Columbus Air Force Base, Mississippi Environmental Restoration Program Update April 2017

Columbus Air Force Base (AFB), Mississippi, 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 (MDEQ) 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, 28 of the 37 sites have been closed, 7 sites are in long-term maintenance and 2 sites are undergoing remedy augmentation. Details on the nine active sites are provided herein.

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 World War II. When war threatened the Korean peninsula, Columbus AFB was reinstated and again provided pilot training. The mission changed during the 1950s, and Columbus AFB became part of Strategic Air Command and was home to B-52 bombers and KC-135 tankers flying in Vietnam.

Today, Columbus is part of Air Education and 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.

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-dichloroetheylene, and vinyl chloride above drinking water standards in the shallow aquifer. Previous investigations and human health risk assessments have determined that groundwater at SS028 could pose unacceptable levels of risk if used for domestic purposes.

A record of decision for SS028 was signed on June 6, 2013, and the selected remedy was a combination of two alternatives: land use controls with long-term-management (LTM) and monitored natural attenuation (MNA) for the remediation of contaminants of concern in groundwater. Previous investigations and long-term groundwater monitoring have demonstrated that MNA is occurring at SS028,

Typical injection point set-up is used during remedy augmentation on site SS028.

and chlorinated VOCs are actively being removed by natural processes.

In order to accelerate MNA at the site, remedy augmentation was conducted between October 2014 and January 2015 at five areas at SS028 with the highest remaining concentrations of PCE and TCE. Remedy augmentation consisted of subsurface injection of emulsified vegetable oil, pH buffer, and bioaugmentation cultures. These compounds promote optimal conditions for natural processes to degrade contamination. Post-injection groundwater monitoring data indicate that the contaminant mass is being destroyed in the treatment areas and that contaminant concentrations have decreased. Performance monitoring at SS028 will continue at an annual frequency.

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 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 drinking water standards, 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 on Jan. 22, 2008, and the selected site remedy included injection of emulsified vegetable oil and bioaugmentation cultures at the site to promote complete breakdown of contaminants to harmless by-products. Monitored natural attenuation of the groundwater verifies that contaminants do not migrate offsite.

Evaluation of long-term monitoring data has indicated that natural attenuation and contaminant breakdown is occurring onsite. However, two areas with elevated concentrations of chlorinated solvents remain. A remedy augmentation, consisting of additional injections of emulsified vegetable oil, bioaugmentation cultures, and pH buffer, was completed at these two areas of SS032 in April 2015. Post-injection groundwater monitoring data indicate that the contaminant mass is being destroyed in the treatment areas and that contaminant concentrations have decreased. Performance monitoring at SS032 will continue at an annual frequency until all contaminants are below regulatory levels for two years.

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.

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 June 10, 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 limited, while camping and construction is prohibited in the area.

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 OD033 demonstrated that there was no contamination in the soil or groundwater.

Several investigations have been performed on OD033, 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.

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

Old Landfill 6

Site LF06, 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 currently 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 LF06 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 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 (a body of water that is separate from but sits underground 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.

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.

Groundwater quality for LF06 was historically monitored under the Long-Term Management (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 LF06, and a record of decision (ROD) for the site was signed Feb. 18, 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.

Long-term monitoring results have indicated extremely low-level to non-detect concentrations of contaminants at LF06. Since there is effectively very little contamination at the site to attenuate, a recommendation to discontinue evaluation of MNA at LF06 was approved by MDEQ in November 2015.

The U.S. Air Force does not intend to build on LF06, 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.

Remaining Landfills in Long-Term Management

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. The most recent round of sampling (2016) did not identify any constituents in groundwater above regulatory limits.

These five landfills do not have land use controls explicitly implemented, but the Air Force does not intend to build on them. Land use, soil disturbance, and groundwater use are restricted. Each landfill is inspected once 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.

Community Involvement at Columbus AFB, Mississippi

The Community Relations Plan

Columbus AFB welcomes and encourages community participation throughout the ERP process. To ensure that the needs of the community are recognized and addressed, Columbus AFB maintains a Community Relations Plan (CRP), located at the Columbus-Lowndes Public Library. The CRP for Columbus AFB was updated in April 2017.

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 Columbus AFB Administrative Record is maintained in the base Environmental section. You can also access the Air Force's Administrative Record online at:

http://afcec.publicadmin-record.us.af.mil/.

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

For More Information

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

Sonic Johnson
Public Affairs Officer
14 FTW Public Affairs Office
555 Seventh Street, Suite 210
Columbus AFB MS 39710-1009

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

Columbus AFB, Mississippi