

PROPOSED PLAN

**PESTICIDE STORAGE FACILITY**  
**Operable Unit 002**

Fort Riley, Kansas

August 1997

**PURPOSE OF PROPOSED PLAN**

This Proposed Plan (plan) identifies the preferred remedy, with the rationale for this preference, for the Pesticide Storage Facility (PSF) site, Operable Unit 002 at Fort Riley, Kansas. The choice of the preferred remedy is preliminary and could change in response to public comment or new information. The Proposed Plan was developed by the U.S. Department of the Army (DA), Fort Riley as lead agency, with support from the U.S. Environmental Protection Agency (EPA), Region VII, and the Kansas Department of Health and Environment (KDHE).

Fort Riley was proposed for inclusion on the National Priority List (NPL) on July 14, 1989, and was finalized on the NPL on August 30, 1990. Following the NPL listing, the DA and Fort Riley, EPA, and KDHE entered into a **Federal Facility Agreement (FFA)** effective June 28, 1991. The FFA provides the framework for EPA, KDHE, and the Army to coordinate the investigation and cleanup of contaminated sites.

Fort Riley is issuing this Proposed Plan as part of the public participation responsibilities under Sections 113(k) and 117(a) of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** of 1980, as amended by the **Superfund Amendments and Reauthorization Act (SARA)** of 1986, and Section 300.430(f) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**.

The plan is being provided to inform the public of Fort Riley's recommendation for **No Further Action (NFA)** at the site. The rationale for the selection of NFA for this site is summarized in this plan. Fort Riley is seeking public comments on the recommended action because a change from the recommended action may be made if public comments or additional data indicate that such a change would result in a more appropriate decision.

Project documentation, contained in the Administrative Record, consists of, in part, the Remedial Investigation (RI) report (July 1993, revised December 1993) which includes the Baseline Risk Assessment (BLRA), a Remedial Investigation Addenda (RIA) (1997) which includes an RI Summary, Removal Action Report, Residual Risk Assessment (RRA), Comparison of Ground Water Inorganic Concentrations in On-Site and Background Monitoring Wells and Identification of Applicable or Relevant and Appropriate requirements. These documents address the nature and extent of contamination at the PSF site and the potential associated risk to human health and the environment. These documents and reports may be consulted for more detailed descriptions of site conditions and characteristics.

Terms in bold print are defined in the glossary section.  
Please see the back page for information concerning the Public Involvement Process.



PSF\_6\_1\_001

## **SITE SETTING AND BACKGROUND**

Fort Riley is situated along the north bank of the Kansas and Republican Rivers in Riley and Geary counties in north central Kansas (Figure 1). The PSF site covers about two-thirds of an acre around Building 348 and is located in the Main Post area. Building 348 was constructed in 1941 as a general purpose warehouse. Fort Riley records do not indicate when pesticides were first stored in Building 348. However, interviews with Ft. Riley personnel reveal that Building 348 had been used for pesticide storage since at least 1973. Prior to the late 1970's, the maintenance yard east of and adjacent to Building 348 was used to wash down vehicles and spray equipment used for pesticide applications. During 1988, according to Fort Riley personnel, several (undetermined in file documentation) PCB-containing electrical transformers were stored in containers outside the southeast corner of Building 348. Other items previously stored at the site include paint, pesticides/herbicides, pressure treated lumber, and various general improvement materials and equipment. Since at least 1976, the majority of pesticide application has been performed by outside contractors not allowed to use the PSF site.

Site contamination was revealed by Army pesticide use monitoring studies conducted prior to 1990. The FFA specifically requires that the PSF site be addressed through the Remedial Investigation and Feasibility Study (RI/FS) process. The FFA also allows the Army to perform Removal Actions concurrent with RI/FS activities. Fort Riley initiated planning of the RI/FS during the development of the FFA, and field activities began in the early spring of 1992. A Removal Action was initiated in 1993 and, in the spring of 1994, contaminated soils were excavated and disposed of at an approved landfill. The Remedial Investigation Report (1993) addressed site conditions as they existed prior to the Removal Action. Post-Removal Action site conditions are presented and assessed in the RI Addenda (1997) which includes the Residual Risk Assessment. Because no hazardous substances remained on-site above health-based levels after the Removal Action (as determined in the Residual Risk Assessment), the FS component of the CERCLA process is not needed.

## **PRE-REMOVAL SITE CONDITIONS**

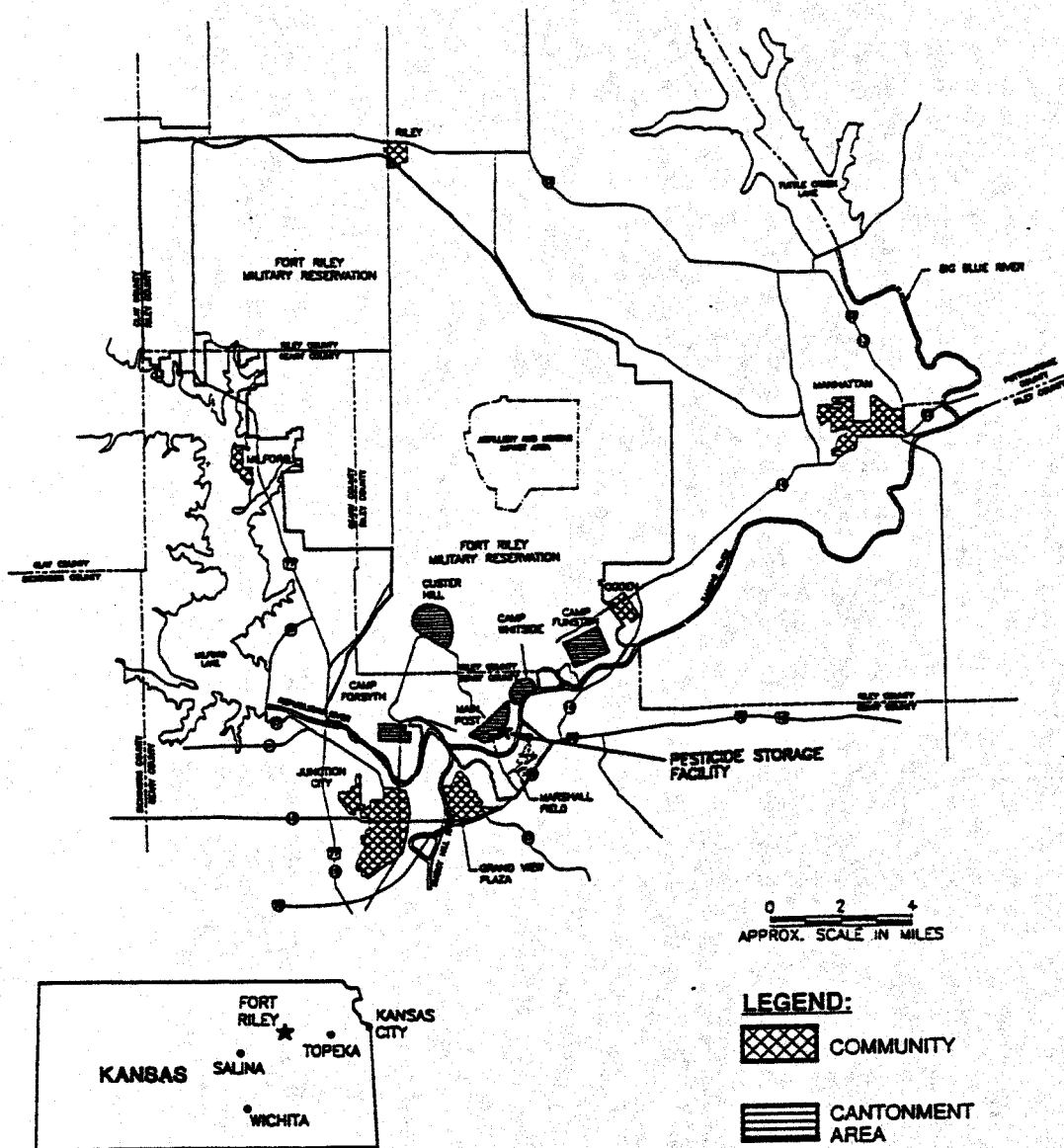
Based on the historical activities performed at the site, surface soil, subsurface soil, and ground water were investigated to evaluate the extent of contamination.

The PSF RI began in 1990 with the development of planning documents and field activities occurring in 1992 and 1993. Surface and shallow subsurface soil samples were collected and analyzed to assess the extent of soil contamination. Ground water was assessed for the possibility of contamination leaching from the soil into the ground water by installing and sampling ground-water monitoring wells at the site. In addition, the possibility of contaminant migration from surface runoff was assessed by analyzing surface water and sediment samples from a nearby drainage ditch east and southeast of the site. Ground water, surface water, soil and sediment samples were analyzed for volatile and semi-volatile organics (solvents and petroleum-based products), pesticides/PCBs, inorganics (metals and chloride, sulfate & nitrate), organophosphorus pesticides, and herbicides.

The primary chemicals of potential concern found in soils at the site consisted of: arsenic, the pesticide DDT and related compounds DDE and DDD, chlordane, dieldrin and heptachlor. Other inorganics (such as barium, chromium and lead) and organics (such as polynuclear aromatic hydrocarbons or PAHs) were also detected. The ground-water sampling results indicated the presence of arsenic, beryllium, manganese, thallium, and nitrate. However, the concentrations of these compounds detected in samples collected from on-site monitoring wells are not statistically above the concentrations found in samples collected from background monitoring wells.

# PESTICIDE STORAGE FACILITY LOCATION MAP

## Fort Riley, Kansas



Three areas of pesticide contaminated soil were identified. These locations were adjacent to the north and east of Building 348. The second area occurred near the southeast corner of the building. The third location, approximately 10 feet in diameter, was an isolated area of stressed vegetation near a drainage ditch east of building 348. The contaminant concentrations in these soils were above acceptable risk based levels for site workers (present or future). The greatest risk identified in the BLRA was to site workers coming into direct, dermal contact (skin) with contaminated soils. Site workers included in the exposure scenarios include those expected to perform various industrial tasks on site (e.g. utility repair and maintenance personnel, landscaping crews and general warehousing laborers).

## REMOVAL ACTION

Concurrent with the performance of the RI and BLRA activities, the opportunity to perform a non-time critical Removal Action addressing contaminated soils was recognized.

An Engineering Evaluation/Cost Analysis (EE/CA) was performed to: 1) Determine if a Removal Action was appropriate to protect human health and the environment; 2) Identify, evaluate, and recommend options for a Removal Action consistent with the needs for a Removal Action; which could be incorporated into a permanent solution to remediate the site; and could meet the time schedule for construction; and 3) Develop a remedy to meet the occupational safety and health requirements of site workers and allow for the continued use of the site.

A public comment period for the EE/CA was held August 17 through September 16, 1993, and a public meeting was held at Fort Riley on September 7, 1993. No comments were received during the public comment period. Subsequently, the Removal Action Memorandum was signed in December 1993.

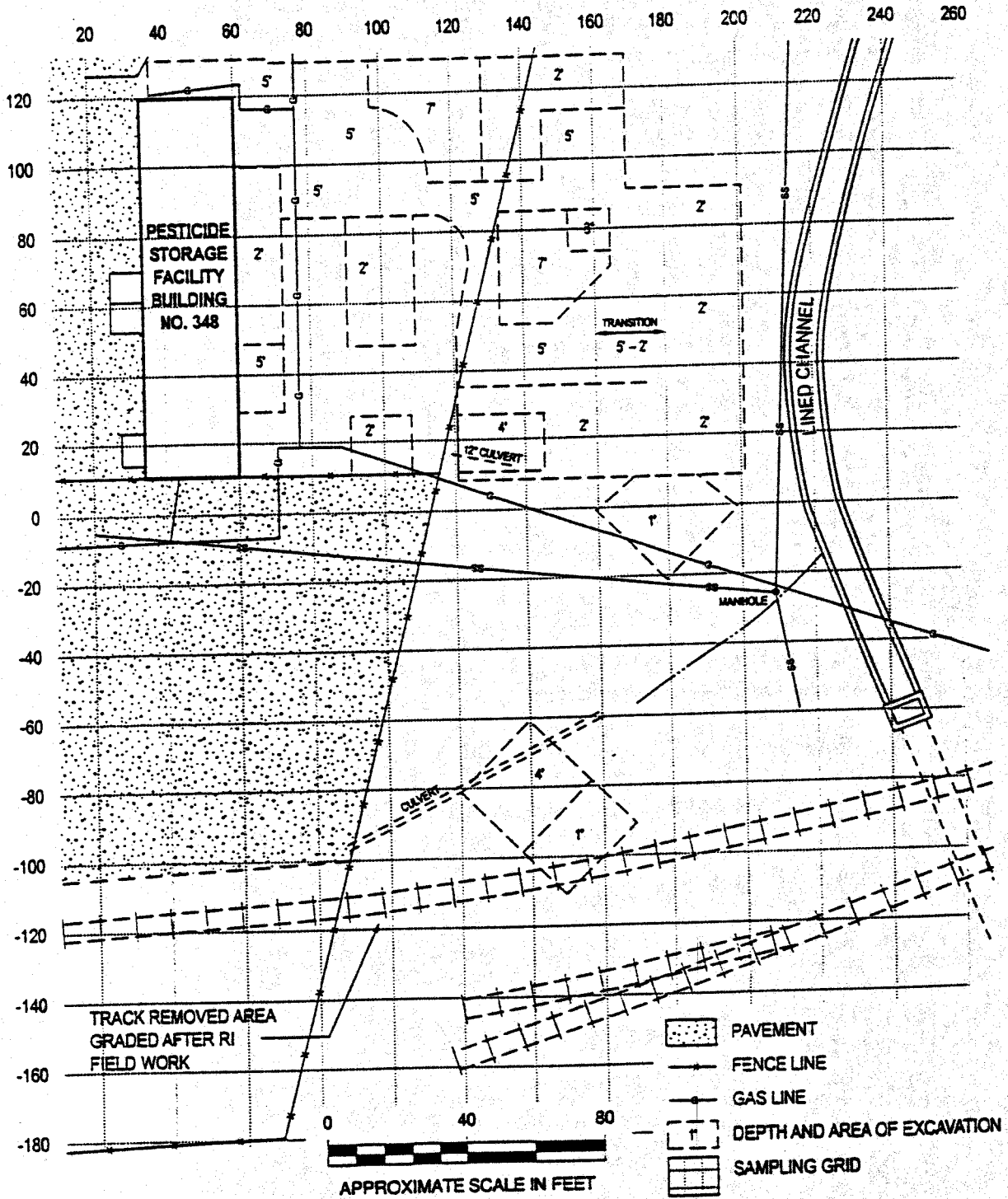
The Removal Action involved the excavation and off-site disposal of soils exceeding concentrations considered to be protective of future site workers performing anticipated activities under existing land use patterns. The developed excavation action levels, based on risk evaluation (exposure and receptor identification and quantification) and NCP guidance were:

Chlordane	1.58 mg/kg	Dieldrin	0.127 mg/kg
Heptachlor	0.050 mg/kg	DDT, DDD, DDE	1.73 mg/kg
Arsenic	7.1 mg/kg		

The actual excavation limits were guided by sampling the sidewalls and bottom of the excavations. A total surface area of less than one-half acre was excavated to a depth of between 1 foot and seven feet below the surface as shown in the figure below. A total of approximately 2700 tons of soil was taken to an approved landfill for disposal.

The excavations were backfilled to approximate original elevations, restoring the site for unrestricted use as an equipment and material storage area. The Removal Action was completed in June 1994.

# PESTICIDE STORAGE FACILITY SITE MAP FINAL REMOVAL ACTION EXCAVATIONS



### ***CURRENT SITE CONDITIONS***

Site conditions following the Removal Action were evaluated and a residual risk assessment (RRA) performed. Land use patterns are expected to remain the same; The PSF site will remain commercial/industrial. Future residential development of the site is not considered likely. Groundwater at the site is not currently used and is not being considered for use in the future. The existing water supply system has sufficient excess capacity to provide for future water use requirements. The residual risk assessment evaluated current and reasonable maximum future exposures to workers performing material handling, construction, utility repair, and landscape maintenance and to children who might play at the site. Information concerning environmental investigations and findings will be included in the Fort Riley Master Plan Environmental Overlay (MPEO) (under development), and it's supporting Geographic Information System (GIS) database, for consideration in future land use management actions.

Soils exceeding the removal action levels remain at a few isolated locations, including immediately adjacent to the building foundation where excavations would have endangered the stability of the building. However, the residual risk assessment concluded that this site does not pose an unacceptable risk to human health and the environment under current or anticipated future land use scenarios. None of the exposure pathways exceeded a increased cancer risk of 1 in 1 million or exceeded a hazard index of 1.

Sampling and statistical evaluations of the data indicates that contaminants in the soils have not leached into the ground water. Pesticides have not been detected in groundwater samples. Inorganic constituents (such as antimony, arsenic, thallium and nitrates) detected in ground water samples have been determined, through statistical evaluations, to be within naturally-occurring or background levels or below drinking water standards.

No threatened or endangered species have be identified as actual or potential habitants of the site. Prior to the removal action, the ecological risks due to potential exposures at the site were judged to minimal. Under current site conditions, ecological risks are considered negligible.

### ***NO FURTHER ACTION RECOMMENDATION***

No further action is warranted when a site poses no unacceptable current or future threat to human health or the environment, when CERCLA does not provide cleanup authority or when a previous cleanup activity eliminates the need for future cleanup. At the PSF site, an action has been taken and the site conditions pose no unacceptable current or future threat. Therefore, Fort Riley, as the lead agency, with approval from EPA Region VII and the KDHE is recommending No Further Action for the PSF site.

## GLOSSARY Of Terms Used In This Proposed Plan

This glossary defines the technical terms used in this Proposed Plan. The terms and abbreviations contained in this glossary are often defined in the context of hazardous waste management, and apply specifically to work performed under the CERCLA program. Therefore, these terms may have other meanings when used in a different context.

**Administrative Record:** The set of information, including general files, reports, correspondence, etc., that is used to document site activities and decisions.

**Carcinogenic:** Capable of causing the cells of an organism to react in such a way as to produce cancer.

**CERCLA:** A federal law passed in 1980 and amended in 1986. The act created a special tax that goes into a trust fund, commonly known as Superfund, and a regulatory program to investigate and clean up abandoned or uncontrolled hazardous waste sites. The Department of Defense funds CERCLA activities at military sites; trust funds are not used.

**Federal Facility Agreement (FFA) or Interagency Agreement (IA):** A written agreement between EPA and a federal agency that has the lead for site cleanup activities (e.g., the Department of the Army), that sets forth the roles and responsibilities of the agencies for performing and overseeing the activities. States are often parties to interagency agreements.

**Ground Water:** Water that is contained in the space between the soil particles and within porous rocks below the ground.

**Hazard Index:** A reference point for gauging the potential concern for non-carcinogenic effects due to of exposures to multiple contaminants.

**Leaching:** The process by which soluble chemical components are dissolved and carried through soil by water or some other percolating liquid.

**Migration:** The movement of contaminants, water, or other liquids through porous and permeable rock.

**National Oil and Hazardous Substances Pollution Contingency Plan (NCP):** A plan which puts into effect the response powers and responsibilities created by CERCLA. The plan includes policies and procedures that the federal government follows in implementing responses to hazardous substances.

**No Further Action:** Further remedial actions are not needed.

**Receptor:** An organism that receives, may receive, or has received environmental exposure to a chemical.

**Remedial:** A course of study combined with actions to correct site contamination problems through identifying the nature and extent of clean-up strategies under the CERCLA program.

**SARA:** The Superfund Amendments and Reauthorization Act of 1986. Federal law amending CERCLA.

**Sediment:** The layer of soil, and minerals at the bottom of surface waters, such as streams, lakes, and rivers that may absorb contaminants.



## **PUBLIC INVOLVEMENT PROCESS**

Fort Riley, the Environmental Protection Agency (EPA), and the Kansas Department of Health and Environment (KDHE) rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for the Pesticide Storage Facility (PSF) site. To this end, the Remedial Investigation (RI) report (with addenda), this plan, and supporting documentation, which are part of the **Administrative Record**, have been made available to the public for a public comment period which begins on August 24, 1997 and concludes on September 22, 1997.

An Availability Session will be held during the public comment period to present the conclusions of the Remedial Investigation, to elaborate further on the reasons for recommending the preferred remedy and to receive public comments. Fort Riley will hold a formal public meeting if interest is expressed by the public. The Availability Session is to be held on September 4, 1997 at Riley's Restaurant and Event Center, Huebner Road, Fort Riley, and will begin at 5:00 p.m. and continue until 8:00 p.m. During the Availability Session, project information will be available for viewing and project team members, including representatives of EPA Region VII and KDHE, will be available for individual or small group discussions of the project in an informal setting.

Comments may be provided in written or spoken form during the availability session or provided in writing to the address below at any time during the public comment period. Comments and responses will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document which formalizes the selection of the remedy.

### *Comments should be addressed to:*

Directorate of Environment and Safety  
AFZN-ES (Attn: Ms. Janet Wade)  
Building 407 Pershing Court  
Fort Riley, Kansas 66442-6016

Copies of the RI reports (including addenda), Proposed Plan, and supporting documentation are available for viewing at the following locations:

### *Information Repositories*

Dorothy Bramlage Public Library  
230 West Seventh Street  
Junction City, Kansas  
(913) 238-4311  
Hours: Monday - Saturday 9:30 a.m. - 6 p.m.  
Sunday 1 p.m. - 6 p.m.

Clay Center Carnegie Library  
Clay Center, Kansas 67432  
(913) 632-3889  
Hours: Monday and Wednesday 2 p.m. - 8 p.m.  
Tuesday and Thursday 10 a.m. - 8 p.m.  
Friday 2 p.m. - 6 p.m.  
Saturday 10 a.m. - 2 p.m.

Manhattan Public Library  
Corner of Juliette & Poyntz Streets  
Manhattan, Kansas 66502  
(913) 776-4741  
Hours: Monday - Thursday 9 a.m. - 9 p.m.  
Friday 9 a.m. - 8 p.m.  
Saturday 9 a.m. - 6 p.m.  
Sunday 1 p.m. - 6 p.m.

### Administrative Record

Directorate of Environment and Safety  
Building 407 Pershing Court  
Fort Riley, Kansas 66442-6016  
(913) 239-8662  
Hours: Monday - Friday 9 a.m. - 4 p.m.