

ERP Update

JUNE 2015

The Environmental Restoration Program

Columbus Air Force Base (AFB) is committed to being a responsible steward of the environment and to conducting the base's military mission in a matter that safeguards human health and the environment. A key component of this commitment is the Environmental Restoration Program (ERP).

The ERP is a congressionally authorized Department of Defense (DoD) program that began in 1984 and addresses past disposal sites on military installations in the United States. Through the ERP, both former and current DoD waste releases are identified, investigated, and cleaned up. Areas of potential releases are also evaluated. One ERP goal is to provide concerned citizens with timely and accurate information about cleanup activities through a community relations program.

The federal law that forms the basis of the ERP is the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. The Mississippi Department of Environmental Quality is the state agency providing regulatory oversight of the ERP program at Columbus AFB.

The ERP at Columbus AFB

The ERP at Columbus AFB began in 1984 when a preliminary assessment/site investigation (PA/SI) was performed at the base. The PA/SI identified 33 potentially contaminated sites within the Columbus AFB fence line. In 2009 and 2010, four additional sites were identified for inclusion in the ERP. All 37 sites managed in the Columbus AFB ERP are similar to sites being cleaned up at other airfields, both military and civilian, around the country. Currently, 27 of the 37 sites have been closed, 7 sites are in long-term maintenance, 2 sites are undergoing remedy augmentation, and 1 site is undergoing final remedy selection. Details on the 10 active sites are provided below.

Rail Spur RS034

The Rail Spur (RS034) operated from the 1940's through 1986 and was used for the delivery of fuels, building materials, and equipment to Columbus AFB. It was about 16,000 feet long and was separated into on-base and off-base parcels, (see the attached map).

No documented spills were reported from RS034. Environmental Site Assessments were completed in 2010 to assess the Off-Base portion of site.

History & Mission of Columbus AFB

Columbus began as a training facility for fighters and bombers in January 1942. The base was deactivated following victory in WWII. When war threatened the Korean peninsula, Columbus AFB was re-instated and again provided pilot training. The mission changed during the 1950s, and AFB became part of the Strategic Air Command and was home to B-52 bombers and KC-135 tankers flying in Vietnam.

Today, Columbus AFB is part of the Air Education Training Command and provides Specialized Undergraduate Pilot Training (SUPT), where students learn to fly. SUPT students spend an intensive 52-weeks immersed in classroom, simulator, and flight training.

Common fuel and rail related chemicals were found in soil in excess of regulatory screening levels and a Remedial Investigation (RI) was recommended. The RI sampling effort (on & off-base) consisted of both soil and groundwater sampling. The RI concluded that Polycyclic aromatic hydrocarbons (PAHs) exceeded regulatory criteria in both on-base and off-base soil samples. An Interim Removal Action (IRA) was conducted from December 2013 through June 2014, which removed soil contamination to levels within the EPA acceptable human health risk range. Feasibility Studies (FS) were conducted and confirmed that the

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Rail Spur RS034 (continued)

IRA was sufficient to reduce the human health risk to acceptable levels.

Because the IRA reduced the cumulative risk for both portions of the rail spur to within the EPA acceptable range, the proposed final remedy for the RS034 Rail Spur is No Further Action (NFA). The Proposed Plans (which are currently under review) summarize the proposed final remedy for the project. Once the Proposed Plans have undergone public and state review, Record-of-Decisions (RODs) will be developed for RS034 to document the final remedy (i.e. NFA).



**Top: Excavation of PAH-contaminated soil and ballast material.
Bottom: Site restoration of Off-Base portions of rail spur.**

Trichloroethene Plume (SS028)

Site SS028 is an area of environmental concern on the southern side of the base resulting from the long-term use of parts-cleaning solvents at the aircraft maintenance facilities along the flightline from 1958 to 1970. A remedial investigation in 1987 identified the site, and the source was identified in 1991. The remedial investigation conducted for the site in 1994 detected tetrachloroethylene (PCE), trichloroethene (TCE), 1,2-dichloroethylene, and vinyl chloride above drinking water standards in the shallow aquifer.

An evaluation conducted in 1999 determined that PCE and TCE would be chemicals of concern if the shallow groundwater was used for domestic purposes.

Former Weapons Maintenance Area (SS032)

SS032, a former weapons maintenance area located in the northwestern quadrant of the base, was identified by Columbus AFB as an area of environmental concern due to contamination by chlorinated solvents, including volatile organic compounds (VOC, TCE, and vinyl chloride). This is the largest active ERP site on base and covers an area of 360 acres, including a partially wooded industrial area. Nearby buildings were previously used for weapons maintenance in the 1950s and 1960s, possibly resulting in groundwater contamination.

Investigations between 1989 and 2005 determined the extent of contamination in the groundwater in the shallow, or surficial, aquifer. During 2001 investigations, chlorinated solvent contamination

was detected in the groundwater at concentrations above MDEQ regulatory limits, potentially posing a risk to human health and the environment.

Contamination was not identified in surface water, soil, or the deep aquifer (25-35 feet below the surficial aquifer).

A record of decision for SS032 was signed 22 January 2008, and the selected site remedy included injection of emulsified vegetable oil and bioaugmentation culture at the site to promote complete breakdown of contaminants to harmless by-products. Monitored natural attenuation of the groundwater will verify that contaminants do not migrate offsite.

Evaluation of the data has demonstrated that natural attenuation and contaminant breakdown is occurring onsite. However, two areas with elevated concentrations of chlorinated solvents remain.

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Former Weapons Maintenance Area (SS032) (continued)

Currently, remedy augmentation, which consists of additional injections of emulsified vegetable oil, bioaugmentation culture, and pH buffer, is being conducted at these two areas of SS032. Remedy augmentation was completed in April 2015, and performance monitoring is ongoing.

Land at SS032 will continue to be used for industrial operational activities, and Land Use Controls will prevent access to the groundwater until contamination is remediated.



Instrument-assisted surveys help to identify the locations of spent munitions requiring removal from the Munitions Demolition Area (OD033).

limited, while camping and construction is prohibited in the area.

Munitions Demolition Area (OD033)

Munitions Demolition Area OD033 consists of a former demolitions pit, a former small arms burn furnace, and the surrounding area used for the disposal of aircraft engine starter cartridges, flares, and various types of munitions materials. This area was used during, and possibly after, the Strategic Air Command presence from 1955 to 1969. After munitions demolition operations, inert munitions were apparently buried or spread in the vicinity of the demolition pit and burn furnace. The area was later used as a sand and gravel pit.

A record of decision was signed 10 June 2013 and Land Use Controls was selected as the final remedy to ensure that potential hazards associated with the site do not affect human health and the environment. The site is restricted as a designated wildlife management area with limited outdoor recreation, and future land use will continue to limit public access. Hiking and hunting is

The location of OD033 was identified in 1998, and a preliminary investigation was conducted to locate and remove any unexploded material. Surveys using magnetic location devices were conducted from 2000 to 2001 to locate spent munitions, and the base recycled approximately 5,800 pounds of scrap metal identified and removed in the cleanup. Samples taken from OD-33 demonstrated that contamination has not spread to the soil or the groundwater.

Several investigations have been performed on OD-33, including the most recent removal action in 2008.

Munitions or explosives were not encountered during this investigation, and all scrap metal encountered was recycled. Although all identified spent munitions debris has been removed, land use will be restricted due to possible debris in the subsurface.

Old Landfill 6

Site LF-06, a former sanitary waste and construction debris landfill, covers approximately 28 acres and is located in the southeastern portion of Columbus AFB, directly south of the main runway and near the main gate. The landfill was operated from 1964 through 1974 as a disposal area for sanitary trash, ferrous metal debris, concrete debris, and small volumes of industrial waste including solvent and petroleum, oils and lubricant waste.

The majority of the landfill area is covered with trees and dense vegetation, and the western portion is covered with grasses. Areas within the landfill contain partially buried debris, primarily construction waste. The landfill includes trenches 8-10 feet deep that were used for trash disposal. The LF-06 area is not currently used by the base, but the grassy area is regularly maintained.

There is concern that the landfill waste could affect one of the primary aquifers beneath the site. One

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aquifer, referred to as the “surficial” aquifer, is located at an average depth of 10 feet below ground surface across the site. A perched groundwater table (an aquifer that occurs above the regional water table) was detected in 1997 and possibly resulted in groundwater contamination. Groundwater flows to the west-southwest, but may also flow towards the south.

Groundwater quality for LF-06 was historically monitored under the Long Term Monitoring (LTM) Program. Groundwater sampling results collected during the last five years of the LTM Program have indicated decreasing concentration of chemicals of concern in the groundwater.

In January 2008, MDEQ approved monitored natural attenuation (MNA), long-term groundwater monitoring, and land use controls (LUC) for LF-06, and a record of decision (ROD) for the site was signed 18 February 2008. MNA reduces the toxicity, mobility, and volume of the chemical concentrations by using natural processes to reduce the contamination. Long-term groundwater monitoring confirms that the residual chemical plume is stable and poses no threat to surrounding areas. LUCs were enacted to limit land use, prohibit on-site construction, and prohibit groundwater use.

The USAF does not intend to build on LF-06, and the current land and groundwater restrictions are expected to continue until residual concentrations no longer pose a threat to human health or the environment.



Operated from 1964 through 1974 as a sanitary waste and construction debris landfill, Old Landfill 6 covers approximately 28 acres in the southeastern portion of Columbus AFB. The Record of Decision for Old Landfill 6 was signed in 2008.

Remaining Landfills in LTM

There are five additional landfill sites at Columbus AFB which are in the LTM program, including LF005 (1964-1967), LF007 1974-1976), LF009 (1943 to the early 1950s), LF010 (1956-1960), and LF012 (1962-1964). While these landfills operated at different times, the wastes received by each were similar and included base sanitary wastes, used oil, construction debris, and possibly waste solvents and other petroleum, oil, and lubricant (POL) waste.

Each landfill was covered with soil and is now heavily vegetated with grasses, brush, and trees.

These five landfills are sampled annually in October. The most recent round of sampling (2014) did not identify any constituents in groundwater above regulatory limits.

These five landfills do not have land use controls, but the USAF does not intend to build on them. Each landfill is inspected twice a year to ensure that the soil cover remains in place, no debris is present at the surface, and all monitoring wells are in good working order.

Table 1: Status of All ERP Site at Columbus AFB, Mississippi

Site #	Site Name	Material Spilled/Disposed	Dates of Operation	Status (June 2015)
FT001	Fire Training Area #1	<ul style="list-style-type: none"> • Jet fuel 	1971-1995	NFA
FT002	Fire Training -Area #2	<ul style="list-style-type: none"> • Jet fuel • Waste oil 	Late 1950s – 1971	NFA
FT003	Fire Training Area #3	<ul style="list-style-type: none"> • Jet fuel • Waste oil 	Early to mid 1950s	NFA
FT004	Fire Training Area #4	<ul style="list-style-type: none"> • Waste oil 	Early to mid 1950s	NFA
LF005	Old Landfill #5	<ul style="list-style-type: none"> • Sanitary trash, • Waste oil • Construction debris • Industrial wastes 	1964 – 1967	Long-term monitoring
LF006	Old Landfill #6	<ul style="list-style-type: none"> • Sanitary trash • Metal debris • Concrete • Industrial wastes 	1964-1967	<ul style="list-style-type: none"> • Long-term monitoring • Land Use Controls • ROD signed 18 Feb 08
LF007	Old Landfill #7	<ul style="list-style-type: none"> • Sanitary trash • Construction debris 	1974-1976	Long-term monitoring
LF008	Filter Burial Site	<ul style="list-style-type: none"> • B-52 air filters, possibly with low-level radioactivity 	Late 1950s	NFA
LF009	Old Landfill #1	<ul style="list-style-type: none"> • Solid debris • Concrete • Metal • Large Trees • Sanitary fill • Incinerator ash • Industrial wastes 	Mid 1940s – early 1950s	Long-term monitoring
LF010	Old Landfill #2	<ul style="list-style-type: none"> • Sanitary waste • Solid debris • Metal • Industrial wastes 	1956 – 1960	Long-term monitoring
LF011	Old Landfill #3	<ul style="list-style-type: none"> • Construction debris 	1960 – 1961	NFA
LF012	Old Landfill #4	<ul style="list-style-type: none"> • Sanitary waste • Airplane parts • Waste oil • Industrial wastes 	1962 – 1964	Long-term monitoring
ST013	322 UST Area (10 USTs)	<ul style="list-style-type: none"> • Jet fuel • Diesel • Gasoline 	Early 1940s – 1992	NFA
ST014	732 and 734 UST Area	<ul style="list-style-type: none"> • Heating fuel 	1945 – 1988	NFA
ST015	371 and 372 UST Area	<ul style="list-style-type: none"> • Heating fuel 	1945 – 1988	NFA
ST016	854, 871, and 874 UST Area	<ul style="list-style-type: none"> • Heating fuel 	1945 – 1988	NFA
ST017	900 and 1004 UST Area (6 USTs)	<ul style="list-style-type: none"> • Diesel • Gasoline • Heating fuel 	1945 – 1988	NFA
ST018	935 UST Area	<ul style="list-style-type: none"> • Heating fuel 	1945 – 1988	NFA
ST019	1022 and 1050 UST Area	<ul style="list-style-type: none"> • Fuel 	1945 – 1988	NFA

Table 1 (continued): Status of All ERP Site at Columbus AFB, Mississippi

Site #	Site Name	Material Spilled/Disposed	Dates of Operation	Status (June 2015)
ST021	1806, 1808, 1810, and 1816 UST Area	<ul style="list-style-type: none"> • Heating fuel • Waste diesel 	1960 – 1988	NFA
ST022	1944 UST Area	<ul style="list-style-type: none"> • Fuel oil 	1962 – 1988	NFA
ST023	Fire Training Area #2 UST	<ul style="list-style-type: none"> • Waste fuels 	Late 1950s – 1971	NFA
ST024	AAFES Service Station	<ul style="list-style-type: none"> • Unleaded Gasoline 	1958-1988	NFA
SS025	Entomology Shop Drainage	<ul style="list-style-type: none"> • Herbicides • Pesticides 	1959 – 1991	NFA
SS026	Fuel Tank Farm	<ul style="list-style-type: none"> • Jet fuel • Diesel • Lubricating oil 	1960s – present	NFA
DP027	Demolition Pit #1	<ul style="list-style-type: none"> • Small arms ammunitions 	Unknown – 1967	NFA
SS028	Trichloroethene Plume	<ul style="list-style-type: none"> • Parts cleaning solvents 	1958 – 1970	<ul style="list-style-type: none"> • ROD signed 6 June 2013 • Long-term monitoring • Land Use Controls • Remedy augmentation in progress
SS029	Flightline Hydrant System and Pump Houses 1 and 2	<ul style="list-style-type: none"> • Fuels 	1940s – present	NFA
SS030	Hydraulic Equipment Storage Area	<ul style="list-style-type: none"> • Hydraulic fluid 	1960s – 1992	NFA
SS031	Outdoor Firing Range	<ul style="list-style-type: none"> • Small arms ammunition 	Unknown	NFA
SS032	Former Weapon Maintenance Area	<ul style="list-style-type: none"> • Parts cleaning solvents 	1959 – 1969	<ul style="list-style-type: none"> • ROD signed 22 Jan 08 • Injections of vegetable oil and bioaugmentation culture to reduce source concentrations • Long-term monitoring • Remedy augmentation in progress
OD 033	Munitions Demolition Area	<ul style="list-style-type: none"> • Munitions fragments • small arms ammunition • engine starter cartridges • flares • 0.050 caliber rounds 	1950s – 1960s	<ul style="list-style-type: none"> • Land Use Controls • ROD signed 10 June 2013
TS840	Skeet Range 1	<ul style="list-style-type: none"> • Training range for aircraft gunnery practice 	1940s -1950s	NFA

Table 1 (continued): Status of All ERP Site at Columbus AFB, Mississippi

Site #	Site Name	Material Spilled/Disposed	Dates of Operation	Status (June 2015)
TS841	Skeet Range 2	<ul style="list-style-type: none"> Recreational skeet range 	1960s - 1981	NFA
SR839	1,000-Inch Range	<ul style="list-style-type: none"> Combination rifle, pistol, and 1,000-inch machine gun range 	1940s – 1950s	NFA
RS034	Former Rail Spur	<ul style="list-style-type: none"> Rail spur which delivered fuel, building materials, and equipment to base 	1940s – 1986	<ul style="list-style-type: none"> Proposed Plan in progress

Notes: NFA - no further action ROD - record of decision
RI - remedial investigation UST - underground storage tank

Community Involvement at Columbus AFB

The Community Relations Plan

Columbus AFB welcomes and encourages community participation through- out the ERP process. To ensure that the needs of the community are recognized and addressed, Columbus AFB maintains a Community Relations Plan (CRP). The CRP for Columbus AFB was updated in August 2011.

An integral part of the environmental cleanup process, the Columbus AFB CRP is designed to foster an open channel of communication between the Air Force and the community. Assisting area residents, interested groups, and local organizations in providing input into the cleanup process, the Columbus AFB CRP is structured to allow modifications to be made in response to the changing needs of the community. As such, it is a living document.

Administrative Record

Columbus AFB maintains an Administrative Record, a legal record of significant correspondence and reports regarding environmental restoration activities. Consisting of non-circulating documents, the Administrative Record for Columbus AFB is maintained within the base Environmental section.

Information Repository

An Information Repository is a set of documents that contain important facts about environmental site cleanup such as those at Columbus AFB. The Information Repository contains the same documents found in the Administrative Record. The Information Repository is not a legal record but is intended only to provide the public with

an additional source of information about environmental activities at the Base. The Columbus AFB Information Repository is located at:

Columbus-Lowndes
Public Library 314
North Seventh Street
Columbus, MS 39701
662-329-5300

Steps in the Installation Restoration Process

Step	Description
Preliminary Assessment/ Site Investigation (PA/SI)	The Installation Restoration Program (ERP) begins with investigations that determine if the site poses enough potential risk to warrant further study and investigation.
Remedial Investigation/ Feasibility Study (RI/FS)	If results of the PA/SI warrant further investigation, a more in-depth investigation, called a remedial investigation , is conducted to assess the extent and nature of the contamination and the potential risks involved. In conjunction with the RI, a feasibility study report is prepared to examine and evaluate various remedial alternatives.
Proposed Plan	The proposed plan summarizes the preferred cleanup/remedial strategy and reviews the other considered alternatives. This is a very important step because the proposed plan is presented to the public for review and comment. Public comment can be made on all remedies considered by the Air Force and associated regulatory agencies during a 30-day comment period. During this comment period, the Air Force will be available to the public to answer questions concerning the proposed plan and will hold a public hearing to solicit verbal and written comments.
Record of Decision (ROD)	The ROD is a formal document that explains the final remediation alternatives to be implemented for a particular site. The ROD takes into consideration public comments on the proposed plan and community concerns.
Remedial Design	The remedial design includes the engineering plans and specifications for implementing the remedial action.
Remedial Action	The remedial action is the control measure or combination of control measures that are implemented as a remedy to prevent or mitigate chronic site contamination problems.



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For More Information

To learn more about the Installation Restoration Program at Columbus AFB, contact:

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If you would like to read past reports on the technical aspects of ERP at Columbus AFB, please stop by the Information Repository at the Columbus-Lowndes Public Library.

Columbus Lowndes Public Library
314 North Seventh Street
Columbus, MS 39701

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