



United States Air Force
15th Airlift Wing
Environmental Restoration Program

Draft

RECORD OF DECISION FOR SITE ST01
WAKE ATOLL



October 2009



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Prepared for: 15th Airlift Wing Civil Engineer Squadron/
Environmental Restoration Element (15 CES/CEVR),
Hickam Air Force Base, Oahu, Hawaii

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Abbreviations and Acronyms

| | |
|--------------------|--|
| 15 CES/CEVR | 15th Airlift Wing Civil Engineer Squadron, Environmental Restoration Element |
| AFB | Air Force Base |
| AFCEE | Air Force Center for Engineering and the Environment |
| AOC | Area of Concern |
| AST | aboveground storage tank |
| ARAR | applicable or relevant and appropriate requirements |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CWA | Clean Water Act |
| EE/CA | Engineering Evaluation/Cost Analysis |
| EPA | U.S. Environmental Protection Agency |
| ERA | Ecological Risk Assessment |
| HI | hazard index |
| HSP | Health and Safety Plan |
| IRP | Installation Restoration Program |
| JP-5 | jet-propulsion fuel, grade 5 |
| LUC | land use control |
| NCP | National Contingency Plan |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| NPDES | National Pollutant Discharge Elimination System |
| PAH | polycyclic aromatic hydrocarbon |
| PPE | personal protective equipment |
| RAB | Restoration Advisory Board |
| RAO | remedial action objective |
| ROD | Record of Decision |
| RSL | Regional Screening Level |
| SARA | Superfund Amendments and Reauthorization Act of 1986 |
| USFWS | U.S. Fish and Wildlife Service |

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1.0 Declaration

1.1 Site Name and Location

This Record of Decision (ROD) is for Site ST01, located at Wake Island Atoll (see Figure 1). Wake Island Atoll is a coral atoll located approximately 2,400 miles west of Oahu, Hawaii, and 2,000 miles southeast of Japan, at 19 degrees, 18 minutes north latitude and 166 degrees, 35 minutes east longitude.

The Air Force is the lead agency for environmental cleanup activities at Wake Island Atoll. The primary regulatory agencies overseeing the Wake Island Atoll cleanup are the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and National Oceanic and Atmospheric Administration (NOAA). The EPA has been provided copies of reports and documents related to environmental investigations at Wake Island Airfield, but has not provided comments nor asserted oversight concerning Air Force cleanup actions at Wake Island. The Air Force selects the remedies, with concurrence from the other agencies.

1.2 Statement of Basis and Purpose

This ROD documents the selected cleanup alternative for Site ST01 and addresses public comments to the Proposed Plan. The Air Force issued a Proposed Plan as part of its public responsibility under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 117 Section 300.430 (f)(2) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Section 117 of CERCLA requires public involvement in decisions related to the cleanup and closure of sites. The Proposed Plan and subsequent ROD address the community involvement requirements of CERCLA.

This ROD addresses contaminants in soil that may present a threat to human health or to surface water. Because an exposure pathway between groundwater and recreational users or groundwater and drinking water users was determined not to be complete, the remedies in this ROD do not address contamination in groundwater. Site ST01 does not require cleanup to protect wildlife because the contamination does not pose a risk to wildlife.

The Air Force, which is the lead agency selected the remedial action for Site ST01 in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) 42 United States Code, Section 9601 et seq., and the NCP, 40 Code of Federal Regulations (CFR) Part 300. This decision is based on the Administrative Record file for this site. The Administrative Record contains the documents used in the selection of the remedial actions and is available online at (www.adminrec.com) and can be viewed in hard copy at the Hawaii State Library (Main Branch, 478 S. King Street, Honolulu, HI).

The EPA has been provided copies of reports and documents related to environmental investigations at Wake Island Airfield, but has not provided comments nor asserted oversight concerning Air Force cleanup actions at Wake Island.

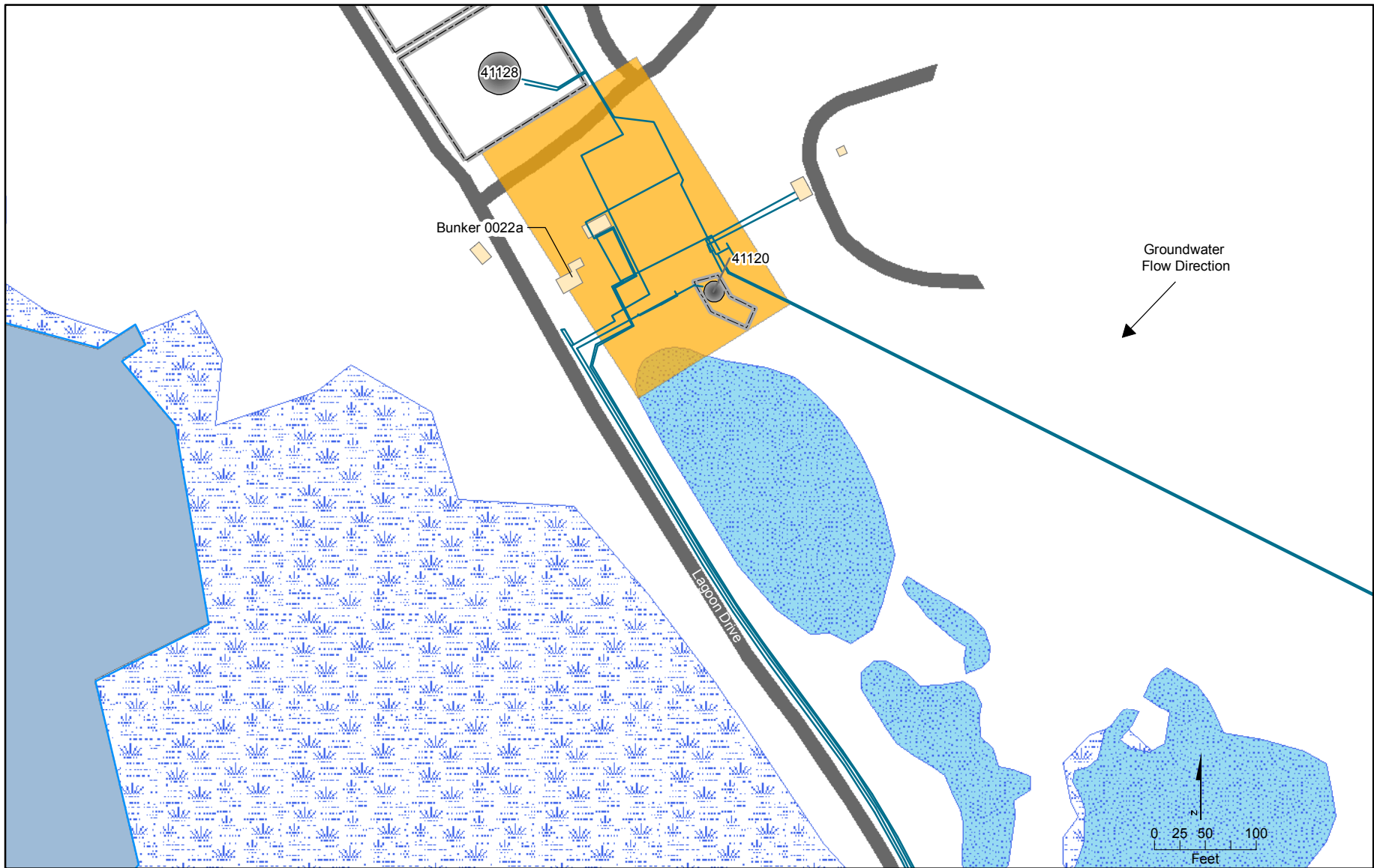
1.3 Assessment of the Site

Site ST01, the 1500 Liquid Fuel Storage Area, was initially identified during a Phase I Records Search by Engineering-Science in 1984. Site ST01 consists of three large ASTs used to store jet-propulsion fuel, grade 5 (JP-5) (aboveground storage tank [AST] 41128, AST 41129, and AST 41130), two smaller ASTs (historically) used to store gasoline (AST 41118 and AST 41120), seven fuel and water separators, three 200-gallon aboveground JP-5 sump tanks, associated underground and aboveground transfer piping and pumps, and a truck fill stand. Currently, a military bunker (Bunker 0022a) lies west of AST 41120 and was reportedly used as a hazardous material storage building. Fuel spills, fuel leaks, and onsite fuel-sludge disposal and perhaps spills and/or disposal methods of hazardous materials stored at Bunker 0022a are the likely sources of contamination at Site ST01. Bunker 0022a was investigated as Installation Restoration Program (IRP) Site SS22A and no significant contamination was found. A Category II NFRAP was produced and signed by the Wing Commander on Oct 5, 2007. Actual or potential releases of hazardous substances from Site ST01 present a potential threat to public health and welfare, or the environment, if not addressed by implementing the response actions selected in this ROD.

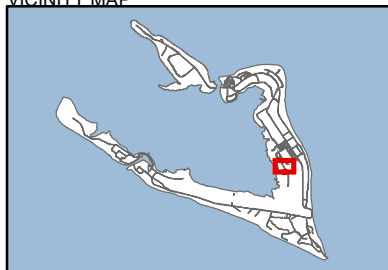
1.4 Description of Selected Cleanup Alternative

The selected cleanup alternative presented in this ROD for Site ST01 is the implementation of land use controls (LUCs) to prohibit residential use of the site. LUCs would be implemented to address elevated concentrations of arsenic and polycyclic aromatic hydrocarbon (PAHs) in soil that pose an unacceptable risk to hypothetical future residents. LUCs would be maintained until concentrations of hazardous substances in soil are below the Regional Screening Level (RSLs) at such levels to allow for unrestricted land use. The following land use requirements would apply to Site ST01:

- 1. Dig and construction permits.** No intrusive activity shall occur within the site without the knowledge and concurrence of the Wake Island CE office and the 15th Airlift Wing Civil Engineer Squadron, Environmental Restoration Element (15 CES/CEVR). Any authorized intrusive activity will require an approved Health and Safety Plan (HSP), use of appropriate personal protective equipment (PPE), and other appropriate precautions to protect site workers from unacceptable exposure to soil contaminants of concern. Additionally, any soil removed from the site (for example, during construction activities) must be appropriately managed.
- 2. Periodic Inspections.** Periodic site inspections would provide full reporting of LUC effectiveness and compliance with restrictions and reporting requirements as defined in the decision document, assess the present physical condition of the site, and determine



VICINITY MAP



LEGEND










-  Berm
-  Fuel Lines
-  Fuel Tank
-  Buildings
-  Site ST01
-  Ponds
-  Road
-  Surface Water
-  Wetlands

FIGURE 1
Location of Site ST01
 Site ST01 Record of Decision
 Wake Island Atoll

if any condition has the potential to compromise the LUCs established for the site. The inspection frequency for sites with LUCs is once per year; however, based on the recommendations in the 5-year review, the inspection frequency may be changed if warranted.

- 3. 5-year reviews.** The purpose of a 5-year review is to evaluate the implementation and performance of the site LUCs as the selected remedy. Information documented within the Annual Land Use Control Summary Reports or equivalent periodic report and other historical data may be evaluated in the 5-year review to determine if LUCs should be modified or discontinued or remain the same. The first 5-year review for Site ST01 on Wake Island Atoll is scheduled to be completed within 5 years after a decision document has been finalized.

The Air Force believes the selected remedy for Site ST01 is protective of human health and the environment given the current and reasonably anticipated future land use at Site ST01 (i.e., industrial) and that the proposed institutional control measures are necessary to protect public health and the environment from the residual contaminants at the site.

1.5 Statutory Determinations

The selected cleanup alternative will result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure. Therefore, 5-year reviews will continue to be required for the selected cleanup alternative. In the event the selected cleanup alternative cannot achieve the ROD remedial action objectives (RAOs), additional modifications or changes to the selected remedy may be required.

The Air Force has selected a cleanup alternative for Site ST01 that is protective of human health and the environment, complies with federal and state applicable or relevant and appropriate requirements (ARARs) for the remedial action, is cost effective, and utilizes permanent solutions to the maximum extent possible. Although there is a statutory preference for treatment of source materials constituting principle threats for remedial actions, treatment of waste at Site ST01 is not required because no source materials constituting principal threats are present at the site.

1.6 Data Certification Checklist

The following information is included in Section 2 of this ROD (additional information can be found in the Administrative Record):

- Current and reasonably anticipated future land use assumptions (Section 2.2)
- Chemicals of concern and associated risks (Section 2.4)
- Key factor(s) that led to selecting the remedy (Section 2.7)

This document was prepared in accordance with guidance published by the EPA for preparation of RODs (EPA, 1999).

1.7 Authorizing Signature

This is the signature sheet for the Site ST01 ROD. The EPA has been provided copies of reports and documents related to environmental investigations at Wake Island Airfield, but has neither provided comments nor asserted oversight concerning Air Force cleanup actions at that base.

GIOVANNI K. TUCK, Colonel, USAF
Commander, 15th Airlift Wing

Date

2.0 Decision Summary

2.1 Site Name and Location

Wake Island Atoll is a coral atoll located approximately 2,400 miles west of Oahu, Hawaii, and 2,000 miles southeast of Japan, at 19 degrees, 18 minutes north latitude and 166 degrees, 35 minutes east longitude. The atoll has a total land area of approximately 2.73 square miles, and a total circumference of approximately 10 miles. The atoll consists of three islets arranged in a “V” pattern that border a shallow lagoon open to the ocean on the northwest side (see Figure 1). The islets are named Wake, Peale, and Wilkes.

Site ST01, the 1500 Liquid Fuel Storage Area, encompasses an area of approximately 1.73 acres in the west-central region of Wake Island. Site ST01 is bounded by Lagoon Drive to the west and lies approximately 80 feet northeast of a wetland and 50 feet north of an intermittent pond.

2.2 Site History and Background

2.2.1 Site History

Site ST01 consists of three large ASTs used to store JP-5 (AST 41128, AST 41129, and AST 41130), two smaller ASTs (historically) used to store gasoline (AST 41118 and AST 41120), seven fuel and water separators, three 200-gallon aboveground JP-5 sump tanks, associated underground and aboveground transfer piping and pumps, and a truck fill stand. Currently, the active ASTs (AST 41128, AST 41129, and AST 41130) located northwest of Site ST01 lie within separate concrete berms. In 2003, a cinder block berm was constructed around AST 41120. AST 41120 is currently inactive. Inactive AST 41118 was relocated approximately 150 yards south of Site ST01 by Typhoon Ioke in 2006. Currently, a military bunker (Bunker 0022a) lies west of AST 41120 and was reportedly used as a hazardous material storage building. Photo documentation from the 2009 field investigation at Site ST01 shows that the bunker contained a variety of pipe fittings, couplings, and valves (CH2M HILL, 2009). No hazardous materials were found within the bunker during the January 2009 field investigation.

Fuel spills, fuel leaks, and onsite fuel-sludge disposal and perhaps spills and/or disposal methods of alleged hazardous materials stored at Bunker 0022a are the likely sources of contamination at Site ST01. Bunker 0022a was investigated as IRP Site SS22A and no significant contamination was found. A Category II NFRAP was produced and signed by the Wing Commander on Oct 5, 2007. This bunker is currently used to house spare parts for the conveyance system at this site. The practice of burying tank bottom fuel sludge in sludge pits next to tanks and inside the berms at Site ST01 began in 1947 and continued until 1979.

After 1979, fuel-sludge was allowed to weather on the ground surface in a 2- to 4-inch layer near the ASTs. This practice has been discontinued.

Currently, Site ST01 is an active tank farm with aboveground fuel pipelines and lies in an industrial area of Wake Island. The tank farm supports airfield operations by storing fuel and refueling aircraft. Because of the strategic location of Wake Island Airfield in the Pacific Ocean, the future land use of Site ST01 will likely remain industrial to support airfield operations as a fuel storage and transfer facility.

2.2.2 Previous Investigations

Several field investigations were performed to evaluate the potential sources of contamination at Site ST01. The following investigations have been conducted at the site:

- Phase I Records Search (U.S. Air Force, 1984)
- Phase II Pre-Survey (U.S. Air Force, 1986)
- Remedial Investigation/Feasibility Studies, Stage I Investigation (U.S. Air Force, 1992)
- Engineering Evaluation/Cost Analysis for IRP Site ST01 (URS, 2003)

A summary of previous investigations and collected data can be found in greater detail in the *Addendum to the Site ST01 EE/CA: Data Gap Investigation Results and Ecological Risk and Human Health Risk Screening Update, Wake Island Atoll* (CH2M HILL, 2009).

The potential release mechanisms for Site ST01 are fuel spills, fuel leaks, and onsite fuel-sludge disposal and perhaps spills and/or disposal methods of alleged hazardous materials stored at Bunker 0022a. Contaminants of concern for Site ST01 are arsenic and PAHs (CH2M HILL, 2009).

2.2.3 Enforcement Activities

No regulatory agreements regarding the environmental remediation efforts at Wake Island Atoll are currently in effect. The IRP sites at Wake Island are not on the National Priorities List but are being addressed under CERCLA per Air Force policy.

2.3 Community Participation

To facilitate communication between the Air Force and the community, Wake Island Atoll has an active community relations and public participation program, which includes a Restoration Advisory Board (RAB). The RAB consists of stakeholders from the community, regulatory agencies, and the Air Force. The Air Force provides cleanup information through public outreach meetings and speaking engagements with local organizations; the Administrative Record; and announcements or articles published in newsletters, fact sheets, or community newspapers.

The final Proposed Plan (U.S. Air Force, 2009) and a summary Proposed Plan Fact Sheet for Site ST01 were issued on September 23, and an associated public comment period was held

from September 23 through October 23, 2009, to provide the community an opportunity to comment on the proposed action at this site. A public meeting was also held on September 29, 2009, to provide the community an additional opportunity to provide comments. The Air Force prepared a written response to the public comments pertaining to the Proposed Plan. The responses to the public comments are included in the Responsiveness Summary section of this ROD for Site ST01. This ROD will be available in the Administrative Record upon publication.

2.4 Summary of Site Risks

Based on assumed exposure to surface soils under the industrial scenario, the cumulative risk estimate for carcinogenic effects is 5×10^{-5} . The primary risk drivers that exceeded 1×10^{-6} are arsenic (5×10^{-5}), which contributed 96 percent to the cumulative risk, and benzo(a)pyrene (1×10^{-6}), which contributed approximately 3 percent. The estimated hazard index (HI) under the industrial scenario is less than the EPA threshold of 1. Under the residential scenario, the cumulative risk estimate for carcinogenic effects is 2×10^{-4} but the estimated HI is less than the EPA threshold of 1. Risk estimates for exposure to subsurface soil are slightly less, and are within the EPA risk management range of 1×10^{-6} to 1×10^{-4} for both residential and industrial scenarios.

Risk to the recreational user was evaluated assuming contaminants of concern in groundwater migrate to surface water where they are accumulated into fish that are caught and consumed by people. It was determined that arsenic levels in surface water do not pose fish consumption risks exceeding the EPA risk management range of 1×10^{-6} to 1×10^{-4} and/or background.

Risk to human health under the industrial use scenario is considered acceptable because risk falls within the risk management range and below an HI of 1. Additionally, the assumptions for the industrial exposure are conservative considering that workers at Wake generally spend a maximum of 3 years onsite and the RSLs account for an exposure of 25 years. Based on the ecological risk assessment (ERA), ecological exposures at Site ST01 are not likely to be ecologically significant and further ecological investigation is not warranted.

2.5 Principal Threat Wastes

The NCP establishes an expectation that the EPA will use treatment to address the principal threats posed by a site wherever practicable. Principal threats consist of materials that are highly mobile or toxic, cannot be reliably controlled in place, or present a significant risk to human health or the environment. Contaminants in soil at Site ST01 have been determined through risk assessments to pose a threat to human health. However, the contaminants at Site ST01 would not be considered a principal threat waste because the contamination is not highly mobile and toxicity is moderate.

2.6 Remedial Action Objectives

Identified contaminants of concern for Site ST01 are arsenic and PAHs. RAOs serve as goals established for protecting human health and the environment at sites where the Air Force proposes an action. The development of the RAOs took into consideration the current and probable future land use of Site ST01. The RAOs were established to prevent hypothetical future residents from being exposed to arsenic and PAHs in soil at concentrations that exceed the RSLs.

2.7 Description of Alternatives

2.7.1 Alternative 1 – No Action

The No Action Alternative serves as a baseline for comparison with other remedial alternatives identified for the site. Under this option, neither monitoring of site contaminants of concern nor treatment to reduce the volume, toxicity, or mobility would be implemented. In addition, no remedial measures would be performed to protect the environment.

2.7.2 Alternative 2 – Land Use Controls to Prohibit Residential Use

The LUC alternative serves to protect human health by prohibiting residential use and unapproved construction/excavation projects, and requiring the appropriate management of soil and groundwater removed from the site. The Air Force enforces LUCs through the work authorization process (dig permit) for construction and excavation projects.

The following land use requirements would apply to Site ST01:

- 1. Dig and construction permits.** No intrusive activity shall occur within the site without the knowledge and concurrence of the Wake Island CE office and the 15 CES/CEVR. Any authorized intrusive activity will require an approved HSP, use of appropriate PPE, and other appropriate precautions to protect site workers from unacceptable exposure to soil contaminants of concern. Additionally, any soil removed from the site (for example, during construction activities) must be appropriately managed.
- 2. Periodic Inspections.** Periodic site inspections would provide full reporting of LUC effectiveness and compliance with restrictions and reporting requirements as defined in the decision document, assess the present physical condition of the site, and determine if any condition has the potential to compromise the LUCs established for the site. The inspection frequency for sites with LUCs is once per year; however, based on the recommendations in the 5-year review, the inspection frequency may be changed if warranted.
- 3. 5-year reviews.** The purpose of a 5-year review is to evaluate the implementation and performance of the site LUCs as the selected remedy. Information documented within the Annual Land Use Control Summary Reports or equivalent periodic report and other historical data may be evaluated in the 5-year review to determine if LUCs should be

modified or discontinued or remain the same. The first 5-year review for Site ST01 on Wake Island Atoll is scheduled to be completed within 5 years after a decision document has been finalized.

2.7.3 Alternative 3 – Excavation and Removal of Soil to Site OT13 to Meet Residential Use Scenario

The excavation and removal of arsenic- and PAH-contaminated soil at Site ST01 alternative was developed to meet residential use cleanup levels. The excavated soil would be transported to Site OT13. The volume of soil to be excavated was estimated to be less than 2,400 cubic yards. The excavated soil would be transported and stockpiled at Site OT13. Confirmation samples would be collected from the excavated area and the stockpile. Clean fill would be used to backfill the open excavations at Site ST01. Because all of the material within the disposal area would physically be removed from the site, no institutional controls or long-term monitoring would be required.

2.8 Comparative Analysis of Alternatives

The Air Force evaluated and compared the alternatives against eight criteria. These eight criteria are part of the CERCLA process established to provide a format for selecting appropriate remedial alternatives. The first two criteria, overall protection of human health and the environment and compliance with state and federal environmental requirements, are called threshold criteria. These two criteria must be met in order for the alternative to be eligible for selection. The remaining six criteria, called modifying and balancing criteria, are used to compare the eligible alternatives and help in the selection of the Preferred Alternative. The last criterion, Community Acceptance, was evaluated through the Proposed Plan for Site ST01 and associated public comments. The Air Force describes community acceptance in the Responsiveness Summary section of this ROD. The comparative analysis of the alternatives is summarized on Figure 2.

2.9 Selected Cleanup Alternative

The Air Force's selected alternative for Site ST01 is the implementation of LUCs to prohibit residential use of the site. This cleanup alternative for Site ST01 was presented in the Proposed Plan and the Air Force believes the selected alternative is protective of human health and the environment given the current and reasonably anticipated future land use at Site ST01 (industrial purposes). The proposed land use control measures are necessary to protect public health and the environment from the residual contaminants at the site. The selected remedy complies with ARARs (i.e., federal environmental requirements), is cost effective, and utilizes permanent solutions to the maximum extent possible. The selected remedy is expected to provide the best balance with respect to the modifying and balancing criteria.

In addition to the selected remedy and in accordance with CERCLA, 5-year reviews will be performed to ensure the remedy is functioning as intended and is protective of human health and the environment.

2.10 Statutory Determinations

Under CERCLA Section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost effective, and use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes as a principal element and a bias against offsite disposal of untreated wastes. The following sections discuss how the selected remedy meets these statutory requirements.









2.10.1 Protection of Human Health and the Environment

Protection of human health and the environment would be achieved and maintained by preventing exposure to contaminants through LUCs. Land use restrictions would limit the potential for sensitive receptors to be exposed to residual contamination, and digging restrictions would prevent intrusion into contaminated materials. Assuming that no breach would occur, exposure pathways would be incomplete, and no human health risk or threat to the environment would be posed.

Under this alternative, contamination will be left in place. Therefore, monitoring and enforcement of the land use controls will be required to ensure the continued effectiveness of the alternative.

2.10.2 Compliance with Applicable or Relevant and Appropriate Requirements

Section 121(d) of CERCLA states that remedial actions on CERCLA sites must attain (or justify the waiver of) any federal or more stringent state environmental standards, requirements, criteria, or limitations that are determined to be ARARs. Applicable requirements are those cleanup standards, criteria, or limitations promulgated under federal or state law that specifically extend to the situation at a CERCLA site. A requirement is applicable if the jurisdictional prerequisites of the environmental standard show a direct correspondence when objectively compared with the conditions at the site. The selected remedy, LUCs, complies with ARARs for protection of human health. ARARs are presented in Table 1.

| | Alternative 1 No Action | Alternative 2 Land Use Controls to Prohibit Residential Use | Alternative 3 Removal of Soil to Site OT13 to Meet Residential Use |
|---|---|---|---|
| 1 Overall Protectiveness of Human Health and the Environment Determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.  | No | Yes (good) | Yes (better) |
| 2 Compliance with State and Federal Environmental Requirements Evaluates alternatives for compliance with environmental protection requirements.  | No | Yes | Yes |
| 3 Long-term Effectiveness Considers an alternative's ability to maintain reliable protection of human health and the environment after implementation.  | No | Yes (better) | Yes (good) |
| 4 Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment Evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.  | No | No | No |
| 5 Cost Weighs the benefits of a particular alternative against the cost of implementation.  | \$0 | \$151,000* | \$360,000* |
| 6 Short-term Effectiveness Addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.  | No | Yes (better) | Yes (good) |
| 7 Implementability Refers to the technical and administrative feasibility of the alternative, including the availability of materials and services needed to implement a particular option.  | Yes | Yes (better) | Yes (good) |
| 8 Community Acceptance Indicates whether community concerns are addressed by the alternative and whether the community has a preference for an alternative. Although public comment is an important part of the final decision, the Air Force must balance community concerns with all the previously mentioned criteria.  | To be evaluated as part of this Proposed Plan | To be evaluated as part of this Proposed Plan | To be evaluated as part of this Proposed Plan |

* Details regarding cost calculations can be found in the Site ST01 EE/CA (Appendix D).
 The 2009 present worth values were determined using an annual inflation rate of 3.0 percent.

FIGURE 2
National Contingency Plan Criteria for
Evaluating Remedial Alternatives and How
the Alternatives for Site ST01 Meet the Criteria
 Site ST01 Record of Decision
 Wake Island Atoll

TABLE 1
Applicable or Relevant and Appropriate Requirements
Site ST01 Record of Decision, Wake Island Airfield, Wake Island Atoll

| ARAR Type | Standard, Requirement, Criterion, or Limitation | ARAR Status | Description | Comment |
|-----------|--|---|--|---|
| Chemical | Clean Water Act (CWA) National Ambient Water Quality Criteria (33 USC 1251) | Potentially Applicable and Relevant and Appropriate | Provides criteria for chemical exposure from water ingestion and fish consumption and for marine and freshwater acute/chronic impacts; evaluate in conjunction with the designated use of receiving water. | Criteria may be used to develop TBCs for ecological risk. |
| Location | CWA Section 404 (33 CFR Parts 320-330; 40 CFR Parts 122, 123, 125, 131, 230, 231, 233, 400-469) | Applicable and Potentially Relevant and Appropriate | Prohibits discharge of dredged or fill material into wetlands without permit. | Potential effects on wetlands must be considered during removal actions. |
| Location | CWA National Pollutant Discharge Elimination System (NPDES) Regulations (40 CFR Parts 122 and 125) | Potentially Relevant and Appropriate | Regulates direct discharge of wastewater to surface water bodies. | If remedial EE/CA activities include discharges to surface waters, then NPDES requirements may apply. |

2.10.3 Cost Effectiveness

In the Air Force’s judgment, the selected remedy for Site ST01 (LUCs to Prohibit Residential Use) is cost-effective and represents a reasonable value for the money to be spent. In making this determination, the following definition was used: “A remedy shall be cost-effective if its costs are proportional to its overall effectiveness” (NCP 300.430(f)(1)(ii)(D)). This was accomplished by evaluating the “overall effectiveness” of those alternatives that satisfied the threshold criteria (i.e., protective of human health and the environment and ARAR compliant). Overall effectiveness was further evaluated by assessing the balancing criteria (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; short-term effectiveness; and implementability). Overall effectiveness was then compared to costs to determine cost-effectiveness.

Figure 2 summarizes the costs and provides the information needed to evaluate the cost effectiveness of the selected remedy. For each alternative, information is presented on the threshold and balancing criteria.

2.10.4 Use of Permanent Solutions and Preference for Treatment as a Principal Element

The LUCs remedy for Site ST01 is neither permanent (if the LUCs fail) nor does it satisfy the preference for treatment. However, the Air Force has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can

be used in a practicable manner at Site ST01. The selected remedy for Site ST01 provides the best balance of trade-offs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and bias against offsite treatment and disposal, and considering community acceptance. Overall, contaminant concentrations at Site ST01 are relatively low and the contaminated soil at this site do not constitute principal threat wastes.

2.10.5 5-year Review Requirements

A 5-year review will be required for Site ST01 because the selected remedy for this site will result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure.

2.10.6 Cost

The estimated present-worth cost associated with implementing LUCs for the next 30 years is \$151,000. Costs were determined by converting the EE/CA 2004 total cost to a 2009 present-worth value assuming an annual inflation rate of 3.0 percent (CH2M HILL, 2009).

2.11 Works Cited

- CH2M HILL. 2009. *Addendum to the Site ST01 EE/CA: Data Gap Investigation Results and Ecological Risk and Human Health Risk Screening Update, Wake Island Atoll*. Prepared for the U.S. Air Force.
- URS. 2003. *Engineering Evaluation/Cost Analysis and Decision Documents, Volume 1: General Framework, Wake Island Airfield, Wake Atoll*. Preliminary Draft. Prepared for the U.S. Air Force. August.
- U.S. Air Force. 2009. *Proposed Plan for Site ST01, Wake Atoll*. Final. Prepared by CH2M HILL. September.
- U.S. Air Force. 1992. *Final Installation Restoration Program Remedial Investigation/Feasibility Study, Stage I, Wake Island Air Field, Wake Atoll*. Prepared by Harding Lawson Associates. December.
- U.S. Air Force. 1986. *Final Phase II Pre-Survey, Wake Island Airfield, Wake Atoll*. Prepared by Harding Lawson Associates. December.
- U.S. Air Force. 1984. *Final Installation Restoration Program Phase I – Records Search, Wake Island Airfield, Wake Atoll*. Prepared by Engineering-Science. September.
- U.S. Environmental Protection Agency (EPA). 1999. *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*. EPA 540-R-98-031. OSWER 9200.1-23P. July.

3.0 Responsiveness Summary

3.1 Background of Community Involvement

The Proposed Plan for Site ST01 was available for review during a 30-day public comment period from September 23 through October 23, 2009. A public notice announced the start of the public comment period. The Proposed Plan was provided to key stakeholder groups including the regulatory agencies and RAB members. The Proposed Plan was also placed at the Hawaii State Library. A Fact Sheet that summarized the information in the Proposed Plan was also distributed to individuals on the mailing list. In addition, a public meeting was held on September 29, 2009, to explain the Proposed Plan and solicit comments from the public. The public was encouraged to review the documents and provide comments about the cleanup alternatives presented in the Proposed Plan orally at the public meeting, in writing, or via e-mail. The Proposed Plan and public comment period are key parts of the decision-making process because the Air Force uses community input when making cleanup decisions.

3.2 Summary of Comments Received

The Air Force did not receive any comments from the public during the public comment period.

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