
FINAL

DECISION DOCUMENT

BURNING FIELD (SOP-M)

FORMER SCIOTO ORDNANCE PLANT
MARION, OHIO

(FUDS NO. G05OH0980)

Prepared by:

U.S. Army Corps of Engineers
Louisville District
600 Dr. M.L. King Jr. Pl.
Louisville, KY 40202-2232



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ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
AR	administrative record
ARAR	Applicable or Relevant and Appropriate Requirements
bgs	below ground surface
CAP	Community Action Plan
CELRL	U.S. Army Corps of Engineers – Louisville District
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	contaminants of concern
COPC	contaminants of potential concern
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
Dr.	Drive
EPA	Environmental Protection Agency
EQM	Environmental Quality Management, Inc.
ft	foot or feet
FUDS	Formerly Used Defense Burning Field
gpm	gallons per minute
Jr.	Junior
MSL	mean sea level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	No Further Action
ng/kg	nanograms per kilogram
NTCRA	Non-Time-Critical Removal Action
OAWC	Ohio American Water Company
OFFO	Office of Federal Facilities Oversight
OH	Ohio
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyl
PIP	Public Involvement Plan
PRG	preliminary remediation goal
ppb	parts per billion
RAB	Restoration Advisory Board
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RGO	remedial goal objective
SARA	Superfund Amendments and Reauthorization Act
SOP	Scioto Ordnance Plant
SOP-M	Burning Field
SOP-O	sanitary waste disposal area
SRE	streamlined risk evaluation
SVOC	semi-volatile organic compound
TAL	Target Analyte List

TCDD	dioxin
TEQ	toxicity equivalent
U.S.	United States
USC	U.S. Code
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound

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1	Burning Field Location
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FINAL DECISION DOCUMENT
EXECUTIVE SUMMARY & APPROVAL SIGNATURE
FUDS G05OH098003

The former Scioto Ordnance Plant (SOP) Area of Concern SOP-M, the Burning Field, which encompassed approximately five acres west of Lucas Road and north of Linn Hipsher Road, was used under the jurisdiction of Department of Defense (DOD) for waste disposal from 1942 through 1943. The Burning Field meets the definition of Formerly Used Defense Site (FUDS) and DOD is responsible for execution of environmental restoration in accordance with CERCLA, as amended by SARA, and the NCP. The USACE Louisville District is responsible for the environmental restoration program at SOP-M and has determined that no additional remedial action is warranted.

The Burning Field was investigated for environmental impacts in 2001 and 2003 and it was determined that shallow soil would present an unacceptable human-health risk under residential-use exposure. During these investigations it was determined that the Burning Field did not present an unacceptable ecological risk. Further, a separate study (July 2007) specific to groundwater determined that former activity at SOP had not adversely impacted groundwater.

Contaminated soil was removed from the Burning Field in 2010. Analysis of post-removal soil samples demonstrated that contamination no longer presents an unacceptable human-health risk under the residential-use exposure scenario.

Because the property does not pose an unacceptable risk to human health and the environment the U.S. Army, in consultation with the Ohio EPA determined that the Selected Remedy of No Further Action is protective of human health and the environment. No additional environmental investigation or remediation will be performed.

POC Project Manager: Carla Heck, CELRL-PM-M-E, Carla.m.heck@usace.army.mil , Phone Number: (502) 315-3829

1.0 DECLARATION

1.1 Burning Field Name and Location

This Decision Document presents the Selected Remedy for the Burning Field (SOP-M) at the Former Scioto Ordnance Plant (SOP) in Marion, Ohio. The Burning Field encompassed approximately five acres west of Lucas Road and north of Linn Hipsher Road (see **Figure 1** for the location of SOP-M and other areas of concern (AOCs). The Burning Field and a sanitary waste disposal area (SOP-O) located across Lucas Road comprised the official waste disposal area for the former SOP from 1942 through 1943. The sanitary waste disposal area is not addressed by this Decision Document. It is not known when operations at the Burning Field ceased. The Burning Field is currently privately owned and used for corn and soybean production.

1.2 Statement of Basis and Purpose

The Remedy was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record (AR) for the Burning Field. Information not specifically summarized in this Decision Document or its references, but contained in the AR, has been considered and is relevant to selection of the remedy at the Burning Field.

1.3 Assessment of Burning Field

This Decision Document declares that no additional response action is necessary to protect human health and the environment from actual or threatened releases of hazardous substances, pollutants or contaminants from the Burning Field.

1.4 Description of Selected Remedy

No remedial action is necessary. The potential risk to human health is within the acceptable range as specified in the NCP for current and reasonably foreseeable future land use. This was determined via completion of a human health risk assessment that considered the farmer and resident exposure scenarios (EQM, 2011). It is also noted that groundwater at the Burning Field is not utilized for potable purposes.

No threatened or endangered species or signs of such species were observed on the Burning Field, and none were known or listed as potentially occurring on the Burning Field (MWH, July 2003). Therefore, the Burning Field is unlikely to present significant risks to important ecological receptors.

1.5 Statutory Determinations

No further action is necessary because the previous Non-Time Critical Removal Action (NTCRA) performed in October and November 2010 at the Burning Field eliminated the need to conduct further remedial action. A five-year review will not be required because the NTCRA removed hazardous substances, pollutants, or contaminants to levels that allow for unlimited use and unrestricted exposure.

1.6 Decision Document Certification Checklist

The following information is included in this Decision Document, Part 2: Decision Summary. Additional information can be found in the Administrative Record file for the Burning Field.

- Contaminants of Concern (COCs) and their respective concentrations (Section 2.5)
- Baseline risk represented by the COCs (Section 2.7)
- Remedial Goal Options (RGOs) established for COCs and the basis for these objectives (Section 2.9)
- Current and reasonably anticipated future land use assumptions used in the baseline risk assessment (Section 2.7)
- Potential land and groundwater use that will be available at the Burning Field as a result of the selected remedy (Section 2.7)
- Cost effectiveness and permanence of Selected Remedy (Section 2.14.3)
- Key factors that supported selection of the remedy (Section 2.14)

1.7 Authorizing Signatures

The Burning Field at the former SOP is real property that was formerly owned by the United States (U. S.) Government and under the jurisdiction of the Department of Defense (DoD). The former SOP was exsessed during 1946 through 1948 and is no longer owned by the U.S. Government. It therefore meets the definition of a Formerly Used Defense Site (FUDS). In accordance with *DoD Management Guidance for the Defense Environmental Restoration Program (DERP)*, the DoD is responsible for execution of environmental restoration actions in accordance with CERCLA, as amended by SARA and the NCP. The Secretary of the Army further delegated the program management and execution responsibilities for FUDS to the U.S. Army Corps of Engineers (USACE).

This Decision Document presents the Selected Remedy (no further action) for the Burning Area located at former SOP, located in the City of Marion, Marion County, Ohio. The Ohio EPA is the lead regulatory agency for restoration actions regarding this property. The Selected Remedy received concurrence from the Ohio EPA on 19 Sept 2011. The public was given an opportunity to review the Selected Remedy and after the statutory review time ended 18 November 2011, no public comments were sent to USACE for the selected remedy at the Burning Field.

This Decision Document will be incorporated into the Administrative Record (AR) for the Burn Area field property. The AR is available for public review at the Marion County Library located at 455 East Church Street; Marion, OH. 43302. Likewise, it is available at the USACE, Louisville District, 600 Dr. Martin Luther King Jr. Place, Louisville, Kentucky. Following finalization of this Decision Document the Permanent Record will be at USACE, Louisville District.

This document, verifying no further action is necessary, is approved by the undersigned, pursuant to memorandum DAIM-ZA, September 9, 2003, Subject: Policy for Staffing and Approving Decision Documents, and to Engineer Regulation 200-3-1, FUDS Program Policy.

Approved:


LUKE T. LEONARD
COL, EN
Commanding


DATE
(1-JUNE-2012)

2.0 DECISION SUMMARY

2.1 Burning Field Name, Location and Description

The Burning Field encompassed approximately five acres west of Lucas Road and north of Linn Hipsher Road (see **Figure 1** for location). According to the Archives Search Report, *Findings for the Former Scioto Ordnance Plant, Marion, Ohio* (USACE, 1998), the Burning Field and a sanitary waste disposal area (SOP-O) across Lucas Road comprised the official waste disposal area for the former SOP. These areas were used for waste disposal from 1942 through 1943. The sanitary waste disposal area is not addressed by this Decision Document. A circular incinerator was the key combustion element at the Burning Field. The type of waste burned is unknown. Burning activities may also have occurred outside of the incinerator. It is not known when operations at this Burning Field ceased or whether they continued during 1944 and 1945 when a nearby quarry became the main disposal area of production wastes.

The property is under private ownership in the County of Marion, Marion City, Ohio. The property is currently being used as farmland.

2.2 FUDS Program Summary

The Burning Field was located on real property that was formerly owned by the U. S. Government and under the jurisdiction of the DoD. After the conclusion of World War II in 1945 the SOP was permanently closed and the U.S. Government began to dispose of the property, with initial distributions beginning in February 1946. Between February and November 1946, fifty-six transfers totaling 7,213.231 acres were completed by the Federal Farm Mortgage Corporation. With the exception of 644.00 acres transferred to the City of Marion, these transactions represent the majority of the private owner transfers post-World War II. Since the excessing of the property in 1946, the facility has undergone a series of transformations. Property sold to the State of Ohio was developed as a prison complex which currently houses three correctional institutions and associated work areas for inmates. The property purchased by the City of Marion was developed into the Marion Airport and Industrial Park.

Since jurisdiction of the property was transferred from DoD prior to October 17, 1986, the property meets the definition of a FUDS. The USACE has executed environmental response actions for the property as the lead agency for DoD as specified in the DERP and authorized by U.S. Code (USC) (10USC 2701 et.seq.). The law authorizes the DoD to take action at “each facility or site which was under the jurisdiction of the Secretary and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances.” (10 USC 2701 (c)(1)(B)).

2.3 Burning Field History and Enforcement Activities

The former SOP is located one mile northeast of Marion, Ohio and originally comprised roughly 12,500 acres. The former SOP is bordered on the west by the Pennsylvania Railroad right-of-way, on the east by State Route 98, on the south by Fairgrounds Road and the Erie Railroad right-of-way, and on the north by Marseilles-Gallion Road. Present land use surrounding the former SOP includes commercial and light industry, sparsely-populated farmlands, and residential property. The Burning Field encompasses approximately five acres located west of Lucas Road and north of Linn Hipsher Road (Figure 1). The Burning Field is now a privately owned open agricultural field.

The Burning Field was investigated for environmental impacts in 2001 and 2003. A non-time-critical removal action (NTCRA) was conducted in 2011. Information from the investigations and the NTCRA can be found in the following documents:

Environmental Quality Management, Inc., 2010a. *Remedial Action Work Plan, Burning Field (SOP-M) and Incendiary Fuel Disposal Area (SOP-Z), Former Scioto Ordnance Plant, Marion, Ohio.*

Environmental Quality Management, Inc. 2010b. *Action Memorandum, Burning Field (SOP-M) and Incendiary Fuel Disposal Area (SOP-Z), Former Scioto Ordnance Plant, Marion, Ohio.*

Environmental Quality Management, Inc. 2011. *Remedial Action Completion Report, Burning Field (SOP-M) and Incendiary Fuel Disposal Area (SOP-Z), Former Scioto Ordnance Plant, Marion, Ohio.*

MWH, 2003b. *Level I Ecological Assessment Report for the Magazine Area (SOP-A), Burning Field (SOP-M), and Incendiary Fuel Disposal Area (SOP-Z).*

MWH, 2005. *Burning Field Inspection Report for SOP-D, SOP-E, SOP-F, SOP-H SOP-G SOP-J, SOP-L, SOP-V, SOP-AC, and SOP-AL, Former Scioto Ordnance Plant, Marion, Ohio.*

MWH, 2007. *High Explosive Igloos Groundwater Demonstration Final Report, Former Scioto Ordnance Plant, Marion, OH.*

MWH, 2009. *Engineering Evaluation/Cost Analysis Final Report for the Burning Field (SOP-M) and the Incendiary Fuel Disposal Area (SOP-Z).*

No actions, Federal or State enforcement actions, lawsuits or other pending actions apply to the Burning Field.

2.4 Community Participation

The Burning Field is one of 28 areas of concern (AOCs) located at the former SOP. Public Involvement Plans (PIPs) were developed to be implemented for use during completion of the necessary investigation and remedial actions at SOP. The community relations requirements were followed and are described below:

- USACE implemented routine Restoration Advisory Board (RAB) meetings that included interested community groups and maintains communications with the community leaders. (August 1998).
- USACE designated a Community Relations Spokesperson as the Co-Chair to the RAB to inform the community of actions taken, respond to inquiries, and provide information concerning the release. (August 1998)
- USACE updated the Community Action Plan (CAP) in May 2010 pursuant to 40 CFR 300.415 (n) (3) and 300.415 (n) (4).
- An Administrative Record has been maintained by USACE at the Louisville District office and at the Marion Public Library since 2000.
- Upon agreement of the Ohio EPA, a NFA Proposed Plan was placed in the SOP Administrative Record. (September 19, 2011).
- Public comments on the NFA Proposed Plan were solicited through a notice placed in the *Marion Star* (October 19, 2011). The Responsiveness Summary of this Decision Document notes that no comments were received (November 18, 2011).

2.5 Scope and Role of Remedial Action

The USACE serves as DoD Execution Agent for cleanup of FUDS nationwide. The USACE Louisville District (CELRL) is responsible for the environmental restoration program at the Burning Field. In accordance with the environmental restoration process as prescribed by CERCLA, CELRL has determined that no additional remedial action is warranted for the Burning Field property. This determination is supported by the findings of the *Remedial Action Completion Report, Non-Time-Critical Removal Action Burning Field (SOP-M)* (EQM, April, 2011).

The Selected Remedy presented in this Decision Document applies to the real property utilized for the Burning Field at former Scioto Ordnance Plant.

2.6 Burning Field Characteristics

2.6.1 Groundwater Pathway

Marion County can generally be divided into two areas according to groundwater availability. The western two-thirds of the county, including most of the former SOP, contains readily available groundwater supplies from the Delaware and Columbus Limestones due to their inter-crystalline and vuggy porosity. Yields for wells developed in these limestones exceed 100

gallons per minute (gpm). Local water well logs indicate that typical well depths vary greatly from 57 to 255 feet (ft) below ground surface (bgs).

Rocks underlying the remainder of the County, including the eastern side of the former SOP, yield minimal amounts of potable water where the Devonian-aged shale occurs beneath the clay-rich glacial till. In general, the till is relatively impermeable and not a viable source of potable groundwater. Secondary porosity associated with fractures can occur within the clay/silty clay material; however, the fractures do not result in significant well yields. Wells located in the area where limestone and dolomite are in direct contact with the glacial sediments yield approximately 10 to 50 gpm from depths of less than 80 ft bgs. The clayey till above the shale yields less than 4 gpm, and dry wells are not uncommon. Yields for wells developed in the limestone below the thick Devonian-age shale can exceed 400 gpm.

In bedrock, groundwater flows generally toward the southwest with localized divergent flow directions resulting from surface water inflow/outflow and well pumpage. Groundwater within the glacial till, where it occurs in discrete or continuous seams of coarse-grained materials within the otherwise clayey till, is anticipated to flow in a generally southwest direction, although very little direct evidence is available for flow direction in the vicinity of the former SOP.

2.6.2 Surface Water Pathway

The topography across the former SOP is relatively flat. Elevations range from approximately 970 to 1,015 ft above mean sea level (MSL). In general, the eastern portion of the former SOP is slightly higher than the rest of the area.

The former SOP is drained by several branches of Graves Creek. The Creek is a heavily channelized stream that originates primarily as non-point surface water drainage from agricultural lands within the watershed. The upper 6.2 miles of the creek (the portion flowing through the former SOP) are maintained as agricultural ditches by local landowners, per agreements with the Ohio EPA. Two main tributaries of Graves Creek drain the northern portion of the former SOP, joining together south of Marion-Williamsport Road. Graves Creek then flows south to join Rifle Creek and the combined flow joins the Olentangy River near the junction of State Route 98 and Whetstone River Road. The “Western” branch of Graves Creek flows west of the Burning Field.

In Marion County the upper reaches of Graves Creek are not attaining their designated aquatic habitat use classification (“modified warm water fish habitat”). This is attributed primarily to ditch maintenance conducted over this reach, which results in poor in-stream habitat quality, excessive sedimentation, and elevated nutrient levels due to runoff from surrounding agricultural lands. In the summer, the stream supports large growths of filamentous algae, due to both a lack of shade over the water body, and the surplus of nutrients. In addition to Graves Creek, there are several small ponds (primarily man-made farm impoundments) and drainage ditches scattered across the former SOP area.

Water used by the City of Marion for its municipal system is obtained from the Ohio American Water Company (OAWC). Water for this system is obtained from the Little Scioto and Scioto rivers and from 16 production wells located on OAWC property. These wells, located approximately 1.5 miles west of Marion, are used primarily to supplement the water supply system during dry periods when volume from the river intakes is reduced. Connection to the municipal system is optional, even if service is available in a particular area. As a result, some residents may use private groundwater supply wells for their primary source of drinking water, even though municipal water service is available. It is also possible that some residents in the area may use bottled water due to the poor groundwater quality attributable to the water bearing formations (i.e. high iron, sulfides, and hardness).

There are no natural surface water bodies located near the Burning Field, but a manmade pond is located at the residential property across from the Burning Field. Surface water runoff from the Burning Field is expected to infiltrate into the ground of the farm field or near the Burning Field within the shallow drainage ditches that convey surface water runoff from the field during heavy rain events. Surface water runoff from the Burning Field would not be expected to migrate to the residential property across the street from the property, because the road is elevated above the Burning Field grade and would provide a barrier to surface water migration.

2.6.3 Soil and Air Pathways

The Burning Field is currently used as a farm field and farming practices will have the greatest effect on the potential for exposure to soils. The primary pathway for human exposure to contaminants of potential concern (COPC) is expected to be direct contact (including incidental ingestion and inhalation of dust) of the surface soils, because of the limited potential for COPC migration from the Burning Field or accumulate in the types of crops grown in the field. The most likely period when human exposure to soil would occur would be when the fields are tilled and planted in the spring, or harvested and tilled in the fall. If the fields are dry during these times, it is possible that dust generation may occur, but the period of time this occurs would be expected to be short, which would limit the duration of exposure. During the summer months when the field is covered with crops there would be limited potential for soil exposure because human contact with the field would likely be limited and the crops would reduce the potential for dust generation.

Threats to the environment at the Burning Field were determined during completion of Level 1 Ecological Assessment (MWH, 2003b). The Level I Ecological Assessment determined that no sensitive habitats existed on-site that warranted further ecological evaluation (MWH, 2009).

2.6.4 Details Obtained From Burning Field Investigations

An electromagnetic survey was conducted in November 1998 at the northwest corner of the intersection of Linn Hipsher Road and Lucas Road to identify the locations of any buried metallic objects and/or areas of unusual soil conditions associated with the Burning Field. Prior to the 1998 investigation, the exact location of the Burning Field incinerator was unknown.

The electromagnetic survey identified five anomalies. Ten test pits were subsequently excavated at these locations to determine the source of the geophysical anomalies. One soil sample was collected from each test pit and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), explosives and target analyte list (TAL) metals. Neither VOCs nor SVOCs were detected at levels exceeding the project action levels [i.e., U. S. EPA Region IX Residential Preliminary Remediation Goals (PRGs)]. PCBs and compounds associated with explosives were not detected in any of the samples. Arsenic and manganese were the only metals detected that exceeded the project action levels or background concentrations. A change of horizon between clayey soils and a shale fragment rich soil layer is believed to be responsible for the anomalous areas identified by the electromagnetic survey.

In November 2001 eight surface soil samples, one waste sample (a composite of the gravel-sized black material visible on the ground surface throughout the Burning Field) and six subsurface soil samples were collected and analyzed for VOCs, SVOCs, TAL metals, explosives, nitrocellulose, nitroglycerin, perchlorate, dioxins (TCDD) and furans. Concentrations of several polynuclear aromatic hydrocarbons (PAH) [e.g., benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; chrysene; dibenz(a,h)anthracene; indeno(1,2,3-cd)pyrene; naphthalene; 2,3,7,8-TCDD; arsenic; and iron exceeded project action levels in one or more samples. Although arsenic and iron were identified as COCs, the data also suggested that elevated metals concentrations were naturally occurring, or the result of lead arsenate pesticide use, and not the result of improper disposal, spills, or releases.

The maximum toxicity equivalent (TEQ) 2,3,7,8-TCDD concentration [91.8 nanograms per kilogram (91.8 ng/kg)] in the surface soil samples was detected in surface soil sample SOPM-SUR07. The Region IX PRG for 2,3,7,8-TCDD was developed based on a one-in-a-million (1×10^{-6}) cancer risk for an exposed person under residential exposure assumptions (i.e., 30 years of exposure for 350 days per year). The maximum TEQ concentration would equate to a cancer risk of approximately two in one hundred thousand (2×10^{-5}) under a residential exposure scenario. Therefore, the dioxin cancer risk estimates are within the NCP risk range of 1×10^{-6} and 1×10^{-4} , where remediation can be considered, but is not required. Considering this comparison, the surface soils at the Burning Field would not pose a potential health concern to people, if the Burning Field was used for residential development in the future, based on the dioxin/furan concentrations alone. In addition, all the total TEQ dioxin soil concentrations are less than the 1,000 ng/kg [or 1 parts per billion (ppb)] the Superfund Dioxin Cleanup policy criteria (U. S. EPA 1989, 1998). This U. S. EPA policy states “One ppb (TEQs, or toxicity equivalents) is to be generally used as a starting point for setting cleanup levels for CERCLA remedial sites and as a PRG for remedial sites for dioxin in surface soil involving a residential exposure scenario.” For commercial/industrial exposure scenarios, a soil level within the range of 5 ppb to 20 ppb (TEQs) should generally be used as a starting point for setting cleanup levels at CERCLA remedial Burning Fields and as a PRG for remedial Burning Fields for dioxin in surface soil. These levels are recommended unless extenuating Burning Field-specific circumstances warrant a different level.”

Carcinogenic polynuclear aromatic hydrocarbons (PAHs) [i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, carbazole, chrysene, dibenzo(a,h)-

anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene] were detected at concentrations exceeding the project action levels in surface soil samples. The maximum concentration of the most carcinogenic PAH (i.e., benzo(a)pyrene) in the waste sample was over 10,000 times greater than its project action level. The project action levels for the carcinogenic PAHs were developed based on a one-in-a-million (1×10^{-6}) cancer risk for an exposed person under residential exposure assumptions (i.e., 30 years of exposure for 350 days per year). The maximum concentration of benzo(a)pyrene would equate to a cancer risk well over one in ten thousand (1×10^{-4}) under a residential exposure scenario. Considering this comparison, the surface soils at the Burning Field could pose a potential health concern to people if the Burning Field was used for residential development in the future. The risk associated with the current land use would be expected to be much lower, as limited soil exposure is likely to occur under present conditions. However, no restrictions have been placed on the Burning Field to preclude residential development in the future.

Agricultural crops grown in the field are not expected to accumulate PAHs and dioxins from surface soil because these chemicals are very water insoluble and tightly bound to soil organic matter, making it difficult to extract them from the soil. In addition, the primary crops grown on Burning Field are grains (i.e., corn and soybeans), which do not generally accumulate contaminants. If there were cases where root vegetables such as carrots or potatoes were grown in the field there would be a higher potential for exposure associated with the surface soils that adhered to these crops. However, these crops are not typically grown in this area and have not historically been grown in the field.

Groundwater sampling was not completed at the site. Groundwater sampling conducted at other similar sites (e.g., SOP-Z) did not determine that groundwater had been affected by the types of COCs at the Burning Field.

2.7 Current and Potential Burning Field and Resource Uses

The Burning Field is currently privately owned. The owner uses the Burning Field to grow soy beans and corn. There are no plans to change future use of the land.

2.8 Summary of Burning Field Risks

The threats to public health and welfare at the Burning Field were determined during completion of Streamlined Risk Evaluation (SRE) and are documented in the Burning Field Inspection Report for the Burning Field (SOP-M) (MWH, November 2003) as follows:

“Based on the comparison of surface soil concentrations to risk-based concentrations (i.e., Region IX residential soil PRGs), the surficial soils and waste material would be estimated to pose a potential risk, if the Burning Field were used for residential development in the future. Predicted risks based on the maximum surface soil concentrations of PAHs would be well above the 1×10^{-4} (one in ten thousand or 0.0001) cumulative cancer risk threshold used for evaluating

when removal action is likely warranted. The primary risk driver is the carcinogenic PAHs detected in surface soil and waste.”

The SRE concluded that there are no suspected public health and welfare threats associated with subsurface soil, surface water or groundwater.

In October and November 2010, a NTCRA was conducted by CELRL at the Burning Field to protect human health and the environment through the removal of soil contaminated carcinogenic PAHs. A total of 3,011.17 tons of contaminated soil were removed by a CELRL contractor. The area excavated was approximately one-half acre in size and was up to seven feet deep at the suspected location of the former incinerator. The soil was transported to the Crawford County Landfill in Bucyrus, Ohio for disposal as a non-hazardous waste. The Burning Field was backfilled by the owner with Ohio EPA-approved clean fill after the NTCRA was completed.

Following excavation of all visually contaminated soil, confirmational sampling was conducted at the bottom of the excavation to determine if the removal action had achieved its objective. The analytical results indicated that the concentrations of benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene in one or more post-removal confirmational samples exceeded the respective project action levels. Because some action levels were exceeded, a human-health risk assessment was prepared. The calculated human-health risk indicates that the Burning Field presents a cancer risk of 1.1×10^{-5} (i.e., 1.1 additional cancers per 100,000 exposed population) under a residential scenario for ingestion, dermal contact and inhalation (indoor and outdoor). The Ohio EPA has established that 1.0×10^{-5} (i.e. 1.0 additional cancer per 100,000 exposed population) or less is an acceptable condition for no further action.

Following discussions of the results between CELRL and Ohio EPA, it was determined that the remedial action had been completed and that the remedial objective had been met with the stipulation that the still minimally contaminated soil is buried beneath clean soil. Further, the Burning Field will continue to be used for crop production using a corn and soy bean rotation. Thus, there is no potential residential exposure to the contaminants in soil.

Burning Field sampling demonstrated that surface water and groundwater were not adversely affected at the Burning Field. Thus, these media do not present an adverse human health risk.

2.9 Remedial Action Objectives

Remedial Action Objectives (RAOs) may be developed for protection of human health and/or for protection of ecological receptors. The human health risk assessment using the maximum detected concentrations for PAHs under a residential scenario for ingestion, dermal contact and inhalation (indoor and outdoor) presented a human risk that is within the acceptable NCP risk range. With acceptable risk to residential receptors at former Burning Field property, RAOs are therefore not needed. Further a Level 1 Ecological Assessment for this property concluded there are no ecologically important terrestrial resources located at, adjacent to, or influenced by, former Burning Field.

2.10 Description of Alternatives

The former Burning Field property does not pose an unacceptable risk to human health and the environment. Therefore, a set of remedial action alternatives was not developed and evaluated. No further action is necessary.

2.11 Summary of Comparative Analysis of Alternatives

The former Burning Field property does not pose an unacceptable risk to human health and the environment. Therefore a set of remedial action alternatives was not evaluated. The U.S. Army, in consultation with the Ohio EPA, has determined that the no further action is necessary for protective of human health and the environment. No additional environmental investigation of remediation will be performed.

2.12 Principal Threat Wastes

No “principal threat” wastes as defined by the NCP [NCP 300.430(a)(1)(iii)(A)] were identified at former Burning Field property. Principal threat wastes include, but are not limited to: liquid source material, mobile source material, or highly-toxic source material.

2.13 Selected Remedy

No further action is necessary at the Burning Field.

2.14 Statutory Determinations

Based on the findings of investigations and risk assessments that have been completed, no further action is necessary. Hazardous substances, pollutants or contaminants have not been identified at concentrations that would prohibit unlimited use and unrestricted exposure.

2.14.1 Protection of Human Health and the Environment

Based on the findings of investigations and risk assessments that have been completed, no further action is necessary for protection of human health and the environment. Hazardous substances, pollutants or contaminants have not been identified at concentrations that would prohibit unlimited use and unrestricted exposure by human or ecological receptors.

2.14.2 Compliance with Applicable or Relevant and Appropriate Requirements

Based on the findings of investigations and risk assessments that have been completed, no further action is necessary. Applicable or Relevant and Appropriate Requirements (ARARs) are therefore not applicable.

2.14.3 Cost Effectiveness

The no further action is cost effective.

2.14.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

Based on the findings of investigations and risk assessments that have been completed, no further action is necessary. Hazardous substances, pollutants or contaminants have not been identified at concentrations that would prohibit unlimited use and unrestricted exposure by human or ecological receptors.

2.14.5 Preference for Treatment as a Principal Element

The statutory preference for treatment as a principal element does not apply to the Selected Remedy of no further action.

2.14.6 Five Year Review Requirements

Based on the findings of investigations and risk assessments that have been completed, the Selected Remedy for Burning Field is no further action. Hazardous substances, pollutants or contaminants have not been identified at concentrations that would prohibit unlimited use and unrestricted exposure by human or ecological receptors. Therefore, the requirement to review this action no less often than every five years after initiation of Selected Remedy does not apply [NCP 300.430(f)(4)(ii)]

2.15 Documentation of Significant Changes from Preferred Alternative of Proposed Plan

The Proposed Plan detailing the Selected Remedy of no further action for former Burning Field was released for public comment on 20 October 2011. No comments were received from the public during the 30-day comment period. Therefore, no significant changes to the preferred Alternative were necessary or appropriate.

3.0 RESPONSIVENESS SUMMARY

CELRL placed a Public Notice in the *Marion Star* soliciting comments on a NFA Proposed Plan for the Burning Field. A 30-day public comment period (October 19 to November 18, 2011) was provided. No comments were received. Consequently, no changes were made to the NFA Proposed Plan that will be implemented with approval of this NFA Decision Document.

There were no technical and legal issues that need to be discussed regarding the NFA decision at Burning Field.

4.0 REFERENCES

Environmental Quality Management, Inc., 2010a. *Remedial Action Work Plan, Burning Field (SOP-M) and Incendiary Fuel Disposal Area (SOP-Z), Former Scioto Ordnance Plant, Marion, Ohio.*

Environmental Quality Management, Inc. 2010b. *Action Memorandum, Burning Field (SOP-M) and Incendiary Fuel Disposal Area (SOP-Z), Former Scioto Ordnance Plant, Marion, Ohio.*

Environmental Quality Management, Inc. 2011. *Remedial Action Completion Report, Burning Field (SOP-M) and Incendiary Fuel Disposal Area (SOP-Z), Former Scioto Ordnance Plant, Marion, Ohio.*

MWH, 2003a. *Burning Field Inspection Report for the Burning Field (SOP-M).*

MWH, 2003b. *Level I Ecological Assessment Report for the Magazine Area (SOP-A), Burning Field (SOP-M), and Incendiary Fuel Disposal Area (SOP-Z).*

MWH, 2005. *Burning Field Inspection Report for SOP-D, SOP-E, SOP-F, SOP-H, SOP-G, SOP-J, SOP-L, SOP-V, SOP-AC, and SOP-AL, Former Scioto Ordnance Plant, Marion, Ohio.*

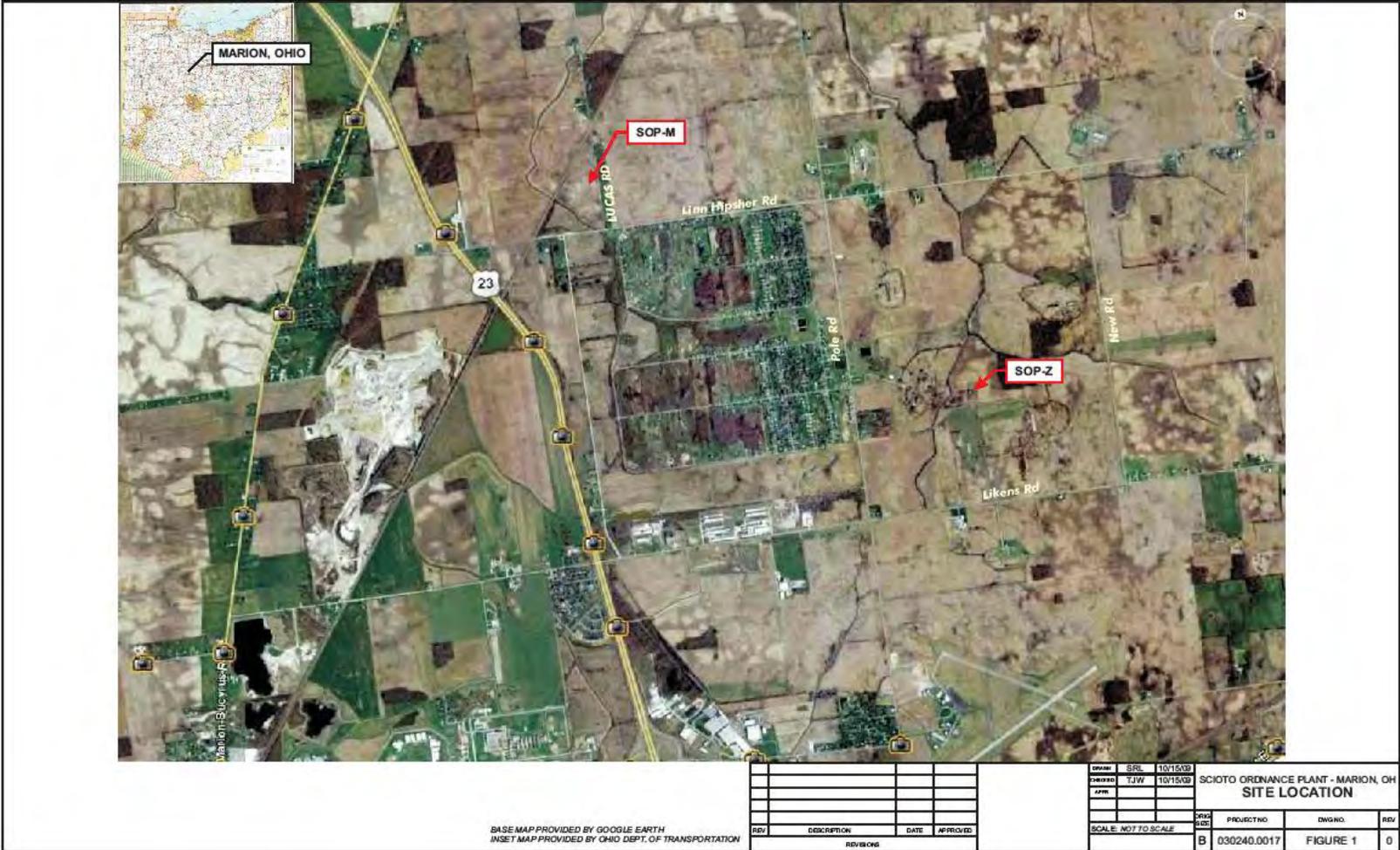
MWH, 2009. *Engineering Evaluation/Cost Analysis Final Report for the Burning Field (SOP-M) and the Incendiary Fuel Disposal Area (SOP-Z).*

USACE, 1998. *Findings for the Former Scioto Ordnance Plant, Marion, Ohio.*

U. S. EPA, April 1989. *Approach for Addressing Dioxin in Soil at CERCLA and RCRA Burning Fields (OSWER Directive 9200.4-26).*

U. S. EPA, April 13, 1998. *Approach for Addressing Dioxin in Soil at CERCLA and RCRA Burning Fields (OSWER Directive 9200.4-26).*

FIGURES



MARION, OHIO

SOP-M

SOP-Z

23

LUCAS RD

Linn Masher Rd

Pole Rd

New Rd

Likens Rd

BASE MAP PROVIDED BY GOOGLE EARTH
 INSET MAP PROVIDED BY OHIO DEPT. OF TRANSPORTATION

REV	DESCRIPTION	DATE	APPROVED

DATE	SRL	10/15/03	SCIOTO ORDNANCE PLANT - MARION, OH SITE LOCATION
DESIGNED	TJW	10/15/03	
CHECKED			
SCALE	NOT TO SCALE		
REV	DESCRIPTION	DATE	APPROVED
B	030240.0017		

FIGURE 1 0