REMEDIAL INVESTIGATION UPDATE

U.S. EPA, REGION V

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Summit National Site

July 1985

SITE
Summit National

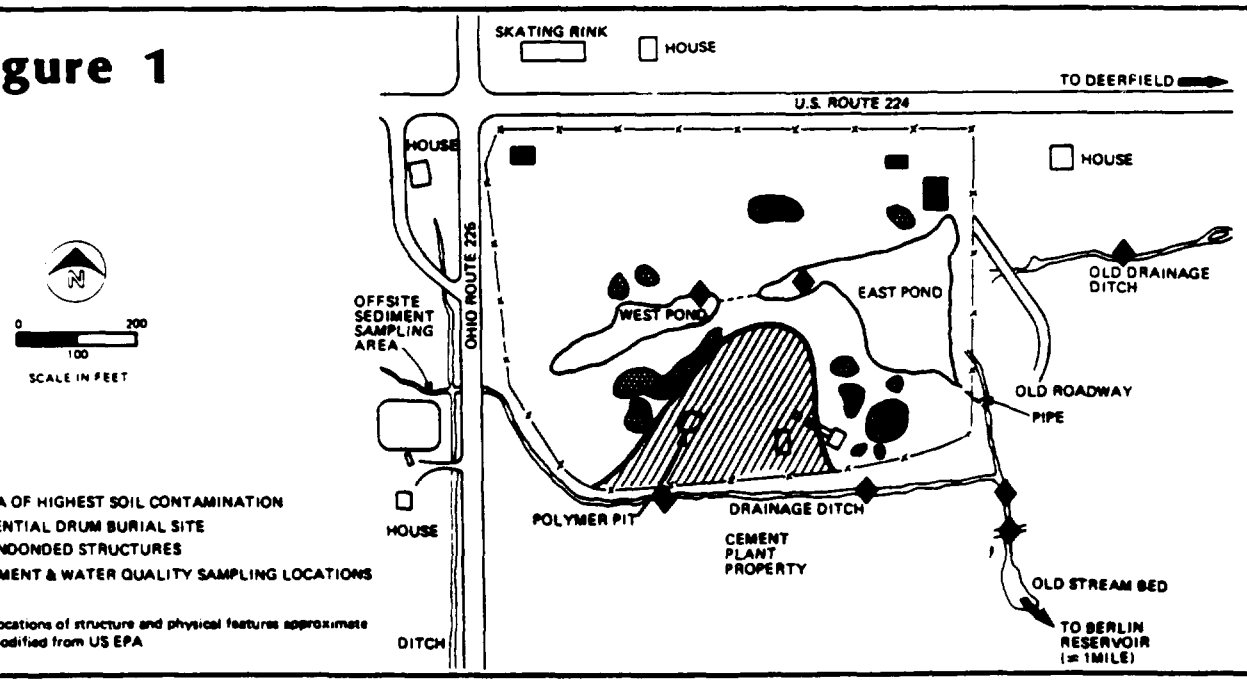
LOCATION
Deerfield Township, Portage County, Ohio

PURPOSE OF THIS UPDATE
To describe the results of the first phase of sampling from the Remedial Investigation to determine the nature and extent of contamination at the Summit National Site.

SITE DESCRIPTION
The Summit site is a former solvent recycling and disposal facility located on an abandoned coal strip-mine situated at the intersection of Ohio Route 225 and U.S. Route 224 in Deerfield Township, Portage County, Ohio. The site includes two ponds, an abandoned incinerator, and several vacant buildings. It is enclosed by a fence and surrounded by residences, light industries, and farmland (Figure 1).

Between 1973 and 1978, drummed liquid wastes from various manufacturing and chemical companies were brought to the site, and stored, incinerated, and allegedly buried and dumped on site. In 1975, the Ohio EPA responded to a complaint of unauthorized pollutant discharge on-site, and, through sampling, found high levels of toxic pollutants in surface water, sediments, and soil on and near the site. Further investigations in 1979 determined that hazardous chemicals were continuing to leak from the site into the environment. In 1980, EPA removed 7,500 gallons of hazardous waste from the land surface. In 1982, an agreement between Ohio and potentially responsible parties resulted in a surface cleanup which removed drums, tanks, surface debris, and a small amount of contaminated soil from the site.

Figure 1



REMEDIAL INVESTIGATION

In order to determine the extent of contamination remaining at the Summit site, EPA recently completed the first phase of its Remedial Investigation. EPA sampled onsite soils, on and offsite surface water and sediment, groundwater, and residential wells for contamination. Samples were tested for base/neutral acid (BNA) and extractable organic compounds, volatile organic compounds (VOC's), pesticides, and inorganic compounds. A geophysical survey was performed and areas of buried drums and tanks were identified. The findings of the initial investigation are briefly summarized in the following paragraphs and shown in Figure 1.

ONSITE SOIL

Soil samples were taken throughout the site in the upper soil zone. Results showed organic contamination was present. The highest concentration of organic contamination was found in the south half of the site. Some of the organic compounds identified in the soils were acetone, toluene, trichloroethene, fluorene and PCB's. Soils offsite were not sampled.

GROUNDWATER

Preliminary investigations indicated that two groundwater aquifers underlay the site. The upper groundwater aquifer flows towards the southeast, while the direction of flow in the lower aquifer is apparently southwest. BNA's, VOC's and inorganic chemicals were detected in the upper aquifer. Concentrations were highest near the "polymer pit" area onsite. BNA's and volatile compounds appear to be migrating very slowly offsite toward the south-southeast. The limits of migration, however, can not be clearly defined based on this data. Inorganic compounds were also found in the groundwater.

Inorganic elements were found in various concentrations in all media sampled. The wide-spread distribution of these compounds may be in part naturally occurring. Based on Phase I samples it is difficult to determine, at this time, if the site has contributed to the levels of inorganic compounds found.

Sampling has found some contamination in the lower aquifer. Overall, the quality of the lower aquifer is much better than the upper aquifer. However, this does not eliminate the possibility that downward migration of contaminants is occurring from the upper to lower aquifer. Like the upper aquifer, the lower aquifer also showed concentrations of inorganic chemicals.

RESIDENTIAL WELLS

Residential wells upgradient and adjacent to the site were sampled. No contamination, resulting from the site, was identified in the samples. The levels of inorganics detected in these samples are believed to be characteristic of background water quality or due to some undefined source. The results were reviewed by the Centers for Disease Control and sent to the well owners.

SURFACE WATER

Two ponds are located on site. All surface flow from the site enters these ponds. The ponds discharge to a drainage ditch that flows offsite to the south. Contaminants were detected in both ponds. The east pond, however, was found to have considerably higher concentrations of BNA's, volatiles and inorganic chemicals than the west pond. Surface waters from the site discharge to drainages that eventually flow towards the Berlin Reservoir located about 1 mile south of the site. Analytical results show little indication of downstream contamination except for the point immediately downstream of the site.

SEDIMENT

Sediment samples were collected from the two ponds onsite. The test results showed that sediments in the west pond contain more contaminants than those in the east — the opposite of surface water results.

Offsite sediment samples were collected at the same locations as surface water samples. The offsite sediment samples were generally more contaminated than offsite surface waters. The BNA analysis showed significant contamination upstream of the site, suggesting another source of contamination is probably contributing to the degradation of stream sediments.

The highest concentrations of volatile and inorganic compounds offsite were found in sediments from the small impoundment just downstream of the site. High concentrations of pesticides were found in the drainage ditch at the southeast corner of the site.

BURIED TANKS AND DRUMS

The Remedial Investigation also identified several areas where drums were potentially buried (Figure 1). Buried tanks are thought to be located in two areas: in the southwest corner of the site, and near the buildings in the northwest corner of the site. The content of these drums and tanks is unknown.

FUTURE ACTIVITIES AT THE SITE

This summer, EPA will collect and analyze more soil, sediment, surface water and groundwater samples (including residential and industrial well samples) to accurately define the extent of contamination from the Summit site. The additional work to be done in the second phase of the Remedial Investigation includes:

- Offsite Soil Tests — a sampling program will be conducted to collect and test soils in the area from residential, agricultural, industrial and mine spoils locations in the area.
- Onsite Soil Tests — Additional onsite soil samples will be collected. Additional borings are needed to define how deep soil contamination extends.
- Offsite Surface Water Tests — Further offsite surface water sampling will be conducted to better define migration of contaminants from the site.
- Onsite Surface Water Tests — Additional data will include water depths for the ponds, measured flows from the ponds, water surface elevations, and water quality samples.

GLOSSARY

Acetone — Is a colorless liquid with a sweetish odor. It is used as a solvent. Acetone is used in the production of lubricating oils and various pharmaceuticals and pesticides. Prolonged or repeated topical use may result in erythema and dryness. Inhalation may produce headache, fatigue, excitement, bronchial irritation, and in large amounts, narcosis.

Aquifer — A particular zone or layer of rock or soil below the ground surface that is capable of producing usable quantities of groundwater to wells and springs.

Base Neutral Acids (BNA's) — A group of organic compounds that are not volatile, i.e., they do not readily evaporate. BNA's tend to adhere to soil particles; they also move slowly through soils.

Fluorene — A derivative of coal tar and coke oven tars. It is a polycyclic aromatic hydrocarbon. It is not highly soluble in water but strongly adsorbs into soils and sediments. Little information is available on its toxicological effects.

Groundwater — The water beneath the earth's surface that flows through soil pores and rock openings.

Inorganic Compounds — Composed of mineral materials, including elemental salts and metals such as iron, aluminum, mercury, and zinc.

Organic Compounds — Composed of carbon, including materials such as solvents, oils and pesticides which are not generally readily dissolved in water.

Polychlorinated Biphenyls (PCB's) — Polychlorinated biphenyls (PCB's) are a family of organic compounds used since 1926 in electric transformers as insulators and coolants, in lubricants, carbonless copy paper, adhesives, and caulking compounds. They are also produced in certain combustion processes. PCB's are extremely persistent in the environment because they do not break down into new and less harmful chemicals. PCB's are stored in the fatty tissues of humans and animals through the bioaccumulation process. EPA banned the use of PCB's in 1976. In general, PCB's are not as toxic in acute short-term doses as some other chemicals, although acute and chronic exposure can cause liver damage. PCB's have also caused cancer in laboratory animals.

Remedial Investigation Feasibility Study (RI/FS) — The RI/FS is a two party study which is completed before cleanup can begin. The first part is: The Remedial Investigation (RI), which studies the nature and extent of the problem. The second part is the Feasibility Study (FS), which evaluates different methods of dealing with the problem and selects a preferred method that will effectively protect public health and the environment.

Sediment — Materials that settle to the bottom of a stream, creek, lake, or other body of water.

Toluene — Is a clear liquid with a sweet pungent odor. It is an adhesive solvent in plastic toys and model airplanes. It is used in the manufacturing of organic compounds, dyes and explosives. Toluene is used as a solvent for paints and coatings and a component of automobile and aviation fuels. Exposure to levels of the chemical necessary to produce physiological or toxicological effects would be anticipated primarily in occupational or solvent abuse (i.e., glue sniffing) situations. Local exposure may cause irritation and drying of skin. Acute exposure to toulene predominantly results in central nervous system depression.

Tricloroethene (TCE) — Trichloroethene (TCE) is a colorless, nonflammable liquid that is primarily used as a solvent in vapor degreasing. TCE is a potential carcinogen in humans.

Volatile Organic Compounds — A group of organic compounds characterized by their greater tendency to change to a gaseous phase.

- Buried Drums and Tanks — More work is planned to estimate the number of drums and tanks, their location, and their condition.
- Onsite Structures — Data will be collected to describe the size, condition and material of onsite structures.
- Groundwater — Additional data is required to define local hydrogeological and groundwater quality conditions. All existing wells will be resampled. Additional monitoring wells will be installed to assess groundwater immediately below the site and to determine the limits of offsite contaminant migration.
- Offsite Sediment Tests — Additional tests will include resampling of all initial sampling locations, and further sampling upstream of the site.
- Onsite Sediment Tests — The volume of onsite sediments will be estimated, and their level of contamination will be determined by more sampling.

After the data has been analyzed, EPA will perform a Feasibility Study to evaluate various alternatives for remedying contamination at the Summit site. A cost-effective method that protects public health and the environment will then be selected and designed.

AVAILABLE INFORMATION

This fact sheet is intended to summarize the first phase of the Remedial Investigation. A complete copy of the results is available for review at the U.S. Post Office in Deerfield.

Future updates will provide information on results of the second phase Remedial Investigation and Feasibility Study.

For more information on this site please contact:

Margaret McCue
Community Relations Coordinator
(312) 886-1728

Jay Plucinski
Remedial Project Manager
(312) 353-6316

U.S. Environmental Protection Agency, Region V
230 South Dearborn Street
Chicago, Illinois 60604
(800) 621-8431 (toll free)