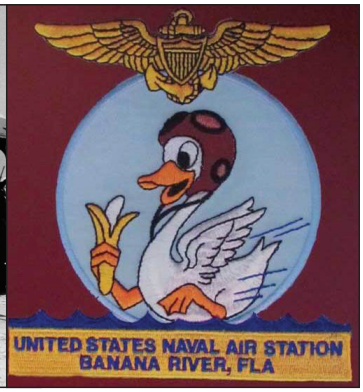
FORMERLY USED DEFENSE SITES | Naval Air Station Banana River Off-Base Disposal Area

REMEDIAL INVESTIGATION/FEASIBILITY STUDY PROCESS



NOVEMBER 2021

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM-FORMERLY USED DEFENSE SITES

The Department of Defense is committed to protecting people and the environment and improving public safety by cleaning up sites if hazards from the former military operations remain. The Defense Environmental Restoration Program for Formerly Used Defense Sites was established to evaluate and, if necessary, remediate Formerly Used Defense Sites. The U.S. Army Corps of Engineers (USACE) manages the program on behalf of the Department of Defense.

Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, in 1980 and the Superfund Amendments and Reauthorization Act in 1986. These laws give USACE the authority for certain cleanup activities and dictate the process we must follow. We conduct investigations to determine the potential risk to people and the environment from the military's use of the property.

This is a very complex site since the Navy's disposal activities were not uniform across the area, and the developers likely moved debris around while constructing homes. As owners have improved their property (landscaping, digging pools, etc.), the conditions have changed further. Based on our interviews with residents, it appears debris could be in one yard but may not be in the one next door. These factors make designing the fieldwork approach challenging.

There are required document reviews within USACE and with the Florida Department of Environmental Protection (FDEP) and local stakeholders/officials. That means each document undergoes a rigorous review and approval process that serves to ensure the quality of the document and compliance with Department of Defense guidance and environmental regulations.

The USACE project delivery team reviews a contractor prepared document to be sure it adequately explains what we know about the site, the applicable regulatory requirements, and the rationale for field sampling efforts and subsequent data evaluation. Once the project team has completed their review and the contractor has responded to the comments, the documents undergo an Independent Technical Review within a different organization at USACE not involved in the day-to-day details of the project. The independent team reviews the document to confirm the proper application of clearly established criteria, regulations, laws, codes, program policies, principles, and professional practices. After the USACE reviews are complete, FDEP and representatives from other government agencies review the documents to ensure state laws and local regulations and concerns are appropriately evaluated. Generally, each organization has 30 days to review and comment on the document. The contractor then has to respond to those comments and revise the document accordingly; this typically takes at least another 30 days. These combined review cycles can take months per document, depending on the complexity and number of comments.

Quality assurance/quality control procedures are also in place for the fieldwork which requires the USACE team to review the contractor's data and either accept it or request additional work. This process ensures that we are making decisions based on accurate data with a good understanding of the environmental conditions at the site.

Generally, the Remedial Investigation/Feasibility Study process can be divided into three phases of activities: pre-fieldwork, fieldwork, post fieldwork. Some of the steps involved in each of these phases are outlined below.

Pre-Fieldwork Steps

- Evaluate site to determine where to investigate
- Request rights-of-entry from property owners
- Adjust fieldwork plan based on granted rights-of-entry
- Determine where geophysical survey should be conducted
- Determine sampling plan: where to sample, how many samples to collect, what type of samples (soil, groundwater, air), what to sample for
- Develop "if then" statements so the contractor can make decisions in the field (i.e. if this condition is met, then do this)
- Develop the Quality Assurance Project Plans (QAPP) which can be thought of as a Work Plan
- USACE prepares the QAPP, then FDEP and other stakeholders review/comment on it; revisions made after reviews

This review/approval process will take several months, and from start to finish, the QAPP/Work Plan stage typically takes one year.

Fieldwork Steps

- *Geophysical Survey:*
  - ◊ Conduct geophysical surveys to define location of disposed material; depending on site size and complexities, this could take weeks or months
  - ◊ Evaluate data to determine if "step outs" and/or additional fieldwork (fill in data gaps, etc.) are needed to locate limits of disposed material
  - ◊ USACE Quality Assurance geophysicist evaluates the contractor's data to ensure all Data Quality Objectives are met
  - ◊ Dig suspected DoD-related metallic objects identified in geophysical surveys to identify what they are and/or dig test pits to characterize buried debris; depending on the number of items to be investigated, this could take days, weeks, or months; contractors refer to this step as an "intrusive" investigation

After the geophysical survey, the contractor's and USACE's geophysicists evaluate the data to determine what objects need to be investigated and to develop a plan to dig them. While they are evaluating the data, they may identify a "data gap" meaning additional data needs to be collected. They may also notice that the data indicates additional surveys are required beyond the area initially investigated (i.e. beyond the 52 acres identified through photographic analysis).

- *Environmental Sampling:*
  - ◊ Collect environmental samples; depending on the number of samples required, this could take several weeks
  - ◊ Send samples to laboratory for analysis; it can take three to six weeks (or more) to receive the analysis from the laboratory
  - ◊ Validate laboratory data and determine if additional samples are required ("step out"/bounding samples around exceedances); this typically takes a couple of months
  - ◊ USACE chemist evaluates sampling data to ensure data quality
  - ◊ Collect environmental samples in different seasons in the event that aspect impacts potential contamination (sampling about six months apart)
  - ◊ Depending on the results of the soil sampling, crews may need to return to the site to collect more soil samples, possibly deeper than a sample where something was detected above environmental regulatory criteria or additional samples around the location where an exceedance was detected.
  - ◊ Depending on the results of the soil sampling, crews may need to install groundwater monitoring wells; when wells are installed, the team has to wait for a period of time to collect samples since the act of installing the well disturbs the groundwater and could impact accuracy of any data collected. Groundwater samples may be collected in different seasons.
  - ◊ Depending on the results of the groundwater sampling, additional samples may need to be collected and/or more wells installed.
  - ◊ Environmental samples are usually collected after the geophysical and intrusive fieldwork, since that influences where samples need to be collected. Even though at this site, samples will likely be collected where debris was not found, the team will need to focus samples where debris is found.

- *Fieldwork/Sampling Conclusion:*
  - ◊ USACE will present the fieldwork data to stakeholders including local officials and FDEP.
  - ◊ Note that weather events can impact fieldwork (i.e. may need to leave if hurricane forecasted to hit near site).
  - ◊ The different steps required for fieldwork and data validation (both geophysical/intrusive and environmental sampling) and the need to collect data in different seasons (summer and winter), means it could take a year or longer for fieldwork.

Post Fieldwork Activities

- Evaluate all fieldwork data (geophysical, intrusive, environmental sampling) and prepare risk assessments
- Prepare a Remedial Investigation report that explains the Data Quality Objectives, how the fieldwork was conducted, the results of the fieldwork, revised Conceptual Site Model (based on fieldwork results), and human and ecological risk assessments
- Based on the results of the Remedial Investigation, prepare a Feasibility Study, if necessary, to evaluate alternatives to address what was found. Alternatives could range from No Action (if risks to people and the environment are below established risk levels), to Land Use Control (such as fencing, public awareness materials), to Remedial Action.
- The Remedial Action would be specific to what was found and could include activities such as removing contaminated soils and treating contaminated groundwater.

Pre-fieldwork

- Determine where to investigate
- Request rights-of-entry
- Evaluate fieldwork design based on granted right-of-entry
- Request additional rights-of-entry (if required)
- Develop Quality Assurance Project Plan (Work Plan)

Geophysical Fieldwork

- Collect geophysical data
- Evaluate data to determine where to dig
- Determine if additional fieldwork or "step outs" are required

Environmental Sampling Fieldwork

- Collect soil and water samples and send to laboratory for analysis
- Evaluate data and determine if additional sampling is required
- Collect additional samples and install groundwater monitoring wells, if required

Post-Fieldwork

- Prepare risk assessments, Remedial Investigation report, and Feasibility Study (if required)
- Prepare and present Proposed Plan
- Sign Decision Document

- After the contractor has prepared the Remedial Investigation/Feasibility Study reports, the reports are reviewed as noted previously.
- Once the reports are finalized, USACE will prepare a Proposed Plan which identifies the "Preferred Alternatives." The Preferred Alternative is the alternative, evaluated in the Feasibility Study, that USACE has determined is the best method to address the results of the Remedial Investigation and risk assessments. We may need to divide the site into different sub-areas based on the results of the fieldwork, with each sub-area having a different Preferred Alternative.
- As with the other documents, there is a review period before the document can be presented to the community.
- We will present the Proposed Plan at a public meeting, and the community has a minimum of 30 days to comment on the Proposed Plan.
- After the public comment period is over, USACE prepares a Decision Document which is the official mechanism for the Department of Defense to select the appropriate alternative to address the project site. Again, there is a review process for this document before it is signed.

If usually takes at least five years to complete all these steps and activities.

For More Information

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