DOCUMENT OF ENVIRONMENTAL PROTECTION

ACTIVITY:

SOLID WASTE DISPOSAL

CONTROL NUMBER DEP-17-002.0

JUNE 2019

EFFECTIVE DATE: FEBRUARY 4, 2020

UNITED STATES ARMY GARRISON - KWAJALEIN ATOLL/ RONALD REAGAN BALLISTIC MISSILE DEFENSE TEST SITE IN THE REPUBLIC OF THE MARSHALL ISLANDS

PREPARED BY DYNCORP INTERNATIONAL

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FINAL DOCUMENT OF ENVIRONMENTAL PROTECTION
FOR
SOLID WASTE DISPOSAL
DEP-17-002.0
June 2019

SHALL TAKE EFFECT UPON SIGNATURE

FOR THE U.S. ARMY GARRISON - KWAJALEIN ATOLL

JEREMY A. BARTEL
COL, SF
Commanding

4 Feb 20
DATE

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AGREE WITH DOCUMENT OF ENVIRONMENTAL PROTECTION FOR SOLID WASTE DISPOSAL

DOCUMENT NUMBER DEP-17-002.0

June 2019

RMIEPA

Agency

Name

DOLORES dCBRUM-KATTIL
ACTING GM, RMIEPA

9-11-19

Date

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DOCUMENT NUMBER DEP-17-002.0

June 2019

US Fish and Wildlife Service
Agency

DMF
Name for Dan Polhemus

Aug 26, 2019
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DOCUMENT NUMBER DEP-17-002.0

June 2019

USA Army Corps of Engineers, Honolulu District
Agency

Kanalei Sitton
Name

AUG-19 2019
Date

Agree with DEP.

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DOCUMENT NUMBER DEP-17-002.0

June 2019

U.S. EPA

Agency

J. McCarroll

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John McCarroll

8/15/2019

Date

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AGREE WITH DOCUMENT OF ENVIRONMENTAL PROTECTION FOR

SOLID WASTE DISPOSAL

DOCUMENT NUMBER DEP-17-002.0

June 2019

National Marine Fisheries Service
Agency

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Name

08-13-19 *Date*

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DOCUMENT OF ENVIRONMENTAL PROTECTION (DEP)

ACTIVITY: SOLID WASTE DISPOSAL
CONTROL NUMBER DEP-17-002.0

DATE SUBMITTED: June 2019
DEP EFFECTIVE DATE: February 4, 2020
DEP EXPIRES: Five years after final signature

TECHNICAL DESCRIPTION OF ACTIVITY

The activities described in this DEP are associated with the processing and disposal of *general solid waste* throughout the United States (US) Army - Kwajalein Atoll (USAKA). This DEP and companion Notice of Continuing Activity (NCA) will supersede and replace DEP No. 10-003.0 (Solid Waste Disposal). In addition to disposal of general solid waste, this DEP describes waste collection and processing, including recycling, as well as the management of waste petroleum products, aerosol cans and fluorescent lamps, and construction and demolition (C&D) waste. This DEP does not authorize the construction of new landfills or the lateral expansion of existing ones.

Solid waste disposal and management practices are described in the Solid Waste Management Plan prepared and published in accordance with the USAKA Environmental Standards and Procedures (UES) §3-6.5.7(c)(6)(i).

REFERENCES:

- United States Army Kwajalein Atoll. *Environmental Standards and Procedures for United States Army Kwajalein Atoll (USAKA) Activities in the Republic of the Marshall Islands*, 15th Edition, September 2018.

- United States Army Kwajalein Atoll, *Document of Environmental Protection (DEP): Solid Waste Disposal*, DEP 10-003.0, September 2012.

- United States Army Kwajalein Atoll, *Document of Environmental Protection (DEP): Protection of Cultural Resources*, DEP 10-001.0, January 2017.

- United States Army Kwajalein Atoll, *Solid Waste Management Plan. March 2017*.

- United States Army Kwajalein Atoll, *Water Quality Management Plan*, September 2017.

- United States Army Kwajalein Atoll, *Document of Environmental Protection (DEP): Air Emissions from Major, Synthetic Minor, and Industrial Boiler Stationary Sources,* DEP-11-001.0, August 2013.

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APPENDIX

ABBREVIATIONS AND ACRONYMS

C&D	Construction and Demolition
CFR	Code of Federal Regulations
DEP	Document of Environmental Protection
ECR	Environmental Comments and Recommendations
ENU	Elementary Neutralization Unit
GHG	Greenhouse Gas
HEPA	High Efficiency Particulate Air
HW	Hazardous Waste
IAW	In Accordance With
LEL	Lower Explosive Limit
NCA	Notice of Continuing Activity
NMFS	National Marine Fisheries Service
NPA	Notice of Proposed Activity
PCB	Polychlorinated Biphenyl
POL	Petroleum, Oil, and Lubricant
POL Soil	POL Contaminated Soil
PVC	Polyvinyl Chloride
RCRA	Resource Conservation and Recovery Act
RMI	Republic of the Marshall Islands
RMIEPA	Republic of the Marshall Islands Environmental Protection Authority
RMW	Regulated Medical Waste
SVOC	Semi-volatile Organic Compounds
SW	Solid Waste
SWM	Solid Waste Management
UES	USAKA Environmental Standards and Procedures
USACE	United States Army Corps of Engineers, Honolulu District
USAG-KA	United States Army Garrison - Kwajalein Atoll
USAKA	United States Army - Kwajalein Atoll
USAPHC	United States Army Public Health Center
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compounds
VPPF	Vehicle Paint and Preparation Facility
WWTP	Wastewater Treatment Plant

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1.0 TYPE OF ACTIVITY

Solid wastes are generated and collected from residential and/or industrial areas on each of the United States Army - Kwajalein Atoll (USAKA) islands. Some waste segregation occurs at the points of generation to separate food waste, recyclables (e.g., aluminum cans, glass, tires and metals), construction debris, etc. Solid waste is collected and delivered to solid waste management facilities on Kwajalein, Roi-Namur, and Meck for further segregation, processing, and disposal. Solid waste is sporadically generated on outer USAKA islands. Waste generated on Gagan is transported to Roi-Namur for further processing and disposal. Waste from the other outer islands is taken to Kwajalein for processing and disposal.

The wastes are segregated at the solid waste management facilities. Personnel at each solid waste management facility inspect solid waste loads for hazardous waste and non-containerized liquids, and remove these items from the waste. The remaining waste is segregated into scrap metal, glass, plastics, compostable materials, construction debris, and materials destined for incineration.

Combustible and putrescible materials for which composting or recycling is not reasonably practicable are incinerated. If grinding equipment is inoperable, inadequate, or the composting capacity is exceeded, the associated waste is incinerated to prevent excess accumulation. DEP-11-001.0 (Air Emissions) governs incinerator operations. In the event an incinerator is inoperable and other means of waste processing (e.g., composting) are not available or appropriate, then combustible and putrescible materials may be landfilled.

Treatment of two special waste streams are included in this DEP and the companion NCA. The puncture and draining of aerosol cans and the crushing and mercury capture of fluorescent lamps are both ongoing activities at USAKA that are incorporated into this DEP.

Solid waste disposal and management practices are described in the Solid Waste Management Plan prepared and published in accordance with UES §3-6.5.7(c)(6)(i).

All food wastes are processed through residential or industrial garbage disposals for introduction to the Wastewater Treatment Plant (WWTP) or incinerated. Coconuts are managed as natural green waste.

1.1 Kwajalein

The Kwajalein Solid Waste Management Facility is the central receiving area for solid wastes generated on all outer islands (except for Gagan), and for solid wastes not incinerated on Roi-Namur or Meck. Kwajalein solid waste management activities include the operation of:

- A waste management yard that is used to segregate waste
- A scrap metal segregation and staging area

- A recycling center that processes glass and polyvinyl chloride (PVC)
- A natural green composting area for the management of fibrous vegetation (trees, branches, palm fronds, coconuts, etc.)
- A compost area for non-fibrous vegetation waste, paper, food waste, cardboard, sewage treatment plant sludge, and water treatment plant sludge
- A non-treated wood collection area where wood waste is staged for recycling, and grinding into wood chips
- A 32-ton/day Solid Waste (SW) Incinerator that burns “garbage,” regulated medical waste, petroleum product waste, tires, and treated and non-treated wood waste (as necessary)
- Landfill for C&D debris and incinerator ash
- Concrete collection areas

1.1.1 Composting

Currently, composting of dried sewage sludge and non-fibrous wastes (i.e., lawn clippings, leaves, paper, cardboard, and food waste) in accordance with UES Section 3-6.5.7(d)(3)(ii)(C) does not occur based on a finding from an inspection conducted in the summer of 2010 by the United States Army Public Health Center (USAPHC) Pest Management Inspection group. Food waste was not being immediately incorporated into compost piles which resulted in producing fly breeding sites. As a result, composting operations ceased but may be reactivated in the future with the proper procedures, resources, and controls in place. In the event composting operations resume, the resulting material may be used as landfill cover or may be utilized for land application pursuant to the standards in UES Section 3-6.5.7(d)(2).

Fibrous vegetation (trees, branches, palm fronds, coconuts, etc) is staged to compost naturally. Kwajalein may maintain a mulching area for fibrous vegetation and untreated lumber waste. Mulch from this operation is used for island landscaping and beautification projects or amended into soils for use as landfill cover.

1.1.2 Incineration

A 32-ton per day capacity batch oxidation system incinerator is operated on Kwajalein. The incinerator is fueled by diesel fuel blended with waste petroleum. Combustion is initiated with blended fuel, and the waste burns for 10 to 24 hours without further attention. The volatile organic compounds naturally rise to the top of the chamber as un-combustible gas particulates, which are ducted to a secondary chamber where they become incinerated at a much higher temperature for approximately two seconds residence time. Once the combustion process is complete in the primary chambers (approximate volume reduction of 95 percent), the ash is released through a bottom opening ash door. Water may be used to assist in cooling of the ash. Ash may be stockpiled and allowed to cool for several days before disposition in to the landfill.

1.1.3 Landfilling

The Kwajalein Landfill occupies approximately 13 acres on the west edge of the islet. The current practice is to landfill noncombustible wastes (e.g., C&D debris) and incinerator ash in separate cells on the ocean-side perimeter of the landfill. Berms help prevent runoff to the ocean. Additionally, the two primary drainage swales from the landfill are diked to prevent discharges to the coastal water. A historic asbestos disposal site exists adjacent to the landfill and is permanently marked with signs. Access to the historic asbestos disposal site is restricted. Asbestos disposal at USAKA is currently prohibited.

1.2 Roi-Namur and Meck

Materials that are incinerated on Roi-Namur and Meck Islands include general solid waste, food waste, paper, cardboard and wood products. The incinerated ash is landfilled on the respective island. Green wastes are disposed via natural composting on each island. Recyclable materials and materials destined for reuse or heat recovery (e.g., petroleum waste) are sent to the Kwajalein Solid Waste Facility for processing and disposition.

Untreated lumber wastes on Roi-Namur and Meck are incinerated locally or transported to Kwajalein for processing. Mulch generated from untreated lumber and yard waste may be used for local beautification, vegetation, and soil erosion control. Treated lumber may be transported to Kwajalein for processing or incinerated with a maximum limit of 5 percent treated lumber per batch load. Batch loads with greater than 5% treated lumber shall require metal testing of incinerator ash prior to landfilling.

1.2.1 Composting

No active composting takes place on Roi-Namur or Meck. Natural green waste (i.e., palm fronds, coconuts, leaves, and tree trimmings) on Roi-Namur and Meck is segregated and placed in a designated area to naturally decompose.

1.2.2 Incineration

Roi-Namur and Meck both have a multiple chamber, closed hearth, starved air, diesel fired incinerator. The incinerators are batch charged and usually operate on a 24-hour cycle. Once the combustion process is complete, the removed ash is allowed to cool for several days before disposal in the landfills. Petroleum wastes processing in the incinerators does not occur on Roi-Namur and Meck.

1.2.3 Landfilling

The Roi-Namur Landfill occupies approximately 2.3 acres on the southwest shoreline of Roi. Incinerator ash is placed in a cell that is surrounded by a berm and vegetative barrier. This perimeter prevents runoff to marine waters.

The Meck Landfill is located in the southwest portion of the island within 400 feet of the helicopter landing pad. Incinerator ash is placed in a cell that has a vegetative barrier.

If the Roi-Namur or Meck Landfills become full, the ash will be removed, containerized, and transported to Kwajalein for landfilling.

1.3 Outer Islands

All outer islands have dumpsters for collection of trash generated by workers. Most outer island work is occasional and involves a few individuals; therefore waste generation is minimal. The waste in the dumpsters on Illeginni, Legan and Carlos are sent to Kwajalein for processing in the Solid Waste Facility. The dumpsters are replaced as necessary. Waste on other outer islands is typically removed when workers leave the island or as needed to avoid excessive accumulation or vector attraction. Wastes are shipped to the Kwajalein Solid Waste Management Yard for segregation, incineration, and/or landfilling as needed. Waste in the dumpsters on Gagan are removed to Roi-Namur where the waste is managed. All wastes from construction projects are removed from the islands at the conclusion of the projects or during the project when the designated storage area capacity is exceeded. No wastes are disposed of on these islands with the exception of natural green wastes, which are left to decompose naturally.

2.0 REQUIREMENTS AND LIMITATIONS

Table 1 identifies the UES provisions applicable for general solid waste disposal and the measures taken to address them.

Table 1 - UES Requirements, Limitation, Prohibitions

UES		Action
Citation	**Requirement/Activity**	
3-6.5.6(a)	Characterize waste	Waste is initially segregated and characterized at the point of generation by virtue of the activity generating the waste. Further characterization occurs during waste collection and processing. Waste is considered to be hazardous unless: defined as non-hazardous or solid waste [UES §§3-6.5.6(b)(1) and (2)]; non-hazardous based on generator knowledge; or testing or screening determines the waste to be non-hazardous.
3-6.5.7(a)(1)	Cannot treat or dispose of hazardous waste without a DEP	Hazardous waste is not treated or disposed of at USAKA except as authorized in a NCA/DEP.
3-6.5.7(a)(4) 3-6.5.7(b)(4)	General solid waste will be disposed of only after recycling, reuse and energy recovery are considered and as documented in a DEP	This DEP describes the recycling, reuse, and energy recovery practices at USAKA with regard to solid waste. Energy recovery from waste petroleum products oil at the Kwajalein incinerator is described in the NCA/DEP, although not required to be in the DEP.
3-6.5.7(b)(1)	Hazardous waste and	No hazardous waste or waste petroleum products are shipped

UES		Action
Citation	**Requirement/Activity**	
	waste petroleum products cannot be shipped to the Republic of the Marshall Islands (RMI)	to the RMI.
3-6.5.7(b)(4)(iii)	Waste petroleum specifications	Waste petroleum products used for energy recovery are screened periodically for total halogens and tested for other parameters in UES Table 3-6.5.7. "Non-spec" waste petroleum products are recycled or disposed of off-United States Army Garrison – Kwajalein Atoll (USAG-KA) in accordance with the UES.
3-6.5.7(c)(3)(i)(B)	Incineration of regulated medical waste	Regulated medical waste (RMW) is incinerated. RMW comprises less than 10 percent of the incinerator(s) waste stream, therefore, the standards in UES Appendix 3-1C are not applicable.
2-7.1.6(h) 3-6.5.7(c)(6)(i)	Solid Waste Management Plan	The Solid Waste Management Plan is required to be reviewed and updated every two years.
3-6.5.7(c)(6)(iii)	Location restrictions	No change to existing landfill and composting facility locations are included or proposed in this DEP. Past and present operations have not resulted in an aircraft safety hazard by birds.
3-6.5.7(c)(6)(iv)(A) 3-6.5.7(c)(6)(iv)(H)	Prevent disposal of hazardous waste Disposal of Liquids restrictions	Several layers of prevention are employed to detect and remove liquids and hazardous waste/materials before disposal: • Segregation at points of generation • Visual inspections of each load at entry gate (Kwajalein) • Random inspections (at least weekly) of accumulated waste within the solid waste management facility • Inspection of tipping floor contents before charging incinerator(s) • Landfill inspections prior to application of cover or new waste. Inspections are documented and the records are maintained at the facility(s). The Commander, USAG-KA, is notified if hazardous waste is discovered at the facility.
2-7.2.1(h)(9) and 3-6.5.7(c)(6)(iv)(B)	Cover material	In accordance with UES §3-6.5.7(c)(6)(iv)(B)(bb), the Commander determined that a minimum of two inches of cover material is adequate. Spent sand blast media, pulverized glass, composted material, non-dimensional (treated and non-treated) lumber, and clean fill are utilized as landfill cover. Spent sand blast media is regularly tested for "Resource Conservation and Recovery Act (RCRA) metals" to determine if it is hazardous. If hazardous, the spent sand blast media is not utilized as cover, but managed as hazardous waste. Additionally, dried sewage sludge may be utilized as cover material if demonstrated to meet the standards for unrestricted human contact in accordance with (IAW) UES §3-6.5.7(d)(2). Incinerator ash is typically deposited in the landfill once or twice a week and covered with at least two inches of cover material on the day of application.

UES		Action
Citation	**Requirement/Activity**	
3-6.5.7(c)(6)(iv)(C)	Vector control	The landfills do not typically receive putrescible waste; they receive incinerator ash and some C&D debris. As a consequence, vector attraction is minimal. Insects (flies primarily) are a potential issue at the tipping floors and the composting facility on Kwajalein. Tipping floors are routinely cleaned to minimize vector attraction. Pest management personnel will routinely monitor the landfill(s), tipping floors, and composting facility and, as necessary, eradicate the pests.
3-6.5.7(c)(6)(iv)(D)	Control of explosive gases	Landfills and designated composting area are monitored annually for methane levels. To date, methane has not been detected.
3-6.5.7(c)(6)(iv)(E)	Open burning of solid waste	Open burning is prohibited unless authorized in accordance with UES §3-1.7.1(b) or (c).
3-6.5.7(c)(6)(iv)(F)	Access restrictions	Access to solid waste management facilities is restricted by barriers and signage designating the areas as restricted access. Only properly credentialed personnel are allowed unescorted access.
3-6.5.7(c)(6)(iv)(G)	Run-on, run-off control	Landfill cells are positioned to create berms restricting run-off. Vegetative barriers also mitigate run-off to coastal water.
3-6.5.7(c)(6)(iv)(I)	Record-keeping	All records specified in this NCA and associated DEP are maintained by the landfill operator.
3-6.5.7(c)(6)(v)	Liner design and leachate collection	This DEP does not include the establishment of new landfills or lateral expansion of existing ones. New Landfills or lateral expansions of existing landfills shall require a liner design and leachate collection system in accordance with Section 3-6.5.7(c)(6)(v).
2-7.2.1(h)(11-14) 3-6.5.7(c)(6)(vi)	Ground water detection and assessment monitoring	See 5.1.2 of this DEP. The Appropriate Agencies will be notified and consulted on any changes to the ground water monitoring program or methodology for assessing monitoring results.
2-7.1.6(i) 3-6.5.7(c)(6)(vii)	Closure and post-closure care	Landfill closures are not anticipated during the effective period of the DEP. If an unanticipated closure is required, a closure/post closure plan will be submitted to the Appropriate Agencies for review at least 60 days prior to the closure commencement date.

2.1 General Requirements

a. USAG-KA solid waste management (SWM) personnel shall characterize all wastes as solid waste (SW), hazardous waste (HW), or special waste. [UES §3-6.1.2(c)(6), §3-6.5.6(b)]

b. SWM personnel will handle all SW as HW until identified as non-hazardous through sample analysis or generator knowledge. SW will be identified as HW if it meets the Hazardous Waste definition as defined in UES Appendices 3-6A and 3-6B.

c. The public and industrial work force will be educated and encouraged to segregate their solid waste at the point of generation.

2.2 Collection Requirements

Solid waste will be collected from residential and/or industrial areas on each of the USAKA islands.

a. Household wastes and solid waste from commercial or industrial sources will be transported to disposal facilities at least twice a week in accordance with the collection requirements specified in UES §3-6.5.5(a)

b. Collection will be performed using containers that are compatible with the materials collected and will be kept clean and stored in a way that protects public health and safety and the environment. [UES §3-6.5.5 (a)]

c. Vector control practices will include inspection by a pesticide applicator, and treatment if necessary, of collection and storage facilities at least once a month. Documentation of the types of vectors observed and methods of treatment will be retained for at least three years. [UES §3-6.5.5 (a)(1)(i)]

d. All utilized outer islands will have dumpsters replaced quarterly, at a minimum, and more frequently if barge transportation is available. Additional dumpsters and waste receptacles will be delivered and used as special programs occur on the islands. All wastes from construction projects will be removed from the islands at the conclusion of the project. No waste shall be disposed on the outer islands with the exception of natural green waste, which will be left to decompose naturally.

2.3 Treatment and Disposal Requirements

General solid wastes will be disposed of at USAKA only after reuse, recycling, and energy recovery are considered. Acceptable technologies for general solid waste disposal at USAKA include: incineration, land application, and land filling. [UES §3-6.5.7(a)(4)]

2.3.1 Ocean Disposal

Ocean disposal of any waste is not authorized by this DEP.

2.3.2 Incineration

a. Incinerators will combust only non-hazardous solid waste, with the exception of waste oil in accordance with Section 2.5.3.a.i.

b. The typical types of wastes incinerated include, but are not limited to, common refuse, household trash, paper, cardboard and Regulated Medical Waste (RMW). All food waste will be incinerated.

c. Treated lumber may be incinerated with limitations. No more than 1660 tons per 12-month rolling average of treated lumber may be incinerated at each incinerator (Kwajalein, Roi-Namur, and Meck). No single incinerator charge may receive more than 5 percent treated lumber, unless the ash is tested subsequent to the burn. Ash testing must be performed in accordance with the procedure set forth in section 5.1.4 of this DEP.

d. To aid in the detection and prevention of improper treatment of hazardous materials and hazardous waste in the incinerators, USAG-KA will employ waste inspections and surveillance. These include, but are not limited to, visual inspection of each load at entry gate, random inspection of accumulated waste and inspection of tipping floor contents prior to charging incinerator(s).

2.3.3 Landfill

USAKA landfills will only accept construction and demolition debris, general solid waste, and incinerator ash. No hazardous waste will be landfilled.

a. Operators of SW landfills or composting facilities will implement a program for detecting and preventing the disposal of HW [UES §3-6.5.7(c)(6)(iv)]. The program will include, at a minimum:

- Random inspections of incoming loads (on a weekly basis, at a minimum), unless other steps are taken to ensure that incoming loads do not contain hazardous wastes
- Retention and storage of records of all inspections
- Training of landfill facility personnel to recognize HW
- Notification of the Commander, USAG-KA, if a HW is discovered at the facility

b. General solid waste landfill facilities shall be covered with at least two inches of cover material at the end of each operating day, when ash or any putrescible waste is added to the landfill, or more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging.

c. Alternative cover materials or an alternative thickness may be approved by the Commander, USAG-KA, in consultation with the Appropriate Agencies in accordance with UES §3-6.5.7(c)(iv)(B)(bb). Acceptable alternate materials for use as landfill cover include:

- Clean fill
- Non-hazardous spent sand blast grit,
- Composted materials,

- Pulverized glass,
- Non-dimensional lumber (treated and non-treated)

d. Operators of all SW landfill and composting facilities will prevent or control onsite populations of disease vectors to protect public health and safety and the environment. UES §3-6.5.7(c) control measures can include the following:

   - Application of approved coverage materials at frequencies to satisfactorily control vectors.
   - Providing “active” management of compost piles to include aeration, adjustment of nitrogen balance, moisture content control, and internal temperature.
   - Incineration of SW to an ash residue that does not attract vectors.
   - Controlling or destroying breeding habitats for vectors and pests.
   - Trapping insect vectors and other pests.

e. Operators of all SW landfill and composting facilities will control public access and prevent unauthorized vehicle traffic and illegal dumping by using artificial or natural barriers, or both, as appropriate. [UES §3-6.5.7(c)(6)(e)(iv)(f)]

f. Operators of SW landfill and composting facilities will design, construct, and maintain a system for controlling run-on and run-off to prevent flow onto or from the active part of the facility so that a discharge of pollutants to surface water does not occur. [UES §3-6.5.7(c)(6)(e)(iv)(g)]

g. Liquid waste will not be disposed in the landfill unless the waste is a household waste (not septic waste) or the waste is not in a storage container, other than small storage containers associated with household solid waste. [UES §3-6.5.7(c)(6)(iv)(H)]

h. Prior to closing a general solid waste landfill, USAG-KA will prepare and submit to the Appropriate Agencies a closure/post closure plan that meets the requirements set forth in UES §3-6.5.7(c)(6)(vii).

i. In extraordinary circumstances, putrescible wastes may be disposed of in the landfills. These circumstances include situations where an incinerator(s) is inoperable and other means of waste processing (e.g., composting) are not available or appropriate.

2.3.4 Open Burning

Per UES §3-1.7.1, open burning of SW or other substances as a means of disposal or volume reduction is prohibited, with the following exceptions:

a. The Commander, USAG-KA, may authorize in writing, the infrequent open burning of land-clearing debris or other non-hazardous debris from emergency

cleanup operations. USAG-KA will notify all Appropriate Agencies of this emergency authorization within 30 days in accordance with UES §2-7.2.1(c).

b. The Commander, USAG-KA may authorize the open burning of non-putrescible, non-hazardous, solid wastes (e.g. scrap wood, cardboard) for fire-fighting practice. USAG-KA will notify all Appropriate Agencies of any such authorization at least 30 days in advance of the event in accordance with UES §2-7.2.1(c).

c. Open burning of liquid wastes for fire-fighting training is prohibited. [UES §3-1.7.1(c)]

2.4 Reuse/Recycle

To the extent practicable, collected wastes will be evaluated for reuse or recycling to minimize the quantities of materials to be disposed of at USAKA. All reasonable measures should be taken to maximize recycling of materials and waste. All materials identified as recoverable resources will be stored in a way that prevents contamination of the surrounding environment and complies with the appropriate requirements of UES §3-6.5.3. [UES §3-6.5.7(a)(4)] Recyclable and energy recovery material will not be accumulated to a degree that presents a fire, health or safety hazard. Items will be shipped from USAKA for recycling at a reasonable interval, annually being a preferred minimum.

2.4.1 Batteries

a. Spent lead-acid batteries will be collected from each generating source at a frequency that prevents accumulations representing a public safety or environmental hazard.

b. Spent lead acid batteries shall not be accumulated for recycling for longer than six (6) months.

   i. An individual spent lead-acid battery, or the pallet, shipping crate, or similar container of collected spent lead-acid batteries shall be labeled by date. The container shall be labeled by the earliest date when any of the individual collected batteries became a spent battery.

   ii. Spent lead-acid batteries will be stored within secondary containment in accordance with UES§3-6.5.3(a)(9).

c. Nickel-cadmium, lithium, nickel-oxide, mercury and silver batteries will be segregated at the point of generation and transported to a designated facility, at a minimum of once a quarter, for recycling. Transport off island to recycling centers should occur at a preferred minimum of once every six (6) months or more frequently if practicable.

2.4.2 Aerosol Cans

Aerosol cans under pressure may exhibit the characteristic of reactivity. Empty, expired and unusable aerosol cans will be managed as a separate waste stream throughout USAKA.

a. The waste will be accumulated at waste accumulation areas near the points of generation and transported to Hazardous Material Warehouse (Facility Number 1521) on Kwajalein for consolidation and subsequent transportation to the Vehicle Paint and Preparation Facility (VPPF), or other appropriately equipped facility, for processing.

b. Cans will be depressurized and drained of any residual product. Depressurized and empty cans will be managed as scrap metal and recycled.

c. Residual materials drained from the aerosol cans will be managed according to a subsequent waste determination.

d. Prior to being depressurized and emptied, waste aerosol cans will be managed as hazardous waste in accordance with UES §3-6.

2.4.3 Scrap Metal

Scrap metal shall be segregated and sent to Kwajalein, baled (if practical), and transported off-island for recycling. Stockpile of materials will not experience excess accumulation. Off-island shipments will occur at an interval which will prevent excess accumulation of scrap metal.

2.4.4 Tires

Used tires will be segregated and reused, if possible, for example as pier fender or will be incinerated.

2.4.5 Glass

Glass from all islands will be sent to the Kwajalein Recycling Facility (FN 1520). The glass will be pulverized, sorted according to size, and offered for reuse locally as an aggregate product in construction or beautification projects, bedding material for sludge drying beds, landfill daily cover, and/or other practicable reuse or recycling options.

2.4.6 Natural Green Waste

a. Natural green waste (i.e., palm fronds, coconuts, leaves, and tree trimmings) on Kwajalein, Roi-Namur, and Meck is segregated, and placed in designated areas to compost naturally.

b. Natural green waste may be mulched and used for local beautification, vegetation, and soil erosion control projects.

c. Natural green waste may be incinerated, but is the least preferred method of green waste disposal.

2.4.7 Concrete

Concrete will be stockpiled at applicable collection areas according to size. Large boulders and riprap, if determined to be free of hazardous constituents and paint, may be used for shoreline protection if conducted in accordance with the requirements of the Dredging and Filling DEP-16-001.0. If crushing equipment is available, smaller pieces of concrete can be crushed and used as fill material.

2.4.8 Cardboard/Paper

Cardboard/paper waste may be incinerated. Additionally, the composting of cardboard and paper waste may be re-initiated in the future.

2.4.9 Wood/Lumber (Treated and Non-Treated)

a. Non-treated wood shall be stockpiled for reuse, ground into mulch, or incinerated.

b. Grinding of non-treated would may take place on Kwajalein when functioning loaders and grinding equipment are available.

c. No mulch will be applied over the lens wells or near catchment areas as a precautionary measure in case any treated wood may have inadvertently been mulched.

d. Kwajalein may maintain a mulching area for fibrous vegetation and untreated lumber waste.

e. Mulch from non-treated wood may be used for island landscaping and beautification projects or amended into soils for use as landfill cover.

f. Treated lumber will be disposed of by incineration or landfilling.

g. Treated lumber may be incinerated in accordance with limitations in Section 2.3.2.c.

h. Non-dimensional lumber (treated or untreated) may be used as cover material for the landfills. Non-dimensional lumber is lumber that has been crushed, chipped, mulched, or homogenized to provide adequate cover on the landfill.

2.4.10 Sewage Sludge and Septage

Dried sewage sludge is generated at the Kwajalein and Roi-Namur wastewater treatment plants. Septage waste is generated from the cleanout of septic tank systems.

a. Sewage sludge and septage which meet the quality standards in UES §3-6.5.7(d)(3) and the management requirements in UES §3-6.5.7(d)(4) may be applied to land as a soil conditioner and fertilizer without any human contact restrictions to land areas on all U.S. controlled islands.

b. Sewage sludge and septage, which do not meet the standards in UES §3-6.5.7(d), shall be disposed in the Kwajalein Solid Waste landfill.

c. Septage may be discharged to a domestic sewage collection system or to a domestic sewage treatment plant only if the pretreatment requirements established by UES §3-2.7.1 and the appropriate Point Source Discharge DEP requirements are satisfied.

2.5 Waste Processing

2.5.1 Excess Property

Excess property items as furniture, vehicles, and tools are consolidated at FN 1500 on Kwajalein and offered for reuse. If materials are not reused within USAKA, the materials will be offered for sale. If materials are not sold, then the items will be determined to be scrap/waste and will be managed accordingly.

2.5.2 Ash

a. Ash that is non-hazardous (tests below the maximum concentrations of contaminants as set forth in section 5.1.4 of this DEP) may be managed by any of the following methods:

    i. Dispose of ash in the Kwajalein, Roi-Namur or Meck Landfills.
    ii. Reuse or dispose of by beneficially reusing ash by screening it to remove metals and glass, and then blending it as a component of compost and/or mulch.
    iii. Temporarily store ash and ship it off island to municipal or non-hazardous waste landfills that comply with modern landfill standards and 40 CFR Part 258 (Subtitle D of RCRA), or equivalent state, territory or commonwealth regulations, or to a facility for composting or mulching.

b. Ash with concentrations equal to or above the UES Table 3-6B.1 levels shall be managed as hazardous waste as set forth in section 5.1.4 of this DEP.

2.5.3 Waste Petroleum Products and Soil

a. Energy Recovery – Thermal Treatment

i. Waste liquid petroleum products may be used for energy recovery in the Kwajalein incinerator provided they meet the specifications given in UES Table 3-6.5.7, have not been mixed with other waste types, and are stored and managed in compliance with UES §3-6.

ii. Only materials (e.g., rags, sorbent pads) and soils contaminated with benzene (D018) may be mixed with general solid waste and thermally treated in the solid waste incinerators on Kwajalein, Roi-Namur or Meck. USAG-KA shall adequately characterize the waste (e.g., generator knowledge, field analysis, or laboratory analysis) prior to thermal treatment of the waste. USAG-KA will document any such determinations.

iii. The amounts of petroleum, oil, and lubricant (POL) contaminated soil (POL soil) stored or stockpiled for subsequent thermal treatment shall be kept to the smallest amount possible and in no event shall POL soil be stored or stockpiled for more than 6 months. Any petroleum contaminated soil that is stored or stockpiled for thermal treatment shall be stored or stockpiled in a manner that:

A. Prevents the migration of contaminants to the groundwater.
B. Prevents the migration of contaminants to adjacent land or water.
C. Minimizes fugitive particulate matter emissions from the stockpile.
D. Restricts access to the stored or stockpiled material.

b. POL Soils – Alternative Treatments

i. POL soils that are non-hazardous, except for benzene (D018), may be treated at USAKA in accordance with a treatment plan that has been reviewed and agreed to by the Appropriate Agencies. Treatment methods may include, but are not limited to: in-situ and ex-situ bioremediation, including phytoremediation and land farming.

A. The *Kwajalein Landfarm and Roi-Namur Landfarm Ex-Situ Remediation of Petroleum Contaminated Media Treatment Plan* (Bering-KAYA Support Services, Revision 1, February 2018) is an approved POL Soils alternative treatment plan.
B. Proposed modifications to the approved alternative treatment plan shall be processed in accordance with Section 2.5.3.b.iv.

ii. Prior to the initiation of POL soil treatment not otherwise authorized under UES §3-6.5.8 (Restoration), USAG-KA will provide the Appropriate Agencies with a treatment plan. Unless USAG-KA provides for a longer review period, the Appropriate Agencies will have 30 calendar days from receipt of the plan to indicate agreement with the plan, provide comments and recommendations, or offer objections,

along with reasons for any objections, on the plan. No response from an Appropriate Agency within the review period will constitute agreement with the plan. USAG-KA will address all comments and recommendations received on the plan and consult with any agency offering objections to the plan. USAG-KA will not proceed with plan implementation until all objections to the plan are resolved.

iii. The treatment plan shall include all information relevant to the activity and, at a minimum, include:

A. The location of the POL soil and treatment area.
B. A description of the proposed treatment methodology.
C. A description of the estimated amount and nature of the POL soil including the event(s) resulting in the contamination.
D. Measures that will be taken to prevent migration of contamination to unaffected resources and locations as a result of the treatment, removal and storage of POL soil, or reuse of POL soil after treatment (e.g., leaching to groundwater, runoff, fugitive dust).
E. Measures and procedures that will be implemented to ensure the POL soil is not hazardous waste.
F. The planned reuse of the soil after treatment, including the target cleanup levels and a justification of why the target cleanup level is protective of human health and the environment.
G. The measures that will be taken to oversee the activity and periodically evaluate the efficacy of the treatment methodology.
H. Provisions for periodic reporting to the Appropriate Agencies on the status of the activity.

iv. Proposed modifications to approved alternative treatment plans shall be submitted to the Appropriate Agencies for a 30-day review period. The Appropriate Agencies will indicate agreement with the proposed modifications, provide comments and recommendations, or offer objections, along with reasons for any objections, on the modifications to the plan. No response from an Appropriate Agency within the review period will constitute agreement with the proposed modifications. USAG-KA will address all comments and recommendations received on the proposed modifications and consult with any agency offering objections to the plan. USAG-KA shall not proceed with implementation of the proposed modifications to the plan until all objections are resolved.

v. USAG-KA will notify the Appropriate Agencies at least 30 days before reusing any soil after ex-situ treatment and provide documentation (e.g., laboratory results) confirming that the soil is safe for the proposed reuse. USAG-KA will not reuse treated soil at or over: Class I groundwater areas; residential areas; school grounds; recreational fields; or child care areas. USAG-KA will not reuse the soil as proposed if an

Appropriate Agency objects within 30 days of receiving USAG-KA's notification.

vi. USAG-KA will notify the Appropriate Agencies at least 30 days before ceasing in-situ treatment or removing soil (except for testing purposes) from an in-situ treatment site. The notification will provide the reasons for ceasing treatment and, as relevant, a justification for removing soil from the site and a demonstration that the removed soil will not result in the spread of contamination or an unacceptable risk to human health or the environment.

2.5.4 Regulated Medical Waste

a. Collection and Storage:
All persons who generate or store RMW, as characterized in UES §3-6.5.6(d)(2), shall comply with the following requirements for collection and storage [UES §3-6.5.5(e)]:

i. Filled bags of regulated medical waste (RMW) will be stored in rigid puncture-resistant, leak-proof containers.

ii. Sealed bags will be carried by the necks to the transportation cart. Bags will not be lifted or held by the bottom or sides, and the bags will be held away from the body.

iii. Carts used to transport or store RMW will be constructed of readily cleanable material, plastic or stainless steel. Carts will be closed except when being filled or emptied.

iv. Carts and all other reusable containers for collecting RMW will be cleaned weekly or more frequently as needed, using a hospital-grade detergent-disinfectant that acts as a mycobacteriacide. The detergent-disinfectant will be used in strict accordance with the manufacturer's instructions. If a spill occurs, the cart or container and all contaminated surfaces will be cleaned immediately with a hospital-grade detergent-disinfectant.

v. The RMW will be collected in a way that maintains the integrity of the packaging and in a location that provides protection from weather, animals, and vectors; unauthorized access; and unintentional contact.

vi. The RMW will be segregated from general wastes at its point of origin and will be placed in containers so that there is a secure barrier between the waste and the workers.

vii. The RMW containers will be marked with the universal biohazard symbol and maintained in a non-putrescent state at all times throughout collection; refrigeration will be used if necessary.

viii. All RMW containers will be sized according to the activity and will accommodate no more than a 1-day amount of RMW.

ix. For RMW Classes 4 and 7: All “sharps” (syringes, needles, knives, scalpel blades, tubes, pipettes, etc.) will be discarded directly into a rigid leak proof, puncture-resistant, unbreakable container immediately after use. Disposable needles and syringes will be discarded intact and will not be cut, broken, bent by hand, or recapped. The containers for sharps will be designed to prevent unauthorized removal or access and will be located as close as practical to the area of use. The containers will be sealed when they are 3/4 full.

x. All RMW storage areas will be inspected weekly to detect leaking or deteriorating containers. Storage areas on uninhabited islands will be inspected weekly when USAG-KA personnel are present or at least once every two months if no activity is taking place [UES §3-6.5.3(a)(6)]. RMW on uninhabited islands will not be stored on islet if possible and will be transported to Kwajalein as generated for incineration.

b. Treatment and Disposal:
All persons who treat RMW will comply with the requirements outlined in UES §3-6.5.7(c)(3), including handling procedures, incineration, sterilization and RMW characterization.

i. RMW handlers will be trained in accordance with the UES. In addition to the general requirements of UES §3-6.5.3(a), RMW intended for disposal will be securely stored in a locked area under the control of the Commander, USAG-KA.

ii. All RMW generated on Roi-Namur and Meck shall be incinerated at the islet of generation or transported to Kwajalein for incineration. RMW will be transported to Kwajalein by qualified personnel who observe or initiate RMW destruction in the Kwajalein incinerator.

iii. Transport of RMW from the health care facility to disposal or storage facility shall abide by requirements set forth by UES §3-6.5.2(b)(4). These include:

A. RMW will be collected and transported by qualified personnel who will accompany the medical waste to the incinerators and will remain present to ensure RMW is immediately incinerated.
B. Filled bags of RMW will not be transported loose. They will be stored in rigid puncture-resistant, leak-proof containers that will not tip over during transport. Transport containers may be reusable and will be cleaned using the methods in UES §3-6.5.5(e)(1)(ii).
C. Vehicles used for transporting RMW will be readily cleanable.
D. All vehicles used for transporting RMW will be cleaned weekly or more frequently as needed, using a hospital-grade detergent-

disinfectant. All vehicles used for transporting RMW will be cleaned before being used for any other purpose.

E. All vehicles used for transporting RMW will carry a spill containment and clean-up kit.

F. Vehicles used for transporting RMW will not stop during transport of RMW except for traffic control.

G. The transporter will verify that each package is marked as required by UES §3-6.5.2(a).

H. The generator will mark each package of RMW according to the following marking requirements before the waste is transported or offered for transport from USAKA. The outermost surface of the package will be marked with a water-resistant identification tag showing the following information:

- Generator's or intermediate handler's name
- Generator's or intermediate handler's identification number
- Generator's or intermediate handler's address
- Transporter's name
- Transporter's identification number
- Transporter's address
- Date of shipment
- Identification of contents as RMW

2.5.5 Compressed-Gas and Gas Cylinders

a. Compressed gas cylinders will be managed in accordance with all applicable rules and regulations, stored in an area protective from the elements, and returned to the supplier when empty or no longer being used.

b. Compressed gases shall be included in the classification of hazardous materials and shall be stored and transported in compliance with UES §3-6.5.3 and §3-6.5.2.

c. Empty, expired, and/or abandoned or discarded compressed gas cylinders will be collected and placed in a storage facility meeting the requirements of UES §3-6.5.3(b)(3) or disposed of in accordance with UES §3-6.5.7(c)(1)(i).

d. In accordance with UES §3-6.5.7(c)(1)(i), empty compressed gas cylinders may be managed as general solid waste and recycled provided the valve has been removed or the cylinder or vessel is otherwise open to the atmosphere, and the cylinder or vessel rendered unusable as a liquid container.

e. Compressed gas cylinders or vessels not meeting the requirements of UES §3-6.5.7(c)(1)(i), are hazardous waste and subject to the requirements in this DEP.

f. Cylinders of unknown contents will be collected, handled, and stored as hazardous waste. [UES §3-6.5.5(c)(2)]

g. If abandoned or discarded compressed gas cylinders are not suitable for transportation off USAG-KA and hold pressure, then the compressed gas cylinders may be detonated as potential explosives in accordance with the Disposal of Munitions and Other Explosive Materials DEP.

2.5.6 Fluorescent Lamps

a. Waste fluorescent lamps will be managed as a separate waste stream throughout USAKA.

b. Waste lamps will be consolidated and crushed in a bulb crusher equipped with a High Efficiency Particulate Air (HEPA) filter to reduce the volume and capture any residual mercury.

c. The resulting crushed lamps are managed as hazardous waste in accordance with UES §3-6.1.2.

d. Filters in the drum crusher will be periodically replaced in accordance with manufacturer recommendations. The spent filters will be managed as hazardous waste in accordance with UES §3-6.1.2.

2.5.7 Corrosive Waste

a. Elementary Neutralization Units (ENU) are tanks, tank systems, containers, transport vehicles, or vessels as defined in 40 CFR 260.10.

b. ENUs may be used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic or they are listed waste only for corrosivity.

c. Acidic and caustic solutions may be neutralized by adjusting the pH with water or other pH appropriate solutions (i.e. mixing an acid with a weaker caustic solution or mixing a caustic with a weaker acidic solution). The neutralized solution may then be disposed to the sanitary sewer system if the solution has a pH greater than or equal to 5 standard units and has no other hazardous waste characteristics.

2.5.8 Polyvinyl Chloride (PVC) Items

PVC items will be segregated and stockpiled for disposal off USAG-KA. PVC items may be reduced in volume via shredding, grinding, or equivalent means prior to shipment off USAG-KA for disposal.

3.0 TRAINING REQUIREMENTS

In accordance with UES §3-6.5.1(d), all personnel engaged in the operation of the incinerator emission-control equipment; monitoring of water quality at the landfill; receiving, handling, analyzing and storing pesticides or hazardous waste; or engaged in operating processes that use pollution-control devices shall be trained. Verification of the training shall be documented in the training record, and the immediate supervisors, the shop foreman, or the job leader shall verify that adequate training has been provided.

4.0 FACILITY AND EQUIPMENT REQUIREMENTS

a. Facility requirements for hazardous materials, wastes, and petroleum products shall be designed to ensure the health and safety of the local population.

b. The general facility requirements shall address security, labeling, safety and spill-prevention equipment, and facility design. [UES §3-6.5.3]

c. All equipment utilized for solid waste management (e.g., incinerators, grinders, loaders) will be maintained in accordance with manufacturer recommendations. In the event repairs are required or replacement equipment is needed, USAG-KA will expeditiously accomplish the repairs or acquire replacement equipment.

5.0 MONITORING, RECORD KEEPING, NOTIFYING, AND REPORTING

5.1 Monitoring

USAG-KA will monitor the effectiveness of environmental controls and mitigation measures to ensure protection of public health, safety, and the environment. If monitoring reveals that environmental controls are not properly addressing a pollutant or an effluent, USAG-KA will immediately initiate corrective action and notification. All results from monitoring as required by this DEP will be reported to the Appropriate Agencies on an annual basis.

5.1.1 Air Emissions

Air emission monitoring requirements of the USAG-KA SW incinerators is specified in the Air Emissions from Major, Synthetic Minor, and Industrial Boiler Stationary Sources DEP-11-001.0.

5.1.2 Groundwater

Table 2 summarizes the groundwater monitoring wells' locations, monitoring frequency and parameters to monitor.

a. In accordance with UES §3-6.5.7(c)(6)(vi)(B)(bb), landfill groundwater will be monitored at least semi-annually during the active life of the landfill facility,

including any closure and post-closure care period. At least one sample from each well must be collected and analyzed during each semiannual sampling event. If a decreased frequency or less than one sample per well is planned, a justification for the decreased frequency and sample number will be provided. Constituents of concern and monitoring frequencies will be established for the landfill area, in coordination with the Appropriate Agencies.

b. The groundwater monitoring and corrective measures program will satisfy the requirements of UES §3-6.5.7(c)(6)(vi). A qualified professional, experienced in conducting hydro-geological investigations will perform the analysis and interpretation of the monitoring well data. The results of each sampling episode will be documented, and the results will be provided for review to the Environmental Engineer, USAG-KA, and the Appropriate Agencies, on an annual basis.

c. If groundwater monitoring of the landfill indicates constituents of concern are detected above levels established in the UES, a program to sample adjacent marine waters for leachate will also be necessary.

Table 2 - Ground Water Monitoring Stations, Frequency, and Parameters

Well Number	Location	Monitoring Frequency	Parameters to Monitor
KS-1R/1R2*	Kwajalein Shoreline South of Landfill	Semiannual	Metals, Polychlorinated Biphenyl (PCB), Pesticides
KS-2*	Kwajalein Shoreline Southwest of Landfill	Semiannual	Metals, PCB, Pesticides
KS-3*	Kwajalein Shoreline West of Landfill	Semiannual	Metals, PCB, Pesticides
KS-4R**	Kwajalein Shoreline West of Landfill	Semiannual	Metals, PCB, Pesticides
KS-5**	Kwajalein Shoreline Northwest of Landfill	Semiannual	Metals, PCB, Pesticides
KW-1	Northwest of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
KW-2*	Northwest Border of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
KW-3	In Kwajalein Landfill Area	Semiannual	Metals, PCB, Pesticides
KW-4	In Kwajalein Landfill Area	Semiannual	Metals, PCB, Pesticides
KW-5	South of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
KW-6*	Southeast of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
KW-7	East of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
KW-8	Northeast of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
RN-1	Northwest border of Roi-Namur Landfill	Semiannual	Metals
RN-2	West border of Roi-Namur Landfill	Semiannual	Metals
RN-3	South of Roi-Namur Landfill	Semiannual	Metals
RN-4	Northeast of Roi-Namur Landfill	Semiannual	Metals
RN-5	Northeast of Roi-Namur Landfill	Semiannual	Metals
MK-2	North of Meck Landfill	Semiannual	Metals
MK-3	East of Meck Landfill	Semiannual	Metals
MK-5	East of Meck Landfill	Semiannual	Metals

* Well damaged or destroyed

** Shoreline seep samples are collected near the well locations.

5.1.3 Methane Gas

a. In accordance with UES 3-6.5.7(c)(6)(iv)(D) landfills and composting areas will be monitored at a minimum annually for methane gas.

b. USAG-KA will institute monitoring for methane gas at both the landfills and the composting areas. In accordance with UES §3-6.5.7(c)(6)(iv)(D), operators of SW landfill and composting facilities will ensure the concentration of methane gas generated by the facility does not exceed twenty-five (25) percent of the lower explosive limit (LEL) for methane in the facility and does not exceed the LEL for methane at the boundary of the facility property.

c. To determine the general levels of methane concentration in the landfill and composting areas, an initial survey will be conducted using a portable combustible gas analyzer, or other suitable gas detection instrument. If levels of methane are detected exceeding the LEL, precautions will be taken to ensure public health and safety; and the Commander, USAG-KA, will be notified.

d. Within seven days of detection of a methane concentration exceeding 25 percent of the LEL, the levels of methane gas detected and a description of the steps taken to protect public health and safety will be documented. Within 60 days of detection, a remediation plan will be implemented describing the extent of the problem and the proposed remedy.

e. If the monitoring program indicates a methane gas problem exists and a remedy is required, permanent methane gas monitoring vent pipes will be installed within, and at the perimeter of the affected facility. A procedure will be developed for monitoring methane gas in the vicinity of the vents, and the results of each monitoring event will be recorded and submitted to the Appropriate Agencies for review.

5.1.4 Incinerator Ash

a. Incinerator ash shall be tested no less than annually to evaluate toxicity levels associated with the metal contaminants listed in UES Table 3-6B.1.

    i. A concentration equal to or greater than any one toxicity characteristic deems the incinerator ash as hazardous waste and will require proper disposal.
    ii. Ash loads generated subsequent to the sampled load will be isolated and securely stored until such time as the results from the sampled load are received.
    iii. If the results show that the sampled load did not exceed any Table 3-6B.1 threshold for a metal contaminant, the sampled and stored ash loads may be disposed of as non-hazardous waste.

iv. If the results show that a Table 3-6B.1 threshold is exceeded: the sampled ash load will be managed as hazardous waste; newly generated ash loads will continue to be isolated and securely stored; and stored ash loads will be sampled in chronological order.
v. Once two chronologically consecutive ash loads are shown to not exceed a Table 3-6B.1 threshold, routine sampling may return to an annual frequency and ash loads generated after the two consecutive loads not exceeding a threshold may be disposed of as nonhazardous waste.
vi. Any ash load exceeding a Table 3-6B.1 threshold will be managed as hazardous waste.

b. If the operator of an incinerator, other solid waste management personnel, or the USAG-KA Environmental Engineer knows or suspects that a waste charge to an incinerator contains materials not authorized in this DEP that could cause an exceedance of a Table 3-6B.1 threshold for a metal contaminant, the generated ash load will be sampled for metal contaminants.

c. If an incinerator malfunction or incorrect operation occurs that results in incomplete combustion, the resulting ash load may be retreated in the incinerator or sampled for metal, volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC) contaminants. In the event sampling is conducted, the protocol for subsequent ash loads and resumption of annual sampling will be followed as if the sample was a routine annual sample.

5.1.5 Treated Lumber Incineration

USAG-KA will record and maintain records of the quantities of treated lumber that are incinerated at each of the three incinerator facilities (Kwajalein, Roi-Namur, and Meck). The records will include:

a. The quantities incinerated by month.

b. Identification of any single burn event when treated lumber comprised more than 5 percent of the incinerator charge.

c. The 12-month rolling average amounts of incinerated treated lumber at each incinerator.

5.1.6 Sewage Sludge and Septage

a. In the event sewage sludge or septage will be utilized for land application as a soil conditioner and fertilizer, a representative sample of the sewage sludge shall be tested annually to demonstrate the pollutant concentrations in UES §3-6.5.7(d) are not exceeded.

b. Sewage sludge and septage, which do not meet the standards, shall be disposed in the Kwajalein Solid Waste landfill.

c. Septage may be discharged to a domestic sewage collection system or to a domestic sewage treatment plant only if the pretreatment requirements established by UES §3-2.7.1 and the appropriate Point Source Discharge DEP requirements are satisfied.

5.2 Record Keeping

5.2.1 Operating Records

All general solid waste landfill and composting facilities will have an operating record that contains the following information at a minimum:

a. Any demonstrations required under UES §3-6.5.7(c)(6)(iii)(A).

b. Inspection records, training procedures, and notification procedures required under UES §3-6.5.7(c)(6)(iv).

c. Methane gas monitoring results from monitoring and remediation plans required by UES §3-6.5.7(c)(6)(iv)(D).

d. All groundwater detection and assessment monitoring, testing, or analytical data required by UES §3-6.5.7(c)(6)(vi).

e. Documentation of the closure and post-closure care measures described in the closure/post closure plan required by UES §3-6.5.7(c)(6)(vii).

5.2.2 Record Retention

All records associated with the SW disposal activity potentially affecting the environment at USAKA will be maintained for at least five years unless another length of time is specified elsewhere in this DEP or in the UES §2-13.1 and §2-13.2.

a. Personnel-training records will be preserved for 10 years beyond the period the employee is engaged in activities potentially affecting the environment at USAKA.

b. Medical records of personnel will be maintained for 30 years.

c. All records on hazardous waste, laboratory results, and studies relating to those wastes will be preserved for three years. Records on hazardous

materials and their disposition will be maintained until the materials are reclassified as hazardous wastes or recycled.

d. Baseline studies, such as studies of air monitoring, noise monitoring, groundwater quality, and hydrogeology, will be preserved indefinitely.

e. Surveys of areas where SW has been managed, including treatment, storage, disposal, dispensing, and staging and corrective-action plans, will be preserved for 30 years.

f. Notice of Proposed/Continuing Activity (NPAs/NCAs), Environmental Comments and Recommendations (ECRs) and DEPs will be preserved for the duration of the activity plus 10 years or for 10 years after expiration of the DEP, whichever is less.

g. Documentation of actions taken under UES §3-6.5.8 to respond to or remediate the release of hazardous substances to the environment will be preserved for 30 years.

h. All criteria for landfill location restrictions will be maintained for at least five years.

i. Inspection records, training procedures, and notification procedures will be maintained for at least five years.

j. Monitoring results from required “monitoring and remediation plans” will be preserved indefinitely.

k. All demonstration, certification, monitoring, testing, or analytical data will be preserved indefinitely.

l. All documentation of the closure and post-closure care measures will be maintained for at least 30 years.

m. All documentation developed on sewage sludge or septage, or on material derived from sewage sludge or septage, which is applied to land areas on USAKA islands, will be retained for five years.

5.3 Notification Procedures

5.3.1 Agency Notification

In some cases, notifying the Appropriate Agencies may be a prelude to initiating formal consultation among agencies and preparing a DEP. In other cases, notification may be for the purposes of informing the Appropriate Agencies that an activity or event has taken place that has caused or has the potential for causing

harm to public health and safety and the environment; initiating consultation other than for purposes of preparing a DEP; or advising the Appropriate Agencies of an action taken or contemplated by USAG-KA. In all cases, the notice will be timely made to the Appropriate Agencies and contain the relevant information described in UES §2-7.2.2.

5.3.2 Public Notifications

a. Public notifications shall be made by USAG-KA to advise the public of an activity or action that USAG-KA has taken or is planning as described in UES §2.7.3.2.

b. Public notification shall be made through means that are widely available and consulted by the public at USAG-KA and the Republic of Marshall Islands (RMI) such as *The Kwajalein Hourglass* and announcements on the television "Roller," and shall be effective for the locations affected.

c. Public notices shall be required for all emergency notifications (UES §2-6.3) and usually will be required for activities listed under UES §2-7.1.

5.3.3 Emergency Notifications

a. Within 24 hours of the discovery of an emergency environmental condition involving SW operations, USAG-KA will notify the agencies listed below by the most expeditious means available.

b. Emergency environmental conditions are those that pose an immediate threat to human health and safety, incidental take of protected species or habitats, or unplanned impacts to sensitive natural and cultural resources as defined in UES §2-7.3.1.

c. Emergency environmental conditions may include inadvertent disposal of hazardous materials or liquids in the landfill threatening groundwater supplies or adjacent marine waters.

d. Within 10 days following emergency notification, USAG-KA will submit written notification of the event to the Appropriate Agencies that contains, at a minimum, the relevant information described in the UES §2-7.2.2.

e. Emergency notifications shall be made for any condition the Commander, USAG-KA, determines to constitute an emergency condition.

5.4 Reporting

In accordance with UES §2.7, two categories of reports are required; reports transmitted to document compliance of ongoing operations, and reports transmitted for notification of conditions that may, in the best judgment of the USAG-KA

Commander, result in an environmental emergency.

In addition to, “reports transmitted to document compliance” are those reports of study results and actions required to bring the Solid Waste Management activity into compliance with the UES. The required information developed to document compliance with this DEP will be made available to the Appropriate Agencies.

5.4.1 Reports of Environmental Compliance

Unless otherwise specified in this DEP or the UES, all reports will be submitted to the Appropriate Agencies within 30 days of completion of the report. [UES §2-7.1]

a. Solid Waste Management Plan as specified in UES §3-6.5.7(c)(6)(i); reviewed every two years will include:

- Waste reduction and minimization
- Recycling
- Reuse
- General Solid Waste Disposal
- Construction and Demolition Waste, Debris, and Hazardous Debris

b. Landfill Closure/Post Closure Plan [UES §2-7.1], as needed.

c. Results of incinerator ash analysis (Section 5.1.4 above) that are above the thresholds in UES Table 3-6B.1 and the associated corrective action plan.

5.4.2 Reports on Resolution of Non-compliant Areas

USAG-KA will provide reports and final recommendations to Appropriate Agencies on non-compliance areas. [UES §2-16.2]

6.0 RESOLUTION OF NON-COMPLIANT AREAS

6.1 Landfill Access

Issue: According to UES §3-6.5.7(c)(6)(e)(iv)(f), Operators of all SW landfill and composting facilities will control public access and prevent unauthorized vehicle traffic and illegal dumping using artificial or natural barriers, or both as appropriate. There is not adequate control to prevent unauthorized access to the landfill.

Resolution: Additional fencing/barriers needed to prevent unauthorized access. Other possible corrective actions include use of cameras, signs, lighting, and increased security presence.

Compliance Schedule: Awaiting funding to implement corrective actions.

6.2 Landfill Ground Water Well Sampling

Issue: According to this DEP, at least one sample from each well must be collected and analyzed during each semi-annual sampling event. Currently, KW-2, KW-6, KS-1R/1R2, KS-2, and KS-3 are damaged. Without functional wells, not all sample locations can be sampled.

Resolution: Re-establish the discrepant Groundwater monitoring wells.

Compliance Schedule: Groundwater monitoring wells will be reestablished by programmed FY22 Kwajalein Landfill closure project.

6.3 Excess Wood Accumulation

Issue: An excessive accumulation of treated and/or untreated wood exists.

Resolution: The wood will continue to be incinerated at allowable rates or used for cover material to mitigate accumulation.

Compliance Schedule: Ultimately full disposal will be achieved through the programmed FY22 Kwajalein Landfill closure project.

7.0 CLIMATE CHANGE

Rising global atmospheric Greenhouse Gas (GHG) emissions are affecting the Earth's climate. Local effects are predicted to include, but are not limited to, less rainfall, increased flooding, slight increase in the intensity of storms, sea-level rise, ocean acidification, higher atmospheric temperatures, and increased wave run-up/inundation. In accordance with UES §2-17.3.3(c), the DEP will include an analysis of climate change and its potential impacts on the activity, and a description of related limitations and requirements. The potential impact of climate change effects on the solid waste disposal activities include increases in erosion due to increased wave run-up and increased wave-driven flooding at USAKA.

Increased Erosion:

Due to sea-level rise and correlated wave actions as well as the loss of coral reef buffer to dissipate wave energy from ocean acidification, increased erosion of the coastal shorelines on the USAKA islands are expected to occur. The landfills on Kwajalein, Roi-Namur, and Meck are all located on the coastal edge. The current landfills' close proximity to the ocean or lagoon makes them vulnerable to increased erosion which could compromise the integrity of the landfills. The increased erosion of the coastal shorelines could potentially expose the waste in the landfills.

Increased Flooding:

Increased wave run-up may result in severe flooding of the USAKA islands. Additionally,

the rise in sea level may result in inundation from waves during storms and king tide events. Increased flooding could increase the potential for waste from the landfill to leach into the waters around USAKA.

This DEP establishes requirements that ensure the proper management, regular monitoring, and assessment of the landfills take place. Those requirements ensure that contingencies can be established should any landfill deficiencies due to climate change are identified.

8.0 ENVIRONMENTAL COMMENTS AND RECOMMENDATIONS RECEIVED ON THE DRAFT DEP AND USAG-KA RESPONSES

U.S. ARMY CORPS OF ENGINEERS (USACE), HONOLULU DISTRICT
COMMENT: No comments received.
USAG-KA RESPONSE: Noted.

U.S. ENVIRONMENTAL PROTECTION AGENCY (USEPA)
COMMENT: No comments received
USAG-KA RESPONSE: Noted.

U.S. FISH AND WILDLIFE SERVICE (USFWS)
COMMENT: No comments received.
USAG-KA RESPONSE: Noted.

NATIONAL MARINE FISHERIES SERVICE (NMFS), PACIFIC ISLANDS REGIONAL OFFICE
COMMENT 1: Page 1, line 5: Change Kwajalein, Roi-Namur or Meck" to "Kwajalein, Roi-Namur and Meck"...
USAG-KA RESPONSE: Change incorporated.

COMMENT 2: Page 1, para 6, line 3: Suggest removing the word "all" to read, "managed as natural green waste".
USAG-KA RESPONSE: Suggested change incorporated.

COMMENT 3: Page 2, Section 1.1.1, Para 1: Might be worthwhile to elaborate on the finding from USAPHC. What is/are the issues in finding that currently prohibit composting of such materials?
USAG-KA RESPONSE: An external pest management audit was conducted in 2010 at USAKA which identified a vector concern with the composting operations. Food waste was not being immediately incorporated into compost piles which resulted in producing fly breeding sites. As a consequence, food waste was diverted to the incinerators for disposal and composting operations would only incorporate vegetation waste.

The first paragraph in Section 1.1.1 was modified to reflect, “Currently, composting of dried sewage sludge and non-fibrous wastes (i.e., lawn clippings, leaves, paper, cardboard, and food waste) in accordance with UES Section 3-6.5.7(d)(3)(C) does not occur based on a finding from an inspection conducted in the summer of 2010 by the

United States Army Public Health Center (USAPHC) Pest Management Inspection group. Food waste was not being immediately incorporated into compost piles which resulted in producing fly breeding sites. As a result, composting operations ceased but may be reactivated in the future with the proper procedures, resources, and controls in place…"

COMMENT 4: Page 6, 7th action down in table: Refers to this "NCA", but this is a draft DEP. Also, the action doesn't really address the requirement/activity. Is there a liner design and leachate collection for the landfills? If not, would such be a limitation, as indicated in the Table 1 header?
USAG-KA RESPONSE: The reference to "NCA" was replaced with "DEP". In terms of the "Liner design and Leachate Collection" as specified in Section 3-6.5.7(c)(6)(v), the requirement for landfill liners and leachate collection apply to "New landfills or lateral expansions". The original and existing landfills did not have a requirement for a liner nor a leachate collection system. To clarify this action in the table, the action was revised to refect: "This DEP does not include the establishment of new landfills or lateral expansion of existing ones. New Landfills or lateral expansions of existing landfills shall require a liner design and leachate collection system in accordance with Section 3-6.5.7(c)(6)(v)."

COMMENT 5: Page 6, last action in table: Seems to refer to "this NCA" as opposed to "this DEP".
USAG-KA RESPONSE: The first sentence of the last action was revised to reflect, "Landfill closures are not anticipated during the effective period of this DEP. If an unanticipated closure is required, a closure/post-closure plan will be submitted to the Appropriate Agencies for review at least 60 days prior to the closure commencement date."

COMMENT 6: Page 8, Section 2.3.3, Para 1, line 1: Are putrescible wastes considered solid wastes? If not, then perhaps this line should reflect that putrescible wastes may also be accepted at USAKA landfills in extraordinary circumstances, for consistency.
USAG-KA RESPONSE: Putrescible wastes are considered general solid wastes as stated in Section 2.3.3.

COMMENT 7: Page 11, Section 2.4.3: How is "excess accumulation" defined here? Also, off island shipments "should" occur or "will" occur (i.e. is this sentence meant to be suggestive or prescriptive?)?
USAG-KA RESPONSE: In this section, "excess accumulation" was intended to describe the accumulation experienced at the Solid Waste Facility over the last several years. Until recently limited amounts of scrap metal were shipped off USAG-KA for recycling. As a consequence, a significant stockpile of scrap metal accumulated in the Kwajalein Solid Waste Facility. To address the excessive accumulation of scrap metal, USAG-KA shipped approximately 18 million pounds of scrap metal off USAG-KA for recycling. Additional scrap metal is expected to be shipped by the end of 2019. The quantity of scrap metal remaining at the Solid Waste Facility is considered safe, manageable and acceptable. Shipments of scrap metal will occur at an interval to prevent excess accumulation at the Solid Waste Facility. To reinforce this, the "should" in the last sentence of Section 2.4.3 was revised to "will".

COMMENT 8: Page 21, Table 2: Why aren't PCBs and pesticides monitored at Roi and Meck groundwater stations?
USAG-KA RESPONSE: The Roi-Namur and Meck landfill groundwater wells are currently not monitored for PCBs and pesticides based on the results of the detection monitoring protocol referenced in UES Section 3-6.5.7(c)(6)(vi). PCBs and pesticides did not exceed UES criteria during the detection monitoring period.

COMMENT 9: Page 28, para 1, issue: switch DEP and NCA, as this is the draft DEP.
USAG-KA RESPONSE: The first sentence under Section 6.2 “Landfill Ground Water Well Sampling” was revised to reflect, “Issue: According to this DEP, at least one sample from each well must….”.

COMMENT 10: Page 28, Section 7.0, 2nd sent: Just want to double check, "less rainfall", "increased flooding" and "less intense storms"? Also, later in the paragraph, is the analysis just specific to the NCA, or also the DEP, as this is the DEP?
USAG-KA RESPONSE: The information included in Section 7.0 of the DEP was based on the results identified in Section 1.3 of The Impact of Sea-Level Rise and Climate Change on Department of Defense Installations on Atolls in the Pacific Ocean (RC-2334) performed by the U.S. Geological Survey and sponsored by the Strategic Environmental Research and Development Program (SERDP). Section 1.3 states in part;

“The future climate simulation developed here project that deep-water wave heights and wind speeds around Kwajalein Atoll will decrease slightly, resulting in a small decrease in the magnitude and frequency of the threat to marine operations. The decrease in the frequency of tropical storms and typhoons will also reduce the frequency of weather-based disruptions to marine and terrestrial operations, although the slight increase in intensity of typhoons may result in greater impact of a given storm despite their much less frequent occurrence. The projected slight decrease in rainfall will cause a small reduction in freshwater availability. The potential effects of these changes, however, will likely be insignificant in comparison to the impact of projected increases in sea level in the region. These increases in sea level will result in greater wave-driven runup and island flooding.”

Based on the SERDP report, the second sentence in the first paragraph in Section 7.0 of the DEP will be revised to replace “less intense storms” with “slight increase in the intensity of storms”.

Additionally, the reference to “NCA” later in the paragraph was replaced with “DEP”.

REPUBLIC OF THE MARSHALL ISLANDS ENVIRONMENTAL PROTECTION AUTHORITY (RMIEPA)
COMMENT: No comments received.
USAG-KA RESPONSE: Noted.

9.0 ENVIRONMENTAL COMMENTS AND RECOMMENDATIONS RECEIVED ON THE NCA AND USAG-KA RESPONSES

U.S. ARMY CORPS OF ENGINEERS (USACE), HONOLULU DISTRICT
COMMENT: No comments received.
USAG-KA RESPONSE: Noted.

U.S. ENVIRONMENTAL PROTECTION AGENCY (USEPA)
COMMENT: No comments received
USAG-KA RESPONSE: Noted.

U.S. FISH AND WILDLIFE SERVICE (USFWS)
COMMENT: No comments received.
USAG-KA RESPONSE: Noted.

NATIONAL MARINE FISHERIES SERVICE (NMFS), PACIFIC ISLANDS REGIONAL OFFICE
COMMENT 1: Page 1, lines 23-24; Reads, "outer USAKA outer islands". Recommend removing one of the "outer"s.
USAG-KA RESPONSE: Sentence was revised to reflect, "…generated on the USAKA outer islands during…"

COMMENT 2: Page 7, line 24; Typo, "Scrap" need not be capitalized.
USAG-KA RESPONSE: Typo has been corrected.

COMMENT 3: Page 7, line 34; Probably should define C&D as in first use here.
USAG-KA RESPONSE: C&D waste is defined on page 1.

COMMENT 4: Page 8, lines 1, 12 and 13; Lines 12-13 seem to contradict line 1. Does any composting take place on Roi-Namur and Meck?
USAG-KA RESPONSE: Fibrous vegetation is the only material composted naturally on Roi-Namur and Meck Islands. Line 1 was modified to reflect, "Fibrous vegetation (trees, branches, palm fronds, coconuts, etc) is staged to compost naturally on Roi-Namur and Meck." Additionally, the sentence stating, "No active composting takes place on Roi-Namur or on Meck." was deleted for consistency.

COMMENT 5: Page 8, line 33; Check on wording. Can industrial facilities really be educated?
USAG-KA RESPONSE: The sentence was modified to reflect, "The general public at USAG-KA and personnel working in industrial facilities are educated…". Also, please note that USAG-KA was spelled out in the previous sentence since it was the first time used in the document.

COMMENT 6: Page 8, line 39: "...or the waste is defined as non-hazardous", how and by whom?
USAG-KA RESPONSE: Solid waste is managed as hazardous waste until it is determined to be non-hazardous via sample analysis and/or via generator knowledge. The sentence was revised to reflect, "Solid Waste management personnel shall handle all solid waste as hazardous waste until it is identified as non-hazardous through sample analysis and/or generator knowledge."

COMMENT 7: Page 9, line 7; Might want to use ":" instead of ";".
USAG-KA RESPONSE: Sentence was modified to utilize a colon, rather than a semi-colon.

COMMENT 8: Page 10, lines 1-2; It's not clear what, "... and/or unable to render incapable of maintaining pressure," means?
USAG-KA RESPONSE: The intent of this statement was to specify conditions when abandoned or discarded (no longer usable) compressed gas cylinders are not suitable for transportation off USAG-KA for disposal and hold pressure (i.e., not open to the atmosphere) may be detonated as potential explosives in accordance with the Disposal of Munitions and Other Explosive Materials DEP. To clarify, this sentence was modified to reflect, “If abandoned or discarded compressed gas cylinders are not suitable for transportation off USAG-KA for disposal and the cylinders hold pressure (i.e., not open to the atmosphere), then the compressed gas cylinders may be detonated as potential explosives in accordance with the Disposal of Munitions and Other Explosive Materials DEP.”

COMMENT 9: Page 10, line 8; May need to place an "is" after the word "vessel".
USAG-KA RESPONSE: Corrected as suggested.

COMMENT 10: Page 10, line 17; Are acidic and caustic solutions neutralized by mixing them together as seems suggested here?
USAG-KA RESPONSE: The text has been clarified to reflect, “Acidic and caustic solutions may be neutralized by adjusting the pH with water or other pH appropriate solutions (i.e. mixing an acid with a weaker caustic solution or mixing a caustic with a weaker acidic solution). The neutralized solution may then be disposed to the sanitary sewer system if the waste stream has a pH greater than or equal to 5 standard units and has no other hazardous waste characteristics.” The Point Source Discharges Document of Environmental Protection includes a requirement for all waste streams leading to the Roi-Namur and Kwajalein Wastewater Treatment Plant must be greater than or equal to 5.0 pH Standard units.

COMMENT 11: Page 10, line 23; Suggest changing "were" to "are".
USAG-KA RESPONSE: Corrected as suggested.

COMMENT 12: Page 13, line 25; Why is USAG-KA defined here but not earlier when first used? Also, use of USAKA vs USAG-KA in many places in document creates questions particularly related to responsibilities (for instance, see Page 31 line 15).
USAG-KA RESPONSE: In accordance with the UES, USAKA is defined as the areas within the Mid-Atoll Corridor and the 11 islands within the Kwajalein Atoll controlled by the U.S. USAG-KA includes the facilities, infrastructure, and operations across the Mid-Atoll Corridor and the 11 islands controlled by the U.S. USAG-KA is the host to tenants and their activities at USAKA. As such, the NCA was reviewed for any reference to USAG-KA and USAKA and corrected as appropriate. The definitions/acronyms for USAKA and USAG-KA were made at the first location where it was mentioned.

COMMENT 13: Page 13, line 30; Suggest adding an "a" following "to".
USAG-KA RESPONSE: Corrected as suggested.

COMMENT 14: Page 15, line 29; Suggest adding "or" following "mulch;".
USAG-KA RESPONSE: Typo has been corrected.

COMMENT 15: Page 19, line 35; Suggest changing "has" to "have".
USAG-KA RESPONSE: Corrected as suggested.

COMMENT 16: Page 19 lines 26-27, page 20 Table 2: The description here could use some clarity. First, "the landfill facility" suggests just one facility, but the table refers to monitoring on 3 separate islets. Second, the active life of the landfill(s) would suggest monitoring from their initial use as landfills. Is this true? Third, I count 21 well locations, but only 20 are mentioned. In addition, "*" refers to a well that is damaged, destroyed or not installed, and there are 5 "*", suggesting monitoring at perhaps 16 wells? Also, if a well was not installed, why is it listed for monitoring?

USAG-KA RESPONSE: Groundwater monitoring per UES Section 3-6.5.7(c)(6)(vi) requires monitoring at the solid waste landfill at USAKA (i.e., Kwajalein, Roi-Namur, and Meck Landfills). The first sentence of Section 5.2 was clarified to reflect, “Ground water monitoring is performed in the vicinity of the Kwajalein, Roi-Namur, and Meck landfills.”

To address the comment associated with the monitoring during the “active life” of each landfill, the sentence was revised to delete “the active life” since the requirements for monitoring occurred after the landfills were already being used.

The initial groundwater monitoring plan for the Kwajalein, Roi-Namur, and Meck landfills intended to utilize the 21 wells identified in Table 2 of the NCA. However, 5 monitoring wells are no longer usable since they were damaged or destroyed. KS-1R/1R2 and KS-2 were installed and utilized for sampling until 2005 when they were destroyed by the impounding wave and tides. KS-3 was installed utilized for sampling until 2009 when it was destroyed by the impounding waves and tides. KW-2 was installed and samples were collected until 2013 when it was damaged during a fire incident at the landfill. KW-6 was installed and samples were collected until 2009 when it was destroyed or covered over during the installation of the Micronesian Optical cable in the area. Additionally, there are two locations on Kwajalein where shoreline seep samples are collected, rather than inside the designated monitoring wells since they have dried up over time. Currently, 16 groundwater monitoring well locations (including seeps) are sampled semiannually per the UES. The replacement of the 5 damaged/destroyed wells and the two shoreline wells that dried up will be addressed in the Closure/Post-Closure Plan for the Kwajalein Landfill in accordance with UES §3-6.5.7(c)(6)(vii).

For clarification, the paragraph was modified to reflect, “…When the groundwater monitoring system was installed in 1999, there were a total of 21 monitoring wells planned for sampling semiannually at the landfill facilities in accordance with UES §3-6.5.7 (E)(6)(VI)(B)(bb) and the U.S. Army Center for Health Promotion and Preventative Medicine Sampling and Analysis Plan (Appendix A). However, 5 monitoring wells at the Kwajalein landfill have since been damaged or destroyed and there are two locations on Kwajalein where shoreline seep samples are collected adjacent to the designated monitoring wells since they have dried up over time. The replacement wells for these

monitoring locations will be addressed in the Kwajalein Landfill Closure/Post-Closure Plan in accordance with UES §3-6.5.7(c)(6)(vii). Currently there are 16 monitoring well locations (including seeps) that are sampled semi-annually. …"

COMMENT 17: Page 22, line 41; Since public safety is also an objective of this NCA and DEP, suggest changing "The" to "An" so as to read, "An objective of this NCA....".
USAG-KA RESPONSE: Changed as suggested.

COMMENT 18: Page 23 lines 6-8: Change "may be" to "is" occurring as this is now known and documented. In addition, while the effects on marine biota have not been fully determined (which raises the question, is there any effort to determine such?), the area off Kwajalein has been closed to fishing in an attempt to limit contaminant spread to humans, and this should be mentioned here. "particularly Kwajalein", does this mean Roi-Namur and Meck also? If so, should be directly stated what's known as well as the extent to which such is being monitored. Addressing such here helps highlights the seriousness of the issue within the solid waste management regime, particularly with regards to identifying and addressing program related risks to ecological and human receptors.
USAG-KA RESPONSE: To address the comment, the last paragraph in Section 6.0 was modified to reflect,

"Previous studies and groundwater monitoring data indicate contaminants are being discharged from the Kwajalein Landfill into the near-shore waters leading to the bioaccumulation of some contaminants in reef fish and algae. Surface water and multiple groundwater seepage samples collected downgradient from the Kwajalein Landfill identified contaminants above UES Criteria. Due to the potential for adverse human health impacts associated with contaminated fish consumption, USAG-KA has designated the area adjacent to the Kwajalein Landfill as a "no fishing" area.

In response to the 2014 Kwajalein Landfill Baseline Risk Assessment completed by U.S. Army Public Health Center showing an unacceptable increased risk of cancer and other health effects to subsistence consumers of reef fish on the Kwajalein Landfill reef flat, the Army has started programming efforts to close the Kwajalein Landfill by complete removal. USAG-KA plans to prepare a design for the closure in 2020 and begin executing the closure in 2022. The proposed closure scenario that has been recommended is complete removal of the Kwajalein Landfill with disposal at an offsite permitted facility. Closure will include appropriate post-closure care and monitoring per UES §3-6.5.7(c)(6)(vii). Post-closure, USAG-KA plans to continue to operate the incinerators to reduce the volume of solid waste requiring disposal. However, the ash would no longer be placed in a landfill in USAG-KA but would instead be periodically shipped to an offsite permitted facility for disposal.

Routine groundwater monitoring at the Roi-Namur and Meck Landfills have demonstrated compliance with UES criteria. No contaminant accumulation studies have been conducted downgradient from these landfills; however, in April 2014, a Petroleum, Oil and Lubricant Risk Assessment study included sampling of fish near the Roi-Namur POL yard and from Wendy Point. The results of the risk assessment indicated high concentrations of lead in fish posed a risk to humans who consume them. Although fish in the vicinity of

the Roi-Namur Landfill have not been studied, USAG-KA designated the area from Wendy Point through the Roi-Namur Landfill shoreline as “no fishing” area. The shoreline adjacent to the Meck Landfill does not have any fishing limitations.”

COMMENT 19: Page 23, lines 30 and 36; How do Roi and Kwajalein compare in terms of lbs/day/person for residential waste? I calculate about 13 lbs/day/person for Kwajalein, but can't tell for Roi given the info provided. Is it fairly close? If not, why?

USAG-KA RESPONSE: The information included in this section regarding the quantities and types of solid waste generated at each island are based on historical information and similar information is not available for current operations. As a result, we are unable to make comparative calculations about waste generation at this time.

Section 7.0 of this NCA describes the environmental setting for the activities detailed within this NCA. Subsections (a) through (d) have been changed to include a brief summary of the hydrogeology and the vegetation for each location instead of waste generation statistics.

COMMENT 20: Page 24, line 13-14, 19-20; But yet contaminant issues exist off landfill(s), which are part of the solid waste management program. Suggest rephrasing this section to help clarify that problems do exist, mainly for historical reasons which are recognized, and that efforts are underway to understand and address these problems.

USAG-KA RESPONSE: Section 8.0 was modified to reflect, “Although the procedures and controls required in this NCA and the associated DEP have ensured solid waste is managed appropriately at USAG-KA, historical practices at the Kwajalein Landfill have negatively impacted the near shore environment. Recent studies indicate contaminants are being discharged from the Kwajalein Landfill at the shoreline leading to the bioaccumulation of some contaminants in reef fish and algae. Surface water and multiple groundwater seepage samples collected downgradient from the Kwajalein Landfill identified contaminants above UES Criteria. Routine groundwater monitoring at the Roi-Namur and Meck Landfills have demonstrated compliance with UES criteria. Shoreline metal debris associated with the former U.S. Navy Dump (upgradient tidally of current active Kwajalein Landfill) which was the predecessor to the current landfill is currently being remediated. This removal should reduce the upgradient source of contaminants. The Army is currently programming for the closure of Kwajalein Landfill.”

COMMENT 21: Page 24, line 24-25; We discussed the validity of sulfur content in fuels in our recent UES meetings. Are the assumptions listed here for dispersion modeling updated assumptions, or the older assumptions which we've been informed are known to be grossly overestimated? If the latter, recommend stating these assumptions are known to be grossly overestimated, and then address the question of, if so, why such are still used?

USAG-KA RESPONSE: This section has been updated to more clearly state the air dispersion modeling conducted for the USAG-KA incinerators does not identify any potential exceedances of ambient air quality standards and is valid for the continued operation of the incinerators. The assumptions that were listed in this section were utilized in the existing Air Quality Impact Analysis conducted in 2012. The analysis did not identify any potential exceedances of air ambient air quality standards from the

operation of the USAG-KA incinerators. The rated capacity of the incinerators and anticipated emissions have not increased so the incinerator portion of the air quality analysis does not require an update. We recognize the amount of sulfur in fuel oil currently utilized throughout USAG-KA has been significantly reduced. The current fuel oil sulfur content meets the Ultra-Low Sulfur Diesel content of 0.0015% by weight, as opposed to the 0.67% by weight previously utilized. Accordingly, the air dispersion modeling currently underway for the Kwajalein, Kwajalein Power Plant Annex, Roi-Namur, and Meck power plants is utilizing updated assumptions, including a reduced fuel oil sulfur content level to provide the best representation of expected emission impacts. If the USAG-KA Solid Waste incinerators are modified in a manner meeting the thresholds identified in in UES § 3-1.5.4, the appropriate documentation will be submitted to the appropriate agencies. This documentation would consider the appropriate updates to the fuel oil sulfur content to match AP-42 or source specific information. Accordingly, specific references to sulfur content and major source determinations were removed from the NCA as they are more appropriate in the air quality analysis documentation required for any qualifying change to the incinerator systems.

COMMENT 22: Page 24, line 36-37; Could the landfill itself be considered a point source discharge? If not, how is a point source discharge defined (perhaps clarify here)?

USAG-KA RESPONSE: Section 3-8 of the UES defines a "Point Source" as a discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, vessel, or other floating craft, from which pollutants are or may be discharged. Based on the UES definition, the landfill itself is not considered a point source discharge. Section 11.0 was modified to define a "Point Source" per the UES Definition.

Note the original Point Source Discharges Document of Environmental Protection DEP-97-001.0 included two discharges from the Kwajalein Landfill, KISW14 and KISW14A. These two discharges were subsequently eliminated in 2001 and 2002, respectively. Section 11.0 was modified to clarify the timeframe when the two discharges were eliminated as Point Source Discharges.

COMMENT 23: Page 25, lines 4-5 and 8; Page 25 lines 4-5 and 8 seem to contrast. This should be clarified (it's actually pretty confusing).

USAG-KA RESPONSE: Section 12.1(a) was modified to clarify the current composting status on Kwajalein. The section was revised to reflect, "Currently, composting of dried sewage sludge and non-fibrous wastes (i.e., lawn clippings, leaves, paper, cardboard, and food wastes) in accordance with UES Section 3-6.5.7(d)(3)(C) does not occur based on a finding from an inspection conducted in the summer of 2010…As a result, composting operations ceased but may be reactivated in the future with the proper procedures, resources, and controls in place. In the event composting operations resume, the composted material may be used as landfill cover or may be utilized for land application pursuant to the standards in UES Section 3-6.5.7(d)(2)."

COMMENT 24: Page 25, lines 18 and 21; see comment 4 above.

USAG-KA RESPONSE: For consistency with the response to comment no. 4, lines 18 and 21 were revised to reflect, “Fibrous vegetation (trees, branches, palm fronds, coconuts, etc) is staged to compost naturally.”

COMMENT 25: Page 26, line 26; add "s" to "material"
USAG-KA RESPONSE: Corrected as suggested.

COMMENT 26: Page 29, lines 6-7; This statement seems a bit problematic. There are compliance issues with the landfill; it’s been demonstrated that contaminants that are believed to come from the landfill occur in nearshore waters and organisms. Page 23 states that landfill related contaminant effects to marine organisms, which, by the way, may include UES consultation species (note, the word "endangered" as used isn't really defined in terms of relevance), have not been fully determined. So, if there are landfill related contaminants in nearshore waters and species, and effects on species have not been fully determined, how does one arrive at a conclusion of no adverse effect to endangered resources or other wildlife given the current state? Wouldn't a biological assessment be exactly what's needed to help determine such?

USAG-KA RESPONSE: Previous studies and groundwater monitoring data indicate contaminants are being discharged from the Kwajalein Landfill into the near-shore waters leading to the bioaccumulation of some contaminants in reef fish and algae. Surface water and multiple groundwater seepage samples collected downgradient from the Kwajalein Landfill identified contaminants above the UES Criteria.

In October 2015, the National Marine Fisheries Service published the *Marine Biological Assessment and Conservation Recommendations for Planned Removal of Bulk Metal Waste from the Southwest Shoreline and Reef Flats of Kwajalein Islet* which was utilized to support the Final Removal Action Memorandum (RAM) for the Kwajalein Landfill issued in April 2017. The marine biological assessment identified Techtus (Trochus) niloticus as the only UES consultation specie and a variety of UES Coordination species in the area adjacent to the landfill. Coral distributions on and in the vicinity of metal debris were very limited. Based on the assessment, continued operation of the Kwajalein Landfill may affect, but is not likely to adversely affect, UES Consultation and Coordination species in the area adjacent to the landfill. No additional biological assessments are recommended.

Due to the limited landfilling activities along with the routine groundwater monitoring activities at the Roi-Namur and Meck Landfills demonstrating compliance with the UES criteria, no adverse effect to marine organisms or other wildlife is warranted. Therefore, no additional biological assessments are recommended.

Section 13.0 was modified to reflect the above information regarding the need for biological assessments at each of the landfills.

COMMENT 27: Page 29, line 39; I could be wrong here, but didn't we recently learn that fish samples taken near the landfill at Roi showed unacceptable levels of contaminants (or were these from other areas at Roi)? If this is the case, such should be mentioned here. Also, has any fish sampling occurred off Meck’s landfill?

USAG-KA RESPONSE: USAG-KA has not analyzed fish samples collected form the area adjacent to the landfills on Roi-Namur and Meck Islands. In April 2014, the APHC conducted a Petroleum, Oil and Lubricant Risk Assessment which included sampling of fish near the Roi-Namur POL yard and at Wendy Point. The draft results of the risk assessment indicated high concentrations of lead in fish posed a risk to humans who consume them. Although fish adjacent to the Roi-Namur landfill were not sampled, based on recommendation from the APHC, USAG-KA designated the shoreline area starting Wendy Point extending to the Roi-Namur landfill as a "no fishing" area. The shoreline adjacent to the Meck Landfill does not have any fishing limitations. Additionally, routine groundwater monitoring of the Roi-Namur and Meck landfills have demonstrated compliance with UES Water Quality criteria.

COMMENT 28: Page 30, line 39-42; There is also the issue of rising water tables that will occur with sea level rises that should be mentioned here (i.e. rising up into the landfill deposits, and exacerbating flooding). This is a bottom up issue that should be raising concerns.
USAG-KA RESPONSE: The third paragraph in Section 18.0 was modified to reflect, "…Additionally, the rise in sea level may result in inundation from waves during storms and king tide events, and raise the water tables which will exacerbate flooding during rain events."

REPUBLIC OF THE MARSHALL ISLANDS ENVIRONMENTAL PROTECTION AUTHORITY (RMIEPA)
COMMENT: No comments received.
USAG-KA RESPONSE: Noted.

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Appendix A

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NOTICE OF CONTINUING ACTIVITY

ACTIVITY:
SOLID WASTE DISPOSAL

CONTROL NUMBER NCA-17-002.0

August 2017

U.S. ARMY GARRISON - KWAJALEIN ATOLL/RONALD REAGAN BALLISTIC MISSILE DEFENSE TEST SITE
IN THE
REPUBLIC OF THE MARSHALL ISLANDS

PREPARED BY KWAJALEIN RANGE SERVICES

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NOTICE OF CONTINUING ACTIVITY (NCA)

ACTIVITY: SOLID WASTE DISPOSAL

DATE SUBMITTED: August 4, 2017

SUMMARY:

This Notice of Continuing Activity (NCA) is for the processing and disposal of general solid waste throughout the United States (U.S.) Army - Kwajalein Atoll (USAKA). This NCA and the associated Document of Environmental Protection (DEP) that will result from it will supersede and replace DEP-10-003.0 – Solid Waste Disposal. In addition to disposal of general solid waste, this NCA describes waste collection and processing, including recycling activities.

Solid waste disposal and management practices are described in the March 2017 Solid Waste Management Plan prepared and submitted in accordance with USAKA Environmental Standards (UES) §3-6.5.7(c)(6)(i).

Solid wastes are generated and collected from residential and/or industrial areas on each of the USAKA islands. Some waste segregation occurs at the point of generation to separate food wastes, recyclables (e.g., aluminum cans, glass, and metals), construction debris, etc. Solid waste is collected and delivered to solid waste management facilities on Kwajalein, Roi-Namur, or Meck for further segregation, processing, and disposal. Solid waste is sporadically generated on the USAKA outer islands during their occasional use. Waste generated on Gagan is transported to Roi-Namur for further processing and disposal. Waste from the other outer islands is taken to Kwajalein for further processing and disposal.

The wastes are segregated at the solid waste management facilities. Personnel at each solid waste management facility inspect loads of solid waste for hazardous materials and liquids, and remove these items. The remaining waste is segregated into scrap metals, glass, construction and demolition (C&D) debris, and materials destined for incineration. Compostable items are segregated at any time that composting is taking place (i.e. plant material, paper, cardboard, sewage sludge, and food waste).

REFERENCES:

- United States Army Kwajalein Atoll, *Environmental Standards and Procedures for United States Army Kwajalein Atoll (USAKA) Activities in the Republic of the Marshall Islands*, 14th Edition. September 2016.

- United States Army Kwajalein Atoll, *Document of Environmental Protection (DEP): Solid Waste Disposal*, DEP 10-003.0, September 2012

- United States Army Kwajalein Atoll, *Solid Waste Management Plan.* March 2017.

- United States Army Kwajalein Atoll, *Water Quality Management Plan.* September 2015.

- United States Army Kwajalein Atoll, *Document of Environmental Protection (DEP): Protection of Cultural Resources*, DEP 10-001.0, January 2017.

- United States Army Kwajalein Atoll, *Document of Environmental Protection (DEP): Air Emissions from Major, Synthetic Minor, and Industrial Boiler Stationary Sources,* DEP-11-001.0, August 2013.

- United States Army Kwajalein Atoll, *Final Removal Action Memorandum Kwajalein Landfill*, April 2017

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APPENDICES

ABBREVIATIONS AND ACRONYMS

C&D	Construction and Demolition
DEP	Document of Environmental Protection
ECR	Environmental Comments and Recommendations
ENU	Elementary Neutralization Unit
FN	Facility Number
KRS	Kwajalein Range Services
NCA	Notice of Continuing Activity
PA/SI	Preliminary Assessment/Site Investigation
PCB	Polychlorinated Biphenyl
POL	Petroleum, Oil, and Lubricant
PVC	Polyvinyl Chloride
RAM	Removal Action Memorandum
RCRA	Resource Conservation and Recovery Act
RMI	Republic of the Marshall Islands
RMW	Regulated Medical Waste
RTS	Reagan Test Site
SW	Solid Waste
UES	USAKA Environmental Standards and Procedures
US	United States
USAPHC	United States Army Public Health Center
USAG-KA	United States Army Garrison - Kwajalein Atoll
USAKA	United States Army Kwajalein Atoll
VPPF	Vehicle Paint and Preparation Facility

1.0 TYPE OF ACTIVITY

The continuing activity is the processing and disposal of general solid waste throughout USAKA. This NCA and the associated DEP that will result from it will supersede and replace DEP-10-003.0 – Solid Waste Disposal. In addition to disposal of general solid waste, this NCA describes waste collection and processing, including recycling activities. This NCA and associated DEP permits the treatment of specific hazardous waste such as aerosol cans, fluorescent light bulbs, corrosive waste, and compressed gas cylinders.

Solid waste disposal and management practices are described in the March 2017 Solid Waste Management Plan prepared and submitted to the UES Appropriate Agencies in accordance with USAKA Environmental Standards (UES) §3-6.5.7(c)(6)(i).

2.0 LOCATION OF ACTIVITY

2.1 Kwajalein

The Kwajalein Solid Waste Facility is the central receiving area for solid waste generated on all islands that is not incinerated on Roi-Namur or Meck. The Kwajalein solid waste management activities include the operation of:

- A waste management yard that is used to segregate waste
- A scrap metal segregation and staging area
- A recycling/waste minimization center that processes glass and PVC.
- An all-natural green composting area for the management of fibrous vegetation (trees, branches, palm fronds, coconuts, etc.)
- A compost area for non-fibrous vegetation waste, paper, food waste, cardboard, sewage treatment plant sludge, and water treatment plant sludge
- A non-treated wood collection area where wood waste is staged for recycling, and grinding into wood chips (if equipment is available)
- A 32-ton/day Solid Waste (SW) Incinerator that burns “garbage,” medical waste, petroleum product waste, tires, and treated and non-treated wood waste (as necessary)
- Landfill cells for C&D debris and incinerator ash
- Concrete collection areas

2.2 Roi-Namur and Meck

Roi-Namur and Meck Islands each operate a multiple chamber, closed hearth, starved air, diesel fired incinerator. Materials (e.g., general solid waste, food waste, medical waste, paper, cardboard, and wood products) are incinerated on Roi-Namur and Meck and the ash is landfilled on the island. When the Roi-Namur landfill exceeds its capacity, landfilled ash will be containerized and transferred to Kwajalein to be landfilled. Fibrous vegetation (trees, branches, palm fronds, coconuts, etc.) is staged to compost naturally on Roi-Namur and Meck. Recyclable materials and materials destined for reuse or heat recovery (e.g., used petroleum products) are sent to the Kwajalein solid waste facility.

Untreated lumber wastes on Roi-Namur and Meck are incinerated locally or sent to Kwajalein for processing. The mulch generated from untreated lumber and yard waste may be used for local beautification, vegetation, and soil erosion control. Treated lumber may be incinerated with a limit of 5 percent treated lumber per each batch load. Batch loads with greater than 5 percent treated lumber shall require metal testing of incinerator ash. Ash shall be disposed of in accordance with this NCA and associated DEP as well as the Solid Waste Management Plan. All Wastewater Treatment Plant sewage sludge and Water Treatment Plant alum sludge are managed on Kwajalein.

2.3 Outer Islands

Most outer island work is occasional and involves few individuals; therefore, waste generation is minimal. Illeginni, Legan, Carlos, and Gagan have dumpsters for collection of trash generated by workers. The dumpsters from Illeginni, Legan and Carlos are sent to Kwajalein for processing in the Solid Waste facility. The dumpsters are replaced as necessary. Dumpsters from Gagan are removed to Roi-Namur where the waste is managed. Waste on all other outer islands is typically removed when workers leave the island or as needed to avoid excessive accumulation or vector attraction. When special projects take place on these or other outer islands, additional dumpsters and waste receptacles are delivered and used as needed. All wastes from construction projects are removed from the islands at the conclusion of the projects or during the project when the designated storage area has been exceeded. No wastes are disposed of on these islands with the exception of green wastes, which are left to decompose naturally.

3.0 TECHNICAL DESCRIPTION

Solid waste is generated and collected on the United States Army Garrison - Kwajalein Atoll (USAG-KA) leased islands. The general public at USAG-KA and personnel working in industrial facilities personnel are educated and encouraged to pre-segregate their solid wastes for further processing at the solid waste facilities located on Roi-Namur, Meck, and Kwajalein. Personnel at each solid waste management facility inspect loads of solid waste for hazardous waste and uncontained liquids, and remove these items for the waste. The remaining waste is segregated into scrap, metals, glass, C&D debris, and materials destined for incineration. Solid waste management personnel shall handle all solid waste as hazardous waste until it is identified as non-hazardous through sample analysis and/or generator knowledge. Solid waste shall be identified as hazardous waste if it meets the hazardous waste definition as defined by UES Appendices 3-6A and 3-6B.

3.1 Hazardous Waste

This NCA and the associated DEP authorizes the treatment of four hazardous wastes streams: aerosol cans, fluorescent lamps, compressed gas cylinders, and corrosive waste are treated in accordance with UES §3-6.5.7(a)(1).

(a) Aerosol Cans

Aerosol Cans which are under pressure may exhibit the characteristic of reactivity. Empty, expired and/or unusable aerosol cans are accumulated at the points of generation and transported to Facility Number (FN) 1521 on Kwajalein for consolidation and transportation to the Vehicle Paint and Preparation Facility (VPPF) for processing. At the VPPF, the cans are depressurized using a special apparatus and drained of any residual product. The depressurized empty cans are managed as scrap metal. Residual materials drained from the aerosol cans are managed according to subsequent waste determination.

(b) Fluorescent Lamps

All fluorescent lamps contain mercury, which can render waste lamps as hazardous. Waste fluorescent lamps are managed as a separate waste stream throughout USAKA. Waste lamps are consolidated and crushed in a bulb crusher equipped with a High Efficiency Particulate Air (HEPA) filter to reduce the volume and capture any residual mercury. The resulting crushed lamps and the associated filters from the bulb crusher are managed as hazardous waste in accordance with UES §3-6.1.2.

(c) Compressed Gas Cylinders

Compressed gas cylinders will be managed in accordance with all applicable rules and regulations, stored in an area protective from the elements, and returned to the supplier when empty or no longer being used. It is not uncommon for compressed gas cylinders to be discovered at USAKA that have, due to the prevalent severe corrosive conditions, become rusted or deteriorated to the point that they cannot meet the Department of Transportation and/or International Maritime Dangerous Goods (IMDG) code standards for shipment off USAG-KA to a CONUS treatment, storage, and disposal facility (TSDF). Compressed gases will be included in the classification of hazardous materials and will be stored and transported in compliance with UES §3-6.5.3 and §3-6.5.2. Empty, expired and/or discontinued compressed gas cylinders will be collected and placed in a storage facility meeting the requirements of UES §3-6.5.3(b)(3) or disposed of in accordance with UES §3-6.5.7(c)(1)(i). Cylinders of unknown contents will be collected, handled, and stored as though they are hazardous waste.

If abandoned or discarded compressed gas cylinders are not suitable for transportation off USAG-KA and hold pressure, then the compressed gas cylinders may be detonated as potential explosives in accordance with the Disposal of Munitions and Other Explosive Materials DEP.

In accordance with UES §3-6.5.7(c)(1)(i), empty compressed gas cylinders may be managed as general solid waste and recycled provided that the valve has been removed or the cylinder or vessel is otherwise open to the atmosphere, and the cylinder or vessel rendered unusable as a liquid container.

(d) Corrosive Waste

Elementary Neutralization Units (ENU) are tanks, tank systems, containers, transport vehicles, or vessels as defined in 40 CFR 260.10. ENUs may be used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic or they are listed waste only for corrosivity. Acidic and caustic solutions may be neutralized by adjusting the pH with water or other pH appropriate solutions (i.e. mixing an acid with a weaker caustic solution or mixing a caustic with a weaker acidic solution). The neutralized solution may then be disposed to the sanitary sewer system if the solution has a pH greater than or equal to 5 standard units and has no other hazardous waste characteristics.

3.2 Waste Diversion and Recycling

General solid wastes shall be disposed of at USAKA only after reuse, recycling, and energy recovery are considered. Acceptable technologies for general solid waste disposal at USAKA include: incineration, land application, and land filling. UES §3-6.5.7(a)(4).

Recyclable and reusable materials from all USAKA islands are shipped to Kwajalein where they are further segregated into: glass, metals (by type), waste lumber, batteries, reusable property (furniture, fixtures, equipment, etc.), and waste petroleum products. If composting operations are being practiced, then all compostable waste will be segregated as well.

3.3 Waste Processing

(a) Excess Property

Excess property items such as furniture, vehicles, and tools are consolidated at FN 1500 on Kwajalein and offered for reuse. If materials are not reused within USAKA, the materials are offered for sale. If materials are not sold, then the items are determined to be scrap and managed accordingly.

(b) Liquid Waste Petroleum Product

Waste petroleum product, including gasoline, meeting the criteria in UES §3-6.5.7(b)(4)(iii) is used for fuel in the Kwajalein incinerator. Representative samples and suspect lots of petroleum product will be analyzed for the parameters in UES Table 3-6.5.7 to determine if the oil is suitable for fuel.

(c) Waste Petroleum Materials and Contaminated Soil

Materials (e.g., rags, sorbent pads) and soils contaminated with benzene (D018) may be mixed with general solid waste and thermally treated in the solid waste incinerators on Kwajalein, Roi-Namur or Meck. USAG-KA shall adequately characterize the waste (e.g., generator knowledge, field analysis, or laboratory analysis) prior to thermal treatment and document any such determinations. The amounts of petroleum, oil, and lubricant (POL) contaminated soil (“POL soil”) stored or stockpiled for subsequent thermal treatment shall be kept to the smallest amount possible and in no event shall POL soil be stored or stockpiled for more

than 6 months. Any POL soil that is stored or stockpiled for thermal treatment shall be stored or stockpiled in a manner that prevents the migration of contaminants to the ground water or adjacent land or water, minimizes fugitive particulate matter emissions from the stockpile, and restricts access to the stored or stockpiled material.

(d) Glass

Glass from all islands is sent to the Kwajalein Recycling Center (FN 1520). The glass is pulverized, sorted according to size, and offered for reuse locally in the Wastewater Treatment Plant's drying beds, the landfill for cover, or as an aggregate product in construction or beautification projects.

(e) Metals

Scrap metals from all islands are sent to Kwajalein and are segregated by type. Then, they are baled and staged for shipment to an off-island recycling facility.

(f) Concrete

Concrete is stockpiled at the applicable collection areas according to size. Large boulders and riprap, if determined to be free of hazardous constituents and paint, may be used for shoreline protection if conducted in accordance with the requirements of the Dredging and Filling DEP-10-002.0. If crushing equipment is available, smaller pieces of concrete can be ground and used as fill material.

(g) Batteries

Spent lead-acid batteries shall be collected from each generating source at a frequency that prevents accumulations representing a public safety or environmental hazard. Batteries will be labeled by date and will not be accumulated for recycling for longer than six (6) months before being shipped off island for recycling. Spent batteries shall be stored within secondary containment in accordance with UES §3-6.5.3(a)(9).

Nickel-cadmium, lithium, nickel-oxide, mercury, and silver batteries shall be segregated at the point of generation and transported to a designated facility, at a minimum of once a quarter, for recycling. Transport off island to recycling centers should occur at a preferred minimum of once every six (6) months or more frequently if practical.

(h) Regulated Medical Waste (RMW)

1. Collection and Storage:

All persons who generate or store RMW, as characterized in UES §3.6.5.6(d)(2), shall comply with the following requirements for collection and storage [UES §3-6.5.5(e)]:

i. Filled bags of RMW shall be stored in rigid puncture-resistant, leak-proof containers.
ii. Sealed bags shall be carried by the necks to the transportation cart. Bags shall not be lifted or held by the bottom or sides, and the bags shall be held away from the body.
iii. Carts used to transport or store RMW shall be constructed of readily cleanable material, plastic or stainless steel. Carts shall be closed except when being filled or emptied.
iv. Carts and all other reusable containers for collecting RMW shall be cleaned weekly or more frequently as needed, using a hospital-grade detergent disinfectant. The detergent-disinfectant shall be used in strict accordance with the manufacturer's instructions. If a spill occurs, the cart or container and all contaminated surfaces shall be cleaned immediately with a hospital-grade detergent-disinfectant.
v. The RMW shall be collected in a way that maintains the integrity of the packaging and in a location that provides protection from weather, animals, and vectors; unauthorized access; and unintentional contact.
vi. The RMW shall be segregated from general wastes at its point of origin and shall be placed in containers so that there is a secure barrier between the waste and the workers.
vii. The RMW containers shall be marked with the universal biohazard symbol and maintained in a non-putrescent state at all times throughout collection; refrigeration shall be used if necessary.
viii. All RMW containers shall be sized according to the activity and shall accommodate no more than a 1-day amount of RMW.
ix. For RMW Classes 4 and 7: All "sharps" (syringes, needles, knives, scalpel blades, tubes, pipettes, etc.) shall be discarded directly into a rigid leak- proof, puncture-resistant, unbreakable container immediately after use. Disposable needles and syringes shall be discarded intact and shall not be cut, broken, bent by hand, or recapped. The containers for sharps shall be designed to prevent unauthorized removal or access and shall be located as close as practical to the area of use. The containers shall be sealed when they are 3/4 full.
x. In accordance with UES §3-6.5.3(a)(6), all RMW storage areas shall be inspected weekly to detect leaking or deteriorating containers. Storage areas on uninhabited islets shall be inspected weekly when USAG-KA personnel are present or at least once every two months if no activity is taking place. RMW on uninhabited islands shall not be stored on islet if possible and shall be transported to Kwajalein as generated for incineration.

2. Treatment and Disposal:

All persons who treat RMW shall comply with the requirements outlined in UES §3-6.5.7(c)(3), including handling procedures, incineration,

sterilization and RMW characterization.

i. RMW handlers shall be trained in accordance with the UES. In addition to the general requirements of UES §3-6.5.3(a), RMW intended for disposal shall be securely stored in a locked area under the control of the Commander, USAG-KA.

ii. All RMW generated on Roi-Namur and Meck shall be incinerated at the islet of generation or transported to Kwajalein for incineration. RMW shall be transported to a Kwajalein qualified personnel who observe or initiate RMW destruction in the Kwajalein incinerator.

iii. Transport of RMW from the health care facility to disposal or storage facility shall abide by requirements set forth by UES §3-6.5.2(b)(4). These include:
   a) RMW shall be collected and transported by qualified personnel who shall accompany the medical waste to the incinerators and will remain present to ensure RMW is immediately incinerated.
   b) Filled bags of RMW shall not be transported loose. They shall be stored in rigid puncture-resistant, leak-proof containers that will not tip over during transport. Transport containers may be reusable and shall be cleaned using the methods in UES §3-6.5.5(e)(1)(ii).
   c) Vehicles used for transporting RMW shall be readily cleanable.
   d) All vehicles used for transporting RMW shall be cleaned weekly or more frequently as needed, using a hospital-grade detergent-disinfectant. All vehicles used for transporting RMW shall be cleaned before being used for any other purpose.
   e) All vehicles used for transporting RMW shall carry a spill containment and clean-up kit.
   f) Vehicles used for transporting RMW shall not stop during transport of RMW except for traffic control.
   g) The transporter shall verify that each package is marked as required by UES §3-6.5.2(b).

iv. The generator shall mark each package of RMW according to the following marking requirements before the waste is transported or offered for transport from USAKA. The outermost surface of the package shall be marked with a water resistant identification tag showing the following information:
   a) Generator’s or intermediate handler’s name
   b) Generator’s or intermediate handler’s identification number
   c) Generator’s or intermediate handler’s address
   d) Transporter’s name
   e) Transporter’s identification number
   f) Transporter’s address
   g) Date of shipment
   h) Identification of contents as RMW

(i) Cardboard/Paper

Cardboard/paper waste on Kwajalein is currently incinerated, however, the composting of cardboard and paper may be re-initiated in the future. Cardboard/paper is incinerated on Roi-Namur and Meck due to the low volume generated.

(j) Wood

Non-treated wood is stockpiled for reuse, ground into mulch, or incinerated. Grinding takes place on Kwajalein when functioning loaders and grinding equipment are available. No Mulch will be applied over the lens wells or near catchment areas as a precautionary measure in case any treated wood may have inadvertently been mulched. Kwajalein may maintain a mulching area for fibrous vegetation and untreated lumber waste. Mulch from this operation is used for island landscaping and beautification projects or amended into soils for use as landfill cover. Chemically treated lumber will not be mulched, but disposed of by incineration or landfilling. No more than 1660 tons per 12 month rolling average of treated lumber may be incinerated at each incinerator (Kwajalein, Roi-Namur, Meck). No single incinerator charge will exceed five percent (5%) treated lumber. If treated lumber is greater than five percent (5%) of a batch, the ash will be tested for metals following incineration. Ash from the incineration of treated lumber in excess of 5% batch load will be segregated and held until analytical results demonstrate the ash is non-hazardous. Ash testing must be performed in accordance with the procedure set forth in section 5.4 of this DEP.

(k) All Natural Green Waste

All natural green waste (i.e., palm fronds, coconuts, leaves, and tree trimmings) on Kwajalein, Roi-Namur, and Meck is segregated, and placed in a designated area to naturally compost.

(l) Food Wastes

All food wastes other than coconuts that are gleaned, are processed through residential or industrial garbage disposals for introduction to the WWTP or incinerated. Coconuts are managed as all natural green waste.

(m) PVC

Polyvinyl chloride (PVC) items are segregated and stockpiled for disposal off island.

(n) Tires

Tires are repurposed or incinerated.

(o) Ash

Ash that is non-hazardous (tests below the maximum concentrations of contaminants listed in UES Table 3-6B.1) may be landfilled; reused or disposed of by beneficially reusing ash by screening it to remove metals and glass, and blending it as a component of compost and/or mulch; or shipped off island to a municipal or non-hazardous waste landfill or to a facility for composting or mulching. Ash with concentrations equal to or above the UES Table 3-6B.1 levels shall be managed as hazardous waste.

4.0 REQUIREMENTS AND LIMITATIONS

Table 1 below identifies the UES provisions applicable for general solid waste disposal and the measures taken to address them.

Table 1 - UES Requirements, Limitations, Prohibitions		
UES		**Action**
Citation	**Requirement/Activity**	
3-6.5.6(a)	Characterize waste	Waste is initially segregated and characterized at the point of generation by virtue of the activity generating the waste. Further characterization occurs during waste collection and processing. . Waste is considered to be hazardous unless: defined as non-hazardous or solid waste (UES §§3-6.5.6(b)(1) and (2); non-hazardous based on generator knowledge; or testing or screening determines the waste to be non-hazardous.
3-6.5.7(a)(1)	Cannot treat or dispose of hazardous waste without a DEP	Hazardous waste is not treated or disposed of at USAKA except as authorized in a NCA/DEP.
3-6.5.7(a)(4) 3-6.5.7(b)(4)	General solid waste shall be disposed of only after recycling, reuse and energy recovery are considered and as documented in a DEP	This NCA and associated DEP describe the recycling, reuse, and energy recovery practices at USAKA with regard to solid waste. Energy recovery from waste petroleum products oil at the Kwajalein incinerator is described in the NCA/DEP, although not required to be in the DEP.
3-6.5.7(b)(1)	Hazardous waste and waste petroleum products cannot be shipped to RMI	No hazardous waste or waste petroleum products are shipped to the RMI.
3-6.5.7(b)(4)(iii)	Waste petroleum specifications	Table 3-6.5.7, "Non-spec" waste petroleum products are recycled or disposed of in accordance with the UES.
3-6.5.7(c)(3)(i)(B)	Incineration of medical waste	Regulated medical waste (RMW) is incinerated. RMW comprises less than 10 percent of the incinerator(s) waste stream, therefore, the standards in UES Appendix 3-1C are not applicable.
2-7.1.6(h) 3-6.5.7(c)(6)(i)	Solid Waste Management Plan	The current plan is dated March 2017.
3-6.5.7(c)(6)(iii)	Location restrictions	No change to existing landfill and composting facility locations are included or proposed in this NCA. Past and present operations have not resulted in an aircraft safety hazard by birds.

Table 1 - UES Requirements, Limitations, Prohibitions		
UES		**Action**
Citation	**Requirement/Activity**	
3-6.5.7(c)(6)(iv)(A) 3-6.5.7(c)(6)(iv)(H)	Prevent disposal of hazardous waste Disposal of Liquids restrictions	Several layers of prevention are employed to detect and remove liquids and hazardous waste/materials before disposal: • Segregation at points of generation • Visual inspections of each load at entry gate (Kwajalein) • Random inspections of accumulated waste within the solid waste management facility • Inspection of tipping floor contents before charging incinerator(s) • Landfill inspections prior to application of cover or new waste. Inspections are documented and the records are maintained at the facility(s). The Commander, USAG-KA is notified if hazardous waste is discovered at the facility.
2-7.2.1(h)(9) 3-6.5.7(c)(6)(iv)(B)	Cover material	In accordance with UES §3-6.5.7(c)(6)(iv)(B)(bb), the Commander determined that a minimum of two inches of cover material is adequate. Spent sand blast media, pulverized glass, processed lumber, composted material, and clean fill are utilized as cover. Spent sand blast media is regularly tested for "Resource Conservation and Recovery Act (RCRA) metals" to determine if it is hazardous. If hazardous, the spent sand blast media is not utilized as cover, but managed as hazardous waste. Additionally, dried sewage sludge may be utilized as cover material if demonstrated to meet the standards for unrestricted human contact IAW UES §3-6.5.7(d)(2). Incinerator ash is typically deposited in the landfill once or twice a week and covered with at least six inches of cover material on the day of application.
3-6.5.7(c)(6)(iv)(C)	Vector control	The landfills do not typically receive putrescible waste; they receive incinerator ash and some C&D debris. As a consequence, vector attraction is minimal. Insects (flies primarily) are a potential issue at the tipping floors and the composting facility on Kwajalein. Tipping floors are routinely cleaned to minimize vector attraction. Pest management personnel will routinely monitor the landfill(s), tipping floors, and composting facility and, as necessary, eradicate the pests.
3-6.5.7(c)(6)(iv)(D)	Control of explosive gases	Landfills are monitored annually for methane levels. To date, methane has not been detected.
3-6.5.7(c)(6)(iv)(E)	Open burning of solid waste	Open burning is prohibited unless authorized in accordance with UES §3-1.7.1(b) or (c).
3-6.5.7(c)(6)(iv)(F)	Access restrictions	Access to solid waste management facilities is restricted by barriers and signage designating the areas as restricted access. Only properly credentialed personnel are allowed unescorted access.
3-6.5.7(c)(6)(iv)(G)	Run-on, run-off control	Landfill cells are positioned to create berms restricting run-off. Vegetative barriers also mitigate run-off to coastal water.
3-6.5.7(c)(6)(iv)(I)	Record-keeping	All records specified in this NCA and associated DEP are maintained by the landfill operator.

Table 1 - UES Requirements, Limitations, Prohibitions		
UES		**Action**
Citation	**Requirement/Activity**	
3-6.5.7(c)(6)(v)	Liner design and leachate collection	This NCA does not include the establishment of new landfills or lateral expansion of existing ones.
2-7.2.1(h)(11-14) 3-6.5.7(c)(6)(vi)	Ground water detection and assessment monitoring	See 5.2 of this NCA. The Appropriate Agencies will be notified and consulted on any changes to the ground water monitoring program or methodology for assessing monitoring results.
2-7.1.6(i) 3-6.5.7(c)(6)(vii)	Closure and post-closure care	Landfill closures are not anticipated during the effective period of the DEP resulting from this NCA. If an unanticipated closure is required, a closure/post closure care plan will be submitted to the Appropriate Agencies at least 60 days prior to the closure date.

4.1 Collection Requirements

Household wastes and solid waste from commercial or industrial sources shall be transported to disposal facilities at least twice a week in accordance with the collection requirements specified in UES §3-6.5.5(a). Collection shall be performed using containers that are compatible with the materials collected and shall be kept clean and stored in a way that protects public health and safety and the environment. Vector control practices shall include a certified pesticide applicator inspection, and treatment if necessary, of collection and storage facilities at least once a month. Documentation of the types of vectors observed and methods of treatment shall be retained for at least three years. All utilized outer islets shall have dumpsters replaced quarterly, at a minimum, and more frequently if barge transportation is available. Additional dumpsters and waste receptacles shall be delivered and used as special programs occur on the islets. All wastes from construction projects shall be removed from the islets at the conclusion of the project. No waste shall be disposed on the outer islets with the exception of green waste, which shall be left to decompose naturally.

4.2 Training Requirements

In accordance with UES §3-6.5.1(d), all personnel engaged in the operation of the incinerator emission-control equipment; monitoring of water quality at the landfill; receiving, handling, analyzing and storing pesticides or hazardous waste; or engaged in operating processes that use pollution-control devices shall be trained, and the training shall be documented and verified..

4.3 Facility and Equipment Requirements

Facility requirements for hazardous materials, wastes and petroleum products shall be designed to ensure the health and safety of the local population. The general facility requirements shall address security, labeling, safety and spill-prevention equipment, and facility design.

All equipment utilized for solid waste management (e.g., incinerators, grinders,

loaders) will be maintained in accordance with manufacturer recommendations. In the event repairs are required or replacement equipment is needed, USAG-KA will expeditiously accomplish the repairs or acquire replacement equipment.

5.0 INSPECTION, MONITORING, RECORD KEEPING, AND REPORTING

5.1 Waste Inspections/Surveillance

Several layers of prevention are employed to detect and remove liquids, hazardous waste and hazardous materials before incineration and disposal.

- Segregation at points of generation. Waste receptacles at shops, maintenance areas, retail/commercial areas, and residential areas are periodically inspected to insure that wastes are placed in the appropriate receptacles.
- Facilities that store or generate hazardous waste, materials, and petroleum products are required to have trained custodians and regular inspections to ensure segregation of hazardous wastes.
- Visual inspections of each load at entry gate (Kwajalein).
- Random inspections of accumulated waste within the solid waste management facility(s).
- Inspection of tipping floor contents before charging incinerator(s).
- Landfill inspections prior to application of cover or new waste.
- Annual sampling and analysis of incinerator ash for hazard characteristics.
- Inspections are documented and the records are maintained at the facility(s).
- The Commander, USAG-KA is notified if hazardous waste is discovered at the facility.

5.2 Ground Water Monitoring System and Implementation Plan

Ground water monitoring is performed in the vicinity of the Kwajalein, Roi-Namur, and Meck landfills. When the groundwater monitoring system was installed in 1999, there were a total of 21 groundwater monitoring wells planned for sampling semiannually at the landfill facilities in accordance with UES§3-6.5.7 (E)(6)(VI)(B)(bb) and the *U.S. Army Center for Health Promotion and Preventative Medicine Sampling and Analysis Plan* (Appendix A). However, 5 monitoring wells at the Kwajalein landfill have since been damaged or destroyed and there are two locations on Kwajalein where shoreline seep samples are collected adjacent to the designated monitoring wells since they have dried up over time. The replacement wells for these monitoring locations will be addressed in the Kwajalein Landfill Closure/Post-Closure Plan in accordance with UES §3-6.5.7(c)(6)(vii). Currently there are 16 monitoring well locations (including seeps) that are sampled semi-annually. Analysis of the ground water monitoring data is conducted by the U.S. Army Public Health Center (APHC) [formerly known as the U.S. Army Center for Health Promotion and Preventative Medicine (USACHPPM) and the U.S. Army Public Health Command (USAPHC)]. Table 2 below summarizes the ground water monitoring well locations, monitoring frequency, and parameters to be monitored. The contaminants of concern that are being monitored have been established

based on historical data. Appendix A, The Sample and Analysis Plan and Appendix B, The Preliminary Assessment/Site Inspection Sampling and Analysis Plan provide the ground water monitoring system and implementation plan information as required by UES §3-6.5.7(c)(6)(vi).

Table 2 – Ground Water Monitoring Stations, Frequency, and Parameters

Well Number	Location	Monitoring Frequency	Parameters to Monitor
KS-1R/1R2*	Kwajalein Shoreline South of Landfill	Semiannual	Metals, PCB, Pesticides
KS-2*	Kwajalein Shoreline Southwest of Landfill	Semiannual	Metals, PCB, Pesticides
KS-3*	Kwajalein Shoreline West of Landfill	Semiannual	Metals, PCB, Pesticides
KS-4R**	Kwajalein Shoreline West of Landfill	Semiannual	Metals, PCB, Pesticides
KS-5**	Kwajalein Shoreline Northwest of Landfill	Semiannual	Metals, PCB, Pesticides
KW-1	Northwest of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
KW-2*	Northwest Border of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
KW-3	In Kwajalein Landfill Area	Semiannual	Metals, PCB, Pesticides
KW-4	In Kwajalein Landfill Area	Semiannual	Metals, PCB, Pesticides
KW-5	South of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
KW-6*	Southeast of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
KW-7	East of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
KW-8	Northeast of Kwajalein Landfill	Semiannual	Metals, PCB, Pesticides
RN-1	Northwest border of Roi-Namur Landfill	Semiannual	Metals
RN-2	West border of Roi-Namur Landfill	Semiannual	Metals
RN-3	South of Roi-Namur Landfill	Semiannual	Metals
RN-4	Northeast of Roi-Namur Landfill	Semiannual	Metals
RN-5	Northeast of Roi-Namur Landfill	Semiannual	Metals
MK-2	North of Meck Landfill	Semiannual	Metals
MK-3	East of Meck Landfill	Semiannual	Metals
MK-5	East of Meck Landfill	Semiannual	Metals

* Well damaged or destroyed.
** Shoreline seep samples are collected near the well locations.

Detection monitoring is conducted at the three landfills. Since a contaminate release has been detected at the Kwajalein Landfill, an assessment of that release has been ongoing in accordance with UES§3-6.5.7(c)(6)(vi)(C). No contaminate release has been confirmed at Roi or Meck, so only detection monitoring continues at those locations.

5.3 Methane Gas

In accordance with UES 3-6.5.7(c)(6)(iv)(D) landfills shall be monitored at a minimum annually for methane gas. USAG-KA shall institute monitoring for methane gas at both the landfill and the composting areas. In accordance with UES §3-6.5.7(c)(6)(iv)(D), operators of SW landfill and composting facilities shall ensure the concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit (LEL) for methane in the facility and does not exceed the LEL for methane at the boundary of the facility property. To determine the general levels of methane concentration in the landfill and

composting areas, an initial survey shall be conducted using a portable combustible gas analyzer, or other suitable gas detection instrument. If levels of methane are detected exceeding the LEL, precautions shall be taken to ensure public health and safety; and the Commander, USAG-KA, shall be notified. Within seven days of detection of a methane concentration exceeding 25 percent of the LEL, the levels of methane gas detected and a description of the steps taken to protect public health and safety shall be documented. Within 60 days of detection, a remediation plan shall be implemented describing the extent of the problem and the proposed remedy. If the monitoring program indicates a methane gas problem exists and a remedy is required, permanent methane gas monitoring vent pipes shall be installed within, and at the perimeter of the affected facility. A procedure shall be developed for monitoring methane gas in the vicinity of the vents, and the results of each monitoring event shall be recorded and submitted to the Appropriate Agencies for review.

5.4 Sewage Sludge

For land application, a representative sample of the sewage sludge shall be tested annually to demonstrate that the pollutant concentrations are not exceeded. UES §3-6.5.7(d)

5.5 Incinerator Ash

Incinerator ash shall be tested no less than annually to evaluate toxicity levels associated with the metal contaminants listed in UES Table 3-6B.1. A concentration equal to or greater than any one toxicity characteristic deems the incinerator ash as hazardous waste and shall require proper disposal. Ash loads generated subsequent to the sampled load shall be isolated and securely stored until such time as the results from the sampled load are received. If the results show that the sampled load did not exceed any Table 3-6B.1 threshold for a metal contaminant, the sampled and stored ash loads may be disposed of as non-hazardous waste. If the results show that a Table 3-6B.1 threshold is exceeded: the sampled ash load shall be managed as hazardous waste; newly generated ash loads will continue to be isolated and securely stored; and stored ash loads will be sampled in chronological order. Once two chronologically consecutive ash loads are shown to not exceed a Table 3-6B.1 threshold, routine sampling may return to an annual frequency and ash loads generated after the two consecutive loads not exceeding a threshold may be disposed of as nonhazardous waste. Any ash load exceeding a Table 3-6B.1 threshold shall be managed as hazardous waste.

If the operator of an incinerator, other solid waste management personnel, or the USAG-KA Environmental Engineer knows or suspects that a waste charge to an incinerator contains materials not authorized in this DEP that could cause an exceedance of a Table 3-6B.1 threshold for a metal contaminant, the generated ash load shall be sampled for metal contaminants. If an incinerator malfunction or incorrect operation occurs that results in incomplete combustion, the resulting ash load shall be sampled for metal, VOC and SVOC contaminants. The protocol for subsequent ash loads and resumption of annual sampling described above shall

be followed as if the sample was a routine annual sample.

5.6 Emergency Notifications

Within 24 hours of discovery of an emergency environmental condition, USAG-KA shall notify the public affected or potentially affected by the condition and the Appropriate Agencies by the most expeditious means available. Emergency environmental conditions are those that pose an immediate threat to human health and safety, incidental take of protected species or habitats, or unplanned impacts to sensitive natural and cultural resources. Within 10 days following emergency notification, USAG-KA shall submit written notification of the event to the Appropriate Agencies that contains, at a minimum, the relevant information described in UES § 2-7.2.2. Emergency notifications shall be made for any condition that the Commander, USAG-KA, determines to constitute an emergency condition.

5.7 Public Notifications

Public notifications shall be made by USAG-KA to advise the public of an activity or action that USAG-KA has taken or is planning as described in UES §2.7.3.2. Public notification shall be made through means that are widely available and consulted by the public at USAG-KA and the Republic of Marshall Islands (RMI) such as *The Kwajalein Hourglass* and announcements on the television "Roller," and shall be effective for the locations affected.

5.8 Record Keeping

The NCAs; Environmental Comments, and Recommendations (ECRs); and DEPs permitting solid waste disposal activities at USAKA shall be preserved for the duration of the activity plus ten years or for ten years after expiration of the DEP, whichever is less. USAG-KA environmental records on solid waste disposal shall be maintained for demonstrating compliance with the UES and shall be available for examination by outside agencies during external auditing (UES §2-13.1). All records associated with solid waste disposal shall be maintained for at least five years (UES §2-13.2).

6.0 ENVIRONMENTAL AREAS POTENTIALLY AFFECTED

The activities described in this NCA will take place within the footprints of existing solid waste management activities. No new or lateral expansions of existing facilities or excavations are proposed in this NCA. The solid waste operations described in this NCA and associated DEP could potentially affect adjacent environmental areas. UES Appendix 3-4D, Figure 3-4D.1, Figure 3-4D.2, and Figure 3-4D.3 depict that the landfill on Kwajalein is adjacent to shoreline habitat, while the landfills on Roi-Namur and Meck are adjacent to both shoreline habitat as well as a turtle nesting and haul out habitat. An objective of this NCA and the associated DEP is to ensure that actions taken at USAKA will not jeopardize the continued existence of protected species or result in destroying or adversely modifying the habitats on which they depend.

In the event that archeological or cultural resources are discovered during the conduct of this activity, the relevant procedures set forth in the most current DEP for *Protection of Cultural Resources* will be followed.

Previous studies and groundwater monitoring data indicate contaminants are being discharged from the Kwajalein Landfill into the near-shore waters leading to the bioaccumulation of some contaminants in reef fish and algae. Surface water and multiple groundwater seepage samples collected downgradient from the Kwajalein Landfill identified contaminants above UES Criteria. Due to the potential for adverse human health impacts associated with contaminated fish consumption, USAG-KA has designated the area adjacent to the Kwajalein Landfill as a "no fishing" area.

In response to the 2014 Kwajalein Landfill Baseline Risk Assessment completed by USAPHC showing an unacceptable increased risk of cancer and other health effects to subsistence consumers of reef fish on the Kwajalein Landfill reef flat, the Army has started programming efforts to close the Kwajalein Landfill by complete removal. USAG-KA plans to prepare a design for the closure in 2020 and begin executing the closure in 2022. The proposed closure scenario that has been recommended is complete removal of the Kwajalein Landfill with disposal at an offsite permitted facility. Closure will include appropriate post-closure care and monitoring per UES §3-6.5.7(c)(6)(vii). Post-closure, USAG-KA plans to continue to operate the incinerators to reduce the volume of solid waste requiring disposal. However, the ash would no longer be placed in a landfill in USAG-KA but would instead be periodically shipped to an offsite permitted facility for disposal.

Routine groundwater monitoring at the Roi-Namur and Meck Landfills have demonstrated compliance with UES criteria. No contaminant accumulation studies have been conducted downgradient from these landfills; however, in April 2014, a Petroleum, Oil and Lubricant Risk Assessment study included sampling of fish near the Roi-Namur POL yard and from Wendy Point. The results of the risk assessment indicated high concentrations of lead in fish posed a risk to humans who consume them. Although fish in the vicinity of the Roi-Namur Landfill have not been studied, USAG-KA designated the area from Wendy Point through the Roi-Namur Landfill shoreline as "no fishing" area. The shoreline adjacent to the Meck Landfill does not have any fishing limitations.

7.0 DESCRIPTION OF ENVIRONMENTAL SETTING

Kwajalein Atoll is a crescent-shaped atoll containing approximately 100 islands with a total land area of about 5.6 square miles. The coral reef and islands enclose the world's largest lagoon (1,100 square miles). Kwajalein is the largest island in the Atoll with an area of 748 acres. All the islands are typical low-lying atoll islands with average elevations of between four and six feet above sea level.

Kwajalein Atoll has a tropical marine climate characterized by warm and humid weather throughout the year. The mean monthly temperature is 81.8^{o}F with little seasonal variation. Average rainfall is around 100 inches per year. Approximately 75 percent of the annual rainfall occurs during the wet season of mid-May through mid-December.

Northeasterly trade winds ranging from nine to sixteen miles per hour (mph) are dominant during most of the year. The summer months can bring relatively calm conditions. The atoll is considered to be outside the main areas of typhoon occurrence in the Western Pacific.

(a) Kwajalein

Kwajalein Island is approximately 748 acres, currently has a residential population of approximately 1300 people, and is the base of operations for USAG-KA activities within the atoll. The average elevation on Kwajalein is 5.9 feet and soils are sandy and alkaline. A thin freshwater lens located at the center of Kwajalein is used as potable water supply during the dry season. The generalized direction of groundwater flow on Kwajalein is from the center of the island out toward the edges. Kwajalein is sparsely vegetated by a mix of native and non-native species dominated by coconut palms and woody shrubs.

(b) Roi-Namur

Roi-Namur Island is approximately 398 acres and supports a residential population of approximately 150 people. Roi-Namur was originally two islands which were joined by quarried offshore fill materials prior to World War II. Thin freshwater lenses are located on Roi and Namur, toward the central construction fill area. The generalized direction of groundwater flow on Roi and Namur is from the center of the island out toward the edges. A saltwater tidal pond developed between Roi and Namur following the construction of the fill area between the islands. Roi is sparsely vegetated and Namur has areas of dense jungle.

(c) Meck

Meck Island is approximately 55 acres. There is no resident population on Meck. Approximately 25 to 100 workers are transported to the island five days a week. There are no freshwater lenses on Meck. All potable water is derived from rainwater catchment. Meck is very sparsely vegetated.

(d) Outer Islands

There are eight other USAG-KA leased islands within the atoll, Illeginni, Ennylabegan, Legan, Gagan, Gellinam, Omelek, Eniwetak, and Ennugarret. The total area of these islands is 231 acres, 160 of which is USAG-KA controlled. There are two tidally influenced saltwater ponds on Legan. Vegetation on these islands ranges from sparse in developed areas to thick jungle conditions dominated by coconut palms. Wildlife conservation areas are established on Eniwetak and a portion of Illeginni. Eniwetak is also home to the only remaining stand of Pisonia trees at USAKA.

8.0 ANALYSIS OF THE EFFECT OF THE ACTIVITY ON ENVIRONMENTAL AREA IN THE ABSENCE OF ENVIRONMENTAL CONTROLS

Although the procedures and controls required in this NCA and the associated DEP have ensured solid waste is managed appropriately at USAG-KA, historical practices at the Kwajalein Landfill have negatively impacted the near shore environment. Recent studies indicate contaminants are being discharged from the Kwajalein Landfill at the shoreline leading to the bioaccumulation of some contaminants in reef fish and algae. Surface water and multiple groundwater seepage samples collected downgradient from the Kwajalein Landfill identified contaminants above UES Criteria. Routine groundwater monitoring at the Roi-Namur and Meck Landfills have demonstrated compliance with UES criteria. Shoreline metal debris associated with the former U.S. Navy Dump (upgradient tidally of current active Kwajalein Landfill) which was the predecessor to the current landfill is currently being remediated. This removal should reduce the upgradient source of contaminants. The Army is currently programming for the closure of Kwajalein Landfill.

9.0 TECHNICAL DESCRIPTION AND ANALYSIS OF THE ENVIRONMENTAL CONTROLS USED IN THE ACTIVITY

All solid waste management operations are currently managed in accordance with the UES, specific SPIs, and the most current Solid Waste Management Plan.

10.0 DISPERSION MODEL FOR MODELING AIR SOURCES

Air dispersion modeling was conducted for the USAG-KA incinerators in 2012 and did not identify any ambient air quality standards exceedances associated with the operation of the incinerators. The rated capacity of the incinerators has not changed since the existing air dispersion modeling was completed. Therefore, the existing air dispersion modeling conservatively bounds the anticipated air quality impacts associated continued operation of the USAG-KA incinerators.

11.0 ANALYSIS OF WASTE DISCHARGE FOR POINT SOURCE DISCHARGES TO WATER

Section 3-8 of the UES defines a “Point Source” as a discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, vessel, or other floating craft, from which pollutants are or may be discharged. There are no point source discharges associated with this activity. Two point source discharges, KISW14 and KISW14A, were eliminated from the landfill in 2001 and 2002, respectively.

12.0 TREATMENT, STORAGE, AND DISPOSAL FACILITIES

12.1 Composting

(a) Kwajalein

Currently, composting of dried sewage sludge and non-fibrous wastes (i.e., lawn clippings, leaves, paper, cardboard, and food waste) in accordance with UES Section 3-6.5.7(d)(3)(C) does not occur based on a finding from an inspection

conducted in the summer of 2010 by the USAPHC Pest Management Inspection group. The finding was identified as a vector concern with the way the composting was being operated (i.e., they found a pallet of cheese sitting on the compost area). As a result, composting operations ceased but may be reactivated in the future with the proper procedures, resources, and controls in place. In the event composting operations resume, the resulting material may be used as landfill cover or may be utilized for land application pursuant to the standards in UES Section 3-6.5.7(d)(2).

Fibrous vegetation (trees, branches, palm fronds, coconuts, etc) is staged to compost naturally.

Kwajalein may maintain a mulching area for fibrous vegetation and untreated lumber waste. Mulch from this operation is used for island landscaping and beautification projects or amended into soils for use as landfill cover.

(b) Roi-Namur

Fibrous vegetation (trees, branches, palm fronds, coconuts, etc) is staged to compost naturally.

(c) Meck

Fibrous vegetation (trees, branches, palm fronds, coconuts, etc) is staged to compost naturally.

12.2 Incineration

Combustible and putrescible materials are currently being incinerated. Recyclable and compostable waste may be incinerated to prevent excess accumulation. The most current DEP for Air Emissions from Major, Synthetic Minor, and Industrial Boiler Stationary Sources includes incinerator operations requirements. In extraordinary circumstances some putrescible wastes will be disposed of in the landfill(s). These circumstances include situations where an incinerator(s) is inoperable and other means of waste processing (e.g., composting) are not available or appropriate.

(a) Kwajalein

A 32-ton per day capacity batch incinerator is operated on Kwajalein. The incinerator is fueled by diesel fuel or waste petroleum. Combustion is initiated with diesel fuel, and the waste burns for 10 to 24 hours without further attention. The volatile organic compounds naturally rise to the top of the chamber as un-combustible gas particulates, which are ducted to a secondary chamber where they become incinerated at a much higher temperature [1700 degrees Fahrenheit (°F)] for approximately two seconds residence time. Once the combustion process is complete in the primary chambers (approximate volume reduction of 95 percent), the ash is released out a bottom opening ash door. Water may be used

to assist in cooling of the ash. Ash may be stockpiled and allowed to cool for several days before disposition.

(b) Roi-Namur and Meck

Roi-Namur and Meck each operate a multiple chamber, closed hearth, starved air, diesel fired incinerator. The incinerators are batch charged and usually operate on a 24-hour cycle. Ash may be stockpiled and allowed to cool before disposal in the landfills. Waste Petroleum processing does not occur on Roi-Namur or Meck.

12.3 Landfilling

Operators of all landfill facilities shall cover SW with at least two inches of cover material at the end of each operating day, when solid waste, other than inert waste, is added to the landfill, or more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging.

USAG-KA landfills shall accept C&D debris, general solid waste, and incinerator ash. No hazardous waste shall be landfilled or incinerated. A minimum of two inches of cover material is applied after ash or any putrescible waste is placed in the landfill. Clean fill, spent sand blast grit, composted materials, and pulverized glass may be used for cover. Alternative cover materials may be approved by the Commander, USAG-KA, in consultation with the Appropriate Agencies if it is demonstrated that the alternative material adequately control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to public health and safety or the environment. There are no sources of drinking water in the vicinity of the landfills.

(a) Kwajalein

The Kwajalein landfill (Figure 1) occupies 13 acres on the west edge of the island. The current practice is to landfill noncombustible wastes (e.g., C&D debris) and incinerator ash in separate cells on the ocean-side perimeter of the landfill. Berms help prevent runoff to the ocean. Additionally, the two primary drainage swales from the landfill are diked to prevent discharges to the coastal water. A historic asbestos burial site exists in the landfill on Kwajalein and is marked with notification signs. Access to this site is restricted and asbestos disposal no longer occurs at USAKA.

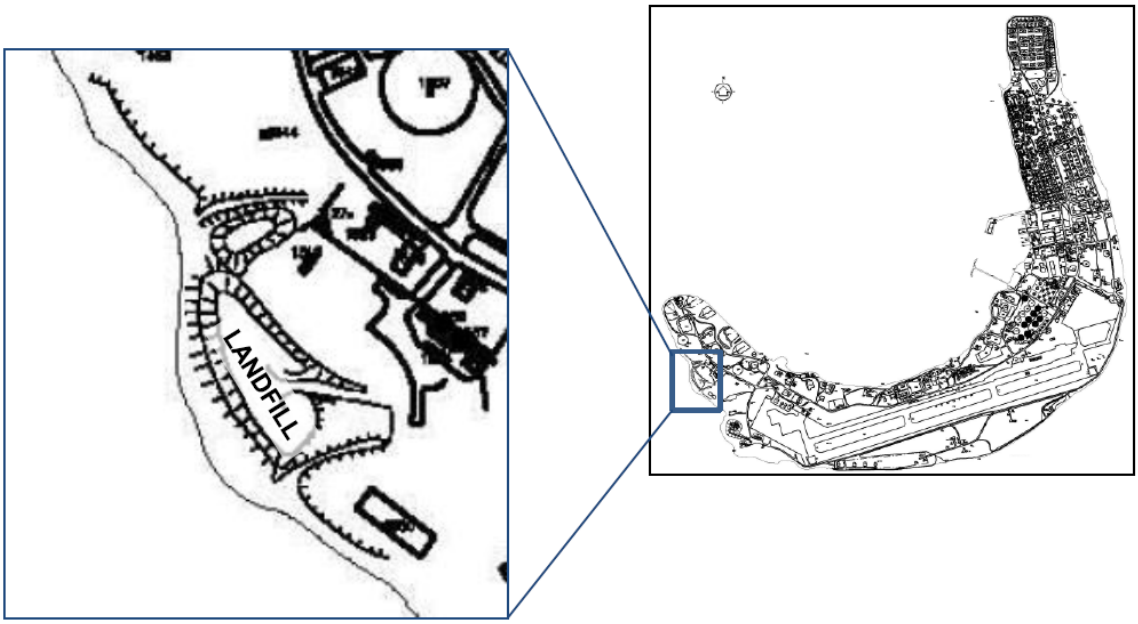

Figure 1 - Kwajalein Solid Waste Facility

(b) Roi-Namur

The Roi-Namur landfill (Figure 2) occupies 2.3 acres on the southwest shoreline of Roi, approximately 300 feet from the end of the runway. Ash generated from incineration operations is landfilled in a cell that is surrounded by a berm and vegetative barrier. This perimeter prevents runoff to marine waters. If the landfill gets full, then the ash will be removed from the Roi-Namur landfill, containerized, and sent to Kwajalein for landfilling. There are no sources of drinking water in the vicinity of the landfill.

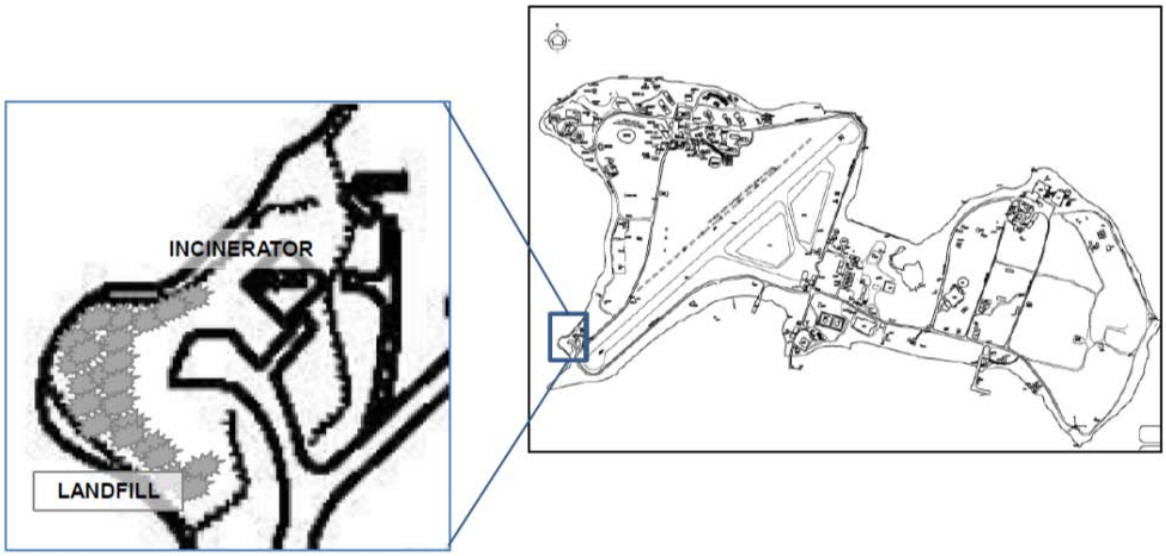

Figure 2 - Roi-Namur Solid Waste Facility

(c) Meck

Meck Island is approximately one-third of a mile in width and three-fourths of a mile in length. The Solid Waste Facility (Figure 3) is located in the southwest portion of the island within 400 feet of the helicopter-landing pad. The Kwajalein Atoll lagoon (Class A waters) borders the Meck Landfill to the south and west. There are no sources of drinking water in the vicinity of the landfill.

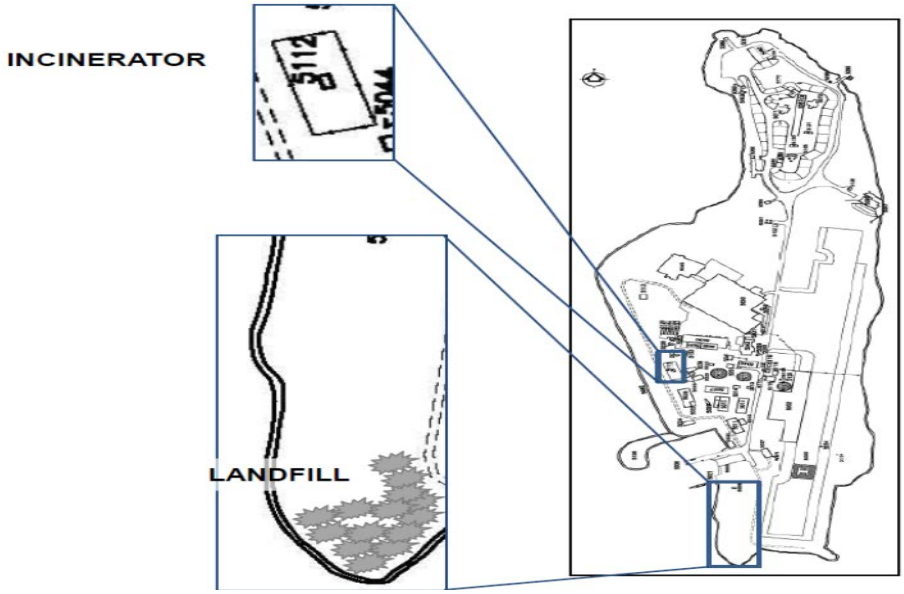

Figure 3 - Meck Solid Waste Facility

13.0 BIOLOGICAL ASSESSMENT IF ENDANGERED RESOURCES MAY BE AFFECTED

Previous studies and groundwater monitoring data indicate contaminants are being discharged from the Kwajalein Landfill into the near-shore waters leading to the bioaccumulation of some contaminants in reef fish and algae. Surface water and multiple groundwater seepage samples collected downgradient from the Kwajalein Landfill identified contaminants above the UES Criteria.

In October 2015, the National Marine Fisheries Service published the *Marine Biological Assessment and Conservation Recommendations for Planned Removal of Bulk Metal Waste from the Southwest Shoreline and Reef Flats of Kwajalein Islet* which was utilized to support the Final Removal Action Memorandum (RAM) for the Kwajalein Landfill issued in April 2017. The marine biological assessment identified Techtus (Trochus) niloticus as the only UES consultation specie and a variety of UES Coordination species in the area adjacent to the landfill. Coral distributions on and in the vicinity of metal debris were very limited. Based on the assessment, continued operation of the Kwajalein Landfill may affect, but is not likely to adversely affect, UES Consultation and Coordination species in the area adjacent to the landfill. No additional biological assessments are recommended.

Due to the limited landfilling activities along with the routine groundwater monitoring activities at the Roi-Namur and Meck Landfills demonstrating compliance with the UES criteria, no adverse effect to marine organisms or other wildlife is warranted. Therefore, no additional biological assessments are recommended.

14.0 INFORMATION ON RECEIVING WATER QUALITY FOR WATER DISCHARGES

(a) Kwajalein

A Preliminary Assessment/Site Inspection was completed in 2012 for the Kwajalein Landfill. This investigation found copper, polychlorinated biphenyls (PCBs), and the pesticide chlordane in the ground water beneath the landfill area. Surface water samples along the reef flat were found to contain elevated levels of copper. Sediment data and water column data also have evidence of contaminant levels above UES criteria and screening levels. In addition to metals, sediment data shows elevated levels of PCBs and pesticides. Ground water data suggests pollutant concentrations increase as water migrates through the landfill area.

A Baseline Risk Assessment Report was conducted in 2014, and additional sampling of ground water, surface water, and fish tissue were completed. Fish tissue samples showed elevated levels above regulatory values for PCBs and the pesticides DDT and chlordane.

The Kwajalein Landfill Removal Action Memorandum (RAM), dated September 2016 includes a cleanup approach that includes a two-step strategy. The first step is the removal of the larger metal debris and re-armoring of the shoreline east of the landfill. The second step of the cleanup approach includes water quality monitoring for a year to determine if cleanup goals have been achieved and to determine if additional monitoring is required (up to five years total) or further actions would be necessary to achieve cleanup goals. If after the five year period, the shoreline metals removal remedy is not effective at restoring the water quality in the ground water and marine water, a supplemental remediation plan for the landfill area would be implemented.

(b) Roi-Namur and Meck

There is no evidence of surface and ground water contamination from the landfills and potable water sources are unaffected by the landfills.

The creation of berms and vegetative barriers along with the precautionary measures described in this NCA substantially mitigate the contamination potential of the landfills.

15.0 INFORMATION ON MARINE LIFE, CURRENTS, AND OTHER CHARACTERISTICS OF AN OCEAN DISPOSAL SITE

This NCA does not authorize or involve ocean disposal.

16.0 INFORMATION ON MARINE LIFE AND ENVIRONMENT IN DREDGING OR FILLING AREAS

This NCA does not authorize or involve dredging or filling activities.

17.0 SPECIES AND NUMBERS OF MIGRATORY BIRDS AND OTHER WILDLIFE SPECIES AND HABITATS THAT MAY BE TAKEN

The solid waste operations herein described is a continuing activity and requires no new disturbances to the environment. The lives of migratory birds, other wildlife, and habitats are not known to be affected by the ongoing activities.

18.0 ANALYSIS OF CLIMATE CHANGE AND ITS POTENTIAL IMPACTS

Rising global atmospheric Greenhouse Gas (GHG) emissions are affecting the Earth's climate. Local effects are predicted to include, but are not limited to, less rainfall, increased flooding, less intense storms, sea-level rise, ocean acidification, higher atmospheric temperatures, and increased wave run-up/inundation. In accordance with UES §2-17.3.3(c), the NCA shall include an analysis of climate change and its potential impacts on the activity, and a description of related limitations and requirements. The potential impact of climate change effects on the solid waste disposal activities include increases in erosion due to increased wave run-up and increased wave-driven flooding at USAG-KA.

Increased Erosion
Due to sea-level rise and correlated wave actions as well as the loss of coral reef buffer to dissipate wave energy from ocean acidification, increased erosion of the coastal shorelines on the USAKA islets are expected to occur. The landfills on Kwajalein, Roi-Namur, and Meck are all located on the coastal edge. The current landfills' close proximity to the ocean or lagoon makes them vulnerable to increased erosion which could compromise the integrity of the landfills. The increased erosion of the coastal shorelines could potentially expose the waste in the landfills.

Increased Flooding
Increased wave run-up may result in severe flooding of the USAKA islands. Additionally, the rise in sea level may result in inundation from waves during storms and king tide events, and raise the water tables which will exacerbate flooding during rain events. Increased flooding could increase the potential for waste from the landfill to leach into the waters around USAKA.

This NCA and the associated DEP establishes requirements that ensure the proper management, regular monitoring, and assessment of the landfills. Those requirements ensure that contingencies can be established should any landfill deficiencies due to climate change be identified.

19.0 RESOLUTION OF NONCOMPLIANT AREAS

(a) Scrap Metal Management

Issue: According to UES §3-6.5.5(h), recoverable resources will be stored in a way that prevents contamination of the surrounding environment and complies with the applicable requirements of UES§3-6.5.3. An excessive accumulation of scrap metal exists.
Resolution: The existing accumulation of metal will be properly bundled and shipped of island.
Compliance Schedule: Within budget constraints, USAG-KA will endeavor to remove the existing accumulation of scrap metal.

(b) Landfill Access

Issue: According to UES §3-6.5.7(c)(6)(e)(iv)(f), Operators of all SW landfill and composting facilities shall control public access and prevent unauthorized vehicle traffic and illegal dumping using artificial or natural barriers, or both as appropriate. There is not adequate control to prevent unauthorized access to the landfill.
Resolution: Additional fencing/barriers needed to prevent unauthorized access. Other possible corrective actions include use of cameras, signs, lighting, and increased security presence.
Compliance Schedule: Awaiting funding to implement corrective actions.

(c) Landfill Ground Water Well Sampling

Issue: According to this NCA and the associated DEP, at least one sample from each well must be collected and analyzed during each semi-annual sampling event. Currently, KW-2, KW-6, KS-1R/1R2, KS-2, and KS-3 are damaged. Without functional wells, not all sample locations can be sampled.
Resolution: Re-establish the discrepant GW monitoring wells.
Compliance Schedule: Awaiting funding to implement corrective actions.

(d) Excess Wood Accumulation

Issue: An excessive accumulation of treated and/or untreated wood exists.
Resolution: The wood will continue to be incinerated until mulching equipment can be procured.
Compliance Schedule: Awaiting funding to implement corrective actions.

(e) Compressed Gas Cylinder Management

Issue: UES § 3-6.5.3(a) includes the appropriate requirements to manage and store HMWPP, including compressed gas cylinders. Various compressed gas cylinders, such as the helium cylinders stored at the weather station outside, are not being stored in accordance with UES § 3-6.5.3(a).
Resolution: Relocate the compressed gas cylinders to a facility/structure that protects them from the weather or construct a structure to store them.
Compliance Schedule: Awaiting funding to implement corrective actions.