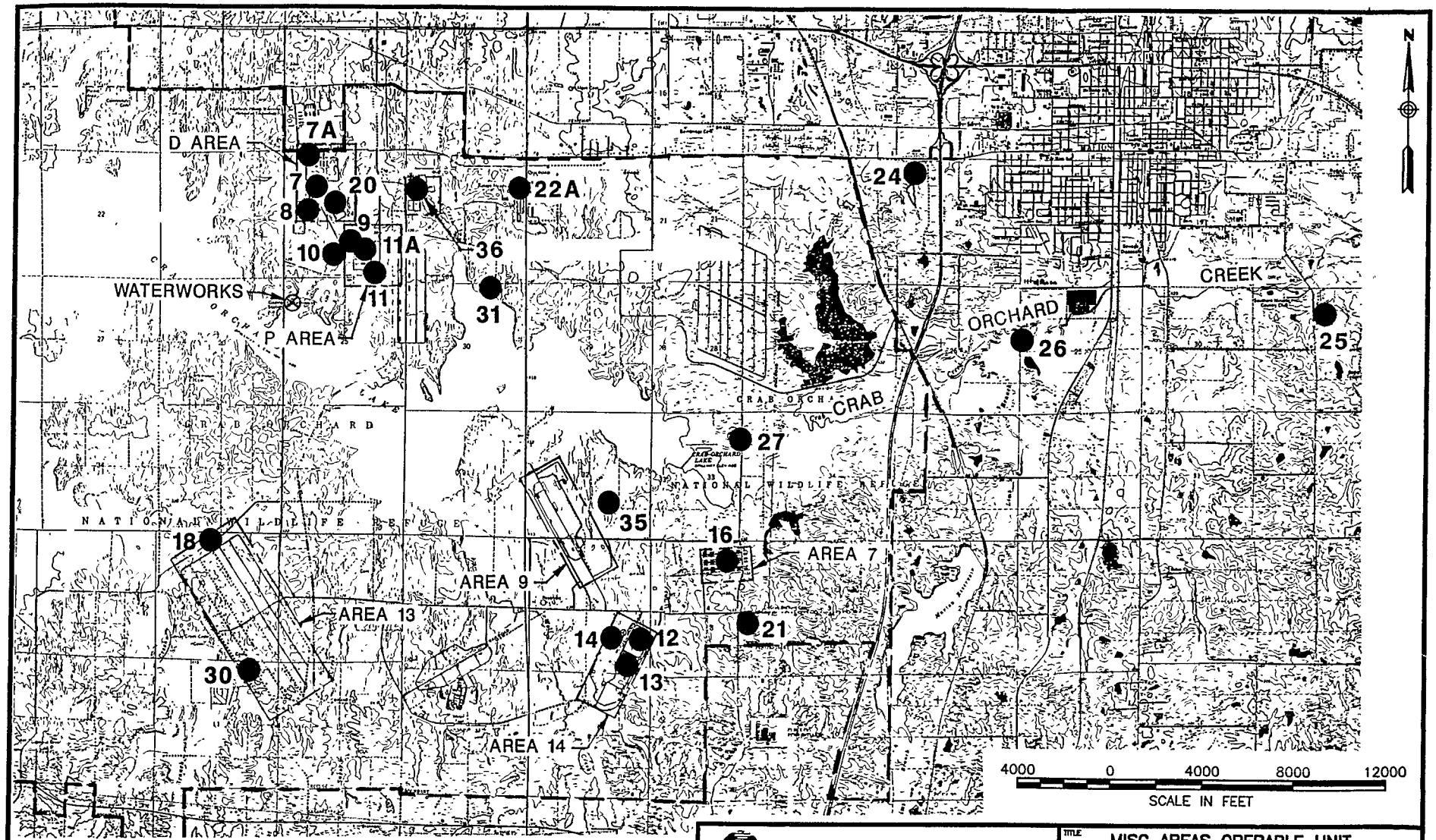
Phone Number (optional) (Work) _____ (Home) _____

Date _____

TABLE 1
PHASE I RI ACTIVITIES
MISCELLANEOUS AREAS OPERABLE UNIT

Site Number	Area	Site Name
7	D Area	Southeast Drainage Channel
7A	D Area	North Lawn
8	D Area	Southwest Drainage Channel
9	P Area (North)	Northwest Drainage Channel
10	P Area (North)	North Drainage Channel
11	P Area	Southeast Drainage Channel
11A	P Area (North)	Walkway Structures
12	Area 14	Impoundment
13	Area 14	Change House
14	Area 14	Solvent Storage Drainage Channel
16	Area 7	Industrial Park
18	Area 13	Loading Platform
20	D Area	South Drainage Channel
21	Area 7	Southeast Corner Field
22A	Old Refuge Shop	Post Treating Facility
24*	Pepsi Plant	West Drainage Channel
25*	Crab Orchard Creek	Marion Landfill
26*	Crab Orchard Creek	Marion Sewage Treatment Plant
27	Crab Orchard Creek	Dredge Area
30	Area 13	Munitions Control Site
31	None Established	Refuge Control Site
35	Area 9	East Waterway
36	Area 3 North	Waste-Water Treatment Plant

* Not located within Refuge boundaries, nor owned by the Service; FFA specifies No Further Action.


D AREA
P AREA
WATERWORKS
7A
7
8
20
9
10
11A
11
36
31
22A
24
CREEK
ORCHARD
26
25
CRAB
27
35
16
AREA 7
AREA 9
AREA 13
AREA 14
18
30
14
12
13
21
4000 0 4000 8000 12000
SCALE IN FEET
N
REFUGE BOUNDARY
SITE LOCATION
MAP SOURCE: U.S.G.S. 7.5 MINUTE SERIES QUADRANGLE MAPS MARION, ILL. 1966, PHOTOREVISED 1990, AND CRAB ORCHARD LAKE, ILL. 1966, PHOTOREVISED 1978.
Golder Associates
Chicago, Illinois
CLIENT/PROJECT
MW/CRAB ORCHARD RI/IL
TITLE
MISC AREAS OPERABLE UNIT
CRAB ORCHARD
NATIONAL WILDLIFE REFUGE
DRAWN TPK
DATE 12-21-93
JOB NO. 923-8108
CHECKED PA
SCALE AS SHOWN
DWG. NO. 6
REVIEWED PA
FILE NAME 923-8108
FIGURE NO. 2