

147th Attack Wing Ellington Field Joint Reserve Base Texas Air National Guard Installation Restoration Program Update Spring 2022

Background

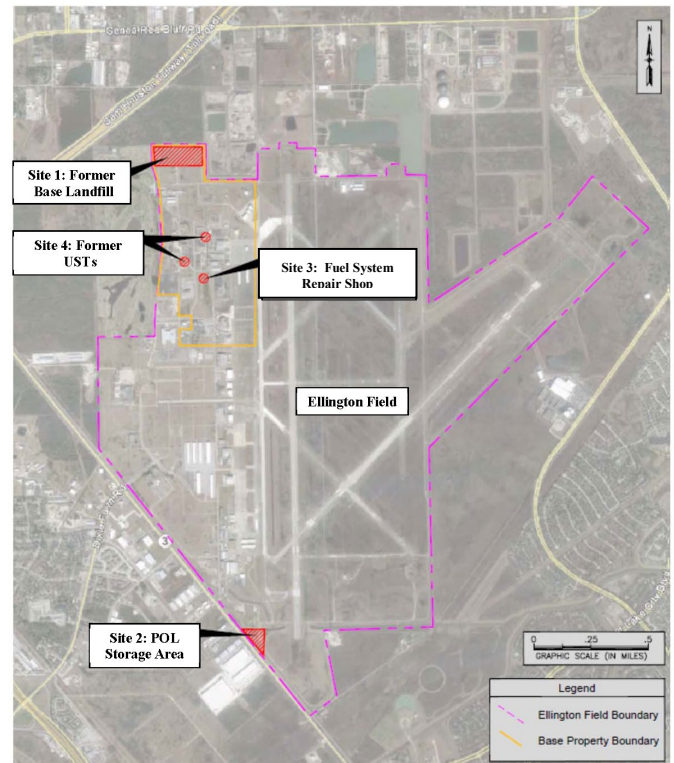
The 147th Attack Wing of the Texas Air National Guard is providing this update to provide information on the latest actions taken to manage and remediate contamination related to historical Base activities in order to meet current regulatory requirements to ensure safety to the health of personnel and the environment.

Past and present operations at the Base have involved use and disposal of hazardous materials, including fuels, oils, paints, and solvents. There are four Environmental Restoration Program (ERP) sites that were identified at the Base. They are: Site 1, the Former Base Landfill, Site 2, The Petroleum, Oil, and Lubricant Storage Area, Site 3, The Fuel System Repair Shop, and Site 4, The Underground Storage Tank Area near buildings 1380 and 1255. There are also seven Military Munitions Response Program (MMRP) sites that have been identified at the Base: the Small Arms Range, the Skeet Range (two sites), the North Munitions Dump Site, the South Munitions Dump Site, the Ordnance Storage Area, the Small Arms and Flare Storage Magazines; shown on page 2 of this bulletin.

All of the ERP sites are closed with no further action required by the Texas Commission on Environmental Quality (TCEQ), except for annual visual inspection to ensure that ERP Site 1 remains as designed.

Remaining ERP Site Receiving Annual Inspection/Monitoring

The landfill site is approximately nineteen acres and is bordered by a golf course to the west and an undeveloped wooded area to the north, a commercial sand pit to the east, and additional base property to the south.



The landfill was used by the United States Air Force from 1942 until 1974. In October 2009, the TECQ approved a Post-Response Action Care Report and agreed that conditional

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completion of response actions at Site 1 had been carried out in accordance with state regulations.

As part of the landfill closure process, grading of the earthen cover was performed. After grading was completed, the landfill must be inspected annually for 30 years, and an inspection report must be submitted every three years to TCEQ. The 9th year annual inspection was accomplished as required in March 2019.

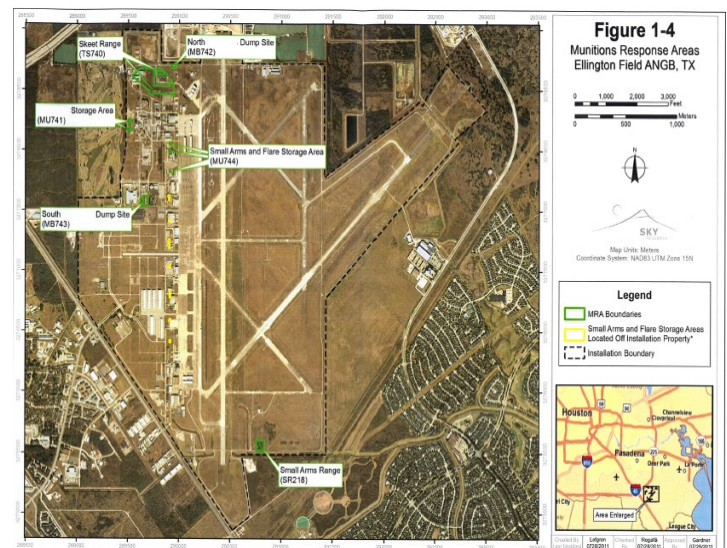
Remedial Investigation of the North Munitions Dump Site Began and Ended in July 2013

The goal of the MMRP is to make munitions response sites safe for reuse and to protect human health and the environment in the process. The MMRP addresses the munitions and explosives as well as hazardous substances, pollutants, and contaminants that may be associated with MMRP sites.

If you have questions please call:

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Base Environmental Manager
Ellington Field Joint Reserve Base
281-929-2013 or
SMSGt Sean Cowher
Public Affairs Operations Chief
Ellington Field Joint Reserve Base
(281) 929-2662

The RI began and was halted in July 2013 in order to establish a new work plan. The investigation did establish that munitions parts had been buried at the site, no explosives were discovered. Complicating matters was a layer of metal at the 2 foot line which made the proposed method of removal impossible. A new work plan will be created in order to continue with the remedial investigation at the Site.



Final MMRP/LEAD Removal Actions for MB742 and TS740b approved by TCEQ

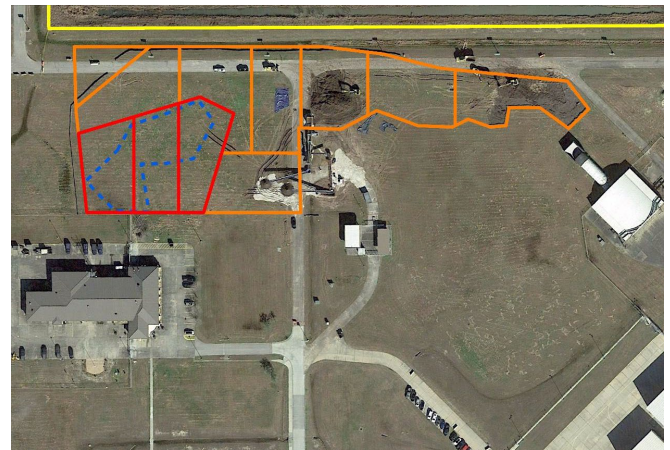
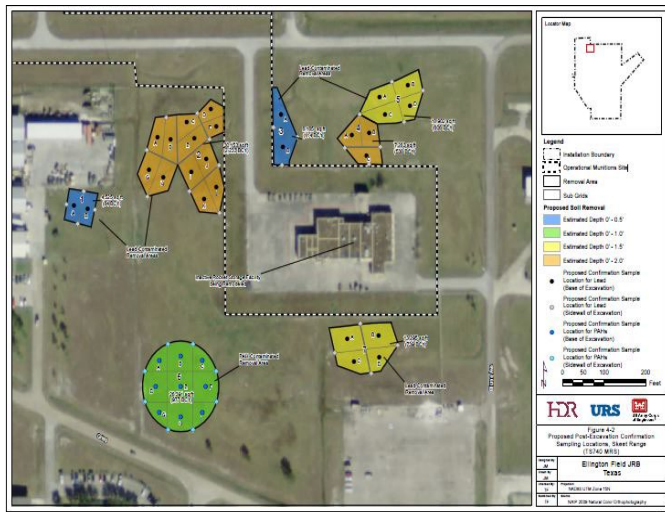
Site TS740 MRS is associated with a skeet range that was operational from early 1940's to mid 1960's. Proposed media of concern consist of lead and hydrocarbons. Project scope was to remove these materials from the site, properly dispose of them, and re-establish the soils at the site to Texas Risk

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Reduction Program (TRRP) Protective Concentration Levels (PCL) levels for residential soils so that future construction and activities will not be impacted. Remediation was completed and removed six (6) lead contaminated areas and one (1) polynuclear aromatic hydrocarbon (PAH) area in site 6. Site 1 consisted of a plot equating to 4,525 square feet (SF). Site 2 consisted of a plot equating to 30,153 SF. Site 3 consisted of a plot equating to 6,165 SF. Site 4 consisted of a plot equating to 7,284 SF. Site 5 consisted of a plot equating to 10,902 SF. Site 6 consisted of a plot equating to 26,391 SF. Finally, site 7 consisted of a plot equating to 13,295 SF. Excavations for all areas are did not exceed 2 feet in depth.

are below the NTCRA criteria for lead, confirmation soil samples will be submitted to an off-site laboratory for lead analysis to verify that concentrations are below the NTCRA criteria. Confirmation soil samples were analyzed for PAHs in the PAH-contaminated removal area of the TS740 MRS to verify that remaining soil is below the NTCRA criteria.

MB742 (Orange) & TS740b (Red/Blue) Sites



MB742: The MRS is 2.67 acres in size and is a debris burial site with munitions that were discovered by Base personnel when construction workers digging in the area recovered munitions debris (MD) that appeared to be remnants of World War I era terra cotta practice bombs. The components of these practice bombs include a terra cotta body with fins, a spotting charge (7/8 inch by 9 inches), and a 12-gauge shotgun shell firing mechanism. The current configuration of the MRS is based on the results of the 2009 Comprehensive Site Evaluation (CSE) Phase II geophysical survey; 2013-2014 Remedial Investigation (RI) intrusive investigation and geophysical survey; and the 2017 interim removal action (IRA). In addition to terra cotta

During soil excavation, an X-ray fluorescence (XRF) analyzer was used in the field to determine lead concentrations. Soil above the NTCRA criteria for lead in residential soils (i.e., 358 milligrams per kilogram [mg/kg]) will be excavated and disposed off-site. If XRF results

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practice bomb MD, a single MK II 17-pound practice bomb MD item was found in the subsurface during the RI.

TS740b: The MRS is 0.94 acres in size, located adjacent to MB742 MRS, and both MRSs are encompassed within the estimated extent of a subsurface metallic layer identified during the RI. The TS740b MRS also encompasses areas where lead-contaminated soil (LCS) could not be completely removed during the 2014 IRA for the Skeet Range (TS740) MRS due to the discovery of MD, consisting of a terra cotta practice bomb. The LCS areas overlap the subsurface metallic layer at MB742 MRS and were therefore included in the RI to address the potential presence of subsurface munitions, as well as the exposure to existing LCS. The skeet range was operational from the early 1940s to the mid-1960s, utilizing 12-, 20-, and 28-gauge shotgun cartridges. TS740b MRS is at the outer edge of the former skeet range fan.

Interim Removal Actions:

The IRA was completed to achieve the following removal action objectives (RAOs) at MB742 and TS740b MRSs:

- Prevent human receptor exposure to subsurface MEC/MD.
- Prevent human receptor exposure to lead above the Texas Risk Reduction Program (TRRP) Tier 2 Protective Concentration Level (PCL) of 358 milligrams per kilogram (mg/kg) in surface and shallow subsurface soils.

The RAOs were achieved by excavating and sifting soil to remove MEC and MD using an excavator, multi-screening unit, and conveyor-belt inspection line. After processing, LCS was transported and disposed off-site. Other activities included backfill of excavated areas, asphalt road replacement, site grading, and re-vegetation. A total of approximately 16,606 bank cubic yards (BCY) of soil (including LCS) was excavated and sifted to remove MEC and MD and approximately 23,191 loose cubic yards (LCY) of soil was processed through the sifting plant. One MEC item was found and disposed; 4,252 MD items were recovered, demilitarized, and disposed/transferred after certification as Material Documented as Safe (MDAS):

- One (1) War Head Rocket 2.75" MK 1 with M176 Fuze (MEC)
- 4,236 MK1 Terra cotta Bombs / Frag (MD)
- Eight (8) Terra cotta Fuzes (MD)
- Three (3) MK2 17-lb Bombs (MD)
- Two (2) 30-mm Casings (MD)
- Three (3) AN-M41A1 (M48) Fragmentation Bombs (MD)

Approximately 1,245 BCY of LCS, weighing 1,764.88 tons, was disposed offsite at the Blue Ridge Landfill. The analytical results of final confirmation samples were below the TRRP Tier 2 PCL of 358 mg/kg.

The TCEQ approved the final site-specific removal action report and concurred that Texas Risk Reduction Program (TRRP) Remedy Standard A-Residential has been attained in MB742, TS740b Areas 4 and 5

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such that no post response action care, and no further action (NFA) is required pursuant to 30 TAC §350.33. Based on our review the TCEQ approves the final version of the No Further Action Record of Decision Report and letter dated 30 Sep 19.

Perfluorooctane Sulfonate (PFOS) & Perfluorooctanoic Acid (PFOA) Study (PA) / Surface Investigate (SI)

In May 2016, a Preliminary Assessment (PA) was accomplished to document historical potential for soil, groundwater, sediment and surface water contamination. The PA determined that Ellington has 9 Potential Release Locations (PRL), based on the Texas Commission on Environmental Quality (TCEQ) and EPA detectable screening limits. In December 2018, a follow-up Site Inspection (SI) was conducted on-Base to determine if PFOS/PFOA contamination occurred at the 9 PRLs.

The analysis included the EPA's Third Unregulated Contaminant Monitoring Rule (UCMR3) which included the following Contaminants of Concern (CoC): Perfluorooctane sulfonate (PFOS), Perfluorooctanoic acid (PFOA), perfluorobutane sulfonate (PFBS), perfluorononanoic acid (PFNA), perfluoroheptanoic acid (PFHpA), and perfluorohexane sulfonate (PFHxS).

Those CoC will collectively be referred to as "PFAS", and were evaluated at each of the PRLs. PFOS/PFOA compounds were detected above the laboratory detection limits in soil, groundwater, sediment, and surface water samples collected during the SI.

The PFOS/PFOA compounds were detected in groundwater and surface water samples from four downgradient monitoring wells (MW-ELL01-01, MW-ELL02-02, MW-ELL06-01, MW-ELL06-02) and three surface water samples (ELL07-SW1, ELL08-SW1, ELL10-SW1). The screening results indicate the presence of these PFOS/PFOA compounds in concentrations that exceed the screening criteria.

The final recommendations to date include a to be scheduled Remedial Investigation / Feasibility Study (RI/FS) which will be conducted to further investigate all 9 PRLs to determine the nature and extent of PFOS/PFOA contamination. The RI portion will be scheduled by ANG/A4VN when funding becomes available and scheduling can be further defined.

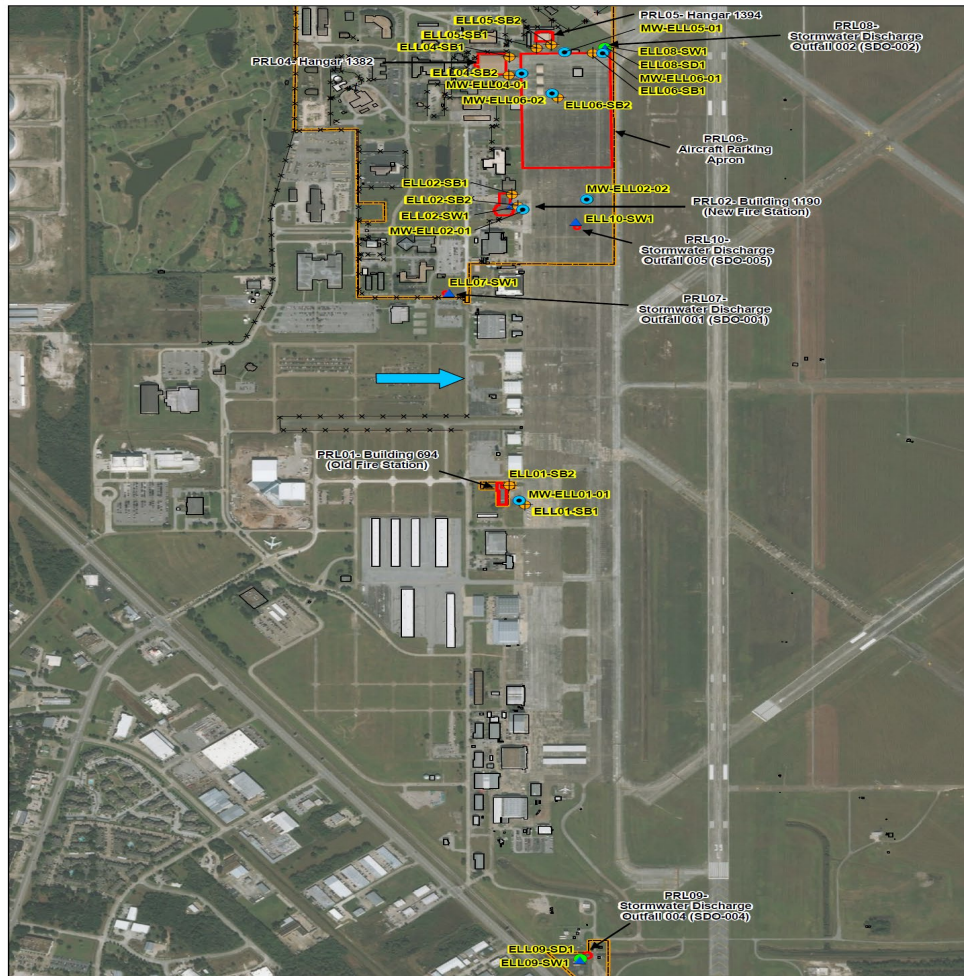
The base well locations and subsurface water flow are provided in the mapping on the next page. These wells have been added to the base real property records and are inspected visually/documentated on an annual bases. To date, no inquiries have been received from the community or any regulatory agency.

Annual documented inspections are

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conducted on the existing wells to ensure that they have not been altered or destroyed. On 15 Feb 22, The Air Force completed the Relative Risk Site Evaluation (RRSE) for the Ellington Field Air National Guard Base (ANGB), Texas, to support sequencing/funding of environmental restoration work. When the term "Air Force" is used in this public notice, it includes the Air National Guard. The RRSE process is used to evaluate the relative risk posed by an environmental restoration site in relation to other sites within the Air Force proper. At Ellington Field ANGB, five restoration sites were evaluated in the current RRSE. The Overall Site Category results for sequencing of evaluation were three "High" two "Medium" and zero "Low" categories. These results highlight the analyzed media concentrations at the potential release locations (PRL) and not related to human receptors. This fact is consistent with the City of Houston Water Department's UCMR3 analysis conducted validating no presence of these contaminants in the drinking water.

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LEGEND:

- SI Monitoring Well
- ⊕ Soil Boring
- Surface Water Sample
- Sediment Sample
- Potential Release Location (PRL)
- ▭ Installation Boundary*
- ▭ Building*
- x—x— Fence*
- ➔ Inferred Regional Groundwater Flow

NOTES:

* Source: Common Installation Picture (CIP) geodatabase provided by ANG GeoBase on 07/26/2017.

1. The groundwater flow direction was inferred using 2018 SI and historical water level data.
2. Background Source: ESRI World Imagery (DigitalGlobe, 09/2017).

0 200 400 600 Feet
0 50 100 200 Meters



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ELLINGTON FIELD JOINT RESERVE BASE
TEXAS AIR NATIONAL GUARD
HOUSTON, TEXAS

ELLINGTON FIELD JOINT RESERVE BASE
SI SAMPLING OVERVIEW MAP

FIGURE: 2 DATE: 8/10/2018

PROJECT: 147Project\A10 Phase 3 SI for PFC's\05 2018\05 2018\Project\02\Figure 2 PRL Sample Locations Overview_11x17.mxd