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KSC Environmental Requirements

National Aeronautics and
Space Administration

John F. Kennedy Space Center

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PREFACE

P.1 Purpose

Requirements listed within this document are to ensure National Aeronautics and Space Administration (NASA) Kennedy Space Center (KSC) maintains compliance with Federal, state and local environmental laws and regulations. This document details responsibilities of the KSC Environmental Assurance Branch (EAB), the KSC Environmental Management Branch (EMB), and other KSC organizational elements.

P.2 Applicability

These requirements apply to all KSC organizational elements, including tenant and contractor organizations.

P.3 Authority

- a. NASA Policy Directive ([NPD 8500.1, NASA Environmental Management](#))
- b. NASA Procedural Requirements ([NPR 8553.1, NASA Environmental Management System \(EMS\)](#))
- c. Kennedy NASA Policy Directive ([KNPD 8500.1, KSC Environmental Management](#))

P.4 Applicable Documents

- a. [7 United States Code \(USC\) s/s 135 et seq., Federal Insecticide, Fungicide, and Rodenticide Act \(FIFRA\)](#)
- b. [15 USC. s/s 2601 et seq., Toxic Substances Control Act \(TSCA\)](#)
- c. [7 USC. 136; 16 USC 460 et seq., Endangered Species Act \(ESA\)](#)
- d. [16 USC. 470, National Historic Preservation Act \(NHPA\) of 1966](#)
- e. [16 USC. 1451-1464, Coastal Zone Management Act of 1972](#)
- f. [33 USC. s/s 121 et seq., Clean Water Act \(CWA\)](#)
- g. [USC. Title 42, Pollution Prevention Act](#)
- h. [42 USC. s/s 7401 et seq., Clean Air Act \(CAA\)](#)
- i. [42 USC. 4321-4347, National Environmental Policy Act \(NEPA\) of 1969](#)
- j. [42 USC. 11011 et seq., Emergency Planning and Community Right-To-Know Act \(EPCRA\)](#)
- k. [42 USC. 4901 et seq., Noise Control Act of 1972](#)
- l. [42 USC. s/s 321 et seq., Resource Conservation and Recovery Act \(RCRA\)](#)
- m. [42 USC. s/s 300f et seq., Safe Drinking Water Act \(SDWA\)](#)

- n. [42 USC. 9601 et seq., Superfund Amendments and Reauthorization Act or Comprehensive Environmental Response, Compensation, and Liability Act \(CERCLA or Superfund\).](#)
- o. [Executive Order \(EO\) 12372, Intergovernmental Review of Federal Programs](#)
- p. [EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management](#)
- q. [EO 11988, Floodplain Management](#)
- r. [EO 11990, Protection of Wetlands](#)
- s. [14 Code of Federal Regulations \(CFR\), Chapter V, NASA, Parts 1200-1299](#)
- t. [29 CFR, Chapter XVII, Occupational Safety and Health Administration](#)
- u. [36 CFR, Parks, Forests and Public Property](#)
- v. [40 CFR, Protection of Environment](#)
- w. [49 CFR, Transportation](#)
- x. [50 CFR, Wildlife and Fisheries](#)
- y. [NPD 2810.1, Security of Information Technology \(IT\)](#)
- z. [NPR 4200.1, NASA Equipment Management Procedural Requirements](#)
- aa. [NPR 4200.2, Equipment Management Manual for Property Custodians](#)
- bb. [NPR 8530.1, Affirmative Procurement Program and Plan for Environmentally Preferable Products](#)
- cc. [KNPD 1860.1, KSC Radiation Protection Program](#)
- dd. [KNPD 8710.1, KSC Emergency Preparedness Program Policy](#)
- ee. [Kennedy NASA Procedural Requirements \(KNPR\) 1860.1, KSC Ionizing Radiation Protection Program](#)
- ff. [KNPR 1860.2, KSC Non-Ionizing Radiation Protection Program](#)
- gg. [KNPR 4000.1, Supply and Equipment Systems Manual](#)
- hh. [KNPR 8553.1, NASA Kennedy Space Center Environmental Management System \(EMS\)](#)
- ii. [KNPR 8715.3, KSC Safety Practices Procedural Requirements](#)
- jj. [Kennedy Documented Process \(KDP\)-P-1726, Environmental Assessment \(EA\)](#)
- kk. [KDP-P-1727, Environmental Checklist \(EC\)](#)

- ll. [KDP-P-1728, KSC Pollution Incident Report \(PIR\)](#)
- mm. [KDP-P-1733, Historic and Archaeological Site](#)
- nn. [KSC-PLN-1911, Environmental Resources Document \(ERD\)](#)
- oo. [KSC-PLN-1919, KSC Spill Prevention, Control, and Countermeasures Plan](#)
- pp. [KSC-PLN-1920, KSC Site-Specific Spill Prevention, Control, and Countermeasures Plans](#)
- qq. [KSC-TA-6166, Environmental Setting Reference Manual](#)
- rr. [KSC-TA-6167, Health and Safety Reference Manual](#)
- ss. [KSC-TA-6168, Decision Process Document for the RCRA Corrective Action Program, John F. Kennedy Space Center, Florida](#)
- tt. [KSC-TA-6169, Sampling and Analysis Plan](#)
- uu. [EVS-P-0001, Spaceport Waste Services Guidance Manual](#)
- vv. [Florida Administrative Code \(FAC\) Chapter 62, Department of Environmental Protection](#)

P.5 Supersession

This revision supersedes KNPR 8500.1, Rev. A-1, KSC Environmental Requirements.

Original signed by

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Distribution: TechDoc Library

CHAPTER 1. KSC ENVIRONMENTAL REQUIREMENTS

1.1 Goal

The goal of this KNPR is to provide consistent direction for implementation of environmental requirements in support of the Center's operations.

1.2 Objective

The objective of this KNPR is to document Center environmental requirements and implement procedural direction unique to KSC by effectively and efficiently conveying those requirements to employees, customers, and the public.

1.3 Responsibilities

The heads of primary organizations, contract managers, and contract technical representatives are responsible for ensuring compliance with the provisions of this KNPR on the part of civil service and contractor personnel who support programs for which they have primary responsibility.

CHAPTER 2. GENERAL ENVIRONMENTAL RESPONSIBILITIES

2.1 Boards and Committees

2.1.1 The EAB and EMB, collectively referred to as the Environmental Branches, represent the Center's environmental interest on the following internal and external boards and committees:

- a. NASA Environmental Management Panel
- b. NASA Energy Efficiency Panel
- c. Space Coast Environmental Solutions Tier I Partnering Team
- d. Space Coast Environmental Tier II Partnering Team
- e. Space Coast Water Quality Tier I Partnering Team
- f. Space Coast Waste Trackers Tier I Partnering Team
- g. Space Coast Air Tier I Partnering Team
- h. KSC Energy Working Group (EWG)
- i. KSC Recycling, Affirmative Procurement, and Pollution Prevention Working Group

2.1.2 When requested by the NASA EAB or NASA EMB, the contractor or organization's environmental points of contact shall participate in the working groups above.

2.2 Principal Center for Recycling and Sustainable Acquisition

KSC is home of the NASA Principal Center for Recycling and Sustainable Acquisition (RSA). The Principal Center is an agency resource, providing leadership and expertise in RSA. The NASA EMB provides contract and project management for the Principal Center. This program is carried out through compliance with [EO 13423](#), [EO 13514](#), and the Affirmative Procurement Program and Plan for Environmentally Preferable Products document, [NPR 8530.1](#).

2.3 IT Security

Existing and future IT applications supporting the environmental management at KSC shall conform to [NPD 2810.1](#), Security of IT, and KSC IT Security process and policies.

2.4 EMS

2.4.1 [EO 13423](#) and [NPR 8553.1](#) require NASA Centers to implement and maintain an EMS. KSC's EMS ([KNPR 8553.1](#)) is in conformance with [NPR 8553.1](#) and KSC documents this conformance through annual management reviews and declaration of conformance. The KSC EMS addresses the sustainable practice areas and goals stated in [EO 13423](#).

2.4.2 All contractors, tenants, and concessionaires shall support the KSC EMS via data input, reporting, and external and internal audits.

2.5 Preparing Documentation

2.5.1 The initiating organization shall be responsible for preparing all documentation mandated by applicable environmental requirements for the organization's actions or operations. This includes signing and sealing of permit applications, design drawings, and other correspondence by a Professional Engineer (P.E.), when required.

2.5.2 The NASA Environmental Branches are available for consultation to assist the initiating organization in compiling any necessary documentation. The NASA Environmental Branches are responsible for reviewing all documentation and submitting it to the appropriate regulatory agency.

NOTE: The NASA Environmental Branches can provide background history, opinions, recommendations, or ideas to support the efforts of the initiating organization in preparing the required documents.

2.5.3 Organizations responsible for maintaining onsite documentation (as established by regulation or permit condition) shall ensure the proper documentation is readily available for internal or regulatory inspections.

2.5.4 The NASA Environmental Branches are responsible for providing copies of all permits and other applicable documentation from sources external to KSC to the appropriate KSC organizations. The NASA Environmental Branches shall maintain a centralized official file for this documentation.

2.6 External Communications

2.6.1 The NASA Environmental Branches are the Center's single interface for official communications with environmental regulatory agencies and other organizations external to KSC regarding environmental issues. Some examples of official communications include

negotiating permit conditions, enforcement orders, compliance agreements, regulatory inspections, and discussions that affect KSC programs and operations or have multi-directorate implications.

2.6.2 Establishing the NASA Environmental Branches as a single interface is intended to ensure consistency of application of environmental program requirements across the Center, to present a consistent position to parties external to the Center, and to meet Office of Federal Procurement Policy and NASA Headquarters' (HQ) mandates regarding inherently governmental functions. Activities that require the exercise of discretion in applying Governmental authority, or the making of commitments that bind the US to take some action, either by contract, policy, regulation, authorization, order, monetary payment, or otherwise, are considered inherently Governmental and shall be performed by Government employees.

2.7 Interpreting Regulation and Establishing KSC Requirements

2.7.1 The NASA Environmental Branches shall:

- a. Be solely responsible for providing requirements and guidance on environmental issues at KSC.
- b. Evaluate and maintain current knowledge of all environmental requirements.
- c. Make appropriate KSC procedures and controls available to all Center organizations to help ensure compliance.

2.7.2 When environmental requirements necessitate interpretation, the NASA Environmental Branches shall:

- a. Coordinate and document requirements for KSC organizations.
- b. Provide a response based on in-house expertise or negotiated agreements with regulatory agencies.

NOTE: Any KSC organization may request clarification of KSC environmental policy or provide draft "Best Management Practices" (BMP) for their operations to the NASA Environmental Branches.

2.7.3 When required, the NASA Environmental Branches shall:

- a. Request clarification from and negotiate new agreements with the appropriate regulating agencies and elicit input and participation from KSC organizations when preparing the Center's position on a subject or when meeting with regulatory personnel.
- b. Provide the new agreements or clarifications to KSC organizations when they are finalized.

2.8 Implementing Policy and Regulations

2.8.1. All KSC organizations (NASA, tenant, and contractor) shall be responsible for ensuring all actions taken under their authority and funding meet the applicable requirements of all Federal, state, and local environmental laws and regulations including obtaining all required environmental permits.

2.8.2 Each organization shall ensure that controls on employee, contractor, and subcontractor activities are established and maintained to prevent noncompliance.

2.9 Inspection, Monitoring, Testing, and Reporting

2.9.1 Each KSC organization is responsible for ensuring the appropriate requirements of the regulations are fulfilled for operations and activities under their control. Testing, inspection, monitoring, and reporting required to comply with environmental regulations are the responsibility of each KSC organization.

2.9.2 Inspections:

a. Routine inspections of facilities or operations shall be performed by the facility manager or qualified operational personnel. Requirements for routine inspections and recordkeeping are specified in regulations and permits. Examples of required routine inspections include weekly inspection of secondary containment for storage tanks and weekly inspections of hazardous waste storage facilities.

Facility operators shall know which inspections are required, perform the inspections, keep applicable records, and make them available during inspections. Guidance on the inspection requirements is available from the NASA Environmental Branches.

b. The NASA Environmental Branches, and the Medical and Environmental Support Contractor (MESC) under the direction of the NASA EAB, shall perform periodic inspections of KSC programs and projects. The purpose of internal inspections is to ensure activities are in compliance with their respective permits or with the regulations governing their operations. These inspections will not assess punitive damages such as those assessed by the regulatory agencies. The purpose is to identify compliance concerns so they can be corrected in a timely manner by the responsible operating organization.

c. Environmental regulatory agencies that are authorized to inspect may do so at any time for any permitted or regulated facility or activity at KSC. The regulatory agency may give verbal or written notice of an impending inspection or the inspection may be unannounced.

d. The NASA Environmental Branches shall be the point of contact and accompany the regulator at all times while on KSC property.

e. The KSC organization responsible for the facility or activity being inspected shall attend the inspection. Regulators can also perform sampling or monitoring on any substance or parameter at any KSC facility to determine compliance with a permit. Regulatory inspection findings are provided to operational personnel and the management of the organization.

2.9.3 Monitoring:

a. Environmental monitoring of operational areas at KSC shall be performed to determine if permitted activities are operating in accordance with the general and specific conditions listed in a permit.

b. Permit-related sampling and analysis shall be performed by the MESC, operational personnel, or designated representatives.

c. Monitoring results shall be transferred to the appropriate report forms and transmitted to the operating organization.

d. The operating organization shall:

- 1) Review the data provided by the MESC or operational personnel to ensure no transcription errors have occurred.
- 2) List items of noncompliance and explain the reason for noncompliance in a malfunction report.
- 3) Transmit the monitoring reports to the NASA Environmental Branches.

2.9.3.1 The Chief of the NASA EAB shall sign the monitoring reports as the owner, operator, or authorized representative.

NOTE: An exception to this is reports that require the signature of a licensed operator as in the case of the Monthly Operating Reports for drinking water treatment.

2.9.4 Testing:

2.9.4.1 Any operational testing required by permit or regulation shall be performed by the operator or installer, as applicable. Examples of testing are:

- a. Tightness tests for storage tank installations to certify the integrity of a tank before it is placed in service.
- b. Leak tests on containment to determine the integrity of the containment system.

2.9.4.2 Any reports of testing results shall be maintained onsite and a copy forwarded to the NASA Environmental Branches through the operating organization for submittal to the proper agency, if required.

2.9.5 Reporting:

- a. All required regulatory reports shall be submitted to regulatory agencies through the NASA Environmental Branches.
- b. The operating organization shall make certain the required reports are submitted to the NASA Environmental Branches in sufficient time to ensure the reports reach the regulatory agency in the time period listed in the applicable permit or regulation.
- c. The NASA Environmental Branches shall review the submittal for completeness and accuracy.
- d. The operating organization shall be notified of any deficiencies and be responsible for correcting deficiencies.
- e. The NASA Environmental Branches shall submit the report to the appropriate regulatory agency.
- f. Copies of the correspondence transmitted to the regulatory agency shall be kept by the NASA Environmental Branches.
- g. The NASA Environmental Branches shall be the listed point of contact for all monitoring report submittals and coordinate inquiries from regulatory agencies concerning monitoring and testing data.

2.10 NASA Environmental Tracking System (NETS)

2.10.1 The NETS is an information management tool (central database) for assisting NASA and contractor personnel in the collection, maintenance, and reporting of environmental data related to KSC operations.

2.10.2 The NETS environmental database is maintained for the Agency by Glenn Research Center. KSC civil servants and contractors are granted access to the system as required for data input. NASA Environmental Branches shall consolidate the information and submit it to NASA HQ through NETS.

2.10.3 Each Organizational Representative (OR) shall identify individuals requiring training in NETS to the NASA EMB NETS Data Administrator. Online training is available and the NASA Environmental Branches representatives are available for guidance during the training period.

2.11 Training

2.11.1 KSC organizations shall ensure personnel receive proper training prior to engaging in activities that could potentially have environmental impacts. Mandatory training is specifically set forth in state and Federal regulations for certain activities and operations.

2.11.2 KSC organizations shall maintain training records for compliance purposes.

2.12 Public Involvement

2.12.1 Public involvement through public notice, comments, or inputs shall be required at times to support environmental actions at KSC. Actions include:

- a. Permit applications and modifications.
- b. EAs.
- c. Environmental Impact Statements (EIS).

2.12.2 Public involvement also occurs through workshops, public meetings, public hearings, and administrative hearings.

- a. The workshop is the most informal and is a meeting to inform the public of the status of a specific topic and to answer any questions the public might have.
- b. The public meeting is an informally structured meeting to discuss a specific topic and receive the public's input. This type of meeting is a requirement for the RCRA permit modifications and may be attended by the regulatory agency involved.
- c. A public hearing is a formally structured meeting run by the interested governmental agency and is part of the public record.
- d. An administrative hearing is a legal proceeding run by a hearing officer. It is conducted after an Intent to Issue Permit has been challenged and is attended by lawyers for the challenging and the defending parties.

2.12.3 While the ultimate responsibility for the content and implementation of these meetings resides with the NASA Environmental Branches, the responsible organization shall support

the technical aspects of the meetings and coordinate the details with the NASA Environmental Branches, including date, time and place of meetings, press releases, and fact sheets.

2.13 Permit Compliance and Violations

2.13.1 Each KSC organization shall develop instructional procedures to ensure compliance with permit requirements within their organization and be responsible for reporting apparent permit violations to the NASA Environmental Branches.

2.13.2 The NASA Environmental Branches shall report apparent permit violations to the appropriate state or Federal agencies, and negotiate compliance requirements in cooperation with the lead organization.

CHAPTER 3. THE NEPA IMPLEMENTATION

3.1 KSC Environmental Checklist

3.1.1 The NEPA of 1969 requires Federal agencies to prepare an environmental analysis of any action undertaken that could result in a significant impact on the environment. The initial process of environmental review of projects and actions under this requirement is initiated by the KSC Environmental Checklist process, [KDP-P-1727](#).

3.1.2 The KSC Environmental Checklist is a document prepared to aid in this early identification of environmental issues and requirements associated with proposed work and activities.

3.1.3 The project lead or requester for a project or action shall complete the KSC Environmental Checklist form ([KSC Form 21-068 V2](#) NS), at the earliest possible time in the project schedule.

3.1.4 The checklist shall be signed and submitted to the NASA EMB for review with all supporting documentation, including but not limited to, design drawings and maps. A copy of the form and detailed instructions for its completion are available on the KSC EMB NEPA web page (<http://environmental.ksc.nasa.gov/projects/projects.htm>).

3.1.5 If the proposed action is categorically excluded (CATEX) from further NEPA review based on the evaluation of the checklist and project information, the NASA EMB shall mark the appropriate space on the Record of Environmental Consideration (REC). The REC will be sent to the project proponent with a copy kept with the NASA EMB.

3.1.6 The REC lists all known environmental requirements for the project based on the Environmental Checklist submittal. Requirements identified in the REC include permits, outside agency consultations, and special procedures or processes that shall be used during project implementation.

3.1.7 Based on the information provided in the checklist, if the NASA EMB determines that a CATEX for the proposed action does not apply, a formal EA is required. The REC will identify the requirement for an EA and the project proponent must have the EA prepared using project funds. If an EA does not support a finding of no significant impact, an EIS is required. Preparation of the EIS shall be coordinated between the NASA EMB and NASA HQ with support of the primary organization with programmatic responsibility. Refer to the process of conducting EAs ([KDP-P-1726](#)).

3.2 Use of Air Force (AF) Form 813 for Cape Canaveral AF Station (CCAFS) Projects

3.2.1 When a new facility or project involving the construction or modification of a facility structure or operation on CCAFS is proposed, both a KSC environmental checklist and an AF Form 813, "Request for Environmental Impact Analysis," are required.

3.2.2 AF Form 813 shall be completed using information gathered during the submittal of the KSC environmental checklist.

3.2.3 The project proponent shall forward the signed AF Form 813 and supporting documentation to the CCAFS Environmental Office.

3.3 ERD

The NASA EMB shall prepare and update the KSC ERD, [KSC-PLN-1911](#), required by [14 CFR 1216.3](#).

The ERD shall:

- a. Be used by preparers of EAs and EISs to avoid restating similar material.
- b. Cover areas prescribed in [14 CFR 1216.3](#)
- c. Be reviewed annually and updated as needed.
- d. Be completely revised every 5 years.

CHAPTER 4: POLLUTION INCIDENT REPORTING AND CLEANUP

4.1 Pollution Incident Reporting to 911

4.1.1 At KSC all hazardous material releases to air, water, soil, and pavement shall be reported to 911 (or 321-867-7911 from a cell phone) per the requirements in [KDP-KSC-P-3008](#), Hazardous Materials Emergency Response. At CCAFS, emergency services can be reached from a desk phone by dialing 911 (or 321-853-0911 from a cell phone). At Patrick AF Base (PAFB), emergency services can be reached from a desk phone by dialing 911 (also 911 from a cell phone – state to the operator that you are located at PAFB).

4.1.2 If the caller is unsure whether or not the release is non-emergency or emergency, the call will be treated as an emergency. The MESC post-emergency spill cleanup team (SCT) will not respond to a release unless 911 has been notified.

4.1.3 A release is defined as the spilling, leaking, discharging, emitting, escaping, pouring, dumping, draining, leaching, seeping, injecting, placing, or disposing of a material.

4.2 Pollution Incident Reporting to NASA EAB

4.2.1 Organizations and contractors shall immediately report all releases (intentional and unintentional) of chemicals listed below to the NASA EAB by calling the dedicated pollution incident release reporting number 321-867-9005, or by e-mailing the details to ksc-dl-nasa-env-spill@mail.nasa.gov.

4.2.1.1 CERCLA list of hazardous substances in [40 CFR 302.4](#).

- 4.2.1.2 EPCRA list of extremely hazardous substances in [40 CFR 355 Appendix A](#).
- 4.2.1.3 EPCRA toxic chemical listing in [40 CFR 372.65](#).
- 4.2.1.4 Department of Transportation (DOT) hazardous materials table in [49 CFR 172.101](#).
- 4.2.1.5 CAA list of regulated toxic substances for accidental release prevention in [40 CFR 68.130](#).
- 4.2.1.6 Class I ozone depleting substances list in [40 CFR 82 Appendix A](#).
- 4.2.1.7 Class II ozone depleting substances list in [40 CFR 82 Appendix B](#).
- 4.2.1.8 Domestic waste water or untreated sewage.
- 4.2.1.9 Oils, fuels, greases, and other petroleum products.
- 4.2.2 The NASA EAB shall determine if the released substance exceeds a reportable threshold and report the release to the appropriate offsite authorities and regulatory agencies.

4.3 Pollution Incident Documentation

4.3.1 All releases shall be documented per [KDP-P-1728](#), KSC Pollution Incident Report (PIR).

4.3.1.1 Organizations and contractors shall complete a PIR form (KSC Form 21-555) and submit it to the NASA EAB within three working days after the release. The PIR form and instructions for completing the form are available on the [KSC Electronic Forms](#) website. The PIR form can be submitted to the NASA EAB by emailing it to ksc-dl-nasa-env-spill@mail.nasa.gov or faxing it to 321-867-4446.

4.3.1.2 The NASA EAB shall review the submitted PIR form, contact the submitter for additional information (if required), and provide direction to the submitter regarding follow-on actions (if required).

4.3.1.3 Organizations and contractors shall also ensure that PIR forms are submitted for the following types of releases:

- a. Any process water releases, cooling tower water releases, or industrial wastewater releases not covered by an existing permit or discharge authorization.
- b. Intentional and unintentional releases of halons.
- c. Unintentional releases of ozone depleting substances not associated with a refrigerant system.
- d. Accidental refrigerant system discharges.
- e. Refrigerant system leaks based on the following equipment types and leak rates:
 - 1) Commercial refrigeration systems if Amount of Refrigerant Leaked in Pounds * 12 Months / Total System Refrigerant Charge in Pounds / Elapsed Time of Leak in Months * 100 Percent is greater than 35 Percent.

2) Industrial process refrigeration systems if $\text{Amount of Refrigerant Leaked in Pounds} \times 12 \text{ Months} / \text{Total System Refrigerant Charge in Pounds} / \text{Elapsed Time of Leak in Months} \times 100$ Percent is greater than 35 Percent.

3) Comfort cooling systems if $\text{Amount of Refrigerant Leaked in Pounds} \times 12 \text{ Months} / \text{Total System Refrigerant Charge in Pounds} / \text{Elapsed Time of Leak in Months} \times 100$ Percent is greater than 15 Percent.

4.3.2 PIR Reporting Exemptions

4.3.2.1 Organizations and contractors do not have to complete and submit PIR forms to the NASA EAB for the following releases:

a. Small amounts (4 fluid ounces or less) of hazardous materials released inside a facility on impervious surfaces that are immediately cleaned up, do not migrate out of the facility, and do not reach soil, sediment, groundwater, or surface water. Floors with cracks, expansion joints, drains, etc., are not considered "impervious surfaces". This exemption does not apply to spills or releases requiring assistance from the KSC post-emergency spill clean-up team.

b. Releases of hazardous materials (4 ounces or less, liquid or vapor) that occur during normal operations or scheduled activities (e.g., drips from a hose disconnection) as long as they are immediately cleaned up and do not reach soil, sediment, groundwater, or surface water. This exemption does not apply to spills or releases requiring assistance from the KSC post-emergency spill clean-up team.

c. Discharges or releases covered by a permit or discharge authorization as long as the release meets the permit or discharge authorization conditions or limits.

d. Any releases of major atmospheric gases (nitrogen and oxygen) or non-radioactive isotopes of noble gases (helium, neon, argon, etc.).

e. Potable water or sewage releases. The Institutional Services Contract (ISC) shall submit malfunction reports to the NASA EAB and Florida Department of Environmental Protection (FDEP) for accidental releases associated with the KSC potable water and domestic wastewater systems.

4.3.3 The NASA EAB shall maintain an electronic database of submitted PIR forms to evaluate incidents, track cleanup status, perform trend analysis, and respond to data calls from NASA HQ. The database is also used to support environmental planning, property transfers and leases, site assessments, and environmental remediation efforts.

4.4 Cleanup

4.4.1 Organizations and contractors shall take measures to stop, minimize, contain, and cleanup releases (with trained onsite personnel) provided those actions do not pose health or safety risks to personnel.

4.4.2 Once the release has been deemed a non-emergency or the emergency response activity is complete, organizations and contractors shall be responsible for ensuring proper cleanup of release and may request support from the post-emergency SCT.

4.4.3 If the contamination or cleanup is beyond the scope or capability of the post-emergency SCT (such as large-scale contamination, contamination has reached the groundwater table,

contamination is inaccessible due to utilities or structures, cleanup threatens to undermine a structure, or conditions are unsafe for post-emergency SCT members), the responsible organization or contractor shall complete the cleanup.

4.4.4 All releases shall be cleaned up according to the criteria in Chapter 4.5 of this KNPR.

4.4.5 Organizations and contractors shall coordinate all cleanups involving releases to environmental media (soil, sediment, surface water, or groundwater) with the NASA EAB.

4.4.6 The NASA EAB shall notify and correspond with regulatory agencies, if required, regarding cleanups involving releases to environmental media (soil, sediment, surface water, or groundwater).

4.4.7 Organizations and contractors shall submit sampling results, cleanup reports, and other information documenting the cleanup to the NASA EAB.

4.5 Cleanup Criteria

4.5.1 Spills and releases to pervious surfaces (includes soil, sediment, surface water, or groundwater) outside the boundaries of a Solid Waste Management Unit (SWMU) or Potential Release Location (PRL) shall be cleaned up to the following standards:

- a. Soil, surface water, and groundwater cleanup levels must meet residential criteria as stated in FAC 62-777.
- b. Sediment under fresh waters shall meet the Development and Evaluation of Numerical Sediment Quality Assessment Guidelines for Florida Inland Waters as published by FDEP in January 2003.
- c. Sediment under marine waters shall meet the Development of an Approach to the Assessment of Sediment Quality in Florida Coastal Waters as published by FDEP in November 1994.
- d. Sediments with contaminants not addressed under the fresh water or marine water guidance above shall meet the Environmental Protection Agency (EPA) Region 4 Waste Management Division Sediment Screening Values for Hazardous Waste Sites.

4.5.2 Spills and releases to pervious surfaces (includes soil, sediment, surface water, or groundwater) within the boundaries of a SWMU or PRL shall be cleaned up to standards provided by the NASA EAB for all environmental media based on the release details and the location of the release to known contamination within the SWMU or PRL.

4.5.3 Spills and releases to impervious surfaces shall be cleaned until there is no visible contamination left. Surfaces with cracks, expansion joints, sumps, drains, or other potential routes to environmental media (soil, sediment, surface water, or groundwater) are not considered impervious surfaces.

4.5.4 For cleanups involving releases to environmental media (soil, sediment, surface water, or groundwater), post-cleanup sample(s) shall be collected and analyzed to confirm that all contamination has been sufficiently removed to meet the cleanup standard.

4.5.5 For cleanups involving releases to environmental media (soil, sediment, surface water, or groundwater), sampling locations and cleanup areas shall be recorded with a global positioning system unit that has one meter accuracy.

4.5.6 Any deviation or exception to the cleanup criteria listed above shall be approved in writing by the NASA EAB Chief.

4.6 Financial Responsibility for Cleanup

4.6.1 When environmental contamination of soil, sediment, surface water, or groundwater results from failure to follow established procedures; failure to comply with existing regulatory requirements; deferred maintenance; obsolescence or failure to maintain a facility or containment; or failure to implement sound environmental management controls, the culpable organization or contractor shall be financially responsible for all cleanup costs.

4.6.2 At the discretion of the NASA EAB Chief, the responsible contractor or organization shall not be held financially responsible for cleaning up environmental contamination caused by events which are not foreseeable and are outside of human control (such as natural disasters) and which are in no way related to the lack of due diligence described in the previous paragraph.

CHAPTER 5. SPILL PREVENTION, CONTROL, AND COUNTERMEASURES (SPCC)

5.1 Background and Regulatory Requirements

5.1.1 Oil pollution prevention regulations (commonly referred to as SPCC regulations) in [40 CFR 112](#) require the preparation and implementation of SPCC plans for all non-transportation related facilities that store oil in excess of specific quantities (an aggregate above ground container capacity greater than 1,320 gallons [only containers greater than or equal to 55 gallons are counted], or completely buried storage capacity greater than 42,000 gallons) and that have discharged or could reasonably be expected to discharge oil into navigable waters of the US or its adjoining shorelines.

5.1.2 Since KSC stores more than 1,320-gallons of oil above ground and a spill could reach navigable waters, KSC is subject to the SPCC regulations and must develop and maintain an SPCC plan.

5.1.3 In accordance with SPCC regulations, a complete copy of the KSC SPCC Plan shall be maintained by the NASA EAB and made available to US EPA personnel for onsite review during normal working hours.

5.2 SPCC Plan

5.2.1 The KSC SPCC Plan, [KSC-PLN-1919](#), documents the procedures for the prevention, response, control, and reporting of spills of oil for all personnel at KSC. The goal of the KSC SPCC Plan is to prevent a potential spill of oil from reaching navigable waters. The plan serves as a guide for personnel and organizations responsible for ensuring that all measures are taken to prevent and contain spills and leaks of oil in accordance with all applicable state and Federal regulations.

5.2.1.1 In accordance with SPCC regulations, the KSC SPCC Plan shall be reviewed and updated by the NASA EAB every 5 years (or sooner if needed) to incorporate changes in regulations, KSC guidance, organizations, and contractors.

5.2.1.2 The KSC SPCC Plan shall contain the following information:

- a. A general description of the installation as it pertains to oil spill prevention, control, and response.
- b. An inventory of the storage, handling, and transfer facilities that could potentially produce a significant spill of oil.
- c. Roles and responsibilities for spill detection and prevention for all organizations that use or store oil.
- d. Roles and responsibilities for personnel and organizations involved in coordinating and participating in the response to spills of oil.
- e. SPCC training requirements for oil handling personnel.
- f. Reporting procedures and recordkeeping requirements for spills.

5.2.2 In conjunction with the KSC SPCC Plan, the KSC SPCC Site Specific Plan, [KSC-PLN-1920](#), was developed to house information about each individual building or area at KSC where oil is stored or used in containers or processing equipment in amounts greater than or equal to 55-gallons.

5.2.2.1 SPCC regulations require that plans be updated within 6 months of a change in the facility design, construction, or operation which materially affects the potential for an oil discharge. To ensure compliance with this requirement, the NASA EAB conducts semi-annual data calls to KSC organizations and contractors and updates the KSC SPCC Site Specific Plan. All KSC organizations and contractors shall submit updates to the KSC SPCC Site Specific Plan, amendment logs, and professional engineer certifications to the NASA EAB for their operations.

5.2.2.2 The KSC SPCC Site Specific Plan shall contain the following information:

- a. An inventory of oil that is located at storage, handling, and transfer facilities.
- b. A detailed description of countermeasures and equipment available for diversion and containment of spills for each facility listed in the inventory.
- c. Site-specific requirements for spill prevention, response, and control.

5.2.3 All KSC organizations and contractors shall ensure that all operations are in compliance with SPCC regulations and the KSC SPCC Plan.

CHAPTER 6. AIR COMPLIANCE

6.1 Background and Regulatory Requirements

6.1.1 The CAA is the law for protecting and improving the nation's air quality and the stratospheric ozone layer. The last major change in the law was enacted by Congress in 1990. Legislation passed since then has made several changes.

6.1.2 The EPA's implementing regulations for the CAA are located in [40 CFR 50-99](#). EPA regularly modifies and adds new CAA regulations.

6.1.3 The CAA requires Federal facilities to “comply with all Federal, state, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of air pollution in the same manner, and to the same extent as any non-Governmental entity”. Therefore, KSC is subject to all CAA requirements and implementing regulations.

6.1.4 The EPA has delegated its air permitting authority under the CAA to the FDEP. Therefore, the FDEP issues and enforces air permits at KSC.

6.1.5 The CAA regulations are very complex and cover thousands of pollutants and emission sources. Additional regulatory requirements and emissions restrictions can apply to a facility when the ambient air concentration in the area for one or more of the six “criteria pollutants” exceeds certain standards. The six criteria pollutants are sulfur dioxide, nitrogen oxides, carbon monoxide, particulate matter, lead, and ground-level ozone. Areas of the US that exceed a standard for a criteria pollutant are in “non-attainment” for that criteria pollutant. Areas of the US that meet the standard for a criteria pollutant are in “attainment” for that criteria pollutant. Brevard County and KSC are currently in attainment for all six criteria pollutants.

6.1.6 Organizations and contractors shall immediately notify the NASA EAB of any intention to construct, modify, change the operation of, or demolish an air emission source.

6.1.7 The NASA EAB shall review the proposed action and determine whether a new permit or existing permit modification is required.

6.1.8 Under the General Duty Clause of the CAA, KSC has a duty to report accidental (non-permitted) releases of air pollutants. Organizations and contractors shall take measures to eliminate or minimize air pollution emissions and prevent accidental releases and report accidental releases according to the requirements in Chapter 4 of this KNPR.

6.1.9 Title V of the CAA established the operating permit program for facilities. A Title V Air Operating Permit is a facility-wide permit that consolidates all emission units (EU) and their applicable air compliance requirements into one permit. KSC has a Title V Air Operating Permit issued by the FDEP. As emission sources are constructed or eliminated at KSC, they are incorporated into or removed from the Title V Air Operating Permit. The NASA EAB shall manage and maintain the KSC Title V Air Operating Permit.

6.1.10 Under CAA act regulations, facilities that store specific toxic and flammable substances above certain quantity thresholds must develop a Risk Management Plan (RMP) to identify hazards that may result from a release, take steps to prevent an accidental release, and minimize consequences should an accidental release occur. KSC is subject to this requirement and currently maintains a CAA RMP. The NASA EAB shall manage and maintain the KSC CAA RMP.

6.2 KSC Title V Air Operating Permit

6.2.1 Operational, Testing, Recordkeeping, Inspection, and Reporting Requirements.

6.2.1.1 Organizations and contractors shall follow all KSC Title V Air Operating Permit requirements and operate their EUs according to permit conditions and requirements.

6.2.1.2 Organizations and contractors shall develop management procedures to ensure EUs are operated according to permit conditions and requirements.

6.2.1.3 The KSC Title V Air Operating Permit requires that Visual Emission Observation (VEO) testing to be performed on certain EUs. The frequency of the testing is specified in the permit.

- a. Organizations and contractors shall coordinate and schedule VEO testing with the NASA EAB to meet permit and notification requirements.
- b. The NASA EAB shall notify FDEP about VEO tests at least 15 days prior to the test.
- c. Once the VEO test is complete, organizations and contractors shall review the test results for accuracy and submit the test results to the NASA EAB.
- d. The NASA EAB shall submit all VEO test reports to FDEP.

6.2.1.4 Organizations and contractors shall collect and maintain records (such as chemical usage data, fuel usage data, equipment operating hours, maintenance logs, sampling data, etc.) required by the permit for each EU they operate and submit these records to the NASA EAB by the 10th of each month for the preceding month's operations.

6.2.1.5 Organizations and contractors shall demonstrate compliance with all applicable regulatory and permit requirements during internal and regulatory inspections.

6.2.1.6 The NASA EAB shall:

- a. Maintain a copy of the latest version of the KSC Title V Air Operation Permit at the facility.
- b. Maintain records submitted from contractors and organizations on each EU.
- c. Compile monthly data, calculate 12-month rolling totals to ensure compliance with permit conditions, and assess KSC's status as a major or minor emission source as defined within EPA and FDEP regulations.
- d. Conduct periodic inspections of EUs to monitor compliance and ensure proper recordkeeping.

6.2.1.7 Annual Operating Report, Statement of Compliance, and Emission Fee Report.

- a. The NASA EAB shall prepare the Annual Operating Report, Statement of Compliance, and Emission Fee Report required by the permit; obtain signatures from the Center Director's Office; and submit the documents to FDEP by the regulatory deadline.
- b. Organizations and contractors shall support the preparation of these documents by providing operating data, records, and compliance information as requested by the NASA EAB.
- c. Organizations and contractors shall submit annual compliance statements to the NASA EAB certifying that their EUs were operated in accordance with permit conditions and requirements.

6.2.2 KSC Title V Air Operating Permit Renewals

6.2.2.1 Per CAA regulations, Title V Air Operating Permits must be renewed no later than 5 years from the last issuance. The NASA EAB shall be responsible for identifying regulatory changes, coordinating any permit changes with organizations and contractors, exploring new

permitting strategies, preparing the application, and obtaining the permit renewal.

6.2.2.2 Organizations and contractors shall support the permit renewal process by providing EU information and records, reviewing and commenting on draft applications, and reviewing and commenting on draft permits.

6.2.3 KSC Title V Air Operating Permit Modifications

6.2.3.1 Organizations and contractors shall immediately notify the NASA EAB of any plans to construct, purchase, modify, change the operation of, or demolish an air emission source.

6.2.3.2 The NASA EAB shall review the proposed action and determine whether a permit or permit modification is required.

6.2.3.3 If the NASA EAB determines that the proposed air emission source or action does not require a permit or permit modification, the NASA EAB shall notify the project proponent and instruct the project proponent about any operational conditions or recordkeeping requirements.

6.2.3.4 If the NASA EAB determines that the proposed air emission source or action requires a minor modification to the KSC Title V Air Operating Permit, the NASA EAB shall execute the permit modification through the FDEP, notify the project proponent when operations can begin (or when they can execute the proposed action), and instruct the project proponent about the permit requirements, operational conditions, and recordkeeping requirements.

6.2.3.5 If the NASA EAB determines that the proposed air emission source or action requires a major modification to the KSC Title V Air Operating Permit or that a new source construction and operation permit is required, the project proponent shall:

- a. Prepare a complete permit application package that must be signed and sealed by a registered professional engineer (certain new sources may require a combined construction and operation permit application).
- b. Submit the draft application package to the NASA EAB for review.
- c. Incorporate comments identified by the NASA EAB into the application package (in coordination with the professional engineer).
- d. Submit the final application package to the NASA EAB who shall obtain signatures from the Center Director's Office and submit the application package to FDEP.
- e. Prepare responses (in coordination with the professional engineer) to any requests for additional information (RAI) from FDEP regarding the permit application package.
- f. Submit RAI responses to the NASA EAB for submission to FDEP.
- g. Review the draft permit from FDEP.
- h. Provide comments or corrections to the draft permit (in coordination with the professional engineer) to the NASA EAB for submission to FDEP.

6.2.3.6 The NASA EAB shall publish any required public notices regarding air permitting actions.

6.2.3.7 If a new source construction and operation permit is obtained, the NASA EAB shall incorporate those sources into the KSC Title V Air Operating Permit.

6.2.3.8 When FDEP issues an air permit, the NASA EAB shall distribute the permit to all affected contractors, organizations, and project proponents, and communicate all operational conditions, emission limits, testing requirements, and recordkeeping requirements.

6.3 KSC CAA Risk Management Plan

6.3.1 Section 112(r) of the CAA established the chemical accident prevention provisions. The chemical accident prevention implementing regulations are located in [40 CFR 68](#) and require facilities that manufacture, process, store, or handle regulated substances above thresholds listed in [40 CFR 68.130](#) to have a risk management program and RMP. The purpose of the risk management program and RMP is to identify hazards that may result from an accidental release, take steps to prevent an accidental release, and minimize consequences should an accidental release occur.

6.3.2 The KSC CAA RMP is reviewed by various emergency planning and response entities such as KSC Protective Services, Brevard County Emergency Management, State Emergency Response Commission (SERC), and the Local Emergency Planning Committee. KSC CAA RMP elements are also incorporated into the KSC Comprehensive Emergency Management Plan.

6.3.3 The NASA EAB shall develop and maintain the KSC CAA RMP.

6.3.4 Organizations and contractors shall notify the NASA EAB prior to:

- a. Adding, deleting, or modifying (change in process, regulated substance volume, or chemical type) any operations that manufacture, process, store, or handle any regulated substance greater than the threshold listed in [40 CFR 68.130](#).
- b. Increasing the volume of a regulated substance in an existing operation to the point where it exceeds the threshold listed in [40 CFR 68.130](#).

6.3.5 RMP Modifications

6.3.5.1 For new processes to the RMP, the NASA EAB must perform the required analyses, modify the RMP, and submit the revised RMP to EPA before the process becomes operational (loading of the regulated substance into the process equipment). Organizations and contractors shall support the RMP modification by providing process information to the NASA EAB as requested.

6.3.5.2 For changes to existing processes listed in the RMP (process deletion, decrease in regulated substance volume below threshold levels, increase in regulated substance volume above threshold levels, etc.) the NASA EAB must perform the required analyses, modify the RMP, and submit the revised RMP to EPA within 6 months after the change occurs. Organizations and contractors shall support the RMP modification by providing process information to the NASA EAB as requested.

6.3.5.3 Per chemical accident prevention regulations, the NASA EAB shall review the RMP for changes and resubmit the RMP to EPA at a minimum of every 5 years even if no changes are required to the RMP.

6.3.5.4 Per chemical accident prevention regulations, the NASA EAB shall revise the RMP and submit it to EPA within 6 months after any chemical accident that meets certain criteria defined in the regulations.

6.3.6 Annual RMP Audits

6.3.6.1 The NASA EAB shall conduct annual audits to verify that KSC operations are incorporated into and in compliance with the RMP.

6.3.6.2 Prior to the audit, organizations and contractors shall complete an "Annual Applicability Checklist" provided by the NASA EAB.

6.3.6.3 The NASA EAB shall review the checklists, inspect facilities with knowledgeable organization and contractor personnel, verify RMP elements, and modify the RMP as necessary.

6.3.7 Per [40 CFR 68.58](#), the NASA EAB shall:

- a. Conduct a formal compliance audit at least every 3 years to ensure that all KSC operations are in compliance with chemical accident prevention regulations.
- b. Inspect facilities with knowledgeable organization and contractor personnel, document findings, and develop an audit report.
- c. Identify corrective actions for all findings, implement the corrective actions, and document when the findings have been corrected.
- d. Maintain the two most recent compliance audit reports on file for potential regulatory inspection.

6.3.8 When a new process is required to be added to the RMP, the owning organization or contractor shall complete an "Emergency Response Checklist" provided by the NASA EAB and submit the completed checklist to both the NASA EAB and KSC Emergency Preparedness Office to support RMP and KSC emergency response document updates. The purpose of this checklist is to gather information for emergency planning and response related to the new process.

6.4 Ozone Depleting Substance (ODS) Requirements

6.4.1 ODSs are used across KSC (in refrigeration systems, in fire suppression systems, as cleaning solvents, etc.) and must be properly managed according to CAA regulations. ODSs are divided into two classes based on their potential to breakdown the stratospheric ozone layer. The EPA is phasing out the production and use of all ODSs. Since Class I ODSs have a higher ozone depleting potential than Class II ODSs, Class I ODSs are being phased-out first. A list of Class I ODSs can be found in [40 CFR 82 Appendix A](#). A list of Class II ODSs can be found in [40 CFR 82 Appendix B](#).

6.4.2 Training Requirements

6.4.2.1 Personnel who test, maintain, service, repair, or dispose of stationary refrigeration and air conditioning systems shall complete certification training required under [Section 608](#) of the CAA.

6.4.2.2 Organizations and contractors shall submit the number of newly certified personnel to the NASA EAB semi-annually.

6.4.2.3 The NASA EAB shall report the number of individuals that have been certified during each semi-annual period to EPA using the "Technician Certification Activity Report" per [40 CFR 82.161\(g\)\(2\) Appendix D](#).

6.4.2.4 Personnel who test, maintain, service, repair, or dispose of motor vehicle air conditioner (MVAC) systems shall complete certification training required under [Section 609](#) of the CAA.

6.4.2.5 Personnel who test, maintain, service, repair, or dispose of halon-containing systems and equipment shall be trained in accordance with [40 CFR 82.270](#). Organizations and contractors can refer to EPA's "Guidance for the EPA Halon Emission Reduction Rule" document at <http://www.halon.org/pdfs/epaguidance.pdf> for additional guidance on halon training requirements.

6.4.2.6 Organizations and contractors that manage halon-containing systems or equipment shall provide initial and refresher training, document training course content, and maintain training records for their personnel.

6.4.3 Refrigerant System Repair and Maintenance Requirements

6.4.3.1 During maintenance and servicing activities, organizations and contractors shall take precautions to minimize and prevent releasing refrigerants into the atmosphere. The CAA prohibits individuals from knowingly venting refrigerants into the atmosphere while maintaining, servicing, repairing, or disposing of air conditioning and refrigeration equipment.

6.4.3.2 Personnel who test, maintain, service, repair, or dispose of stationary refrigeration and air conditioning systems shall do so in accordance with [Section 608](#) of the CAA.

6.4.3.3 Personnel who test, maintain, service, repair, or dispose of MVAC systems shall do so in accordance with [Section 609](#) of the CAA.

6.4.3.4 Organizations and contractors shall keep up-to-date service records for equipment containing 50 or more pounds of refrigerant for the previous 3 years showing the dates, types of service, and quantities of refrigerant added and purchased.

6.4.3.5 Organizations and contractors with commercial refrigeration equipment with over 50 pounds of refrigerant shall repair all leaks within 30 days if the equipment is leaking at a rate which will exceed 35 percent of the total charge during a 12-month period (Amount of Refrigerant Leaked in Pounds * 12 Months / Total System Refrigerant Charge in Pounds / Elapsed Time of Leak in Months * 100 Percent greater than 35 Percent).

6.4.3.6 Organizations and contractors with industrial refrigeration equipment with over 50 pounds of refrigerant shall repair all leaks within 30 days if the equipment is leaking at a rate which will exceed 35 percent of the total charge during a 12-month period (Amount of Refrigerant Leaked in Pounds * 12 Months / Total System Refrigerant Charge in Pounds / Elapsed Time of Leak in Months * 100 Percent greater than 35 Percent). In the event that an industrial refrigeration system shutdown is required or if the necessary repair parts are unavailable, organizations and contractors may have up to 120 days to complete the repair providing that leak verification testing be performed after the repair per [40 CFR 82.156](#).

6.4.3.7 Organizations and contractors operating comfort cooling equipment shall repair all leaks within 30 days if the unit leaks at a rate exceeding 15 percent of the total charge during

a 12-month period (Amount of Refrigerant Leaked in Pounds * 12 Months / Total System Refrigerant Charge in Pounds / Elapsed Time of Leak in Months * 100 Percent greater than 15 Percent).

6.4.4 Halon System Repair and Maintenance Requirements

6.4.4.1 During maintenance and servicing activities, organizations and contractors shall take precautions to minimize and prevent releasing halons into the atmosphere. The CAA prohibits individuals from knowingly venting halons into the atmosphere while maintaining, servicing, repairing, or disposing of halon-containing equipment.

6.4.4.2 Personnel who test, maintain, service, repair, or dispose of halon-containing systems and equipment shall do so in accordance with the requirements in [40 CFR 82.250 – 82.270](#).

6.4.5 Organizations and contractors shall submit the types, usage quantities, storage quantities, and purchase amounts of all ODSs to the NASA EAB during annual data calls issued by the NASA EAB.

6.4.6 The NASA EAB shall enter this information into NETS for NASA HQ tracking and review.

6.4.7 Organizations and contractors shall submit PIR forms for releases of ODSs according to the requirements in Chapter 4 of this KNPR.

6.5 Asbestos Emission and Notification Requirements

6.5.1 Asbestos is categorized as a hazardous air pollutant because of adverse health effects on the lungs. EPA's regulations for asbestos emissions, known as the asbestos National Emission Standard Hazardous Air Pollutants (NESHAP), are located in [40 CFR 61.140 - 61.157](#). FDEP's regulations for asbestos removal are located in [FAC Chapter 62-257](#). Organizations and contractors shall conduct all facility and asbestos abatement projects in accordance with these asbestos regulations.

6.5.2 When a project involving the modification or demolition of a facility is proposed:

- a. The project initiator shall follow [KNPR 1840.19](#), KSC Industrial Hygiene Program, in considering the potential hazards associated with asbestos-containing building material (ACBM).
- b. The project designer shall determine the presence of ACBM and the need for its disturbance or removal.
- c. The project designer shall ensure that current asbestos survey data is used to determine the locations and quantities of identified ACBM and that this information is included in any statement of work or other work control package provided to the abatement contractor.

6.5.3 Organizations and contractors shall notify FDEP about individual demolition, renovation, and asbestos abatement projects using [FDEP Form 62-257.900\(1\)](#) no later than 10 working days prior to the start of work if:

- a. The project involves removal of at least 260 linear feet, 160 square feet, or 35 cubic feet of Regulated Asbestos-Containing Material (RACM).

b. The demolition or renovation project involves the disturbance of any load-supporting structural member regardless of RACM presence or absence.

1) Demolition means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations, or the intentional burning of any facility.

2) Renovation means the alteration in any way of a facility or of one or more facility components.

6.5.3.1 Organizations and contractors shall submit a revised notification form to FDEP if the amount of RACM changes by more than 20 percent.

6.5.3.2 Organizations and contractors shall submit copies of all notification forms submitted to FDEP to the NASA EAB the same day it is submitted to FDEP.

6.5.3.3 Organizations and contractors shall submit copies of all notification forms submitted to FDEP, the NASA EAB, and NASA Occupational Health Branch contractor in accordance with the requirements of [KNPR 1840.19](#), KSC Industrial Hygiene Program, Section 3.3., KSC Asbestos Management Program, specifically, the "Notice of Demolition or Asbestos Renovation", [FDEP Form 62-257.900\(1\)](#).

6.5.4 The NASA EAB shall send out an annual data call to KSC organizations and contractors asking for anticipated demolition, renovation, and asbestos abatement projects for the upcoming calendar year.

6.5.5 Organizations and contractors shall submit a list of all projects (involving both RACM and non-regulated asbestos containing material) and the estimated quantities of asbestos (even if the project is below the FDEP notification thresholds listed above in 6.5.3, a.).

6.5.6 The NASA EAB shall submit one notification form to FDEP covering all projects that fall below the individual project reporting thresholds listed above in 6.5.3, a. for KSC for the upcoming calendar year and a revised notification form to FDEP if the actual amount of RACM from those projects changes by more than 20 percent.

6.5.7 Organizations and contractors shall ensure that demolition, renovation, and asbestos abatement projects are in compliance with the following asbestos NESHAP requirements:

a. No visible emissions can be discharged to the outside air from the collection, processing, transport, and disposal of asbestos-containing waste materials during renovations or demolition activities. Visible asbestos-containing debris on the ground outside a removal job is considered a "visible emission" and a violation of the asbestos NESHAP.

b. At least one trained supervisor shall be present when asbestos-containing material is stripped, removed, disturbed, or otherwise handled.

c. Evidence of this training shall be posted and made available for inspection at the demolition, renovation, or asbestos abatement job site.

CHAPTER 7. WATER CONSERVATION AND CONSUMPTIVE USE

7.1 Water Conservation Goals

7.1.1 Water reduction goals were established by the President in [EO 13423](#), *Strengthening Federal Environmental, Energy, and Transportation Management* on January 24, 2007. This EO requires Federal agencies to reduce potable, industrial, landscaping, and agricultural water consumption intensity 2 percent annually through fiscal year (FY) 2015 or 16 percent total by the end of FY 2015 (from a baseline year of FY 2007).

7.1.2 [EO 13514](#), Federal Leadership in Environmental, Energy, and Economic Performance, was signed by the President on October 5, 2009 and built upon the goals established in [EO 13423](#). [EO 13514](#) extended the reductions called for in [EO 13423](#) by requiring Federal agencies to reduce potable, industrial, landscaping, and agricultural water consumption intensity 2 percent annually through FY 2020 or 26 percent total by the end of FY 2020 (from a baseline year of FY 2007). This EO also requires Federal facilities to identify, promote, and implement water reuse strategies that reduce potable water consumption.

7.1.3 KSC's potable water consumption baseline (FY 2007) is 302,207,366 gallons. To help NASA meet the [EO 13514](#) goal, KSC will need to reduce annual water consumption by over 78,000,000 gallons by the end of FY 2020.

7.1.4 The NASA EAB is tasked with ensuring the water conservation requirements of [EO 13514](#) are implemented by all KSC organizations.

7.2 Water Conservation Requirements

7.2.1 Water conservation is the responsibility of all personnel at KSC.

7.2.2 All KSC organizations and contractors shall:

- a. Carry out their day-to-day functions with good water conservation practices.
- b. Report water waste from improperly operating equipment to the appropriate Trouble Call Office.
- c. Ensure efficient and cost-effective utility use by applying water conservation techniques to the operation and maintenance of KSC systems.
- d. Ensure that new construction and modifications are compliant with Federal and NASA water conservation mandates.
- e. Contribute to deliverables for NASA HQ such as budget exhibits, reports, self-assessments, spot check responses, and special data collections as required by the NASA EAB to support water conservation initiatives at KSC.

7.3 KSC Consumptive Use Permit (CUP)

7.3.1 KSC is required to obtain and maintain a CUP under [FAC 40C-2](#) due to the various types of water use and volumes consumed. The KSC CUP, issued by the Saint Johns River Water Management District (SJRWMD), describes the allowable water use at KSC and places limits on the volumes that can be consumed. The CUP applies to all organizations and contractors at KSC and covers various activities including household use (restrooms, showers, cooking, etc.), industrial use, aesthetic use, agricultural use, landscaping use, groundwater withdrawal and dewatering, and secondary use of potable water purchased from the City of Cocoa.

7.3.2 Organizations and contractors shall comply with the requirements of the KSC CUP, [SJRWMD CUP Number 50054](#), and notify the NASA EAB of any operational changes that could impact KSC's compliance with the permit.

7.3.3 The NASA EAB shall maintain, update, and renew the CUP through the SJRWMD.

7.4 Dewatering Permit Requirements

7.4.1 A dewatering activity may withdraw any quantity of groundwater or surface water for any duration of time without a CUP, provided the water is recharged on site by infiltration per [FAC 40C-2.051](#).

7.4.2 KSC has a Short-Term General Construction Dewatering permit, [SJRWMD CUP Number 84324](#), issued by the SJRWMD under [FAC 40C-22.030](#).

7.4.2.1 KSC organizations and contractors may receive coverage under the KSC Short-Term General Construction Dewatering permit providing the permit conditions are followed and the dewatering activity does not exceed the following levels.

- a. Six million gallons per day for the first 120 hours.
- b. Two million gallons per day for the first 60 days.
- c. One million gallons per day for the first 180 days.

7.4.2.2 The organization or contractor shall submit the data described in Condition 10 of the permit to the NASA EAB at least 3 weeks prior to beginning dewatering.

7.4.2.3 The data shall include a completed [SJRWMD Form RDS-50](#) along with a site map with a north arrow and a scale, the area to be dewatered, the location and type of turbidity barriers to be used, the general route of discharge and all points of discharge offsite to water bodies and wetlands, and the permit tracking number.

7.4.2.4 The NASA EAB shall review the data package, sign the [SJRWMD Form RDS-50](#) as the applicant and land owner, and submit the data package to the SJRWMD by certified mail at least 10 days prior to the start of the dewatering activity.

7.4.2.5 If the dewatering activity will be 300,000 gallons per day or less and does not exceed 30 days in duration, the [SJRWMD Form RDS-50](#) and supplemental data is not required. However, organizations and contractors shall conduct the dewatering activity in accordance with all other conditions listed in the KSC Short-Term General Construction Dewatering permit.

7.4.2.6 The NASA EAB shall maintain and renew the KSC Short-Term General Construction Dewatering permit as necessary through the SJRWMD.

7.4.3 Organizations and contractors shall obtain an Individual Permit or a Standard General Permit for dewatering activities that exceed the following rates or exceed 180 days in duration:

- a. Six million gallons per day for the first 120 hours.
- b. Two million gallons per day for the first 60 days.

c. One million gallons per day for the first 180 days.

7.5 Obtaining an Individual or Standard General Dewatering Permit

7.5.1 Organizations and contractors shall prepare the permit application package, which includes [SJRWMD Form 40C-2.1082-1](#) and all supporting documentation and drawings, and submit the draft permit application package (3 copies) to the NASA EAB for review and comment.

7.5.2 The NASA EAB shall review the draft application package, provide comments to the preparing organization or contractor, sign the final application package as both the applicant and land owner, and submit the application package to the SJRWMD by certified mail.

7.5.3 The SJRWMD is required by regulations to review a permit application for completeness and accuracy within 30 days. If not satisfied with the permit application, the SJRWMD will submit a RAI to the applicant to correct any deficiencies, errors, or omissions. Multiple RAIs may be submitted to the applicant until SJRWMD deems the application package to be complete.

7.5.4 The organization or contractor shall prepare draft RAI responses and submit them to the NASA EAB for review and comment.

7.5.5 The NASA EAB shall submit final RAI responses to the SJRWMD.

7.5.6 When the permit application is approved, the SJRWMD will issue and mail the permit to the NASA EAB. The NASA EAB shall forward the permit to the requesting organization or contractor. Projects that require individual permits are generally approved by the SJRWMD governing board at their monthly meetings within 90 days of an application package being deemed complete. Projects that require standard general permits are generally approved by the local SJRWMD office within 30 days of an application package being deemed complete.

7.5.7 The requesting organization or contractor shall ensure that the design information submitted to the SJRWMD in the permit application (and any subsequent submittals) is equivalent to the design information in the final work package and construction contract and that the permit and its conditions are included in the construction contract.

7.6 Dewatering Requirements

7.6.1 Dewatering activities at KSC are regulated according to the quantity of water withdrawn, the duration of the activity, and the method by which the withdrawn water is disposed. All dewatering activities at KSC shall follow permit conditions and consumptive use regulations in [FAC 40C-2](#). These requirements apply to all dewatering activities including the pump out of manholes, sumps, and other structures in which groundwater may accumulate.

7.6.2 Organizations and contractors shall not begin construction or operation of a dewatering system without approval and receipt of a required permit.

7.6.3 Organizations and contractors are responsible for ensuring that the entity performing the dewatering activity abides by all permit conditions and consumptive use regulations. Organizations and contractors shall periodically inspect the project site, notify the NASA EAB of any potential issues or violations, and immediately correct any issues or violations.

7.6.4 The NASA EAB shall perform compliance assistance; conduct inspections; interpret permit conditions or regulatory requirements; or consult with regulatory agencies in support of a dewatering activity.

7.6.5 All dewatering projects at KSC shall:

- a. Comply with appropriate regulations and policy for potentially contaminated water.
- b. Adhere to BMPs regarding turbidity and erosion control.
- c. Not directly discharge to Outstanding Florida Waters, Class I water bodies, or Class II water bodies.
- d. Not be performed where there are chemicals or materials present in the discharge area that may contaminate the effluent.

7.6.6 Dewatering activities shall be considered separate projects when they involve distinctly separate dewatering operations (i.e., different geographic locations, different objectives). For example:

- a. Dewatering for trenching operations at two different construction locations shall be considered two separate dewatering activities.
- b. A series of manholes being simultaneously dewatered for a related project shall be one distinct dewatering operation.

7.6.7 Organizations and contractors shall ensure that proper turbidity and erosion control measures are implemented on dewatering effluent according to regulations.

7.7 Reporting Requirements

7.7.1 Organizations and contractors with regulatory reporting requirements under the KSC CUP shall submit the required data to the NASA EAB on a monthly basis no later than the 15th day of the month following the reporting period.

7.7.2 The NASA EAB shall compile the data from all KSC organizations and contractors into a single 6-month report and submit the report to the SJRWMD prior to the due dates specified in the permit.

7.7.3 The NASA EAB shall be responsible for preparing 5-Year Compliance Reports for the KSC CUP and submitting them to the SJRWMD by the due date listed in the KSC CUP.

7.7.4 Organizations and contractors with regulatory reporting requirements under a dewatering permit shall submit the required data and reports to the NASA EAB on a monthly basis no later than the 15th day of the following month.

7.7.5 The NASA EAB shall submit the required data or reports to the SJRWMD by the due dates specified in the permit.

CHAPTER 8. DRINKING WATER

8.1 Background and Regulatory Requirements

8.1.1 KSC operates and maintains a non-transient, non-community public water system (FDEP Public Water System Identification Number 3054024) for potable water, fire suppression, and industrial uses such as heating, air conditioning, launch vehicle processing, and deluge systems. KSC purchases water from the City of Cocoa and performs additional treatment onsite to ensure safe drinking water and protect the distribution system. Water consumption at KSC, including consumption via the public water system, is permitted and limited by a CUP administered by the SJRWMD.

8.1.2 The KSC public water system is subject to regulation under the Federal SDWA and Florida SDWA. Federal SDWA regulations are located in [40 CFR 141–143](#). The primary FDEP drinking water regulations applicable to KSC are [FAC 62-550](#) (Drinking Water Standards, Monitoring, and Reporting), [FAC 62-555](#) (Permitting, Construction, Operation, and Maintenance of Public Water Systems), and [FAC 62-560](#) (Requirements for Public Water Systems that are Out of Compliance).

8.2 KSC Public Water System Operation and Maintenance

8.2.1 The ISC contractor shall:

- a. Operate and maintain the KSC public water system (treatment and distribution systems) in accordance with all applicable laws and regulations.
- b. Take measures to ensure that the water in the KSC distribution system meets regulatory requirements and is safe for public consumption.
- c. Submit all required operating reports to the NASA EAB.

8.2.2 The NASA EAB shall submit the operating reports to the FDEP.

8.3 KSC Public Water System Compliance Monitoring and Reporting

8.3.1 The ISC and MESC contractors shall:

- a. Conduct safe drinking water compliance monitoring, sampling, and testing as required by Federal and state regulations.
- b. Submit the monitoring and test reports to the NASA EAB for review.

8.3.2 The NASA EAB shall submit these reports to the FDEP.

8.4 Project Notification and Permitting Requirements

8.4.1 Projects involving the KSC water supply system may have different regulatory notification, approval, and permitting requirements depending on the scope and type of project.

8.4.2 Organizations and contractors shall ensure that all KSC public water system modification, maintenance, or emergency repair projects are performed according to Federal, state, and local regulations, codes, specifications, and standards.

8.4.3 For planned modifications (connections, additions, disconnections, demolitions, replacements, etc.) to the KSC water supply system:

- a. Organizations and contractors shall coordinate with NASA EAB and ISC contractor personnel during the planning and design phases of the project.
- b. The NASA EAB shall review the proposed project documentation (statements of work, environmental checklists, design packages, support requests, etc.) and communicate the regulatory and permitting requirements to the project proponent. The project may require KSC to obtain a "Specific Permit to Construct Public Water System Components" or approval to use FDEP's existing "General Permit for Construction of Water Main Extensions for Public Water Systems" prior to construction. The processes for obtaining these permits are outlined in the following sections.

8.4.4 For new planned large-scale withdrawal of water from the KSC public water system:

- a. Organizations and contractors shall immediately notify the NASA EAB and ISC contractor.
- b. The NASA EAB shall evaluate the proposed withdrawal against the KSC CUP limitations.
- c. A modification to the KSC CUP may be required.

8.4.5 Except for malfunction reports, the NASA EAB shall be the only entity authorized to communicate directly with regulatory agencies regarding the KSC public water system.

8.4.6 The ISC contractor shall submit malfunctions reports directly to the regulatory agency and communicate directly with regulatory agency personnel regarding corrective action status.

8.4.7 Organizations and contractors shall prepare all required notifications, requests for approval, requests for clearance, permit applications, sampling data, or monitoring reports associated with their projects and submit them to the NASA EAB for review.

8.4.8 The NASA EAB shall review the draft documents, provide comments to the project proponent, and submit the final documents to the appropriate regulatory agency.

8.4.9 Organizations and contractors shall immediately notify the NASA EAB and the ISC contractor upon the discovery or occurrence of the following conditions:

- a. Any depressurization in the distribution system (accidental or intentional).
- b. Any break or breach of the distribution system (accidental or intentional).
- c. Any introduction of a potential contaminant into the distribution system (accidental or intentional).

8.5 Obtaining a Specific Permit to Construct Public Water System Components

8.5.1 If the project requires a Specific Permit to Construct Public Water System Components, the initiating organization or contractor shall prepare the permit application package, which includes [FDEP Form 62-555.900\(1\)](#) and all supporting documentation required under [FAC 62-555.520\(4\)](#) and submit the draft permit application package to the NASA EAB for review and comment.

8.5.2 The NASA EAB shall review the draft application package, provide comments to the preparing organization or contractor, sign the final application package as the Permittee, and submit the application package to the FDEP by certified mail.

8.5.3 The permit application and all design plans, drawings, and specifications submitted with the application shall be signed and sealed by a P.E. registered in the state of Florida.

8.5.4 The FDEP will review the permit application for completeness and accuracy. If not satisfied with the permit application, the FDEP will submit a RAI to the applicant to correct any deficiencies, errors, or omissions. Multiple RAIs may be submitted to the applicant until FDEP deems the application package to be complete.

8.5.5 The initiating organization or contractor shall prepare draft RAI responses (in coordination with the P.E.) and submit them to the NASA EAB for review and comment.

8.5.6 The NASA EAB shall submit the final RAI responses to the FDEP by certified mail.

8.5.7 When the permit application is approved, the FDEP will issue and mail the permit to the NASA EAB. The NASA EAB shall forward the permit to the initiating organization or contractor.

8.5.8 The initiating organization or contractor shall ensure that the design information submitted to the FDEP in the permit application (and any subsequent submittals) is equivalent to the design information in the final work package, support request, or construction contract and that the entity performing the work abides by all applicable regulations and permit conditions.

8.6 Obtaining Approval to Use FDEP's General Permit for Construction of Water Main Extensions for Public Water Systems

8.6.1 If the project fits within the scope of FDEP's existing General Permit for Construction of Water Main Extensions for Public Water Systems, the initiating organization or contractor shall prepare the Notice of Intent (NOI) package, which includes [FDEP Form 62-555.900\(7\)](#) and all required supporting documentation and submit the draft NOI package to the NASA EAB for review and comment.

8.6.2 The NOI shall be signed and sealed by a P.E. registered in the state of Florida.

8.6.3 The NASA EAB shall review the draft NOI package, provide comments to the preparing organization or contractor, sign the final NOI package as the Permittee, and submit the NOI package to the FDEP by certified mail.

8.6.4 The FDEP will review the NOI package within 30 days and either approve (issue the General Permit to KSC for that project) or deny the request in a letter issued to the NASA EAB. Under this permitting process, FDEP cannot submit an RAI to the applicant to correct any deficiencies, errors, or omissions.

8.6.5 The initiating organization or contractor shall ensure that the information submitted to the FDEP in the NOI package is equivalent to the design information in the final work package, support request, or construction contract and that the entity performing the work abides by all applicable regulations and permit conditions.

8.7 Letter of Clearance

8.7.1 After the permitted public water system project is complete, KSC must obtain a letter of clearance from FDEP prior to placing the project into service for purposes other than leak testing or equipment operation testing. The initiating organization or contractor shall prepare the clearance request package, which includes [FDEP Form 62-555.900\(9\)](#) (Certification of

Construction Completion and Request for Clearance to Place Permitted Public Water System Components into Operation) and all required supporting documentation.

8.7.2 The initiating organization or contractor shall submit the draft clearance request package to the NASA EAB for review and comment.

8.7.3 The clearance request package shall be signed and sealed by a P.E. registered in the state of Florida.

8.7.4 The NASA EAB shall review the draft clearance request package, provide comments to the preparing organization or contractor, sign the final clearance request package as the Permittee, and submit the clearance request package to the FDEP by certified mail.

8.7.5 The FDEP will review the clearance request package (within 14 business days for a project performed under the General Permit for Construction of Water Main Extensions for Public Water Systems or 30 business days for a project performed under a Specific Permit to Construct Public Water System Components) and issue either a letter of clearance or a notice of denial to the NASA EAB.

8.7.6 If KSC is issued a notice of denial, the initiating organization or contractor shall correct the project deficiencies or clearance request package omissions and resubmit the clearance request package to the NASA EAB.

8.7.7 The NASA EAB shall submit the revised clearance request package to the FDEP.

8.7.8 When FDEP issues the letter of clearance to the NASA EAB, the initiating organization or contractor shall place the project into operation.

8.8 Non-Compliance Actions

8.8.1 If the KSC public water system is out-of-compliance, the ISC contractor shall perform necessary actions to bring the system back into compliance, notify personnel in affected areas of the distribution system, and post notices at, or remove from service, impacted drinking water sources (such as fountains and sinks).

8.8.2 If the KSC public water system is out-of-compliance, the NASA EAB shall develop any required public notices, coordinate the public notices through FDEP, and distribute the public notices to KSC personnel.

8.8.3 Facility managers shall post the public notices in conspicuous locations such as the facility bulletin boards.

CHAPTER 9. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

9.1 Background and Regulatory Requirements

9.1.1 The NPDES program under the CWA is a permitting program, which controls the discharge of pollutants from any point source into waters of the US.

9.1.2 The EPA's implementing regulations for the NPDES program are located in [40 CFR 122](#).

9.1.3 EPA has authorized the FDEP to implement the NPDES permitting program in the state of Florida. Therefore, the FDEP issues and enforces NPDES permits at KSC.

9.2 NPDES Permitting Requirements

9.2.1 Organizations and contractors shall obtain all required NPDES permits for their activities and projects.

9.2.2 In the state of Florida, discharges that fall under the NPDES program are categorized as either stormwater, domestic wastewater, or industrial wastewater for the purposes of permitting. Each category has a separate permitting process and set of requirements.

9.2.3 The requirements for stormwater management and stormwater permitting (including NPDES stormwater permitting) are found in Chapter 10 of this document.

9.2.4 The requirements for domestic wastewater management and domestic wastewater permitting (including NPDES domestic wastewater permitting) are found in Chapter 11 of this document.

9.2.5 The requirements for industrial wastewater management and industrial wastewater permitting (including NPDES industrial wastewater permitting) are found in Chapter 12 of this document.

CHAPTER 10. STORMWATER

10.1 Background

The state of Florida has two separate stormwater permitting programs. The NPDES Stormwater Program regulates point source discharges of stormwater into surface waters from certain municipal, industrial, and construction activities. The Environmental Resource Permit (ERP) Program regulates construction activities that would affect wetlands, alter surface water flows, or contribute to water pollution. Some projects and activities will require both stormwater permits.

10.2 Activities that Require a NPDES Stormwater Permit

10.2.1 A NPDES stormwater permit is required to address pollution from the following sources:

- a. Municipal separate storm sewer systems.
- b. Small construction activities that disturb between one and five acres of land.
- c. Large construction activities that disturb five or more acres of land.
- d. Industrial activities in the following ten areas:
 - 1) Facilities subject to federal stormwater effluent discharge standards in [40 CFR Parts 405-471](#).
 - 2) Heavy manufacturing (e.g., paper mills, chemical plants, petroleum refineries, and steel mills and foundries).
 - 3) Coal and mineral mining and oil and gas exploration and processing.
 - 4) Hazardous waste treatment, storage, or disposal facilities.

- 5) Landfills, land application sites, and open dumps with industrial wastes.
- 6) Metal scrap yards, salvage yards, automobile junkyards, and battery reclaimers.
- 7) Steam electric power generating plants.
- 8) Transportation facilities that have vehicle maintenance, equipment cleaning, or airport deicing operations.
- 9) Treatment works treating domestic sewage with a design flow of one million gallons a day or more.
- 10) Light manufacturing (for example, food processing, printing and publishing, electronic and other electrical equipment manufacturing, and public warehousing and storage).

10.2.2 Organizations and contractors shall immediately notify the NASA EAB regarding any new planned activity or project involving the sources listed above. This notification is typically accomplished through the KSC Environmental Checklist process outlined in Chapter 3 of this KNPR.

10.2.3 The NASA EAB shall evaluate the proposed activity or project and determine whether a NPDES stormwater permit is required.

10.3 Florida's Generic NPDES Stormwater Permits

10.3.1 The state of Florida has several generic NPDES stormwater permits available for use. The two generic permits most applicable to KSC include:

- a. [Generic Permit for Stormwater Discharge from Large and Small Construction Activities](#).
- b. [Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity](#).

10.3.2 The state of Florida's requirements and procedures for obtaining coverage under these generic permits are located in [FAC 62-621](#).

10.4 Obtaining Coverage Under Florida's Generic Permit for Stormwater Discharge from Large and Small Construction Activities

10.4.1 Organizations and contractors shall obtain coverage under this permit for projects that include possible land disturbance over one acre. For permitting purposes, land disturbance of between 1 to 5 acres is considered a small construction activity and land disturbance of 5 acres or more is considered a large construction activity.

10.4.2 The responsible organization or contractor shall prepare the NOI package, which includes [FDEP Form 62-621.300\(4\)\(b\)](#) and all required supporting documentation and submit the draft NOI package to the NASA EAB for review and comment.

10.4.3 The NASA EAB shall review the draft NOI package, provide comments to the responsible organization or contractor, sign the final NOI package as the Responsible Authority, and submit the NOI package to the FDEP by certified mail.

10.4.4 The FDEP will generally grant authorization (by sending an acknowledgment letter) within 48 hours of receiving both the NOI package and fee. The NASA EAB shall forward the acknowledgement letter to the responsible organization or contractor.

10.4.5 The responsible organization or contractor shall ensure that the NOI package information and permit requirements are incorporated into the project work package, support request, or construction contract. The responsible organization or contractor is responsible for ensuring that the entity performing the work abides by all applicable regulations, abides by all permit conditions including the development, implementation, and maintenance of a stormwater pollution prevention plan (SWPPP), performs all required inspections and recordkeeping, and takes appropriate measures to minimize erosion, minimize sedimentation, and properly manage site stormwater.

10.4.6 The responsible organization or contractor shall coordinate with the MESC contractor to perform any sampling and analysis required by the permit or SWPPP.

10.4.7 If sampling results or discharge monitoring reports are required to be submitted to FDEP, the responsible organization or contractor shall prepare the reports and submit them to the NASA EAB for review.

10.4.8 The NASA EAB shall submit the sampling results and reports to FDEP.

10.4.9 When the project is complete and the eligibility requirements for termination specified in the generic permit are met, the responsible organization or contractor shall prepare a Notice of Termination (NOT) package, which includes [FDEP Form 62-621.300\(6\)](#) and all required supporting documentation and submit the NOT package to the NASA EAB for review and comment.

10.4.10 The NASA EAB shall sign the final NOT package as the Responsible Authority and forward it to FDEP via certified mail.

10.4.11 The FDEP will send an acknowledgement letter to the NASA EAB after receipt and acceptance of the NOT. The NASA EAB shall forward the acknowledgement letter to the initiating organization or contractor.

10.5 Obtaining Coverage Under Florida's Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity

10.5.1 Organizations and contractors shall obtain coverage under this permit for industrial activities that fall under the areas listed in Chapter 10.2.1.d. This generic permit divides the ten industrial activity areas listed in Chapter 10.2.1.d into 30 sectors. The generic permit contains sector-specific requirements as well as general requirements that are applicable to all sectors.

10.5.2 If the activity fits within the scope of Florida's existing [Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity](#):

- a. The initiating organization or contractor shall prepare the NOI package, which includes [FDEP Form 62-621.300\(5\)\(b\)](#) and all required supporting documentation.
- b. For this generic permit, KSC has been assigned a facility identification number, FLR05F574.
- c. Organizations and contractors shall use this facility identification number when preparing the NOI package.

d. The initiating organization or contractor shall submit the draft NOI package to the NASA EAB for review and comment.

10.5.3 The NASA EAB shall review the draft NOI package, provide comments to the responsible organization or contractor, sign the final NOI package as the Responsible Authority, and submit the NOI package to the FDEP by certified mail.

10.5.4 The FDEP will generally grant authorization (by sending an acknowledgment letter) within 48 hours of receiving both the NOI package and fee. The NASA EAB shall forward the acknowledgement letter to the responsible organization or contractor. Coverage under this generic permit is limited to 5 years from the effective date of coverage on the acknowledgment letter.

10.5.5 The responsible organization or contractor shall renew coverage under this generic permit, if required, by submitting a new NOI package to the NASA EAB.

10.5.6 The responsible organization or contractor shall abide by all applicable regulations; abide by all general and sector-specific permit conditions including the development, implementation, and maintenance of a SWPPP; perform all required inspections and recordkeeping; and take appropriate measures to properly manage site stormwater.

10.5.7 If the permit or SWPPP requires sampling results or discharge monitoring reports to be submitted to FDEP:

a. The responsible organization or contractor shall coordinate with the MESC contractor to perform the sampling and analysis.

b. The responsible organization or contractor shall prepare the reports and submit them to the NASA EAB for review.

c. The NASA EAB shall submit the sampling results and reports to FDEP.

10.5.8 When the activity is complete and the eligibility requirements for termination specified in the generic permit are met, the responsible organization or contractor shall prepare a NOT package, which includes [FDEP Form 62-621.300\(6\)](#) and all required supporting documentation and submit the NOT package to the NASA EAB for review and comment.

10.5.9 The NASA EAB shall sign the final NOT package as the Responsible Authority and forward it to FDEP via certified mail.

10.5.10 The FDEP will send an acknowledgement letter to the NASA EAB after receipt and acceptance of the NOT. The NASA EAB shall forward the acknowledgement letter to the responsible organization or contractor.

10.5.11 Under certain circumstances, a particular regulated activity may be eligible to be exempt from permitting under the NPDES stormwater program.

10.5.11.1 Organizations and contractors shall consult with the NASA EAB regarding possible exemption.

10.5.11.2 If approved by the NASA EAB, the organization or contractor shall apply for the exemption by completing the No Exposure Certification for Exclusion from NPDES Stormwater Permitting Form, [FDEP Form 62-620.910\(17\)](#), and submitting it to the NASA EAB for review and comment.

10.5.11.3 The NASA EAB shall sign the final form as the Responsible Authority and forward it to FDEP via certified mail.

10.5.11.4 Organizations and contractors shall continue to abide by all regulatory, permit, and SWPPP requirements until FDEP issues the exemption.

10.5.11.4.1 If the exemption is approved by FDEP, the responsible organization or contractor shall maintain the site conditions that allowed the exemption.

10.6 Obtaining an Individual NPDES Stormwater Permit for Industrial Activity

10.6.1 In the uncommon event that a stormwater discharge from an industrial activity listed in Chapter 10.2 of this KNPR cannot be covered under Florida's Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity, the discharge must be covered under an individual NPDES stormwater permit. [FAC 62-620](#) contains the FDEP procedures and forms to apply for this type of permit. Organizations and contractors shall contact the NASA EAB for guidance and internal KSC procedures on how to obtain this type of permit.

10.6.2 If this type of permit is obtained, the responsible organization or contractor shall abide by all applicable stormwater regulations; abide by all general and sector-specific permit conditions including the development, implementation, and maintenance of a SWPPP; perform all required inspections and recordkeeping; execute required sampling, monitoring, and analysis through the MESC contractor; prepare all required regulatory reports; submit required regulatory reports to the NASA EAB; and take appropriate measures to properly manage site stormwater.

10.7 ERPs for Stormwater

10.7.1 The Florida ERP Program regulates activities involving the alteration of surface water flows. This includes new activities that generate stormwater runoff from new construction as well as dredging and filling in wetlands and other surface waters. For KSC, these regulations often require the construction and maintenance of surface water management systems to control stormwater runoff.

10.7.2 The ERP program is administered by both the SJRWMD and the FDEP. These two agencies are responsible for reviewing stormwater system designs and issuing permits for their construction and operation.

10.7.3 The SJRWMD's stormwater rules and ERP permitting procedures are located on the [SJRWMD Permitting Web Site](#). The SJRWMD stormwater permitting rules most applicable to KSC are [FAC 40C-4](#), [FAC 40C-40](#), [FAC 40C-42](#), and [FAC 40C-400](#). The SJRWMD has also published two handbooks, [Management and Storage of Surface Waters \(MSSW\) Applicant's Handbook](#) and [Regulation of Stormwater Management Systems Applicant's Handbook](#), to assist in the preparation of ERP stormwater permit applications. Organizations and contractors shall refer to and use these websites, rules, and handbooks when preparing ERP stormwater permit applications.

10.7.4 The State of Florida's rules and procedures for obtaining ERP stormwater permits are located in [FAC 62-330](#), [FAC 62-341](#), and [FAC 62-343](#).

10.8 Activities that May Require an ERP Stormwater Permit

10.8.1 The following types of projects or activities may require an ERP stormwater permit.

- a. Site development and land clearing.
- b. Construction of new or expansion of existing impervious areas (buildings, roads, parking lots, driveways, loading zones, etc.).
- c. Construction of a new stormwater or surface water management, collection, retention, impoundment, drainage, or treatment system.
- d. Alteration, removal, reconstruction, maintenance, emergency repair, or abandonment of an existing stormwater or surface water management system.
- e. Construction of a recreational area.

10.8.2 Organizations and contractors shall immediately notify the NASA EAB regarding any new planned project or activity listed in Chapter 10.8.1. This notification is typically accomplished through the KSC Environmental Checklist process outlined in Chapter 3 of this KNPR.

10.8.3 The NASA EAB shall evaluate the proposed project or activity and determine whether an ERP stormwater permit is required. Some projects may not require a permit if they are below certain permitting thresholds.

10.9 Obtaining an ERP Stormwater Permit

10.9.1 If a project requires an ERP stormwater permit, the initiating organization or contractor shall prepare the application package, which includes [SJRWMD Form 40C-4.900\(1\)](#) and all required supporting documentation.

10.9.2 The initiating organization or contractor shall refer to the appropriate rules and use the applicant handbooks on the [SJRWMD Permitting Web Site](#) when preparing the permit application.

10.9.3 Organizations and contractors shall include the NASA EAB in design reviews or other meetings for projects or activities involving stormwater management or ERP stormwater permitting.

10.9.4 The initiating organization or contractor shall submit the draft application package to the NASA EAB for review and comment.

10.9.5 The NASA EAB shall review the draft application package and provide comments to the initiating organization or contractor.

10.9.6 The initiating organization or contractor shall deliver six copies of the final application package to the NASA EAB.

10.9.6.1 Documents and drawings requiring P.E. certification shall be signed and sealed.

10.9.7 The NASA EAB shall sign the applications packages as the Applicant and submit them to the appropriate agency (SJRWMD or FDEP) by certified mail.

10.9.8 The agency will review the permit application for completeness and accuracy within 30 days. If not satisfied with the permit application, the agency will submit a RAI to the applicant to correct any deficiencies, errors, or omissions. Multiple RAIs may be submitted to the applicant until agency deems the application package to be complete.

10.9.9 The initiating organization or contractor shall prepare draft RAI responses (in coordination with the P.E.) and submit them to the NASA EAB for review and comment.

10.9.10 The NASA EAB shall submit the final RAI responses to the agency by certified mail.

10.9.11 When the permit application is approved, the agency will issue and mail the permit to the NASA EAB. The NASA EAB shall forward the permit to the initiating organization or contractor. Projects involving noticed general and standard general ERP stormwater permits are typically issued within 30 days after the application package is determined to be complete. Projects requiring individual ERP stormwater permits require approval from a governing board and are typically issued within 120 days after the application package is determined to be complete.

10.10 Project Execution Involving an ERP Stormwater Permit

10.10.1 The initiating organization or contractor is responsible for ensuring that the design information submitted in the ERP stormwater permit application (and any subsequent submittals or RAIs) is equivalent to the design information in the final design package, support request, or construction contract. The permit and permit conditions shall also be included in the support request or construction contract.

10.10.2 The initiating organization or contractor shall not begin construction prior to receiving the ERP stormwater permit.

10.10.3 Prior to the start of site work, the initiating organization or contractor shall submit a Construction Commencement Notice, [SJRWMD Form 40C-4.900\(3\)](#), to the NASA EAB at least 5 days before the start of construction.

10.10.4 The NASA EAB shall sign the form as the Permittee and submit it to the SJRWMD at least 2 days before the start of construction.

10.10.5 The initiating organization or contractor is responsible for ensuring that the entity performing the work abides by all stormwater rules and permit conditions. The initiating organization or contractor shall periodically inspect the project site to ensure compliance with all permit conditions and immediately notify the NASA EAB and correct the deficiencies, in the event a permit violation is discovered.

10.10.6 If the construction term extends beyond one year, the initiating organization or contractor shall submit an Annual Status Report for Surface Water Management System Construction, [SJRWMD Form 40C-4.900\(4\)](#), to the NASA EAB.

10.10.7 The NASA EAB shall sign the form as the Permittee and submit it to the SJRWMD.

10.10.8 After construction is complete:

- a. The initiating organization or contractor shall prepare an as-built certification package and submit it to the NASA EAB for review prior to placing the stormwater system into service.
- b. The package shall include the as-built certification form (specified in the permit) and all required drawings (signed and sealed by a P.E. or Professional Geologist).
- c. The NASA EAB shall review the draft package and provide comments to the initiating organization or contractor.

- d. The initiating organization or contractor shall deliver three copies of the final as-built certification package to the NASA EAB.
- e. The NASA EAB shall sign the as-built certification form as the Permittee and submit the final package to the SJRWMD.
- f. The SJRWMD will review final as-built certification package and inspect the completed project. The NASA EAB shall schedule all regulatory inspections and accompany SJRWMD personnel during the inspection.
- g. If the inspection reveals discrepancies in the permitted work, the initiating organization or contractor shall correct the discrepancies. When the deficiencies have been corrected, the NASA EAB will schedule a re-inspection with the SJRWMD.
- h. Once the project passes inspection, the initiating organization or contractor may place the project into operation. The initiating organization or contractor is responsible for maintaining the site according to all regulatory requirements and permit conditions.

10.11 Total Maximum Daily Loads and Nutrient Discharges

10.11.1 The Indian River Lagoon and Banana River Lagoon are impaired water bodies due to high nutrient (nitrogen and phosphorus) levels. The FDEP has established total maximum daily load (TMDL) discharge levels for nutrients into these water bodies. Current nutrient discharges into the lagoons exceed the TMDL levels by approximately 60 percent. As a result, KSC and other area stakeholders must actively reduce non-point source (e.g., stormwater) discharges of nitrogen and phosphorus in order to comply with TMDL regulations.

10.11.2 Organizations and contractors shall evaluate new activities, operations, and projects for potential nutrient discharges to stormwater and surface water and take measures to design projects to reduce or eliminate potential nutrient discharges. Stormwater permit applications may be required to demonstrate zero (or no net increases of) nutrient discharges from sites in order to be approved.

CHAPTER 11. DOMESTIC WASTEWATER

11.1 Background, Regulatory Requirements, and General Requirements

11.1.1 Both the FDEP and the Florida Department of Health (FDOH) administer programs, promulgate regulations, and issue permits concerning domestic wastewater disposal in order to protect public health and water resources.

11.1.2 Domestic wastewater means wastewater or sewage typically from dwellings, business buildings, and institutions originating from toilets, urinals, kitchens, bathrooms, showers, baths, laundries, etc.

11.1.3 The FDEP is responsible for regulating centralized systems that collect, transmit, and treat domestic wastewater. The applicable regulations for these systems are [FAC 62-600](#), [FAC 62-601](#), [FAC 62-602](#), [FAC 62-604](#), [FAC 62-620](#), [FAC 62-625](#), [FAC 62-640](#), [FAC 62-650](#), and [FAC 62-699](#).

11.1.4 The KSC domestic wastewater collection and transmission system is regulated by the FDEP. This system transports raw domestic wastewater to an AF-operated domestic

wastewater treatment plant at CCAFS (which operates under an NPDES domestic wastewater permit).

11.1.5 The ISC contractor shall:

- a. Operate and maintain the system according to all applicable regulations.
- b. As required, coordinate the operation of KSC's collection and transmission system and share data with the AF and the AF's treatment plant operator to support NPDES permit compliance.
- c. Collect required operational data and submit required regulatory reports regarding the KSC domestic wastewater collection and transmission system to the NASA EAB.

11.1.6 The FDOH is responsible for regulating onsite sewage treatment and disposal systems (septic systems) producing a domestic sewage flow of less than 10,000 gallons per day or a commercial sewage flow of less than 5,000 gallons per day (FDEP regulates systems above these levels). The applicable regulation for onsite sewage treatment and disposal systems (OSTDS) is [FAC 64E-6](#). The FDOH has delegated OSTDS program responsibility to the various county health departments. Therefore, the Brevard County Health Department regulates, permits, and inspects OSTDSs at KSC. Brevard County may also pass local ordinances that exceed the requirements in [FAC 64E-6](#).

11.1.7 KSC operates dozens of OSTDSs that typically serve small, remote, or temporary facilities. Only a small number of the existing OSTDSs at KSC have an operating permit under [FAC 64E-6](#). The remaining OSTDSs were constructed prior to the issuance of [FAC 64E-6](#) and do not require an operating permit unless the system is modified, repaired, or replaced. New OSTDSs require an operating permit under [FAC 64E-6](#).

11.1.8 Except for domestic wastewater collection and transmission system malfunction reports, organizations and contractors shall process all notifications, permit applications, requests for approval, compliance monitoring data, reports, requests for clearance, or other submittals to a regulatory agency through the NASA EAB.

11.1.9 The ISC contractor shall report domestic wastewater collection and transmission system malfunctions directly to FDEP on behalf of the NASA EAB.

11.1.10 Organizations and contractors shall immediately report domestic wastewater line breaks, system malfunctions, and releases according to the requirements in Chapter 4 of this KNPR.

11.2 NPDES Domestic Wastewater Permits

KSC does not currently operate a centralized domestic wastewater treatment plant and does not currently hold any NPDES domestic wastewater permits. Construction and operation of such a plant at KSC would require a NPDES domestic wastewater permit issued by the FDEP. Any program, organization, or contractor wishing to construct a centralized domestic wastewater treatment plant shall contact the NASA EAB and ISC contractor for guidance, regulatory requirements, and permitting procedures. The permitting process can be lengthy and complex.

11.3 Collection and Transmission System Construction Permits

11.3.1 Organizations and contractors shall immediately notify the NASA EAB regarding any new planned project that involves a connection, disconnection, or modification to the KSC domestic wastewater collection and transmission system. This notification is typically accomplished through the KSC Environmental Checklist process outlined in Chapter 3 of this KNPR.

11.3.2 The NASA EAB shall evaluate the proposed project and determine whether a collection and transmission system construction permit is required.

11.3.3 Organizations and contractors shall include the NASA EAB and the ISC contractor in planning meetings and design reviews for the project.

11.3.4 The organization or contractor responsible for a project that modifies, maintains, or repairs the KSC domestic wastewater system, whether a permit is required or not, shall ensure that regulatory requirements and best engineering practices are followed.

11.3.5 The following activities typically do not require a collection and transmission system construction permit per [FAC 62-604.600\(2\)](#):

- a. Replacement of any facilities with new facilities of the same capacity at the same location as the facilities being replaced.
- b. Construction of any single gravity or non-gravity individual service connection from a single building to a gravity collection system (construction of a non-gravity connection to an existing force main system requires a permit).
- c. Construction of a low pressure or vacuum sewer individual service connection where the system serving the area has been previously permitted by the FDEP.
- d. Installation of odor control facilities.
- e. Modifications associated with routine maintenance.
- f. Modifications associated with ancillary and electrical equipment and structures.

11.3.6 All other activities require a collection and transmission system construction permit from the FDEP. The initiating organization or contractor shall obtain coverage under Florida's general permit for wastewater collection and transmission systems or obtain an individual permit for a domestic wastewater collection and transmission system for the project.

11.4 Obtaining Coverage Under Florida's General Permit for Wastewater Collection and Transmission Systems

11.4.1 In order to obtain coverage under Florida's general permit for wastewater collection and transmission systems, the project must meet the requirements and criteria listed under [FAC 62-604.600\(6\)](#).

11.4.2 The initiating organization or contractor shall prepare the NOI package, which includes [FDEP Form 62-604.300\(8\)\(a\)](#) and all required supporting documentation.

11.4.3 The NOI package shall include a site plan or sketch showing the size and approximate location of new or altered gravity sewers, pump stations, and force mains; showing the

approximate location of manholes and isolation valves; and showing how the proposed project ties into the existing or proposed wastewater facilities.

11.4.4 The initiating organization or contractor shall submit the draft NOI package to the NASA EAB for review and comment.

11.4.5 The initiating organization or contractor shall submit two copies of the final NOI package to the NASA EAB. The form, site plan, and sketch are required to be signed and sealed by a P.E. registered in the state of Florida.

11.4.6 The NASA EAB shall sign the form as the Permittee and Owner and forward the NOI package to the AF for signature as the owner of the domestic wastewater treatment facility serving the collection and transmission system.

11.4.7 Once signed by the AF, the NASA EAB shall forward the NOI package to FDEP via certified mail. The NOI package must be received by the FDEP at least 30 days prior to initiating construction.

11.4.8 The FDEP will review the NOI package for completeness and accuracy. The FDEP may submit a RAI to the applicant to correct any deficiencies, errors, or omissions. Multiple RAIs may be submitted to the applicant until FDEP deems the NOI package to be complete. The initiating organization or contractor shall prepare draft RAI responses (in coordination with the P.E.) and submit them to the NASA EAB for review and comment.

11.4.9 The NASA EAB shall submit the final RAI responses to the FDEP by certified mail.

11.4.10 If the permit is approved, FDEP will e-mail a "Notification of Use of General Permit" to the NASA EAB. The NASA EAB shall forward the notification to the initiating organization or contractor.

11.4.11 The initiating organization or contractor shall not initiate construction until receiving this notification from the NASA EAB and ensure that the design information submitted to the FDEP in the NOI package matches the design information in the final work package, support request, or construction contract.

11.4.12 The initiating organization or contractor shall ensure that the entity performing the work abides by all regulations and permit conditions.

11.4.13 After the construction project is complete:

a. KSC must obtain a letter of clearance from the FDEP prior to placing the project into service for any purpose other than leak or equipment operation testing. The initiating organization or contractor shall submit two copies of [FDEP Form 62-604.300\(8\)\(b\)](#), Request For Approval To Place A Domestic Wastewater Collection and Transmission System Into Operation, to the NASA EAB.

b. The form shall be signed and sealed by a P.E. registered in the state of Florida.

c. The NASA EAB shall sign the form as the Permittee and Owner and forward the form to the AF for signature as the owner of the domestic wastewater treatment facility serving the collection and transmission system.

d. Once signed by the AF, the NASA EAB shall forward the form to FDEP via certified mail. If approved, the FDEP will e-mail the letter of clearance to the NASA EAB within 10 business days after receiving the request form.

e. The NASA EAB shall forward the letter of clearance to the initiating organization or contractor.

f. The initiating organization or contractor shall then place the project into operation after receipt of the letter of clearance.

11.5 Obtaining an Individual Permit for a Domestic Wastewater Collection and Transmission System

11.5.1 If a domestic wastewater collection and treatment system project requires a permit and does not meet the general permit requirements and criteria listed under [FAC 62-604.600\(6\)](#), the initiating organization, or contractor, shall obtain an individual permit for the project per [FAC 62-604.600\(7\)](#).

11.5.2 The initiating organization or contractor shall prepare the application package, which includes [FDEP Form 62-604.300\(8\)\(a\)](#) and all required supporting documentation, and include the application package in the project plans and specifications or an engineering report.

11.5.3 The plans, specifications, and engineering reports shall be prepared in accordance with the applicable provisions of Chapter 10 and Chapter 20 of *Recommended Standards for Wastewater Facilities*.

11.5.4 The initiating organization or contractor shall submit the draft application package (two copies) to the NASA EAB for review and comment.

11.5.5 The form, plans, specifications, and engineering report shall be signed and sealed by a P.E. registered in the state of Florida.

11.5.6 The NASA EAB shall sign the form as the Permittee and Owner and forward the application package to the AF for signature as the owner of the domestic wastewater treatment facility serving the collection and transmission system.

11.5.7 Once signed by the AF, the NASA EAB shall forward the application package to the FDEP via certified mail.

11.5.8 The FDEP will review the application package for completeness and accuracy. The FDEP may submit a RAI to the applicant to correct any deficiencies, errors, or omissions. Multiple RAIs may be submitted to the applicant until FDEP deems the application package to be complete.

11.5.9 The initiating organization or contractor shall prepare draft RAI responses (in coordination with the P.E.) and submit them to the NASA EAB for review and comment.

11.5.10 The NASA EAB shall submit the final RAI responses to the FDEP by certified mail.

11.5.11 If the permit application is approved, FDEP will e-mail the individual permit to the NASA EAB. The NASA EAB shall forward the notification to the initiating organization or contractor.

11.5.12 The initiating organization or contractor shall not initiate construction until receiving the permit from the NASA EAB.

11.5.13 The initiating organization or contractor shall ensure that the design information submitted to the FDEP in the application package matches the design information in the final work package, support request, or construction contract and that the initiating organization or contractor ensures that the entity performing the work abides by all regulations and permit conditions.

11.5.14 After the construction project is complete:

- a. KSC must obtain a letter of clearance from the FDEP prior to placing the project into service for any purpose other than leak or equipment operation testing.
- b. The initiating organization or contractor shall submit two copies of [FDEP Form 62-604.300\(8\)\(b\)](#), Request For Approval To Place A Domestic Wastewater Collection and Transmission System Into Operation, to the NASA EAB. The form must be signed and sealed by a P.E. registered in the state of Florida.
- c. The NASA EAB shall sign the form as the Permittee and Owner and forward the form to the AF for signature as the owner of the domestic wastewater treatment facility serving the collection and transmission system.
- d. Once signed by the AF, the NASA EAB shall forward the form to FDEP via certified mail. If approved, the FDEP will e-mail the Letter of clearance to the NASA EAB within 30 business days after receiving the request form.
- e. The NASA EAB shall forward the Letter of clearance to the initiating organization or contractor.
- f. The initiating organization or contractor shall place the project into operation.

11.6 Onsite Sewage Treatment and Disposal Systems

11.6.1 The installation and use of an OSTDS is prohibited at KSC except when connection to a domestic wastewater collection and transmission system is infeasible based on existing infrastructure, wastewater flow characteristics, cost, facility use, and the number of personnel using the facility.

11.6.2 Organizations and contractors shall operate, maintain, and repair all assigned OSTDSs in accordance with all applicable Federal, state, and local rules, regulations, and permits.

11.6.3 For OSTDSs that require an operating permit, the assigned organization or contractor shall prepare the annual renewal application package (which includes [FDOH Form DH 4081](#), [FDOH Form DH 4081A](#), and all required supporting documentation).

11.6.4 At least 30 calendar days prior to permit expiration, the assigned organization or contractor shall submit the draft application package to the NASA EAB for review and comment.

11.6.5 At least 14 calendar days prior to permit expiration, the assigned organization or contractor shall deliver the final renewal application package to the NASA EAB.

11.6.6 The NASA EAB shall sign the application package as the Applicant and submit it to the Brevard County Health Department.

11.7 Construction, Repair, Modification, or Abandonment of an OSTDS

11.7.1 Organizations and contractors shall immediately notify the NASA EAB regarding any new planned project that involves the construction, repair, modification, or abandonment of an OSTDS. This notification is typically accomplished through the KSC Environmental Checklist process outlined in Chapter 3 of this KNPR.

11.7.2 The NASA EAB shall evaluate the proposed project and determine whether a permit is required. The NASA EAB and ISC contractor must approve any installation of a new OSTDS.

11.7.3 Organizations and contractors shall include the NASA EAB and the ISC contractor in planning meetings and design reviews for the project. The project must be designed or scoped in accordance with the requirements and standards in [FAC 64E-6](#).

11.7.4 If the project requires a permit, the initiating organization or contractor shall prepare the application package, which includes [FDOH Form DH 4015](#) and all required supporting documentation and ensure that the design information submitted in the application package matches the design information in the final work package, support request, or construction contract.

11.7.5 The initiating organization or contractor shall submit the draft application package (five copies) to the NASA EAB for review and comment. The designs, site plans, specifications, drawings, documents, or forms required by [FAC 64E-6](#) must be signed and sealed by a P.E. registered in the state of Florida.

11.7.6 The NASA EAB shall sign the form as the Applicant and forward the final application package to the Brevard County Department of Health.

11.7.7 When the permit application is approved, the NASA EAB shall forward the permit to the initiating organization or contractor.

11.7.8 The initiating organization or contractor shall not initiate the project until receiving the permit from the NASA EAB.

11.7.9 The initiating organization or contractor shall ensure that the entity performing the work is properly licensed and abides by all regulations.

11.7.10 Before placing the project or system into operation, the initiating organization or contractor shall notify the NASA EAB.

11.7.11 The NASA EAB shall notify the Brevard County Health Department and schedule an inspection.

11.7.12 Once approved by the Brevard County Health Department, the initiating organization or contractor shall place the project into operation.

11.7.13 If the project requires KSC to obtain a new operating permit or modify an existing operating permit, the initiating organization or contractor shall prepare the operating permit application package (which includes [FDOH Form DH 4081](#), [FDOH Form DH 4081A](#), and all required supporting documentation) and submit the final application package to the NASA EAB at the time of project completion.

11.7.14 The NASA EAB shall sign the application package as the Applicant and submit it to the Brevard County Health Department.

11.8 Non-Domestic Wastewater Discharges

11.8.1 Organizations and contractors shall not discharge non-domestic wastewater (such as stormwater, groundwater, surface water, process water, sump water, wash water, air conditioning condensate, compressor condensate, cooling tower water, or other industrial wastewaters) into an OSTDS.

11.8.2 Organizations and contractors shall not discharge non-domestic wastewater into a KSC domestic wastewater collection and transmission system unless authorized by the ISC contractor and the AF's domestic wastewater treatment plant operator.

11.8.3 To obtain an authorization, organizations and contractors shall follow the industrial wastewater discharge authorization process in Chapter 12 of this KNPR.

CHAPTER 12. INDUSTRIAL WASTEWATER

12.1 Background and Regulatory Requirements

12.1.1 State of Florida regulations define industrial wastewater as any wastewater that is not classified as domestic wastewater. Since industrial wastewater has the potential to contain various pollutants at various concentrations, all discharges to the environment are highly regulated. Examples of industrial wastewater at KSC are launch deluge water, industrial process water, wash water, rinse water, sump water, stormwater captured in secondary containment structures, air conditioning system condensate, compressor condensate, cooling tower water, groundwater dewatering effluent, and water flushed from potable and drinking water systems.

12.1.2 The EPA has authorized the FDEP to administer federal CWA regulations ([40 CFR 400-699](#)) and issue industrial wastewater permits in the state of Florida. Therefore, the FDEP regulates industrial wastewater management, discharges, treatment, and disposal at KSC.

12.1.3 In addition to the federal CWA regulations, the state of Florida has promulgated various wastewater regulations to protect water quality and facilitate permitting. The applicable industrial wastewater regulations are [FAC 62-4](#), [FAC 62-620](#), [FAC 62-621](#), [FAC 62-625](#), [FAC 62-650](#), [FAC 62-655](#), and [FAC 62-660](#).

12.1.4 Organizations and contractors shall properly collect, evaluate, manage, treat, and dispose of industrial wastewater according to federal regulations, state regulations, and the requirements of this KNPR.

12.1.5 Depending on the volume, process, location, types of contaminants, and concentrations of contaminants, the industrial wastewater management requirements and disposal methods can vary greatly. At KSC, industrial wastewater is generally managed and disposed by one of the following methods:

a. Containerization (usually in drums or tanks) for off-Center shipment and disposal by the MESG contractor at an approved disposal facility (some form of onsite treatment may or may not be required prior to shipment).

- b. Pick up and transportation (usually in tanker trucks) by the MESC contractor for processing and disposal at the CCAFS Trident wastewater pretreatment plant.
- c. Discharge to the domestic wastewater system under an approval from the ISC contractor and AF domestic wastewater treatment plant operator (some form of treatment at the facility may or may not be required prior to discharge).
- d. Collection, treatment, and discharge to the environment at a facility under an industrial wastewater permit.
- e. Discharge to the environment at a facility with minimal or no treatment (approval by the NASA EAB or FDEP may be required).

12.1.6 KSC currently holds three NPDES industrial wastewater permits for the following locations and operations.

- a. Launch Complex 39A deluge water capture, treatment, and discharge.
- b. Launch Complex 39B deluge water capture, treatment, and discharge.
- c. Seawater Water Immersion Facility (SWIF) process water discharge.

12.1.7 Certain industrial wastewaters may be considered a hazardous waste under the RCRA or a regulated polychlorinated biphenyl (PCB) waste under the Toxics Substances Control Act (TSCA). Organizations and contractors shall follow the requirements in Chapter 13 and Chapter 19 of this KNPR for the proper management, treatment, and disposal of these types of industrial wastewaters.

12.2 Industrial Wastewater Evaluation

12.2.1 Prior to generation of any industrial wastewater, organizations and contractors shall coordinate the proposed management, disposal, and discharge of industrial wastewater with the NASA EAB and KSC Waste Management Office.

12.2.2 Organizations and contractors shall submit the following proposed generation, storage, treatment, discharge, and disposal information to the NASA EAB and KSC Waste Management Office for each industrial wastewater stream:

- a. Detailed industrial wastewater process descriptions and locations.
- b. Contaminants in the industrial wastewater (sampling and analysis may be required).
- c. Volume and frequency of industrial wastewater to be generated or discharged
- d. Storage locations, treatment processes, and proposed discharge locations (including the locations of all potentially impacted ditches, ponds, or other surface water bodies).
- e. Proposed wastewater treatment methods, systems, chemicals, and locations.
- f. Mixing or application rates of any chemicals, detergents, or other materials used in the proposed treatment processes.

12.2.3 The NASA EAB and KSC Waste Management Office shall determine the disposal requirements for each industrial wastewater stream.

12.3 Industrial Wastewater Disposal through the Domestic Wastewater System

12.3.1 Certain industrial wastewaters may be a candidate for disposal through the domestic wastewater system and CCAFS domestic wastewater treatment plant.

12.3.2 Organizations and contractors shall not discharge industrial wastewater into the domestic wastewater system unless authorized by the AF's domestic wastewater treatment plant operator.

12.3.3 Organizations and contractors shall not discharge industrial wastewater into a KSC domestic wastewater collection and transmission system unless authorized by the ISC contractor.

12.3.4 All discharges to the domestic wastewater system shall comply with pretreatment standards in [40 CFR 403.6](#) and applicable industrial category pretreatment standards in [40 CFR 400-471](#). In order to dispose of certain industrial wastewaters through the domestic wastewater system, organizations and contractors may be required to employ treatment processes or install treatment systems to meet pretreatment standards or other discharge standards designated by the AF domestic wastewater treatment plant operator.

12.3.5 Authorization Process

12.3.5.1 To obtain an authorization, organizations and contractors shall characterize their industrial wastewater (which may require sampling and analysis) and submit a Process Waste Questionnaire (PWQ), [KSC Form 26-551](#), to the KSC Waste Management Office.

12.3.5.2 The KSC Waste Management Office shall evaluate the PWQ.

12.3.5.3 If the wastewater is a possible candidate for discharge into the domestic wastewater system, the KSC Waste Management Office shall prepare an industrial wastewater discharge request form and submit it to the ISC contractor and the AF's domestic wastewater treatment plant operator for approval.

12.3.5.4 If approved, the KSC Waste Management Office shall issue a Technical Response Package (TRP) to the requester with instructions on how to manage the industrial wastewater. The TRP will outline whether the industrial wastewater can be discharged directly into a domestic wastewater collection and transmission system (KSC or CCAFS) or must be picked up in tanker trucks by the KSC Waste Management Office and transported to the CCAFS Trident wastewater pre-treatment plant.

12.3.5.5 For direct discharges into a domestic wastewater collection and transmission system, the organization and contractor shall coordinate the discharge days, times, and rates with the ISC contractor and AF domestic wastewater treatment plant operator.

12.3.5.6 If the wastewater is not a candidate for discharge into the domestic wastewater system or if the discharge request is denied, the wastewater must be disposed of offsite through the KSC Waste Management Office (see Chapter 13 of this KNPR). The KSC Waste Management Office shall issue a TRP with labeling and storage instructions for offsite disposal.

12.3.5.7 The organization or contractor shall properly containerize the industrial wastewater for offsite disposal.

12.4 Kennedy Industrial Wastewater Inventory

12.4.1 The NASA EAB maintains an active inventory of approved industrial wastewater discharges at KSC, called the Kennedy Industrial Wastewater Inventory (KIWI). The most recent version of the KIWI can be obtained from the NASA EAB. Each industrial wastewater discharge in the KIWI is assigned a classification. The classification dictates the required management, disposal, and permitting requirements.

12.4.2 Organizations and contractors can request approval to discharge industrial wastewater already listed in the KIWI from the NASA EAB. If approval is granted, organizations and contractors shall discharge the industrial wastewater according to the criteria, conditions, and requirements listed in the KIWI.

12.4.3 Organizations and contractors can request to add industrial wastewater discharges to the KIWI by submitting the information in Chapter 12.2 of this KNPR to the NASA EAB. If the proposed industrial wastewater is a candidate for listing in the KIWI, the NASA EAB shall request approval from the FDEP.

12.4.4 If approval is granted by FDEP, the NASA EAB shall add the industrial wastewater discharge to the KIWI and communicate the classification, criteria, conditions, discharge requirements, and permitting requirements to the requesting organization or contractor.

12.5 New NPDES Industrial Wastewater Permits

12.5.1 If a new NPDES industrial wastewater permit is required for an activity, treatment facility, or discharge, the initiating organization or contractor shall prepare the application package, which includes [FDEP Form 62-620.910\(1\)](#) and all required supporting application forms [such as [FDEP Form 62-620.910\(4\)](#), [FDEP Form 62-620.910\(5\)](#), [FDEP Form 62-620.910\(6\)](#), and [FDEP Form 62-620.910\(7\)](#)], designs, and documentation.

12.5.2 The initiating organization or contractor shall follow FDEP's [Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620](#) when preparing the application package and submit the draft application package (five copies) to the NASA EAB for review and comment. The designs, site plans, specifications, drawings, documents, or forms required by [FAC 62-620](#) must be signed and sealed by a P.E. registered in the state of Florida.

12.5.3 The NASA EAB shall sign the application packages as the applicant and forward them to the FDEP by certified mail. Permit applications must be submitted to FDEP at least 180 days before a discharge occurs and at least 90 days prior to commencing construction.

12.5.4 The FDEP will review the permit application for completeness and accuracy. If not satisfied with the permit application, the FDEP will submit a RAI to the applicant to correct any deficiencies, errors, or omissions. Multiple RAIs may be submitted to the applicant until FDEP deems the application package to be complete.

12.5.5 The initiating organization or contractor shall prepare draft RAI responses (in coordination with the P.E.) and submit them to the NASA EAB for review and comment.

12.5.6 The NASA EAB shall submit the final RAI responses to the FDEP by certified mail.

12.5.7 If the permit application is approved, the NASA EAB shall forward the permit to the initiating organization or contractor.

12.5.8 The initiating organization or contractor shall ensure that the design information submitted in the application package matches the design information in the final work package, support request, or construction contract and that the entity performing the work abides by all regulatory and permit requirements.

12.5.9 Before placing the industrial wastewater system into operation or discharging, the initiating organization or contractor must obtain a letter of clearance from FDEP. The initiating organization or contractor shall prepare the clearance package, which includes [FDEP Form 62-620.910\(12\)](#) and all required supporting documentation and drawings, and submit the clearance package to the NASA EAB.

12.5.10 The NASA EAB shall review and submit the clearance package to the FDEP.

12.5.11 If the clearance package is approved, the FDEP will send the letter of clearance to the NASA EAB. The NASA EAB shall forward the letter of clearance to the initiating organization or contractor. The initiating organization or contractor may then place the industrial wastewater system into operation and begin discharging.

12.6 Renewing or Modifying Existing NPDES Industrial Wastewater Permits

12.6.1 To renew an existing NPDES industrial wastewater permit, the responsible organization or contractor shall prepare the permit renewal application package with the same forms and process outlined in Chapter 12.5.1 through Chapter 12.5.4 of this KNPR. The permit renewal application package must be submitted to FDEP at least 180 days prior to the expiration of the existing permit.

12.6.2 If a proposed modification to an NPDES industrial wastewater facility, discharge, or permit is considered a “minor modification” according to Florida wastewater regulations, the responsible organization or contractor shall prepare the permit modification application package using [FDEP Form 62-620.910\(9\)](#) and all required supporting documentation and submit the permit modification application package to the NASA EAB for processing according to the process outlined in Chapter 12.5.1 through Chapter 12.5.4 of this KNPR.

12.6.3 The responsible organization or contractor shall not implement changes to the facility or the discharge until the modified permit is obtained from FDEP.

12.6.4 If a proposed modification to an NPDES industrial wastewater facility, discharge, or permit is not considered a “minor modification” according to Florida wastewater regulations, the responsible organization or contractor shall prepare the permit modification application package with the same forms and process outlined in Chapter 12.5.1 through Chapter 12.5.7 of this KNPR.

12.7 NPDES Industrial Wastewater Permit Operations

12.7.1 Organizations and contractors responsible for NPDES industrial wastewater permits shall:

- a. Operate, maintain, and repair all industrial wastewater facilities in accordance with all applicable Federal and state regulations and permit conditions.
- b. Ensure that all industrial wastewater discharges meet regulatory and permit conditions and limits.
- c. Develop and maintain procedures to ensure permit compliance.

- d. Inspect facilities and discharges to ensure permit compliance.
- e. Conduct all required sampling, monitoring, and analysis (or request the MESC contractor to perform).
- f. Maintain all operational records, data, and logs required by regulation or the permit.
- g. Prepare and submit all required operational, monitoring, and regulatory reports to the NASA EAB at least seven calendar days prior to the due date.
- h. Immediately notify the NASA EAB of any potential permit violations, deficiencies, or non-compliance items.
- i. Immediately correct violations, deficiencies, or non-compliance items.

12.7.2 The NASA EAB shall:

- a. Review all operational, monitoring, and regulatory reports submitted by the responsible organization or contractor for accuracy and submit them to the FDEP by the due date.
- b. Conduct periodic inspections of permitted facilities, activities, and discharges.
- c. Request and monitor corrective actions for any violations, deficiencies, or non-compliance items.
- d. Coordinate and respond to inquiries from regulatory agencies concerning sampling data, monitoring data, and regulatory reports.
- e. Verify that adequate procedures have been developed by the responsible organization or contractor to ensure compliance with regulatory and permit requirements.
- f. Report apparent permit violations to the appropriate regulatory agencies.

CHAPTER 13. HAZARDOUS AND CONTROLLED WASTE

13.1 Background and Regulatory Requirements

13.1.1 The Federal Government and the state of Florida have passed laws and promulgated regulations regarding the identification, transportation, treatment, storage, and disposal of hazardous and controlled waste.

13.1.2 The Federal RCRA is administered by the EPA and regulates the identification, transportation, treatment, storage, and disposal of solid and hazardous wastes. EPA's implementing regulations for RCRA are located in [40 CFR 260-279](#).

13.1.3 The Federal TSCA is administered by the EPA and regulates the manufacture, processing, distribution in commerce, use, marking, storage, and disposal of PCBs. EPA's implementing regulations for PCBs are located in [40 CFR 761](#).

13.1.4 The state of Florida regulations for hazardous waste management and used oil management are [FAC 62-730](#) and [FAC 62-710](#) respectively.

13.1.5 The EPA has delegated authority to the FDEP to implement and enforce RCRA

regulations and issue hazardous waste permits in the state of Florida. Therefore, the FDEP regulates, inspects, and issues permits to KSC for hazardous and controlled waste management.

13.1.6 KSC is a large quantity generator (LQG) of hazardous waste. Consequently, all wastes generated on KSC property are subject to stricter regulatory requirements for storage, labeling, management, and disposal. Industry norms and waste management procedures practiced by contractors not on KSC property may not be acceptable on KSC property. All activities at KSC are subject to inspection and enforcement by Federal and state regulatory agencies.

13.1.7 Organizations and contractors shall properly identify, manage, and dispose of all hazardous and controlled waste according to the applicable Federal, state, and local regulations and the requirements of this KNPR.

13.1.8 Organizations and contractors shall develop general and site-specific waste management procedures and requirements for their operations to ensure compliance with applicable Federal, state, and local regulations and the requirements of this KNPR.

13.1.9 Organizations and contractors shall reduce the volume and toxicity of hazardous wastes to the extent economically practicable.

13.1.10 All personnel shall adopt this practice in day-to-day operations and are encouraged to introduce new ideas concerning waste minimization opportunities to management. Chapter 26 of this KNPR provides requirements for waste minimization as required by the RCRA, the 1984 Hazardous and Solid Waste Amendments to RCRA, and the Pollution Prevention Act.

13.1.11 The MESC contractor shall operate the KSC Waste Management Office, pick up and dispose of all hazardous and controlled waste generated at KSC, and conduct operations according to the Spaceport Waste Services Guidance Manual, [EVS-P-0001](#).

13.1.12 All spills and releases of hazardous and controlled waste shall be reported according to the requirements of Chapter 4 of this KNPR.

13.1.13 All communication and interface with regulatory agencies regarding hazardous and controlled waste management and disposal shall be coordinated through and performed by the NASA EAB.

13.2 Waste Evaluation and Sampling

13.2.1 Organizations and contractors shall submit PWQs, [KSC Form 26-551](#), to the KSC Waste Management Office for all potentially hazardous or controlled waste streams.

13.2.1.1 PWQs shall be submitted prior to generating the waste if there is sufficient information available to evaluate and characterize the waste.

13.2.1.2 Organizations and contractors shall submit relevant waste evaluation information or data (such as Material Safety Data Sheets [MSDS], sampling results, process knowledge, etc.) with the PWQ.

13.2.2 If sampling and analysis is required to characterize the waste stream or complete the PWQ, the generating organization or contractor shall conduct the sampling and analysis or request sampling and analysis support from the MESC contractor.

13.2.2.1 Organizations and contractors shall place a Hazardous Waste Determination in Progress (HWDIP) label, [KSC Form 29-759](#), on the waste container pending completion of the sampling, analysis, and waste evaluation process.

13.2.2.2 Organizations and contractors shall continuously update the HWDIP label and add new dates to the label as the waste characterization and evaluation process progresses.

13.2.2.3 Organizations and contractors shall manage waste containers with HWDIP labels as if it were a hazardous waste and only store those containers in hazardous waste satellite accumulation areas (SAA) or 90-day hazardous waste storage areas.

- a. Waste amounts under 55-gallons may be stored at a SAA or 90-day hazardous waste storage area.
- b. Waste amounts greater than 55-gallons must be stored at a 90-day hazardous waste storage area (unless prior approval has been requested by the NASA EAB and granted by the FDEP to store the waste at a SAA).

13.2.2.4 If a waste container with HWDIP label is determined to be a hazardous waste, the analysis completion date on the HWDIP label becomes the accumulation start date (ASD) for containers stored in 90-day hazardous waste storage areas.

13.2.3 The KSC Waste Management Office shall evaluate PWQs, characterize the waste streams, determine whether wastes are hazardous waste or controlled waste, and issue a TRP back to the generating organization or contractor with the following information and guidance:

- a. Hazardous waste or controlled waste determinations.
- b. Controlled waste classifications.
- c. Sampling and analysis parameters.
- d. Packaging and container requirements.
- e. Labeling requirements.

13.2.4 Organizations and contractors shall manage, package, and label wastes according to TRP instructions.

13.3 Hazardous and Controlled Waste Storage Locations

13.3.1 Organizations and contractors shall notify the NASA EAB whenever hazardous or controlled waste storage locations are established, moved, or discontinued.

13.3.2 Organizations and contractors shall respond on time to data calls from the NASA EAB requesting comprehensive lists of hazardous and controlled waste storage locations.

13.4 Hazardous Waste Storage

13.4.1 Organizations and contractors shall establish and maintain 90-day hazardous waste storage areas and hazardous waste SAAs as needed to properly store and manage the hazardous wastes generated by their operations and activities.

13.4.2 The following requirements apply to 90-day hazardous waste storage areas:

a. 90-day hazardous waste storage areas shall meet all physical requirements outlined in [40 CFR 260-279](#) including:

- 1) Emergency communication equipment such as a telephone or a two-way radio.
- 2) Fire extinguishing equipment.
- 3) Fire control equipment.
- 4) Spill control equipment.
- 5) Decontamination equipment.
- 6) Safety shower or eyewash.

b. All hazardous waste containers shall be labeled with the hazardous waste label [KSC Form WM8P](#).

1) The hazardous waste label shall contain other markings for the waste stream as required by the TRP (such as KSC EPA hazardous waste identification number, proper shipping name, EPA waste codes, and PWQ and TRP waste code).

2) Although not required by regulations, marking hazardous waste containers in accordance with PWQ and TRP instructions facilitates uniformity across KSC and provides hazard communication information to emergency responders in the event of a hazardous material release incident.

c. Hazardous waste containers shall contain other hazard labels as indicated on the TRP for the waste stream.

d. Additional descriptive words, labels, or markings may be placed upon the hazardous waste containers if they are removed prior to pickup for disposal.

e. All hazardous waste containers shall be marked with the proper ASD:

1) For new waste streams, the ASD is the date of the hazardous waste determination by the KSC Waste Management Office recorded on the PWQ and TRP.

2) For recurring waste streams, the ASD is the date when waste is first added to the container.

3) For containers transferred from SAAs, the ASD is the date of transfer.

f. Hazardous wastes shall not be stored at 90-day hazardous waste storage areas for longer than 90 days based on the ASD.

1) Organizations and contractor shall refer to [EVS-P-0001](#) for details regarding waste pickup services and procedures.

2) Organizations and contractors shall submit waste pickup support requests to the KSC Waste Management Office no later than the 75th day (60th day for hypergolic wastes) to provide scheduling flexibility and to resolve pickup discrepancies.

- 3) Emergency waste pickups (within 2 hours) are available for hazardous waste that is approaching the 90-day limit.
- 4) Organizations and contractors shall keep documentation to demonstrate that hazardous waste tanks are emptied at least once every 90 days.
- 5) If unforeseen circumstances prevent pickup within the 90-day limit, the organization or contractor shall immediately contact the NASA EAB who will request an extension from the FDEP.
- g. Organizations and contractors shall inspect 90-day hazardous waste storage areas at least weekly according to the requirements in [40 CFR 260-279](#).
- h. As a part of those inspections, organizations and contractors shall:
 - 1) Check the availability and condition of any security devices.
 - 2) Check that required warning signs (such as "Danger – Unauthorized Personnel Keep Out" and "No Smoking") are present, unobstructed, and legible.
 - 3) Check the availability, condition, and functionality of safety equipment.
 - 4) Check the area and containers for waste releases.
 - 5) Check all waste containers for deterioration, corrosion, and signs of physical damage.
 - (i) Containers shall not have severe rust, visible pitting, flaking, or beaded metal.
 - (ii) Containers shall not have dents or creases that compromise the integrity or significantly alter the original shape of the container.
 - (iii) Containers shall not have paint or other coatings applied to obscure damage.
 - 6) Check waste drum bungs and lids for tightness (drum lids and bungs shall be tightly closed when not in use).
 - 7) Check hazardous waste container ASDs and verify that the date is not near the 90-day limit.
 - 8) Check hazardous waste container labels and ensure they are properly completed.
 - 9) Ensure that adequate fire suppression equipment is available, compatible with the types of waste being stored, and is regularly inspected and maintained by fire protection personnel.
 - 10) Verify that sources of ignition are absent and that no smoking signs are conspicuous.
 - 11) Check that incompatible and reactive wastes are segregated to prevent adverse reaction in the event of a spill or leak.
 - 12) Check proper aisle space for container inspection and unobstructed access in the event of emergencies.

- 13) Check that communication equipment for emergency instruction and summoning emergency assistance is operable.
- 14) Check that spill control materials are available.
- 15) Check operability of safety shower and eyewash, if applicable (for portable eyewashes and showers that cannot be tested without discharging all of the contents, the operator shall ensure that the equipment is charged and the seal has not been broken).
- 16) Check that the contingency plan is current, posted, and has been provided to fire, occupational health, and security organizations.
- 17) Record the number of hazardous waste containers at the site.
- 18) Inspect facility containment for cracks or damage, signs of leakage, standing water, or debris.
- 19) Inspect facility grounding points and drum grounding connections.
 - i. Personnel with waste management responsibilities at 90-day hazardous waste storage areas shall complete classroom and on-the-job training as required by [40 CFR 260-279](#), and as needed to properly manage hazardous waste at KSC.
 - 1) New employees to 90-day hazardous waste storage area management shall complete the training within the first three months.
 - 2) Existing employees managing 90-day hazardous waste storage areas shall complete annual refresher training.
 - j. 90-day hazardous waste storage areas shall have a posted contingency plan, which meets the requirements of [40 CFR 260-279](#) and describes actions to be taken by facility personnel in response to evacuations, fires, explosions, or releases of hazardous wastes.
 - k. Contingency plans shall include the following:
 - 1) Emergency incident requirements in [KNPD 8710.1](#) (KSC Emergency Preparedness Program Policy) and [KDP-KSC-P-3008](#) (Hazardous Materials Response).
 - 2) Appropriate emergency phone numbers.
 - 3) The name and phone number of a primary and alternate site contact who are personally familiar with stored wastes and their characteristics.
 - 4) All emergency equipment (fire control equipment, spill control equipment, communication and alarm systems, and decontamination equipment) including a description of each item's capabilities.
 - (i) Emergency equipment shall be reviewed with KSC Protective Services whenever the facility changes in its design, construction, operation, maintenance, or other circumstance in a way that materially increases the potential for fires, explosions, or releases of hazardous waste.
 - (ii) Any associated changes to the list of emergency equipment, or changes to the list of site contacts shall be posted at the site.

5) An evacuation plan describing signals for area personnel to begin evacuation, evacuation routes, alternative evacuation routes, and marshaling areas. Where applicable, excerpts from emergency action plans developed under [KNPR 8715.3](#) (KSC Safety Practices Procedural Requirements) shall be used for this purpose.

I. Organizations and contractors shall maintain the following records for all 90-day hazardous waste storage areas:

- 1) Weekly inspection forms (for at least the past 3 years) with the date and time of the inspection, the name of the inspector, deficiencies identified, and actions taken to correct deficiencies.
- 2) Personnel training records (for at least the past 3 years) that show:
 - (i) Job titles and names of employees filling each job.
 - (ii) Description for each job title that includes hazardous waste management duties.
 - (iii) Description and dates of initial and refresher training.
- 3) Waste evaluation records (for at least the past 3 years) including PWQs, TRPs, chemical analyses, MSDS, or other information used as a basis for waste characterization.

13.4.3 The following requirements apply to SAAs:

- a. SAAs shall be established at or near the point of generation where small quantities of hazardous waste are generated.
- b. SAA containers shall be under the control of the worker generating the hazardous waste, be within visual sight of the worker, and be located no more than 50 feet from the process generating the waste.
- c. Hazardous waste containers shall be marked with the words "HAZARDOUS WASTE" or other words that identify the contents of the containers.
 - 1) Additional descriptive words, labels, or markings may be placed upon the container during storage at a SAA, as long as they are removed prior to pickup by the KSC Waste Management Office.
 - 2) Organizations and contractors shall place a hazardous waste label [KSC Form WM8P](#) on containers transferred to 90-day hazardous waste storage area or picked up by the KSC Waste Management Office.
 - 3) Organizations and contractors shall place other labels and markings as indicated on the TRP (i.e. Proper Shipping Name, EPA waste codes, DOT hazard labels, and waste process code) on the container when picked up by the KSC Waste Management Office.
- d. Volume limits:
 - 1) No more than 1 quart of an acutely hazardous waste stream shall be stored at an SAA.
 - 2) No more than 55 gallons of a non-acutely hazardous waste stream shall be stored at an SAA.

e. Removing hazardous waste from a SAA:

1) If the accumulation volume limit (55 gallons for a non-acutely hazardous waste or 1 quart for an acutely hazardous waste) of a waste stream is reached at a SAA, the organization or contractor shall transfer the container to either a 90-day hazardous waste storage area within 72 hours or have it picked up by the KSC Waste Management Office within 72 hours.

2) If the accumulation volume limit has been reached, the organization or contractor shall use the date when the accumulation volume limit was reached as the ASD.

3) If the accumulation volume limit has not been reached but there is a need to dispose of the waste, organizations and contractors can transfer the waste containers at any time to a 90-day hazardous waste storage area or request pickup by the KSC Waste Management Office.

4) If the accumulation volume limit has not been reached, the organization or contractor shall use the date the container was removed from the SAA as the ASD.

f. Organizations and contractors shall keep waste evaluation records (including PWQs, TRPs, chemical analyses, MSDS, or other information used as a basis for the waste characterization) for waste managed at SAAs for at least 3 years.

g. While RCRA regulations do not require formal training of personnel who manage hazardous waste in SAAs, organizations and contractors shall ensure that personnel that generate hazardous waste at SAAs are aware of hazardous wastes they create and are adequately trained in hazardous waste management requirements.

13.5 Hazardous Waste Container Requirements

13.5.1 Waste generators accumulating hazardous wastes shall comply with the packaging requirements identified in the TRP for that waste stream.

13.5.2 New, unused, or reconditioned containers shall be used for the accumulation of hazardous waste. Stainless steel drums used only for accumulation and storage of fuel and oxidizer wastes may be reused for the same commodity without rinsing or reconditioning.

13.5.3 Containers shall meet United Nations (UN) specification performance-oriented packaging standards unless otherwise authorized in [49 CFR 173](#). The appropriate standards, including special permits or exemptions, are included in the TRP. TRP packaging requirements are based upon chemical compatibility, ease of handling, and minimizing the risk of leaks and spills. Exceptions to TRP packaging references may be allowed by KSC Waste Management Office on a case-by-case basis.

13.5.4 Bulging drums may represent a potential for fire, explosion, or release of toxic gases. Once a bulging drum is discovered, the individual should leave the area immediately and contact 911 to report the emergency and the condition of the drum.

13.5.5 Containers shall be kept in good condition and free of rust and corrosion. If a container becomes deteriorated, the container must be placed into an overpack drum or the waste transferred to a new container.

13.5.6 Containers shall be properly labeled and marked according to regulatory requirements and the information given in the TRP.

13.5.7 Temporary or incorrect labels (such as "Empty" or "HWDIP") shall be removed when the known status of the container or waste changes (e.g., adding waste to the drum or upon receipt of the TRP or the laboratory analysis).

13.5.8 The following are examples of incorrect labeling:

- a. Striking-out or writing-over any information or entries on hazardous waste labels such as the ASD, EPA waste codes, or DOT proper shipping name.
- b. Covering a pre-existing label with a new label. If a label is changed, the existing label shall be removed first.
- c. Adding labels or information that conflicts with the labels required by the TRP.
- d. Labels placed anywhere other than the upper third of the container or drum.
- e. Hazard class labels placed farther than six inches away from the hazardous waste label.

13.5.9 Containers storing hazardous waste shall be closed at all times except during the addition, removal, or transfer of waste.

13.5.9.1 Funnels and closures (e.g., bungs and lids) shall be considered closed if installed hand tight so that the gasket contacts the seat and no waste spills or leaks if the container is tipped.

13.5.9.2 Visual inspections shall be performed for holes, gaps, or open spaces that may allow volatile emissions to escape to the atmosphere.

13.5.9.3 Containers may be equipped with safety relief valves that open periodically to relieve excess pressure.

13.5.9.4 Closures shall be secured in accordance with the container manufacturer instructions prior to pickup for disposal.

13.5.10 Organizations and contractors shall not fill waste containers to 100 percent capacity and must allow adequate headspace for expansion to prevent seepage or container bulging.

13.5.11 Organizations and contractors shall comply with TRP requirements regarding container filling maximums for safe transportation and easy handling.

13.5.12 Empty containers located in SAAs and 90-day hazardous waste storage areas shall display an "EMPTY" label.

13.5.12.1 "EMPTY" labels shall be placed on the upper third of the container and be plainly visible when the container is stored.

13.5.12.2 Pallets or large numbers of empty containers can be labeled as "EMPTY" as a group if they are secured together.

13.5.12.3 Empty containers of hypergol oxidizer or fuel rinsate waste, which are returned to the generator for reuse, shall have "EMPTY" labels placed over the bung.

13.6 Hazardous Waste Storage Tanks

13.6.1 Organizations and contractors who operate hazardous waste storage tank systems shall comply with the regulations in [40 CFR 265, Subpart J](#).

13.6.2 Hazardous waste accumulated in tanks shall be transferred to a vendor tanker truck or appropriate containers by the KSC Waste Management Office for disposal.

13.6.3 Organizations and contractors shall notify the NASA EAB prior to any installations, repairs, or modifications to hazardous waste tank systems.

13.6.3.1 Organizations and contractors shall perform leak tests on secondary containment repairs or modifications and attest to the integrity of the secondary containment.

13.6.3.2 Organizations and contractors storing hazardous waste in a new, repaired, or modified tank system shall obtain a written certification by an independent, registered P.E. prior to placing the system into service. The assessment must attest to the tank and secondary containment structural integrity and acceptability for storing or treating hazardous waste.

13.6.3.4 Tanks accumulating hazardous wastes shall be equipped with a secondary containment system meeting the requirements in [40 CFR 265.193](#).

13.6.3.5 Organizations and contractors shall inspect hazardous waste storage tanks at least once each operating day according to the requirements in [40 CFR 265.195](#).

13.6.3.6 The following controls shall be used to minimize the release of volatile organic emissions according to [40 CFR 265](#), Subpart CC, for those waste streams containing greater than 500 parts per million (PPM) Volatile Organic Constituents. These controls meet requirements for level one tank controls as found in Subpart CC:

- a. Tank shall be equipped with a fixed roof tank (not a floating roof).
- b. Each opening in the fixed roof shall be equipped with a closure device or vented by a closed vent system to a control device.
- c. A pressure-vacuum relief valve may be used to maintain internal pressure within tank specifications and to avoid an unsafe condition. The valve may be vented to the atmosphere but shall remain in the closed position when not venting.
- d. The maximum organic vapor pressure shall be determined for the hazardous waste being accumulated to ensure that the pressure does not exceed the limits specified for tank control level one.
- e. Tank defect repairs subject to Subpart CC shall be started within 5 days of the discovery of the defect and completed within 45 days of discovery.
- f. Hazardous waste transfers from one tank to another tank shall be performed in a closed system. However, transfer from a tank to a container of 119 gallons or less need not be performed in a closed system.

13.7 Waste Pickup

13.7.1 Organizations and contractors shall submit a support request to the KSC Waste Management Office for pickup of hazardous and controlled waste from their facilities.

13.7.2 The KSC Waste Management Office shall pick up hazardous and controlled waste from organizations and contractors.

13.7.2.1 The KSC Waste Management Office shall coordinate a pick up date and time with the organization or contractor, prepare the internal KSC waste manifest, and bring the internal KSC waste manifest to the pickup appointment.

13.7.2.2 The KSC Waste Management Office shall verify that the waste to be picked up meets all TRP packaging and labeling requirements.

13.7.2.3 The waste generating organization or contractor shall review the internal KSC waste manifest, verify the waste to be picked up is correctly identified on the manifest, and sign the internal KSC waste manifest as the generator.

13.7.2.4 The KSC Waste Management Office shall arrange for a vendor to pick up and transport the waste directly off-Center, or pick up and transport the waste to the Treatment, Storage, and Disposal Facility (TSDF), CCAFS Trident Pretreatment plant, or other appropriate storage location.

13.8 Waste Aerosol Can Requirements

13.8.1 General Requirements:

- a. All empty, spent, broken, unusable, or unwanted aerosol cans are considered "waste aerosol cans" and must be properly collected, stored, labeled, and disposed of through the KSC Waste Management Office.
- b. The KSC Waste Management Office crushes and recycles most empty and defective aerosol cans generated at KSC as part of the KSC Waste Minimization Program. Some aerosol can products (such as inorganic zinc (IOZ) primer, pepper spray, and foam insulation) cannot be crushed and recycled and must be managed and disposed separately.
- c. Waste aerosol cans shall undergo the same waste characterization and evaluation process identified in this Chapter 13.2.
- d. Prior to the accumulation of waste aerosol cans, all generators shall submit a PWQ (that identify specific products) to KSC Waste Management office for each location.
- e. Generators shall store, label, and manage waste aerosol cans according to TRP instructions and the requirements in this KNPR.
- f. All waste aerosol can accumulation containers shall be marked with the words "Waste Aerosol Cans Only". [KSC Form 28-1019](#) and [KSC Form 28-1020](#) are available to generators to help meet this requirement.
- g. Waste aerosol cans shall only be stored in three locations: (1) 90-Day Hazardous Waste Accumulation Site, (2) Hazardous Waste SAA's, or (3) a flammable storage cabinet or locker. Storage and management requirements for these three locations are described below.

13.8.2 90-Day Hazardous Waste Accumulation Site Requirements for Waste Aerosol Cans.

- a. Accumulate waste aerosol cans in accordance with all 90-day hazardous waste accumulation site storage requirements per this KNPR chapter.
- b. Waste aerosol cans shall be accumulated in metal containers described in the TRP.
- c. When the first aerosol can is placed into the accumulation container, the date shall be recorded on [KSC Form WM8P](#) in the ASD block.
- d. Generators shall request a waste pickup by KSC waste management no later than 60 days after the ASD so that the aerosol cans may be picked up and punctured within 90 days after the ASD.

13.8.3 Hazardous Waste SAA Requirements for Waste Aerosol Cans.

- a. Waste aerosol cans shall be accumulated in metal containers.
- b. Accumulate waste aerosol cans in accordance with all SAA hazardous waste site storage requirements per this KNPR chapter.
- c. No more than 55 gallons of waste aerosol cans may be accumulated at a SAA.
- d. Small quantities of waste aerosol cans generated in the field may be brought back to a SAA only if waste aerosol cans are the only hazardous waste stream generated by that shop. Otherwise, the aerosol cans must be taken to and managed in a 90-day hazardous waste storage site.
- e. There are three options for removing waste aerosol cans from a SAA:
 - 1) Request a waste pickup by KSC waste management and label or containerize the waste aerosol cans according to the directions on the TRP.
 - 2) Transfer the waste aerosol cans to a 90-day hazardous waste accumulation site.
 - (i) If the waste aerosol accumulation container is transferred to the 90-day hazardous waste accumulation site, the container shall be marked with a hazardous waste label ([KSC Form WM8P](#)).
 - (ii) The date of the transfer shall be written on [KSC Form WM8P](#) in the ASD block.
 - (iii) The transferred waste aerosol can accumulation container shall be managed according to Chapter 13.4.2.
 - (iv) If the waste aerosol cans are transferred into a new or existing container at the 90-day hazardous waste accumulation site, the receiving container shall follow all requirements listed in Chapter 13.4.2.
 - 3) For small quantities of aerosol cans, the generator may transport aerosol cans to the "Drop Your Chemicals Off Here" (DYCOH) location (Building K7-115) during designated days and times. The requirements for this procedure can be found in MESC document [EVS-P-0001](#), Spaceport Waste Services Guidance Manual.

13.8.4 Flammable Storage Cabinet and Locker Requirements for Waste Aerosol Cans.

- a. In areas where the waste aerosol can generation rate is low and waste aerosol cans are the only hazardous waste stream generated in that area, a flammable storage cabinet or locker may be used to store waste aerosol cans. Otherwise, waste aerosol cans shall be stored in a 90-day hazardous waste accumulation site or SAA.
- b. Small quantities of waste aerosol cans generated in the field may be brought back to a flammable storage cabinet or locker only if waste aerosol cans are the only hazardous waste stream generated by that shop. Otherwise, the aerosol cans shall be taken to and managed in a 90-day hazardous waste storage site.

NOTE: This requirement is applicable to waste aerosol cans only and not other waste generated in the field

- c. Waste aerosol cans shall be stored in a labeled metal tote, labeled metal container, or labeled shelf in a flammable storage cabinet or locker, and segregated from other materials.
- d. Containers, totes, or shelves shall be marked as described in Chapter 13.8.1.
- e. There are three options for removing waste aerosol cans from a flammable storage cabinet or locker:
 - 1) Request a waste pickup by KSC waste management and containerize and label the waste aerosol cans according to the directions on the TRP.
 - 2) Transfer the waste aerosol cans to a 90-day hazardous waste accumulation site. If the waste aerosol accumulation container from the flammable storage cabinet or locker is transferred to the 90-day hazardous waste accumulation site, the container shall be marked with a hazardous waste label ([KSC Form WM8P](#)). The date of the transfer must be written on [KSC Form WM8P](#) in the ASD block.
 - 3) The transferred waste aerosol can accumulation container shall be managed according to Chapter 13.4.2.
 - 4) For small quantities of aerosol cans, the generator may transport aerosol cans to the DYCOH location (Building K7-115) during designated days and times. The requirements for this procedure can be found in MESC document [EVS-P-0001](#), Spaceport Waste Services Guidance Manual.

13.8.5 Managing Waste from the Hydraulic Aerosol Can Puncture and Crusher Machine.

13.8.5.1 KSC waste management operates an aerosol can puncture and crushing machine at a 90-day hazardous waste accumulation site (K7-115) to process waste aerosol cans from across KSC.

13.8.5.2 Liquid residue waste from the aerosol can puncture and crushing machine shall be managed in a new 90-Day accumulation container. The residue container must be managed in accordance with all 90-Day hazardous waste accumulation site storage and labeling requirements per Chapter 13.4.2.

13.9 Controlled Waste Management

13.9.1 Controlled wastes include, but are not limited to:

- a. Contaminated soils or debris.
- b. Non-hazardous industrial wastewaters.
- c. Non-hazardous used oil and oil filters.
- d. Asbestos-containing material.
- e. PCBs and PCB items.
- f. Other non-hazardous waste where the release of the waste to the environment (either on KSC or off-Center) could result in an exposure, risk, liability, or cleanup.

13.9.2 Organizations and contractors shall properly containerize, store, manage, and dispose of all controlled wastes through the KSC Waste Management Office.

13.9.3 Organizations and contractors shall submit PWQs for potential controlled wastes to the KSC Waste Management Office for evaluation.

13.9.4 Organizations and contractors shall package and label controlled wastes according to TRP instructions and submit support requests to the KSC Waste Management Office for waste pickup.

13.9.5 Organizations and contractors shall use BMPs when storing and managing controlled waste to ensure timely disposal, prevent improper disposal, and minimize releases to the environment.

13.10 Petroleum Contact Water

13.10.1 Petroleum Contact Water (PCW) is wastewater containing a recoverable petroleum product that is not otherwise managed under the used oil regulations. PCW is managed according to regulations established in [FAC 62-740.030](#). Aboveground PCW storage tanks of greater than 550-gallons and underground PCW storage tanks of greater than 110-gallons shall be registered with the FDEP.

13.10.2 In addition to requirements found in the TRP, organizations and contractors shall comply with the following PCW standards:

- a. Label or mark the container or tank with the words "Petroleum Contact Water".
- b. Mark the PCW storage container or tank with the date the PCW accumulation first begins.
- c. Keep the container or tank closed at all times and stored in a safe manner.
- d. Inspect the tank or container weekly for leaks or deterioration and maintain the associated records for 3 years.
- e. Store PCW for no more than 180 days and document compliance by maintaining inventory records, annotating the ASD on the Petroleum Contact Water label ([KSC Form 26-541](#)), and keeping records for at least 3 years.

13.11 Universal Waste (UW)

13.11.1 UW regulations were established by the EPA and the FDEP to ease the

requirements for managing hazardous wastes that can be recycled. Items, which meet the definition of UW, can be collected and managed under requirements found in [40 CFR 273](#), [FAC 62-730](#), and [FAC 62-737](#).

13.11.1.1 The FDEP has adopted the [40 CFR 273](#) provisions of the UW rule under [FAC 62-730.185](#). EPA has authorized the state of Florida to develop guidance and requirements for additional waste streams that may be incorporated to the existing UW management handling standards.

13.11.1.2 Florida UW currently includes most rechargeable batteries; pesticides that are recalled or collected under a pesticide waste collection program; mercury-containing thermostats and devices such as manometers and switches; mercury-containing lamps such as fluorescent lamps; and pharmaceuticals. Pharmaceutical waste management requirements are specifically addressed in Chapter 13.12.

13.11.2 UW generators are called handlers and shall comply with the following requirements:

- a. Handlers shall identify UW using the PWQ and TRP process and request pickup and disposal of UW as a controlled waste by the KSC Waste Management Office.
- b. Handlers shall manage UW in a way that prevents releases to the environment. Non-leaking containers in good condition must be used if the UW is damaged or leaking. Containers must be kept closed except when necessary to add or remove UW.
- c. Handlers shall use the KSC UW label ([KSC Form UW05](#)), mark UW accumulation containers in accordance with PWQ and TRP instructions, and may not accumulate UW for more than 6 months. This accumulation time limit allows the KSC waste management to consolidate and arrange for a recycling contractor to pick up the materials in conformance with UW storage restrictions.
- d. Handlers shall clearly mark the ASD (the date when the first item was placed into the container) on the UW label.
- e. Wastes created from the cleanup of spilled or leaked UW item shall be managed under the waste identification process.
 - 1) All handlers shall respond appropriately to releases.
 - 2) Handlers shall determine if the residues resulting from releases are hazardous waste.
 - 3) If they are hazardous waste, handlers shall manage them under the full hazardous waste regulations as instructed in the TRP. Any release not cleaned up constitutes illegal disposal of hazardous waste and may lead to RCRA enforcement actions.
 - 4) The handler shall comply with the pollution incident notification requirements according to Chapter 4 of this KNPR.
- f. UW handlers shall complete training to ensure they are familiar with proper waste handling and emergency procedures and retain records for inspection.

13.12 Universal Pharmaceutical Waste (UPW)

13.12.1 In April 2007, the FDEP finalized the UPW rule ([FAC 62-730.186](#)) to provide regulatory relief to facilities that generate, store, transport, and dispose of hazardous waste

pharmaceuticals. This rule does not apply to pharmaceuticals that are not classified as a hazardous waste under RCRA regulations.

13.12.2 There are no Federal regulations regarding UPW. Therefore this rule is only applicable to the storage, transportation, and disposal of UPW within the State of Florida. The EPA is currently developing a Federal UPW rule.

13.12.3 Under [FAC 62-730.186](#), a “pharmaceutical” is defined as a manufactured chemical product that is intended to be inhaled, ingested, injected, or topically applied for use in the diagnosis, cure, mitigation, treatment, therapy, or prevention of disease or injury in humans or other animals.

13.12.4 Key benefits of the UPW rule include:

- a. Generators can store UPW on site for up to 6 months.
- b. UPW does not have to be stored in a hazardous waste SAA or 90-day hazardous waste storage area.
- c. Intrastate (within the state of Florida) shipments of UPW do not require a uniform hazardous waste manifest.
- d. UPW does not count against a facility’s hazardous waste generator status (conditionally exempt small quantity generator, small quantity generator, or large quantity generator).

13.12.5 Organizations and contractors that generate pharmaceutical waste shall:

13.12.5.1 Dispose of all pharmaceutical waste through the KSC Waste Management Office.

13.12.5.2 Submit PWQs for pharmaceutical waste to the KSC Waste Management Office to determine whether the waste is a non-hazardous waste pharmaceutical or a hazardous waste pharmaceutical. Pharmaceutical waste includes medical waste items that contain unused, leftover, or residual pharmaceuticals (such as used syringes).

13.12.5.3 Manage hazardous waste pharmaceuticals as UPW according to the requirements in [FAC 62-730.186](#), the requirements in this KNPR, and TRP instructions.

13.12.5.4 Ensure that all employees handling UPW or managing UPW storage sites have received classroom or on-the-job training in UPW requirements.

13.12.5.5 Notify the NASA EAB whenever UPW storage locations are established, moved, or discontinued.

13.12.5.6 Containerize and label UPW according to TRP instructions.

- a. UPW containers shall have the words “universal pharmaceutical waste” or “universal waste pharmaceuticals” written on the container.
- b. UPW containers shall have the applicable hazardous waste codes (described on the TRP) written on the container.
- c. UPW containers shall have an ASD (the date in which the first waste item was placed into the container) written on the container.

13.12.5.7 Submit a waste pick up support request to the KSC Waste Management Office no later than 5 months after the ASD to ensure that the UPW waste container is picked-up before the 6 month regulatory limit.

13.12.5.8 Manage UPW in a way that prevents releases to the environment.

13.12.5.9 Ensure that UPW storage containers are in good condition.

13.12.5.10 Not mix UPW with biomedical waste or place in sharps containers.

13.12.5.11 Immediately report spills and releases of UPW according to requirements in Chapter 4 of this KNPR.

13.12.5.12 Manage wastes from the cleanup of spilled UPW as RCRA hazardous waste (no longer UPW).

13.12.6 The KSC Waste Management Office shall manage and dispose of UPW as RCRA hazardous waste once it is picked up from organizations and contractors.

13.13 Asbestos Waste

13.13.1 Handling asbestos-containing material for disposal requires specialized training and adherence to specific procedures as directed by [29 CFR 1910.1001](#) and [29 CFR 1926.1101](#).

13.13.1.1 The removal of asbestos-containing insulation or pulverizing of asbestos-containing floor tiles can cause asbestos fibers to become airborne resulting in serious health risks. Before attempting to remove or handle any suspected asbestos-containing materials, the waste generator or waste generating organization shall contact MESC Environmental Health at 321-867-2400 for guidance.

13.13.1.2 The Asbestos Management Information System contains detailed facility asbestos survey data and can be accessed from the MESC internet home page. The waste generator shall refer to Chapter 6.5 of this KNPR for the procedures and notification required for asbestos abatement and removal projects.

13.13.2 The following procedures shall be used for the containerization and management of asbestos-containing waste material from miscellaneous sources:

- a. Friable asbestos-containing waste material shall be wetted and placed in leak-tight, double wrapping before placement in a container such as a 55-gallon steel drum or roll off.
- b. Non-friable asbestos-containing waste material, such as floor tiles, may be placed directly into a waste container such as a 55-gallon steel drum or roll off. Certain non-friable asbestos-containing waste materials can release airborne asbestos fibers if the material becomes brittle or is exposed to extreme situations such as demolition or mechanical pulverization. In these cases, non-friable asbestos-containing waste material shall be wetted and double wrapped before placement in containers.
- c. Personal Protective Equipment (PPE) and other equipment used in the handling and removal of asbestos shall also be managed as asbestos-containing waste material if not decontaminated.
- d. Occupational Safety and Health Administration (OSHA) regulations require an asbestos warning label ([KSC Form 28-366](#)) on all containers.

- e. Waste containers storing asbestos-containing material shall be managed in a secure area, such as a 90-day hazardous waste storage area, as a BMP.
- f. Asbestos waste shipment records shall be maintained by the waste generator for at least 2 years.

13.14 Used Oil

13.14.1 Any lubricant that has been refined from crude oil (or synthetic oil) that has been "used," and as a result of such use is contaminated by physical or chemical impurities is classified as used oil. Used oil is managed according to regulations established in [40 CFR 279](#) and [FAC 62-710](#). The following waste generator standards apply to the management of used oil:

- a. Used oil containers, tanks, and associated piping shall be marked "Used Oil". ([KSC Form SLUO](#)).
- b. Used oil containers, tanks, and associated piping shall be in good condition with no severe rusting, structural defects, deterioration, or leaks.
- c. Containers storing used oil shall be kept in secondary containment of sufficient size to contain the entire capacity of the largest single container plus sufficient freeboard to contain precipitation, where necessary. Reference the KSC SPCC ([KSC-PLN-1919](#)), Section 4.3, for specific instructions on used oil container management and secondary containment requirements.
- d. Containers storing used oil shall be compatible with their contents.
- e. Aboveground used oil storage tanks of greater than 550 gallons and underground used oil storage tanks of greater than 110 gallons shall be registered with the FDEP.
- f. Used oil waste generators shall refer to Chapter 17 of this KNPR for used oil tank registration requirements.
- g. If a used oil spill occurs, the waste generator shall immediately call 911 and report the release per the requirements in Chapter 4 of this KNPR. The generator may attempt to stop the release, contain the released oil, and clean up the spill, only if these actions do not pose a health and safety risk to the individual.

13.15 Used Oil Filters

13.15.1 Used oil filters are collected and managed as controlled wastes before recycling according to regulations established in [FAC 62-710.850](#). The following procedures shall be used for the management of used oil filters:

- a. Only non-tern plated filters shall be managed according to these guidelines. Tern plated filters contain a lead and tin alloy that may be required to be managed as a hazardous waste.
- b. Used oil filters shall be hot-drained of residual oil. The oil must be collected and managed as a controlled waste.
- c. Used oil filters shall be crushed, if possible, to reduce volume.

- d. Containers storing used oil filters shall be sealed or otherwise protected from the weather and stored on an oil-impermeable surface such as polyethylene sheeting, rigid plastic secondary containment, or epoxy-coated concrete.
- e. Containers shall be labeled "Used Oil Filters".

13.16 Orangeburg Material Requirements

13.16.1 Orangeburg material, which is a combination of coal tar and creosote, has been found in underground ductwork at KSC. The material has been sampled and found to contain semi-volatile organic compounds in concentrations that may pose health concerns and that are regulated by state and federal environmental agencies.

13.16.2 The primary hazard posed by this material is the debris that is created through cleaning or upgrading work in ducts containing Orangeburg material. This debris contaminates water in the manholes, creates worker safety concerns, and is subject to state and Federal regulations. Personnel shall minimize disturbance of this material to prevent any accumulation of debris in manholes or conduits.

13.16.3 All project managers whose work involves potential contact with Orangeburg ductwork material or debris shall ensure that appropriate PPE is identified and used. In general, PPE for this type of work includes chemical eye goggles, butyl rubber gloves, and full body impermeable clothing such as Tyvek or similar material.

13.16.4 Proper field sanitation shall be available in the form of washing and sanitation facilities in case of contact with the material.

13.16.5 When working at any KSC site with Orangeburg material present personnel shall:

- a. Take action prior to disturbing the Orangeburg material to prevent any accumulation of solid debris at the worksite (e.g., ground cover for cleanout equipment, a capture mechanism in the manhole). Any solid material that is accumulated from this or any similar activities shall be containerized and disposed of per this KNPR.
- b. Clean out visible solid debris that has accumulated in manholes or conduits known to contain Orangeburg material. Dewatering effluent that has come into contact with Orangeburg debris shall be containerized and disposed of per KSC waste management's PWQ and TRP instructions. A filter mechanism on the discharge line would help capture any debris associated with duct cleanout.
- c. Any solid material accumulated during the cleanout shall be containerized and disposed of per this KNPR.
- d. A project manager or construction inspector shall visually inspect and conclude that no solid Orangeburg debris is in the manhole before discharging dewatering effluent to grade. For work at sites where Orangeburg material has not been disturbed and there is no visible Orangeburg debris, dewatering effluent may be discharged to grade.

13.17 Paint and Coating Waste Management

13.17.1 Various paints and coatings are used across KSC for corrosion control, surface protection, safety, aesthetics, etc. Many different waste streams and waste materials are generated from paint and coating removal and application activities. Chemicals present in paints, coatings, thinners, additives, blast media, stripping solvents, and cleaning solvents

may require certain paint and coating related waste streams to be managed as hazardous or controlled wastes. Materials that would not normally be considered a hazardous or controlled waste may become a hazardous or controlled waste when they come into contact with certain paints, coatings, thinners, additives, blast media, stripping solvents, and cleaning solvents.

13.17.2 Paint and coating related waste materials including, but not limited to, those listed below may be a hazardous or controlled waste. These materials shall be evaluated to ensure proper management and disposal.

- a. Unused or leftover paints, coatings, stains, thinners, additives (stabilizers, binders, dryers, thickeners, preservatives, etc.), stripping solvents, cleaning solvents, etc.
- b. Spent cleaning solvents.
- c. Paint and coating chips and dust.
- d. Spent blast media with paint and coating chips and dust.
- e. Paint and coating stripping wastes.
- f. Miscellaneous materials such as rags, brushes, rollers, stirring sticks, liners, PPE, masking, tape, and other waste materials that have contacted paints, coatings, solvents, thinners, etc.
- g. Sludge from paint thinner or cleaning solvent distillation.
- h. Spray booth filters.
- i. Aerosol and spray paint cans

NOTE: Aerosol cans are to be managed according to the requirements in Chapter 13.8.

- j. Decontamination water and equipment wash water.

13.17.3 Prior to generating any paint and coating related waste streams, the generator shall submit a PWQ to the KSC Waste Management Office for each waste stream.

13.17.4 The KSC Waste Management Office shall determine if a waste stream is a hazardous or controlled waste and issue a TRP that lists storage and labeling instructions. Waste sampling may also be required to determine if a waste stream is a hazardous or controlled waste.

13.17.5 Open air drying or evaporation of unused or leftover paints and coatings is prohibited at KSC, as these materials may also be considered hazardous and controlled waste.

13.17.6 Open air drying or evaporation of other paint and coating related wastes may be a regulatory violation and is strictly prohibited at KSC unless approved by the KSC Waste Management Office through a TRP. All hazardous and controlled wastes shall be stored in closed containers. Waste containers must be kept closed unless waste is being added to the container.

13.17.7 Empty Container Definition and Disposal Requirements

13.17.7.1 Empty paint, coating, thinner, cleaning solvent, and other product containers shall meet certain criteria before they can be considered "empty" and disposed of as regular trash or recycled. Improper management and disposal of spent product containers can lead to possible regulatory violations and improper hazardous and controlled waste disposal.

13.17.7.2 At KSC, a container is considered "empty" when:

a. All contents have been removed that can be removed using the practices commonly employed to remove materials from that type of container (pouring, pumping, scraping, etc.).

1) For containers that held a material that can be readily poured, all material must be removed by any practicable means (including draining, pouring, pumping, or aspirating) before the container can be considered empty. A container is empty when there is no longer a continuous stream of material coming from the opening when the container is held in any orientation.

2) For containers that previously held material that is non-pourable, no material shall remain in the container that can feasibly be removed by physical methods, including scraping and chipping, but not rinsing. This standard applies to materials that pour slowly or don't pour at all from the container, including, but not limited to, viscous materials, solids which have "caked up" inside the container, and non-pourable sludges.

3) Any materials removed to empty a container must either be used for their intended purpose or managed as a waste material per this Chapter.

b. No more than 1 inch of material or no more than 3 percent by weight of the total capacity of the container remains in the container.

13.17.7.3 Containers that do not meet the "empty" criteria and definition described in 13.17.7.2 cannot be disposed of as regular trash or recycled. Those containers and their contents may be considered a hazardous or controlled waste and shall be properly managed and disposed according to the requirements of this chapter.

13.17.7.4 Once a container meets the "empty" criteria and definition described in 13.17.7.2, residual material left inside the container shall be air-dried or cured in the container prior to container disposal. After the residual materials are dried or cured, the container can be disposed as regular trash or recycled.

13.17.8 IOZ Paint Waste Management Requirements

13.17.8.1 Background

a. IOZ paints and coatings are used at various facilities across KSC for corrosion control. Due to the unique nature of this material, a separate waste management requirement has been developed to meet hazardous waste requirements and mitigate safety concerns.

b. When placed in a sealed container, IOZ paint can produce hydrogen gas and other gases from chemical reactions that occur during the curing process. The gas production builds pressure in the container and can cause the container to bulge or rupture, thus creating a safety hazard to personnel.

c. Due to its constituents, unused and leftover IOZ paints or coatings are a hazardous waste and shall be properly managed according to hazardous waste regulations. It is a regulatory violation to allow unused or leftover IOZ paint to open air dry at KSC.

13.17.8.2 Requirements

- a. Users of IOZ paint shall physically separate IOZ paint related waste streams from other waste streams at the job site or shop.
- b. Users of IOZ paint shall segregate and manage IOZ paint related waste streams according to the three categories (and respective requirements) below.
- c. Prior to generating waste, users of IOZ paint shall submit PWQs to the KSC Waste Management Office.
- d. The KSC Waste Management Office shall issue a TRP that lists acceptable storage container types and provides specific marking and labeling instructions.
 - 1) Category 1: Leftover or Unusable IOZ Paint.
 - (i) Leftover or unusable IOZ paint shall be stored in the original product containers supplied by the manufacturer with a loosely secured lid.
 - (ii) The original product containers shall be placed into a larger closed drum or container that meets hazardous waste storage requirements and prevents any possible release to the environment. To avoid potential safety hazards, a five pound-per-square-inch (psi) pressure relief vent must be installed on the larger closed drum or container.
 - (iii) Original product containers of leftover or unusable IOZ paint are to be picked up daily by the KSC Waste Management Office. Waste generators are responsible for coordinating with and notifying the KSC Waste Management Office about IOZ painting operations, working days, and waste pickups.
 - (iv) No cleaning solvents shall be placed into any leftover or unusable IOZ paint containers.
 - 2) Category 2: Spent Cleaning Solvents.
 - (i) Spent cleaning solvents that have contacted IOZ paint shall be stored in appropriate containers according to TRP instructions. To avoid potential safety hazards, a five-pound-psi pressure relief vent must be installed on these spent cleaning solvent containers.
 - (ii) Waste generators are responsible for requesting pickup from the KSC Waste Management Office when the container is full or work is completed.
 - 3) Category 3: Solids from IOZ Mixing and Painting Operations.
 - (i) Solids include rags, brushes, rollers, empty cans, empty buckets, liners, stirring sticks, PPE, masking paper or tape, or other waste solid materials that have contacted IOZ paint.
 - (ii) Solids that have contacted IOZ paint shall be stored in appropriate containers according to TRP instructions. To avoid potential safety hazards, a five-pound psi pressure relief vent must be installed on these solid containers.
 - (iii) Waste generators are responsible for requesting pickup from the KSC Waste Management Office when the container is full or work is completed.
- e. Aerosol cans of IOZ paint are exempt from the requirements of this section and shall be managed according to aerosol can requirements in Chapter 13.8.

13.18 Electronic Equipment Waste (E-waste)

13.18.1 Organizations and contractor shall dispose of intact, non-broken E-waste items through the KSC Property Disposal Office for re-sale or recycling.

13.18.2 Certain E-waste items are considered a hazardous waste when broken or leaking.

13.18.2.1 Organizations and contractors shall consult with the NASA EAB or KSC Waste Management Office regarding the proper management and disposal of broken or leaking E-waste items.

13.18.2.2 The organization or contractor shall containerize the item, submit a PWQ, and dispose of the item through the KSC Waste Management Office.

13.19 Flex Hose Disposal

13.19.1 Flex hoses that have only contacted major atmospheric gasses (such as air, nitrogen, oxygen, helium, argon, etc.) or water shall be managed as a non-regulated waste and be disposed of as regular solid waste or recycled.

13.19.2 Flex hoses that have only contacted oil, hydraulic fluid, diesel fuel, other petroleum products, and have been drained and rinsed so that no residual material remains in the flex hose, shall be managed as a non-regulated waste and be disposed of as regular solid waste or recycled.

13.19.3 Flex hoses with elastomeric components that have contacted ammonia, hypergols, or other hazardous materials shall be managed and disposed of as a hazardous and controlled waste.

13.19.3.1 Organizations and contractors shall drain and triple rinse the flex hoses according to requirements in [40 CFR 261.7](#) and properly dispose of all rinse water.

13.19.3.2 Organizations and contractors shall submit PWQs for the flex hoses, package them according to TRP instructions, and dispose of them through the KSC Waste Management Office.

13.19.4 Flex hoses without elastomeric components that have contacted ammonia, hypergols, or other hazardous materials shall either be:

a. Managed and disposed of as a hazardous and controlled waste.

1) Organizations and contractors shall drain and triple rinse the flex hoses according to requirements in [40 CFR 261.7](#), and properly dispose of all rinse water.

2) Organizations and contractors shall submit PWQs for the flex hoses, package them according to TRP instructions, and dispose of them through the KSC Waste Management Office.

b. Properly decontaminated for recycling or disposal as regular solid waste.

1) Organizations and contractors shall drain and triple rinse the flex hoses according to requirements in [40 CFR 261.7](#), and properly dispose of all rinse water.

2) Organizations and contractors shall perform additional decontamination measures, as necessary, to protect the health and safety of handling personnel, recycling personnel, and end users.

13.20 KSC Treatment, Storage, and Disposal Facility (TSDF)

13.20.1 KSC operates a permitted hazardous waste TSDF under a permit issued by the FDEP. The TSDF permit allows for temporary storage (up to 1 calendar year) of hazardous, controlled, universal, and PCB wastes generated at KSC.

13.20.2 The MESOC contractor shall operate the TSDF and maintain all required records according to all applicable Federal and state regulations, and permit conditions.

13.20.3 The MESOC contractor shall prepare TSDF permit renewal application packages and submit them to the NASA EAB.

13.20.4 The NASA EAB shall sign TSDF permit renewal application packages and submit them to the FDEP.

13.20.5 The MESOC contractor shall prepare all KSC biennial hazardous waste reports and submit to the NASA EAB for review.

13.20.6 The NASA EAB shall sign KSC biennial hazardous waste reports and submit them to the FDEP.

13.21 Compliance Inspections

13.21.1 The NASA EAB shall conduct periodic compliance inspections of waste storage locations, management processes, and records to ensure compliance with regulatory requirements and the requirements of this KNPR.

13.21.2 The NASA EAB shall attend regulatory agency compliance inspections and respond to regulatory agencies regarding potential non-compliance issues or violations.

13.21.3 Organizations and contractors shall attend compliance inspections and provide records to the inspector.

13.21.4 Organizations and contractors shall implement corrective actions to address any non-compliance issues, violations, deficiencies, and findings identified during inspections, and provide corrective action information and status to the NASA EAB when requested.

13.22 Abandoned Waste

13.22.1 Upon discovery of a potentially abandoned waste, the discoverer shall make a reasonable attempt to locate the waste generator by checking with personnel in nearby facilities or examining labels.

13.22.2 If a process waste code is located on waste container, the KSC Waste Management Office may be able to assist in determining the waste generator and location.

13.22.3 If the waste generator cannot be located, the discoverer shall immediately report the waste as a pollution incident per requirements in Chapter 4 of this KNPR.

13.22.4 Due to health and safety concerns, discoverers shall not move waste or open containers to determine contents.

13.22.5 The KSC post-emergency spill cleanup team shall be responsible for completing the PIR form.

CHAPTER 14. LANDFILL

14.1 Background and Regulatory Requirements

14.1.1 KSC has two unlined Class III landfills (one open landfill and one closed landfill) on Schwartz Road east of State Road 3. The landfills are authorized under permits issued by the FDEP. The ISC contractor operates and maintains the open landfill and closed landfill.

14.1.2 [FAC 62-701](#) is the regulation for solid waste management facility construction, operation, closure, and permitting in the state of Florida.

14.1.3 Organizations and contractors shall ensure that only authorized wastes are delivered to the landfill for disposal.

14.2 Authorized Wastes

14.2.1 The following types of waste are authorized for disposal at the KSC Landfill:

- a. Yard Trash - Vegetative matter resulting from landscaping maintenance or land clearing operations, including materials such as tree and shrub trimmings, grass clippings, palm fronds, trees, and tree stumps.
- b. Construction and Demolition Debris - Materials considered to be non-water soluble and non-hazardous in nature, including but not limited to steel, brick, glass, concrete, asphalt, pipe, gypsum wallboard, dry electrical equipment, and lumber. This includes rocks, soils, tree remains, trees, and other vegetative matter which normally results from land clearing or development.
- c. Shredded Waste Tires - "Shredded waste tire" means a tire that is no longer suitable for its originally intended purpose because of wear, damage, or defect, and that has been reduced in size by cutting, grinding, shredding, milling, or rasping.
- d. Non-regulated asbestos containing materials (NRACM) (see additional guidance and requirements in Chapter 14.4).
- e. Carpet and furniture.
- f. Non-pressure treated wood and wood scraps.
- g. Certain PCB bulk product wastes (see additional guidance and requirements below in Chapter 14.5).
- h. Certain Spent Blast Media:
 - 1) In general, spent blast media shall be managed and disposed of as a controlled or hazardous waste according to the procedures and requirements of Chapter 13. On a case-by-case basis, the NASA EAB may approve the disposal of spent blast media in the KSC landfill if it meets certain conditions (e.g., it is non-hazardous waste under RCRA regulations;

an unregulated waste under TSCA regulations; a low risk for leaching and potential future remedial actions).

- 2) Organizations and contractors shall obtain approval by submitting a completed Spent Blast Media Disposal Certification Form ([KSC Form 28-1117](#)) to the NASA EAB.
- 3) Organizations and contractors shall bring a copy of the approved form with each waste load delivery to the landfill.
 - i. Clean soil (used as landfill cover material).
 - j. Other waste materials specifically approved by the FDEP that are not expected to produce leachate, which poses a threat to public health or the environment. Waste generators shall contact the NASA EAB who will request approval from the FDEP.

14.3 Unauthorized Wastes

14.3.1 The following wastes are not authorized for disposal at the KSC Landfill:

- a. Any waste not permitted by FDEP regulations to be disposed of in a Class III landfill as defined in [FAC 62-701](#).
- b. Hazardous wastes as described by RCRA regulations.
- c. Liquid and oily wastes (containerized or non-containerized).
- d. Paint chips, coating chips, paint chips mixed with blast media, and coating chips mixed with blast media unless approved by the NASA EAB.
- e. Putrescible waste and general office trash.
- f. Pressure treated wood (including chromated copper arsenate treated wood).
- g. Liquid PCBs.
- h. Oil-containing or oil-contacted electrical and mechanical equipment (drained or not drained).
- i. RACM.
- j. Biomedical waste.
- k. Lead-acid batteries.
- l. Tires (other than "shredded waste tires").
- m. White goods or appliances.
- n. Small capacitors.
- o. Fluorescent light ballasts.
- p. Drums (empty or full).

- q. Contaminated soil.
- r. Materials that are recycled at KSC such as cardboard, office paper, glass bottles, and plastic bottles.

14.4 Non-Regulated Asbestos Disposal at the KSC Landfill

14.4.1 The KSC Class III landfill only accepts NRACM for disposal. Before disposing of NRACM in the KSC landfill, organizations and contractors must obtain approval by submitting a completed NASA-KSC/Schwartz Road Landfill Non-Friable Asbestos Landfill Disposal Verification Form ([KSC Form 28-1084](#)) to the NASA EAB. RACM shall be disposed off-Center at an appropriate facility (e.g., Brevard County Landfill).

14.4.2 If disposal of the NRACM waste in the KSC Class III landfill is not approved, the generator shall find an appropriate offsite disposal location.

14.4.3 Once written approval from the NASA EAB has been obtained, organizations and contractors shall abide by the following conditions to dispose of the NRACM waste at the KSC landfill:

- a. The waste generator or hauler shall notify and make arrangements with the KSC landfill operator at least 24 hours before the delivery of NRACM waste.
- b. The waste generator or hauler shall provide the quantity of the waste and the scheduled arrival date at the landfill.
- c. The waste generator or hauler shall deliver NRACM waste to the KSC landfill during regular landfill hours, on Monday through Friday, before 1400 hours.
- d. The waste generator or hauler shall ensure that the physical dimensions of the NRACM waste delivered are within the handling capabilities of the landfill disposal equipment (less than 8-foot sections).

14.5 PCB Bulk Product Waste Disposal at the KSC Landfill

14.5.1 There is documented existence of PCBs in various building materials (such as paints, coatings, caulk, mastic, window glazing, adhesives, gaskets, cable insulation, etc.) across KSC and NASA-operated facilities at CCAFS. The KSC Class III landfill accepts certain types of PCB bulk product waste for disposal. PCB bulk product waste is defined in [40 CFR 761.3](#) as waste derived from manufactured products containing PCBs in a non-liquid state at any concentration where the concentration of PCBs at the time of designation for disposal is greater than or equal to 50 PPM.

14.5.2 PCB Bulk Product Waste Acceptable for Disposal in the KSC Landfill:

- a. Construction and demolition debris that contains or may contain PCB bulk product waste, provided there are no materials in the debris that are specifically prohibited for disposal in the landfill.
- b. Dry electrical equipment (those that do not use oil as a heat transfer or dielectric fluid) with PCB paints or coatings provided there are no materials in the electrical equipment that are specifically prohibited for disposal in the landfill.

14.5.3 PCB Bulk Product Waste Not Acceptable for Disposal in the KSC Landfill:

- a. Oil-containing or oil-contacted electrical equipment (drained or not drained).
- b. Oil-containing or oil-contacted mechanical equipment (drained or not drained).
- c. Construction and demolition debris that contain materials specifically prohibited for disposal in the landfill.
- d. Paint chips, paint chips mixed with blast media, caulk, mastic, or any other PCB-containing materials physically separated and containerized from other construction or demolition debris where the total PCB concentration is greater than 50 PPM.

14.5.4 KSC organizations and contractors may assume that suspect materials are PCB bulk product waste without sampling but must manage the materials according to PCB bulk product waste storage requirements in [40 CFR 761.95\(c\)\(9\)](#) (e.g., store the waste on a lined impervious surface or in sealed container that is covered from precipitation) until it is disposed.

14.6 Landfill Operations

14.6.1 The ISC contractor shall operate and maintain the landfills according to all applicable regulations, permit requirements, and the [EAP-REF-0001](#), KSC Landfill Operating Plan.

14.6.2 The ISC contractor shall maintain a copy of the latest closed landfill permit, open landfill permit, and approved KSC Landfill Operating Plan at the landfill scale house.

14.6.3 Records required by [FAC 62-701](#) and permit-specific conditions are inspected on a routine basis. Records of daily operations, maintenance, load checking, and training shall be maintained by the operational organization and provided to NASA EAB for transmittal to the FDEP in accordance with permit conditions.

14.6.4 KSC Landfill Operating Plan

a. The ISC contractor shall maintain the current KSC Landfill Operating Plan. All changes to the KSC Landfill Operating Plan must be approved by the NASA EAB and the FDEP.

b. The ISC contractor shall submit the revised KSC Landfill Operating Plan to the NASA EAB.

c. The NASA EAB shall submit the revised KSC Landfill Operating Plan to the FDEP for approval.

14.6.5 The NASA EAB shall perform all required notifications and reporting to regulatory agencies regarding the KSC landfills.

14.7 Compliance Inspections

14.7.1 The NASA EAB shall implement an inspection program to monitor landfill operations and ensure compliance with [FAC 62-701](#), permit conditions, and the landfill operating plan.

14.7.2 The NASA EAB shall coordinate and attend all landfill inspections by regulatory agencies.

14.7.3 The NASA EAB shall respond to and correspond with regulatory agencies regarding

potential non-compliance issues or regulatory violations.

14.8 Sampling and Reporting

14.8.1 The MESC contractor shall:

- a. Conduct all permit-required groundwater sampling, surface water sampling, and gas monitoring at the landfills and submit regulatory reports to the NASA EAB.
- b. Use a state-certified laboratory to analyze samples.
- c. Maintain all landfill sampling and analysis records for the NASA EAB.

14.8.2 The ISC contractor shall prepare all permit-required operating reports and submit them to the NASA EAB.

14.8.3 The NASA EAB shall submit all permit-required sampling and operating reports to the FDEP.

14.9 Permit Renewals

14.9.1 The MESC contractor shall prepare the permit renewal application package, which includes [FDEP Form 62-701.900\(1\)](#) and all required supporting documentation, for the landfills and submit them to the NASA EAB for review and comment.

14.9.2 The ISC contractor shall update the KSC Landfill Operating Plan and submit it to the NASA EAB for inclusion in the permit renewal application package.

14.9.3 The MESC contractor shall:

- a. Submit five copies of the final application package to the NASA EAB.
- b. Ensure that a P.E. registered in the state of Florida signs and seals any designs, site plans, specifications, drawings, documents, or forms required by [FAC 62-701](#).

14.9.4 The NASA EAB shall sign the application packages as the applicant and forward them to the FDEP by certified mail.

14.9.5 The FDEP will review the permit application for completeness and accuracy. If not satisfied with the permit application, the FDEP will submit a RAI to the applicant to correct any deficiencies, errors, or omissions. Multiple RAIs may be submitted to the applicant until FDEP deems the application package to be complete.

14.9.6 The MESC contractor shall prepare draft RAI responses (in coordination with the P.E.) and submit them to the NASA EAB for review and comment.

14.9.7 The NASA EAB shall submit the final RAI responses to the FDEP by certified mail.

14.9.8 When the permit application is approved, the NASA EAB shall forward the new permit to the ISC contractor.

CHAPTER 15. BIOMEDICAL WASTE

15.1 Background and Regulatory Requirements

15.1.1 Biomedical waste is any solid or liquid waste, which may present a threat of infection to humans, including non-liquid tissue, body parts, blood, blood products, and body fluids from humans and other primates; laboratory and veterinary wastes which contain human disease-causing agents; and discarded sharps. This definition also includes the following:

- a. Used, absorbent materials saturated with blood, blood products, body fluids, or excretions or secretions contaminated with visible blood; and absorbent materials saturated with blood or blood products that have dried.
- b. Non-absorbent, disposable devices that have been contaminated with blood, body fluids, secretions, or excretions visibly contaminated with blood, but have not been treated by an approved method.

15.1.2 The regulations and requirements for management of biomedical waste are located in [29 CFR 1910.1030](#) and in [FAC 64E-16](#). Organizations and contractors shall manage all biomedical waste according to these regulations.

15.2 Biomedical Waste Management Requirements

15.2.1 The MESC contractor shall pickup and properly dispose of biomedical waste generated by KSC organizations and contractors.

15.2.2 Organizations and contractors generating biomedical waste shall comply with the following requirements:

- a. Biomedical waste mixed with a hazardous waste shall be managed as hazardous waste.
- b. Biomedical waste mixed with radioactive waste shall be managed as radioactive waste.
- c. Biomedical waste mixed with solid waste that is not hazardous waste or radioactive waste shall be managed as biomedical waste.
- d. Sharps and sharps containers shall be managed according to the requirements in [FAC 64E-16.004\(2\)\(d\)](#).
 - 1) Sharps shall be discarded at the point of origin into single use or reusable sharps containers.
 - 2) Needles and scalpel blades shall be placed into sharps containers and not into double-walled corrugated containers.
 - 3) Sharps containers shall be sealed when full.
 - 4) Sharps containers shall be considered full when materials placed into it reach the designated fill line, or, if a fill line is not indicated, when additional materials cannot be placed into the container without cramming, or when no additional materials are to be placed in the container.
 - 5) Sharps containers shall bear the phrase and the international biological hazard symbol described in paragraph [FAC 64E-16.004\(2\)\(b\)](#).

6) Permanently mounted sharps container holders shall bear the phrase and the international biological hazard symbol described in paragraph [FAC 64E-16.004\(2\)\(b\)](#) if this information on the sharps container itself is concealed by the sharps container holder.

7) The international biological hazard symbol on sharps containers and sharps container holders shall be at least one inch in diameter.

8) Reusable sharps containers shall only be emptied into a treatment cart or directly into a treatment unit.

9) Reusable sharps containers shall be constructed of smooth, easily cleanable materials, and be decontaminated after each use.

e. Biomedical waste outer containers shall be rigid, leak-resistant, and puncture-resistant.

f. Reusable biomedical waste outer containers shall be constructed of smooth, easily cleanable materials, and decontaminated after each use.

g. The international biological hazard symbol shall be at least six inches in diameter on biomedical waste outer containers measuring 19 inches by 14 inches or larger, and at least one inch in diameter on biomedical waste outer containers measuring less than 19 inches by 14 inches.

h. Biomedical waste shall be stored in designated areas away from general traffic flow patterns and accessible only to authorized personnel.

i. Outdoor biomedical waste storage areas shall be conspicuously marked with the international biological hazard symbol and be secured against vandalism.

j. Indoor biomedical waste storage areas shall be constructed of smooth, easily cleaned materials that are impervious to liquids, have restricted access, and have a written operating plan.

k. Biomedical waste storage shall not exceed 30 days at the generating facility.

1) The 30-day storage period shall begin when the first non-sharps item of biomedical waste is placed into a red bag, biomedical waste container, or sharps container.

2) For sharps containers containing only sharps, the 30-day storage period shall begin when the container is full or sealed.

3) Biomedical waste bags and containers shall be clearly marked with the 30-day storage period start date.

4) For biomedical waste returning to KSC from flight, the 30-day storage period shall begin the day the biomedical waste becomes accessible from flight storage containers.

l. Biomedical waste generators shall maintain records at each facility with types and amounts of biomedical wastes generated.

m. Biomedical waste generators shall properly package biomedical wastes for safe handling, transportation, and disposal.

- n. Biomedical waste generators shall contact the MESC contractor and arrange for biomedical waste pickups before the 30-day storage period expires.
- o. Biomedical waste removed from a returning space vehicle in a state other than Florida shall be disposed under the rules of that state.

15.3 Training

Organizations and contractors shall provide biomedical waste and bloodborne pathogen training (initial and annual refresher) for all personnel generating, handling, packaging, and shipping biomedical waste.

15.4 Records

Organizations and contractors shall maintain all biomedical waste records (such as generation logs, waste shipping manifests, training certificates, operating plans, autoclave logbooks, and biomedical waste bag reports) required by [FAC 64E-16](#) for at least 3 years.

15.5 Inspections

The NASA EAB shall inspect biomedical waste storage locations, waste records, and training records on a periodic basis to ensure compliance with biomedical waste regulations.

CHAPTER 16. BLOODBORNE PATHOGENS AND EXPOSURE CONTROL

16.1 Background and Regulatory Requirements

16.1.1 Bloodborne pathogens are pathogenic microorganisms that are present in human blood, human blood components, and products made from human blood and can cause disease in humans.

16.1.2 Bloodborne pathogen exposure control regulations are located in [29 CFR 1910.1030](#).

16.1.3 Under [29 CFR 1910.1030](#), OSHA requires employers to have an exposure control program for employees who could possibly come in contact with blood or potentially infectious materials.

16.1.4 Examples of positions at KSC covered under an exposure control program are:

- a. Medical personnel.
- b. Emergency response crews.
- c. Spill cleanup team members.
- d. Payload engineers and processors.
- e. Stow and de-stow crews.
- f. Lab technicians.
- g. Housekeeping and janitorial personnel.
- h. Groundskeepers.

i. Plumbers and domestic wastewater system workers.

16.1.5 The KSC Aerospace Medicine and Occupational Health Branch shall establish the requirements for bloodborne pathogen exposure control programs at KSC.

16.2 Exposure Control Plans

16.2.1 The KSC Aerospace Medicine and Occupational Health Branch shall develop and maintain an exposure control plan for NASA employees. The NASA employee exposure control plan is [KSC-UG-1904](#).

16.2.2 NASA organizations and personnel shall follow the requirements in [KSC-UG-1904](#).

16.2.3 NASA contractors shall develop, maintain, and follow a written exposure control plan that meets the requirements of [29 CFR 1910.1030](#) for their personnel.

16.3 Training

16.3.1 Organizations and contractors shall provide bloodborne pathogen training (initial and annual refresher) for all personnel who could possibly come in contact with blood or potentially infectious materials.

16.3.2 Organizations and contractors shall maintain bloodborne pathogen training records for at least 3 years.

16.4 Inspections

The NASA EAB shall periodically inspect training records, exposure control plans, and facilities to ensure compliance with bloodborne pathogen regulations.

CHAPTER 17. STORAGE TANKS

17.1 Background and Regulatory Requirements

17.1 1 The EPA and FDEP have promulgated regulations regarding the design, construction, installation, registration, operation, maintenance, repair, closure, and disposal of storage tank systems that store regulated substances. These regulations are designed to minimize the occurrence of and the environmental risks from releases and discharges.

17.1.1.1 Federal underground storage tank system regulations are located in [40 CFR 280](#).

17.1.1.2 There are currently no Federal regulations covering aboveground storage tank (AST) systems except that [40 CFR 112](#) requires SPCC plans for oil storage (see Chapter 5 of this KNPR for SPCC requirements).

17.1.1.3 Florida underground storage tank (UST) system regulations are located in [FAC 62-761](#).

17.1.1.4 Florida AST system regulations are located in [FAC 62-762](#).

17.1.2 The EPA has authorized the FDEP to administer Federal underground storage tank regulations in the state of Florida.

17.1.3 The FDEP has delegated the compliance inspection program for petroleum storage tank systems in Brevard County to the Brevard County Natural Resources Management Office (BCNRMO). The BCNRMO inspects registered petroleum storage tank systems at KSC.

17.1.4 Organizations and contractors shall comply with all applicable Federal, state, and local storage tank system regulations and the requirements of this KNPR.

17.1.5 All communication and interface with regulatory agencies shall be coordinated through and performed by the NASA EAB.

17.2 Inventory and Notifications

17.2.1 Organizations and contractors shall provide an accurate listing of all UST and AST systems (active and inactive) at their facilities to the NASA EAB when requested.

17.2.2 Organizations and contractors shall immediately notify the NASA EAB of any non-compliance concerns, maintenance, repairs, or change in status (such as changing contents, removing the system from service, or abandoning the system) associated with registered storage tank systems.

17.2.3 When required, the NASA EAB shall notify regulatory agencies and change registration information with the FDEP to reflect the current inventory and status.

17.2.4 Organizations and contractors shall report any spill, release, overfill, or other discharge of a regulated substance from a storage tank system according to the requirements in Chapter 4 of this KNPR.

17.3 Installation and Modification of Storage Tank Systems

17.3.1 Organizations and contractors shall immediately notify (through the KSC Environmental Checklist process outlined in Chapter 3 of this KNPR) the NASA EAB regarding any planned project involving the installation, modification, repair, or the removal of a registered storage tank system.

17.3.2 The NASA EAB shall review the proposed project, provide recommendations, determine the applicable regulatory requirements, coordinate with regulatory agencies, and schedule all required regulatory inspections.

17.3.3 Organizations and contractors shall ensure that the design and construction meets the requirements of [40 CFR 280](#), [FAC 62-761](#), and [FAC 62-762](#).

17.3.4 If the new storage tank system must be registered according to [FAC 62-761](#) or [FAC 62-762](#), or if the modification requires a change in the registration, the responsible organization or contractor shall prepare the registration package, which includes [FDEP Form 62-761.900\(2\)](#) and all required supporting documentation, and submit it to the NASA EAB.

17.3.5 The NASA EAB shall sign registration forms as the owner and submit the registration packages to the FDEP via certified mail.

17.3.6 When the storage tank system has been inspected and approved by the BCNRMO, the responsible organization or contractor shall place the storage tank system into service.

17.4 Inspecting, Monitoring, Testing, and Reporting

17.4.1 Organizations and contractors that operate registered storage tank systems shall:

- a. Conduct all required inspections, monitoring, and testing for assigned registered storage tank systems according to the requirements in [FAC 62-761](#) or [FAC 62-762](#).
- b. Request and coordinate sampling of any release detection monitoring wells by the MESC contractor.
- c. Perform visual inspections and release detection evaluations of assigned registered storage tank systems and associated secondary containment at least once a month (not exceeding 35 days between inspections).
- d. Inspect the integrity of the storage tank systems and secondary containment at least once a month (not exceeding 35 days between inspections).
- e. Immediately report any non-compliance items, regulatory violations, deficiencies, corrosion, secondary containment integrity issues, and equipment problems to the NASA EAB and, if required by the NASA EAB, remove the storage tank system from service until repairs are made or the non-compliance items are corrected.
- f. Correct and repair non-compliance items, regulatory violations, deficiencies, corrosion, secondary containment integrity issues, and equipment problems.
- g. Conduct inspections of stormwater collected in secondary containment (within 1 week after each storm event) for the presence of free product, odor, or sheen.
- h. Maintain a drain log with the date, water condition, and removal method whenever stormwater is removed from secondary containment.
- i. Remove and properly dispose of secondary containment stormwater as a regulated waste, according to the requirements in Chapter 13 of this KNPR, if any contamination is detected in the water, or if there is any reason to believe there has been a discharge from the storage tank system to the containment system.
- j. Remove and discharge secondary containment stormwater to grade if no contamination is detected in the water or if there is no reason to believe there has been a discharge from the storage tank system to the containment system.

17.5 Recordkeeping

17.5.1 Organizations and contractors that operate registered storage tank systems shall maintain all activity, inspection, monitoring, and testing records required by [FAC 62-761](#) and [FAC 62-762](#) including:

- a. Monthly inspection logs indicating the dates of the inspections, the Release Detection Response Level (RDRL) detection methods and results, findings or problems, and corrective actions taken.
- b. Daily inventory measurements and reconciliation calculations for vehicular fuel tanks.
- c. Dates of upgrade or replacement of existing storage tank systems.

- d. Results of maintenance examinations on storage tank systems.
- e. Results of all tightness tests and integrity tests.
- f. Descriptions and dates of all repairs.
- g. Release detection equipment specifications and instructions.

17.5.2 Records Retention

17.5.2.1 Organizations and contractors shall maintain all assigned registered storage tank system activity, inspection, monitoring, and testing records for at least 3 years.

17.5.2.2 Organizations and contractors shall submit records related to registered storage tank system installations, registrations, modifications, upgrades, and closures to the NASA EAB.

17.5.2.3 The NASA EAB shall retain records related to storage tank system installations, registrations, modifications, upgrades, and closures according to the appropriate records retention schedule.

17.6 Closures

17.6.1 Organizations and contractors shall immediately notify the NASA EAB regarding any planned closure of a storage tank system (registered or not registered).

17.6.2 The responsible organization and contractor shall properly close registered storage tank systems according to the requirements in [FAC 62-761](#) and [FAC 62-762](#).

17.6.2.1 The responsible organization and contractor shall conduct a closure assessment, prepare a closure assessment report, and submit the closure assessment report to the NASA EAB.

17.6.2.2 The NASA EAB shall submit the closure assessment report and revised registration paperwork to the FDEP.

17.7 Compliance Inspections

17.7.1 The NASA EAB shall conduct periodic compliance inspections of registered storage tank systems to ensure compliance with regulatory requirements and the requirements of this KNPR.

17.7.2 The NASA EAB shall attend all regulatory compliance inspections, respond to regulatory agencies regarding potential non-compliance issues or violations, and schedule required follow-on inspections with regulatory personnel.

17.7.3 Organizations and contractors shall attend inspections and provide any requested activity, inspection, monitoring, testing, maintenance, or repair records to the inspector.

17.7.4 Organizations and contractors shall implement corrective actions to address any non-compliance issues, violations, deficiencies, and findings identified during inspections and provide corrective action information and status to the NASA EAB when requested.

CHAPTER 18. PESTICIDES

18.1 Background and Regulatory Requirements

18.1.1 A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest and includes insecticides, herbicides, fungicides, rodenticides, plant regulators, defoliants, and various other substances used to control pests.

18.1.2 The Federal Government and state of Florida have passed laws and promulgated regulations regarding the production, distribution, sale, use, storage, management, and disposal of pesticides.

18.1.2.1 The Federal Government pesticide law is the FIFRA and is administered by the EPA.

18.1.2.2 EPA's implementing regulations for FIFRA are located in [40 CFR 150-189](#).

18.1.2.3 The state of Florida has three pesticide laws, which are administered by the Florida Department of Agriculture and Consumer Services (FDACS).

- a. [Florida Pesticide Law \(Chapter 487 of the Florida Statutes\)](#).
- b. [Florida Structural Pest Control Act \(Chapter 482 of the Florida Statutes\)](#)
- c. [Florida Mosquito Control Law \(Chapter 388 of the Florida Statutes\)](#)

18.1.2.4 FDACS's implementing regulations for Florida's pesticide laws are located in [FAC 5E-2](#), [FAC 5E-9](#), [FAC 5E-14](#), and [FAC 5E-13](#).

18.1.3 Organizations and contractors shall comply with all Federal and state laws and regulations and the requirements of this KNPR regarding pesticide use, storage, management, and disposal.

18.2 Licensing

All pesticide applications at KSC shall be accomplished by, or under the direct supervision of, an applicator licensed by the FDACS Bureau of Compliance Monitoring.

18.3 Pesticide Registration

All pesticides used at KSC shall be registered with the EPA and the FDACS and bear an EPA-approved label.

18.4 Pesticide Use, Disposal, and Labeling Requirements

18.4.1 Organizations and contractors shall only use and dispose of pesticides according to the product instructions, label requirements, or in a manner specified by the EPA or the FDACS.

18.4.2 Organizations and contractors shall dispose of pesticide containers (including empty containers) according to the product instructions, label requirements, or in a manner specified by the EPA or the FDACS.

18.4.3 Organizations and contractors shall ensure that pesticide product labels are securely attached to containers and contain the following information as described in EPA's pesticide [Label Review Manual](#):

- a. Name and address of the producer, registrant, or person for whom produced.
- b. Restricted use statement (if required).
- c. Product name, brand, or trademark.
- d. Ingredient statement.
- e. Signal word and skull and crossbones symbol (if required).
- f. "Keep Out Of Reach Of Children" statement.
- g. Precautionary statements, including hazards to humans and domestic animals and environmental hazards.
- h. EPA registration number and EPA establishment number.
- i. Directions for use or a referral statement to directions for use if a booklet is attached.
- j. Net weight or measure of contents.

18.5 Pesticide Storage and Operational Requirements

18.5.1 Organizations and contractors shall:

- a. Maintain a current list and inventory of all pesticides stored or used.
- b. Maintain current MSDS for all pesticides stored or used.
- c. Ensure that MSDSs are readily available for each pesticide listed on the current inventory and that each MSDS is available on the KSC [MSDS Electronic Archive](#).
- d. Store pesticides only in approved facilities.
- e. Ensure that pesticide storage facilities and rooms are dry, well-ventilated, and dedicated to pesticide operations.
- f. Ensure that pesticide storage facilities and rooms are secure to prevent unauthorized entry.
- g. Place identification and warning signs (such as "No Smoking" signs, "Authorized Personnel Only" signs, "Pesticide Storage" signs, and "In case of Emergency, CONTACT:" signs) on pesticide storage facilities and rooms to advise personnel of the contents and hazards.
- h. Store pesticide containers off the ground with the labels visible.
- i. Store pesticide containers in rows with lanes to provide access.
- j. Ensure that pesticide containers are in good condition and that all lids and bungs are

tightly closed.

- k. Segregate different pesticide formulations in storage.
- l. Regularly check pesticide containers for corrosion and leaks.
- m. Keep adequate spill cleanup materials and supplies on hand for the types of pesticides stored and used.

18.5.2 Organizations and contractors shall report unintentional spills, leaks, and releases of pesticides to the NASA EAB according to the requirements in Chapter 4 of this KNPR.

18.5.3 Organizations and contractors shall follow safety procedures, follow precautions, and use PPE directed by the pesticide label or instructions.

18.5.4 Organizations and contractors shall label equipment used for pesticides as "Pest Control" or other appropriate identifying language.

18.5.5 Organizations and contractors shall not remove equipment used for pesticide application from the site or use the equipment for other purposes unless it has been properly decontaminated.

18.5.6 Organizations and contractors shall properly dispose of decontamination water.

18.5.7 Organizations and contractors that store, mix, and apply pesticides shall:

- a. Require employees to wear appropriate PPE and clothing while mixing pesticides, applying pesticides, and cleaning equipment.
- b. Ensure that pesticide workers receive physical examinations and blood testing annually.
- c. Ensure that each pesticide worker has two lockers (one for pesticide work clothes and one for street clothes).
- d. Develop operating procedures for the decontamination of personnel.
- e. Direct personnel to the KSC Occupational Health Facility (OHF) for treatment and blood testing in the event of an accidental or suspected exposure to pesticides.

18.6 Recordkeeping Requirements

18.6.1 Organizations and contractors shall maintain pesticide application records for restricted use pesticides, non-restricted use pesticides, and experimental use pesticides used at KSC for at least 2 years.

18.6.2 Pesticide application records shall include the dates and times of application, locations, target areas, total acreage covered, pests to be controlled, pesticides used, application rates, types of equipment used, and applicator names.

18.6.3 Organizations and contractors shall maintain current training records (initial and refresher) and physical examination records for personnel handling or applying pesticides at KSC.

18.7 Compliance Inspections

18.7.1 The NASA EAB shall conduct periodic compliance inspections of pesticide storage locations, mixing areas, equipment, and records to ensure compliance with regulatory requirements and the requirements of this KNPR.

18.7.2 The NASA EAB shall attend any regulatory compliance inspections and respond to regulatory agencies regarding potential non-compliance issues or violations.

18.7.3 Organizations and contractors shall attend all pesticide compliance inspections and provide records to the inspector.

18.7.4 Organizations and contractors shall implement corrective actions to address any non-compliance issues, violations, deficiencies, and findings identified during inspections and provide corrective action information and status to the NASA EAB when requested.

CHAPTER 19. PCB MANAGEMENT

19.1 Background and Regulatory Requirements

19.1.1 PCBs are regulated by the EPA under the TSCA. Federal PCB regulations are located in [40 CFR 761](#). These regulations establish prohibitions and requirements for the manufacture, processing, distribution in commerce, use, disposal, storage, and marking of PCBs and PCB items.

19.1.2 At KSC, the NASA EAB develops requirements and implements a management program for PCB use, storage, and disposal. This includes the processes for identification, marking, retro-filling, storage, inspection, inventory, and disposal of PCBs and PCB items.

19.1.3 The NASA EAB shall perform all notifications and reporting to regulatory agencies concerning PCB compliance at all NASA-operated facilities at KSC and CCAFS.

19.2 Management and Disposal of Oil-Containing or Oil-Contacted Electrical Equipment and Mechanical Equipment

19.2.1 Oil-containing or oil-contacted electrical equipment includes transformers, switches, capacitors, cable, reclosers, regulators, bushings, electromagnets, etc., that contain oil (dielectric fluid or heat transfer fluid).

19.2.2 Oil-containing or oil-contacted mechanical equipment includes cranes, lifts, elevators, jacks, stands, forklifts, and other hydraulic machines that contain oil (hydraulic fluid).

19.2.3 Oil inside electrical equipment shall be sampled to determine if the equipment is classified as PCB (greater than 500 PPM PCBs), PCB-contaminated (between 50 and 500 PPM PCBs), or non-PCB (less than 50 PPM PCBs).

19.2.3.1 If possible, sampling shall be done prior to taking the equipment out of service.

19.2.3.2 Once the equipment is taken out of service, the equipment and oil shall be managed per [40 CFR 761.60](#) or [40 CFR 761.62](#).

19.2.4 Oil inside mechanical equipment may also contain PCBs. If the piece of mechanical equipment was manufactured prior to 1979 and will be disposed of, the oil shall be sampled for PCBs unless there is documentation or knowledge that the oil does not contain any PCBs.

19.2.5 There is documented existence of PCBs in various paints and coatings (including electrical equipment and mechanical equipment paint) across KSC and NASA-operated facilities at CCAFS. If the total PCB concentration in the paint is greater than or equal to 50 milligrams (mg) per kilograms (kg), the equipment is a PCB waste and shall be subject to PCB regulations even if the oil does not contain any PCBs.

19.2.6 All organizations disposing of oil or equipment that potentially contains PCBs shall use the PWQ and TRP process outlined in Chapter 13 for managing and handling the waste streams.

19.2.7 Electrical equipment that has been historically retro filled (flushing and replacement of oil to reduce PCB concentrations and the equipment's regulated category) and certified as "Non-PCB" or "PCB-Contaminated" may no longer meet those classification requirements at the time of disposal due to leaching of PCBs from internal components back into the cleaner oil. Sampling of oil for this equipment is required and shall occur just prior to (no more than 6 months in advance of) taking the equipment out of service.

19.2.8 Paints and coatings manufactured prior to 1979 have a possibility of containing PCBs. Sampling and testing for PCBs in paints and coatings is recommended to maximize equipment recycling and minimize waste disposal.

19.2.8.1 If the paint is not sampled and the equipment was manufactured prior to 1979, generators shall assume that the PCB concentrations in the paint are greater than 50 mg per kg and manage the equipment as a regulated PCB waste even if the oil contains no PCBs.

19.2.8.2 If the equipment contains no layers of paint manufactured prior to 1979, or there is documentation such as MSDS etc., that the paint contains less than 50 mg per kg PCBs, paint sampling does not need to be conducted.

19.2.8.3 Even if the PCB concentration in the oil is greater than 50 mg per kg, the KSC Waste Management Office may be able to decontaminate, reclassify, and recycle the equipment through a licensed vendor if the paint is sampled and found to contain less than 50 mg per kg PCBs.

19.2.9 Oil-containing equipment where the PCBs concentrations in both the oil and paint are less than 50 mg per kg may be taken to the KSC Reutilization, Recycling, and Marketing Facility (RRMF) for resale or recycling.

19.2.9.1 The oil must be removed from the equipment, containerized, and labeled according to the PWQ and TRP instructions, and disposed through the KSC Waste Management Office. [KNPR 4000.1](#), [NPR 4200.1](#), and [NPR 4200.2](#) provide requirements for turning-in excess equipment to the RRMF. Sample results are required to be provided to the RRMF.

19.2.10 Oil-containing or oil-contacted equipment (drained or not drained) cannot be disposed of at the KSC landfill.

19.2.11 In rare instances, it may be beneficial to service (drain, flush, and refill) and reclassify a piece of electrical equipment to lower its regulated PCB category. [40 CFR 761](#) contains strict guidelines and rules for reclassification of electrical equipment. All reclassification efforts shall be approved by the NASA EAB and coordinated through the KSC Waste Management Office.

19.2.12 Leaking oil-filled equipment shall be placed in appropriate non-leaking containers or drums with adequate absorbent materials.

19.2.13 Refer to Chapter 19.6 for the cleanup, management, and disposal of environmental media (soil, asphalt, concrete, gravel, etc.) potentially contaminated with PCBs.

19.2.13.1 PCB-contaminated environmental media is a regulated waste stream and shall be properly disposed regardless if it is a recent or historical release.

19.2.13.2 If a spill occurs or on-going release of potentially PCB-containing oil is discovered, the organization shall report and control the spill per the requirements in Chapter 4 of this KNPR.

19.2.14 Table 1 below summarizes requirements and options for managing and disposing of oil-containing and oil-contacted equipment.

Table 1: Requirements and Options for Managing and Disposing of Oil-Containing and Oil-Contacted Electrical and Mechanical Equipment

Total PCB Concentration in Oil	Oil Management, Storage, and Disposal Requirements	Total PCB Concentration in Paint	Equipment Management, Storage, and Disposal Requirements
<p>Greater than or equal to 50 PPM</p> <p>--OR--</p> <p>PCB concentration in the oil is unknown or is assumed to be greater than or equal to 50 PPM because the oil cannot be reasonably sampled (e.g., completely sealed bushing).</p>	<p>Oil shall be drained from the equipment and disposed through the KSC Waste Management Office</p> <p>Drained oil shall be containerized and labeled according to the PWQ and TRP instructions (DOT approved container and PCB label with the date the equipment was removed from service).</p>	<p>Less than 50 PPM</p> <p>--OR--</p> <p>Paint sampling not needed because all paint on the equipment was manufactured after 1979 or there is documentation that the PCB concentration in the paint is less than 50 PPM.</p>	<p>Equipment shall be disposed through KSC Waste Management Office.</p> <p>Equipment disposal shall be coordinated through property accountability personnel.</p> <p>Equipment shall be staged or stored in a manner that prevents any leaking of residual oil.</p> <p>If the PCB concentration in the oil is greater than 500 PPM, the drained equipment shall be marked with a PCB label (with the date the equipment was removed from service), stored on an impervious surface, covered from rain, and moved offsite within 30 calendar days from the date the equipment was removed from service.</p> <p>If the PCB concentration in the oil is greater than or equal to 50 PPM but less than 500 PPM, the drained equipment shall be stored on an impervious surface, covered from rain, and moved offsite as soon as practicable.</p>
	<p>Drained oil shall either be picked up by the KSC Waste Management Office <u>within 24 hours</u> from the date the equipment was removed from service or stored onsite for up to 30 calendar days providing that the drained oil is containerized and labeled according to PWQ and TRP instructions and stored under a site-specific SPCC plan.</p> <p>Notify the KSC Waste Management Office at least 5 calendar days prior to the required oil pick up date.</p>	<p>Greater than or equal to 50 PPM.</p> <p>--OR--</p> <p>Paint was not sampled and is assumed to have a PCB concentration greater than or equal to 50 PPM.</p>	<p>Equipment shall be disposed through KSC Waste Management Office.</p> <p>Equipment disposal shall be coordinated through property accountability personnel.</p> <p>Equipment shall be staged or stored in a manner that prevents any leaking of residual oil.</p> <p>If the PCB concentration in the oil is greater than 500 PPM, the drained equipment shall be marked with a PCB label (with the date the equipment was removed from service), stored on an impervious surface, covered from rain, and moved offsite within 30 calendar days from the date the equipment was removed from service</p> <p>If the PCB concentration in the oil is greater than or equal to 50 PPM but less than 500 PPM, the drained equipment shall be marked with a PCB label (with the date the equipment was removed from service), stored on an impervious surface, covered from rain, and moved offsite as soon as practicable (not to exceed 180 calendar days from the date the equipment was removed from service).</p>

Total PCB Concentration in Oil	Oil Management, Storage, and Disposal Requirements	Total PCB Concentration in Paint	Equipment Management, Storage, and Disposal Requirements
Less than 50 PPM	<p>Option 1: Dispose of oil through the KSC Waste Management Office as used oil.</p> <ul style="list-style-type: none"> • Drained oil shall be containerized and labeled according to the PWQ and TRP instructions. • Onsite storage of oil containers shall comply with used oil and SPCC regulations. <p>Option 2: Contractor can accept the oil as a project cost off-set for reuse, recycling, or energy recover <i>only if</i> the PCB concentration is below 1 part per million.</p> <ul style="list-style-type: none"> • The Contractor shall follow all Federal and State used oil regulations. • Onsite storage of oil shall comply with used oil and SPCC regulations. <p>Option 3: Reuse the oil in other electrical equipment at KSC.</p> <ul style="list-style-type: none"> • Onsite storage of oil shall comply with used oil and SPCC regulations. 	<p>Less than 50 PPM.</p> <p>--OR--</p> <p>Paint sampling not needed because all paint on the equipment was manufactured after 1979 or there is documentation that the PCB concentration in the paint is less than 50 PPM.</p>	<p>Option 1: Drained equipment can be excessed through the RRMF.</p> <ul style="list-style-type: none"> • Equipment shall be staged or stored in a manner that prevents any leaking of residual oil. • Provide PCB sampling results and required excess forms to the RRMF. <p>Option 2: Contractor can accept the drained equipment for reuse or recycling (possible project cost off-set).</p> <ul style="list-style-type: none"> • Equipment shall be staged or stored in a manner that prevents any leaking of residual oil. • Transfer of equipment shall be coordinated through property accountability personnel. <p>Option 3: Drained equipment can be reused elsewhere at KSC.</p> <ul style="list-style-type: none"> • Equipment shall be staged or stored in a manner that prevents any leaking of residual oil.
	<p>Greater than or equal to 50 PPM.</p> <p>--OR--</p> <p>Paint was not sampled and is assumed to have a PCB concentration greater than or equal to 50 PPM</p>	<p>Equipment shall be disposed through KSC Waste Management Office.</p> <p>Equipment shall be stored in a manner that prevents any leaking of residual oil.</p> <p>Equipment disposal shall be coordinated through property accountability personnel.</p> <p>Drained equipment shall be marked with a PCB label (with the date the equipment was removed from service), stored on an impervious surface, covered from rain, and moved offsite as soon as practicable (not to exceed 180 calendar days from the date the equipment was removed from service).</p>	

19.3 Management and Disposal of Small Capacitors and Fluorescent Light Ballasts

19.3.1 PCBs were commonly used in the small capacitors and fluorescent light ballasts (in potting material and capacitors) manufactured through 1979 and shall be properly managed according to PCB regulations.

19.3.2 Definition of Small Capacitor: Small capacitors contain less than 1.36 kg (3 pounds) of dielectric fluid or have a total volume of less than 1,639 cubic centimeters (100 cubic inches) if the weight of dielectric fluid is unknown. A capacitor whose volume is greater than 1,639 cubic centimeters (100 cubic inches) but less than 3,278 cubic centimeters (200 cubic inches) may still be managed as a small capacitor if the total weight of the capacitor is less than 4.08 kg (9 pounds).

19.3.3 Large capacitors that contain oil shall be managed according to the requirements in Chapter 19.2.

19.3.4 All organizations disposing of small capacitors and fluorescent light ballasts that potentially contain PCBs shall use the PWQ and TRP process outlined in Chapter 13 for managing, handling, and disposing of these waste streams. Sampling small capacitors and ballasts for PCBs is not required.

19.3.5 Small capacitors and ballasts that are marked as non-PCB shall be segregated and managed separately from small capacitors and ballasts that are marked as containing PCBs or are unmarked.

19.3.6 Unmarked small capacitors and ballasts shall be managed as if they contained PCB material. However, ballasts manufactured after 1998 with no markings can be managed as "non-PCB".

19.3.7 All small capacitors and fluorescent light ballasts shall be containerized and labeled according to PWQ and TRP instructions and disposed through the KSC Waste Management Office.

19.3.8 Leaking small capacitors and ballasts shall be placed in appropriate non-leaking containers or drums and disposed through the KSC Waste Management Office.

19.3.9 Small capacitors and fluorescent light ballasts cannot be disposed at the KSC landfill.

19.4 Management and Disposal of PCB Contaminated Wastewater

19.4.1 There is documented existence of PCBs in older (pre 1979) paints and coatings across KSC and in NASA-operated facilities at CCAFS. Therefore, PCB contaminated wastewater or slurries could be produced from activities such as high-pressure washing or water blasting of buildings or structures that have PCB containing paints and coatings.

19.4.2 Organizations shall follow the industrial wastewater management requirements outlined in Chapter 12. In addition, wastewater that is contaminated with PCBs must be properly managed according to the requirements of [40 CFR 761](#).

19.4.3 PCB contaminated wastewater disposal shall be approved by and coordinated through the KSC Waste Management Office using the PWQ and TRP process outlined in Chapter 13.

19.4.4 PCBs can be removed from the wastewater without a regulatory treatment permit as long as the PCB decontamination requirements in [40 CFR 761.79](#) are followed. The

decontamination process shall be reviewed and approved by the NASA EAB. The removed PCBs must be containerized and properly disposed through the KSC Waste Management Office.

19.5 Management and Disposal of Other PCB Contaminated Waste

19.5.1 Other wastes that may contain PCBs include, but are not limited to:

- a. Dry (non-oil-containing) electrical equipment coatings.
- b. Dry (non-oil-containing) mechanical equipment coatings.
- c. Construction and demolition debris.
- d. Building materials (such as paints, coatings, caulk, mastic, window glazing, adhesives, dry cable insulation, etc.).
- e. Coated or painted concrete.
- f. Waste paint chips.
- g. Spent blast media.
- h. Requirements for the management and disposal of oil-containing or oil-contacted electrical and mechanical equipment are covered in Chapter 19.2.

19.5.2 Building materials, paints, and coatings manufactured prior to 1979 have a possibility of containing PCBs. PCBs have been found in many building materials, paints, and coatings across KSC and NASA-operated facilities at CCAFS.

19.5.3 Any material with a PCB concentration greater than or equal to 50 mg per kg is a regulated waste and shall be properly managed and disposed according to PCB regulations.

Note: If a waste item (e.g., door) contains a material (e.g., paint) with a PCB concentration greater than or equal to 50 mg per kg, the entire item is a regulated PCB waste.

19.5.4 All organizations disposing of waste that potentially contains PCBs shall use the PWQ and TRP process outlined in Chapter 13 for managing and handling the waste streams.

19.5.5 Sampling and testing for PCBs may be optional depending on the waste disposal location but is recommended to maximize recycling and minimize waste disposal (especially for metals and concrete).

19.5.5.1 If the waste is not sampled but has the potential to contain PCBs, generators shall assume that the PCB concentrations in the paint are greater than 50 mg per kg and manage and dispose of the material as a regulated PCB waste.

19.5.5.2 If the waste contains no materials, paints, or coatings manufactured prior to 1979 or if there is documentation (MSDS, etc.) that the materials contain less than 50 mg per kg PCBs, sampling and testing for PCBs does not need to be conducted.

19.5.5.3 Sampling and testing for other regulated compounds (e.g., heavy metals) may be required to characterize the waste for proper management and disposal.

19.5.6 Disposal of all real property shall be coordinated through the KSC Real Property Office.

19.5.7 Organizations and contractors shall:

- a. Properly store, stage, containerize, and prevent the release of any PCB containing materials (including paints, coatings, caulk, mastic, etc.) to the environment.
- b. Conduct demolition activities in a manner that limits the potential release of PCB containing materials.
- c. Delineate the extent of and remediate any PCB releases to the environment (reference Chapter 19.6).
- d. Use BMPs and engineering controls during the demolition of structures with potential PCB-containing materials such as:
 - 1) Contain and process demolition debris on impermeable surfaces (such as concrete, asphalt, tarps, liners, etc.), when possible.
 - 2) Cover waste piles to prevent contact with precipitation.
 - 3) Control stormwater runoff from the site.
 - 4) Conduct regular housekeeping to limit the potential runoff and migration of potential PCB-containing materials.
 - 5) Remove all demolition debris from demolition areas and debris storage areas upon project completion.

19.5.8 If a demolition project or debris storage area is located on a soil or permeable surface and the debris contains potential PCB-containing materials, the project proponent shall sample, excavate, and properly dispose of any soil or sediment contaminated with PCBs according to requirements outlined in Chapter 19.6.

19.5.9 If a decision is made to decontaminate (remove the PCB-containing paint, coating, caulk, adhesive, etc.) metal, concrete, or a piece of equipment so that it can be reused, recycled, or salvaged, the removed PCB-containing paint, coating, caulk, adhesive, etc. shall be containerized, stored, managed, and disposed according to TSCA regulations.

19.5.9.1 The decontamination process shall be conducted according to the requirements in [40 CFR 761.79](#) and be approved by the NASA EAB.

19.5.9.2 Only certain decontamination methods can be conducted without a permit from the EPA.

19.5.9.3 The removed PCB-containing paint, coating, caulk, or adhesive must be disposed through the KSC Waste Management Office.

19.5.10 Tables 2 through 5 below summarize the requirements and options for managing and disposing of various other PCB containing waste streams.

Table 2: Dry Electrical Equipment and Dry Mechanical Equipment (non-oil containing)

Areas With Possible PCBs	Sampling for PCBs Required for Disposal?	PCB Sampling Results	Management, Storage, and Disposal Requirements
<p>Paints Coatings</p>	<p>No (But recommended to maximize reusing and recycling of equipment and minimize waste generation).</p>	<p>Less than 50 PPM. --OR-- Sampling not needed because the equipment was manufactured after 1979 or there is documentation that the PCB concentrations in the paint or coating is less than 50 PPM.</p>	<p>Equipment disposal shall be coordinated through property accountability personnel. Option 1: Excess equipment through the RRMF. Provide PCB sampling results and required excess forms to the RRMF. Option 2: Contractor can accept the equipment for reuse or recycling (possible project cost off-set). Option 3: Equipment reused elsewhere at KSC. Option 4: Dispose in KSC Landfill.</p>
		<p>Greater than or equal to 50 PPM. --OR-- Equipment was not sampled and assumed to have a PCB concentration greater than or equal to 50 PPM in the paint or coating</p>	<p>Equipment disposal shall be coordinated through property accountability personnel. Equipment shall be staged or stored according to PCB Bulk Product Waste storage requirements in 40 CFR 761.65(c)(9) until disposed (e.g., in a container or on a liner that prevents contact with soil and covered from precipitation). Option 1: Dispose in KSC Landfill. Option 2: Dispose off-Center through KSC Waste Management Office. Option 3: Decontaminate by removing the PCB containing materials from the equipment according to 40 CFR 761.79 and then recycle or reuse the decontaminated equipment.</p> <ul style="list-style-type: none"> • Decontamination process shall be approved by the NASA EAB. • Removed PCB containing material is a regulated waste and shall be collected, containerized, and disposed through the KSC Waste Management Office.

Table 3: Construction and Demolition Debris

Areas With Possible PCBs	Sampling for PCBs Required for Disposal?	PCB Sampling Results	Management, Storage, and Disposal Requirements
Paints Coatings Caulk Mastic Window Glazing Adhesives Dry Cable Insulation	No (But recommended to maximize reusing and recycling of materials and minimize waste generation).	Less than 50 PPM. --OR-- Sampling not needed because all the debris was manufactured after 1979 or there is documentation that the PCB concentrations in all areas is less than 50 PPM	Equipment disposal shall be coordinated through property accountability personnel. Option 1: Reusable or recyclable materials should be taken to the RRMF. Option 2: Contractor can accept materials for recycling or reuse (possible project cost off-set). Option 3: Dispose in KSC Landfill.
		Greater than or equal to 50 PPM. --OR-- Debris or material was not sampled and assumed to have a PCB concentration greater than or equal to 50 PPM in at least one possible PCB area.	Equipment disposal shall be coordinated through property accountability personnel. Debris shall be staged or stored according to PCB Bulk Product Waste storage requirements in 40 CFR 761.65(c)(9) until disposed (e.g., in a container or on a liner that prevents contact with soil and covered from precipitation). Option 1: Dispose in KSC Landfill Option 2: Dispose off-Center through KSC Waste Management Office. Option 3: Decontaminate by removing the PCB containing materials from the equipment according to 40 CFR 761.79 and then recycle or reuse the decontaminated debris or materials. <ul style="list-style-type: none"> • Decontamination process shall be approved by the NASA EAB. • Removed PCB containing material is a regulated waste and shall be collected, containerized, and disposed through the KSC Waste Management Office.

Table 4: Concrete

Areas With Possible PCBs	Sampling for PCBs Required for Disposal?	PCB Sampling Results	Management, Storage, and Disposal Requirements
<p>Paints</p> <p>Coatings</p>	<p>No</p> <p>(But recommended to maximize reusing and recycling of concrete and minimize waste generation).</p>	<p>Less than 0.5 PPM</p> <p>--OR--</p> <p>Sampling not needed because all layers of paints or coatings were manufactured after 1979 or there is documentation that the PCB concentration is less than 0.5 PPM</p>	<p>Option 1: Concrete can be recycled or reused (concrete sent to the DARCY shall meet acceptance requirements in Chapter 27 of this KNPR).</p> <p>Option 2: Contractor can accept concrete for recycling or reuse (possible project cost off-set).</p>
		<p>Greater than 0.5 PPM but less than 50 PPM</p>	<p>Option 1: Dispose in KSC Landfill.</p> <p>Option 2: Dispose off-Center through KSC Waste Management Office.</p> <p>Option 3: Remove the PCB containing paint/coating from the concrete and recycle or reuse the concrete. Containerize and dispose of removed paint or coating through KSC Waste Management Office.</p>
		<p>Greater than or equal to 50 PPM</p> <p>--OR--</p> <p>Paints and coatings were not sampled and assumed to have a PCB concentration greater than or equal to 50 PPM</p>	<p>Concrete shall be staged or stored according to PCB Bulk Product Waste storage requirements in 40 CFR 761.65(c)(9) until disposed (e.g., in a container or on a liner that prevents contact with soil and covered from precipitation)</p> <p>Option 1: Dispose in KSC Landfill.</p> <p>Option 2: Dispose off-Center through KSC Waste Management Office.</p>
<p>Oil Stains Associated with Oil-Filled Electrical or Mechanical Equipment.</p>	<p>No</p> <p>(Recommended to reduce management requirements and disposal costs).</p> <p>If concrete sampling is performed, it shall be conducted according to EPA Region 1 guidance document titled "Standard Operating Procedure for Sampling Concrete in the Field". Contact the NASA EAB for a copy of this guidance document.</p>	<p>Less than 0.5 PPM.</p>	<p>Option 1: Dispose in KSC Landfill.</p> <p>Option 2: Dispose off-Center through KSC Waste Management Office.</p>
<p>Greater than or equal to 0.5 PPM.</p> <p>--OR--</p> <p>Concrete was not sampled and assumed to have a PCB concentration greater than or equal to 50 PPM.</p>	<p>The concrete may be a regulated PCB spill or remediation waste.</p> <p>Option 1: Remove the stained concrete and dispose through KSC Waste Management Office. Notify the NASA EAB of the removal and the location.</p> <p>Option 2: Sample, delineate the extent of, and dispose of the contaminated concrete according to the requirements in Chapter 19.6. Contact the NASA EAB for assistance.</p>		

Table 5: Isolated Paint Chips, Isolated Coating Chips, and Spent Blast Media

Areas With Possible PCBs	Sampling for PCBs Required for Disposal?	PCB Sampling Results	Management, Storage, and Disposal Requirements
<p>Note: The guidance below only addresses PCB regulatory requirements. Additional sampling, management, storage, and disposal requirements may apply to these waste streams due to the potential presence of other regulated compounds (e.g., heavy metals). Contact the KSC Waste Management Office for additional guidance.</p>			
<p>Paints Coatings</p>	<p>No NOTE: For spent blast media with paints/coatings, PCB sampling and analysis shall be conducted on the paint/coating prior to blasting</p>	<p>Less than 50 PPM --OR-- Sampling not needed because all the debris was manufactured after 1979 or there is documentation that the PCB concentrations in all areas are less than 50 PPM.</p>	<p>Option 1: Dispose off-Center through KSC Waste Management Office Option 2: Dispose in KSC Landfill.</p>
		<p>Greater than or equal to 50 PPM. --OR-- Sampled not conducted waste is assumed to have a PCB concentration greater than or equal to 50 PPM.</p>	<p>Waste shall be staged or stored according to PCB Bulk Product Waste storage requirements in 40 CFR 761.65(c)(9) until disposed (e.g., in a container or on a liner that prevents contact with soil and covered from precipitation). Waste shall be disposed off-Center through the KSC Waste Management Office.</p>

19.6 PCB Spill Cleanup and Remediation

19.6.1 All organizations shall immediately control and report new or ongoing spills and releases of PCBs according to the requirements in Chapter 4.

19.6.2 Organizations shall be responsible for remediating any remaining PCB contamination at a new or ongoing spill site that is beyond the scope or capabilities of the KSC non-emergency spill cleanup team.

19.6.3 All PCB spill cleanup and remediation activities shall be performed in accordance with TSCA regulations (reference [40 CFR 761.60](#), [40 CFR 761.61](#), [40 CFR 761.65](#), [40 CFR 761.125](#), and [40 CFR 761.130](#)).

19.6.4 Since approval from EPA Region IV and the FDEP may be required before executing any sampling or remediation activities, all PCB remediation activities shall be coordinated with the NASA EAB. The NASA EAB will coordinate with and obtain approvals from EPA and FDEP.

19.6.5 In addition to TSCA regulations, the state of Florida has promulgated soil clean-up standards (soil cleanup target levels [SCTLs]) for PCBs. To avoid implementing and maintaining land use controls, PCB spills and releases shall be remediated to the residential SCTL unless otherwise approved by the NASA EAB.

19.6.5.1 The current residential SCTL is 0.5 mg per kg.

19.6.5.2 The current industrial SCTL is 2.6 mg per kg.

19.6.6 Electrical and mechanical equipment may contain PCB laden oil now or may have contained PCB laden oil in the past. There is a possibility that PCB contamination is currently present from historical spills and releases in environmental media (concrete pads, asphalt, soil, sediment, etc.) that currently surrounds (or used to surround) electrical and mechanical equipment. For projects involving the removal of such environmental media, organizations shall evaluate and properly dispose of it according to TSCA regulations.

19.6.7 There is documented existence of PCBs in various building materials (such as paints, coatings, caulk, mastic, adhesives, window glazing, etc.) across KSC and NASA-operated facilities at CCAFS. Organizations shall delineate the extent of and remediate any PCBs released to the environment (including soil, concrete, asphalt, sediment, etc.) from those building materials during facility construction or demolition projects.

19.6.8 Organizations disposing of environmental media, spill cleanup wastes, and remediation wastes that potentially contain PCBs shall use the PWQ and TRP process outlined in Chapter 13 for managing and handling the waste streams.

19.6.9 PCB-contaminated environmental media with a PCB concentration less than the state of Florida residential SCTL (currently 0.5 mg per kg) may be disposed in the KSC Landfill (used as landfill cover material). Otherwise, all PCB-contaminated environmental media, spill cleanup wastes, and remediation wastes shall be properly stored, labeled, and disposed of off-Center through the KSC Waste Management Office.

19.6.10 All environmental media samples shall be analyzed using [EPA SW-846 Method 8082](#).

19.6.11 Sampling of concrete shall be conducted according to EPA Region I guidance document entitled "Standard Operating Procedure for Sampling Concrete in the Field."

19.7 Health, Safety, and Worker Protection

19.7.1 There is documented existence of PCBs in various paints and coatings (including electrical equipment, mechanical equipment, and structural paint) across KSC and in NASA-operated facilities at CCAFS.

19.7.2 The employer shall assess potential personnel exposures to PCBs and ensure that personnel involved in the removal, disturbance, demolition, management, or cutting of PCB-containing materials (equipment, oils, paints, coatings, etc.) have been briefed on the hazards, provided appropriate PPE, and trained on proper waste management.

19.7.3 Potential PCB hazards and mitigation efforts shall be included in project health and safety plans.

19.7.4 Sampling may be required to confirm the presence or absence of PCBs or determine the concentration of PCBs in materials in order to minimize worker exposure, ensure proper worker protection, and comply with health and safety, and environmental compliance regulations.

19.7.5 Organizations shall consult the KSC Aerospace Medicine and Occupational Health Branch or MESC contractor for guidance on worker protection and environmental health sampling requirements regarding PCBs. Sampling and testing for other regulated compounds (e.g., heavy metals) that can accompany PCBs may also be required.

19.7.6 Organizations shall not directly torch cut or use heat on any materials that contain PCBs as burning of PCBs can create toxic byproducts (such as dioxins).

a. Paint samples shall be collected and analyzed for PCBs prior to using heat or torch cutting of materials that could potentially contain PCBs. Heating or torch cutting of materials with PCB concentrations greater than or equal to 50 mg per kg, is a regulatory violation and is prohibited without a permit issued by the EPA.

b. Paints and coatings with PCBs shall be removed by physical or mechanical means from areas to be heated or torch cut.

19.8 Sampling Requirements for Painted and Coated Surfaces for Disposal

19.8.1 All organizations shall follow the sampling requirements and guidance below for materials with paints and coatings that may contain PCBs.

19.8.2 The NASA EAB can approve exceptions to these requirements. The organization shall submit the proposed change along with the justification or other information in writing to the NASA EAB Chief for a determination.

19.8.3 TSCA regulations do not explicitly require testing of painted or coated surfaces for PCBs while in use. However, improper storage or disposal of painted or coated materials with a PCB concentration greater than or equal to 50 mg per kg is a regulatory violation regardless of whether or not the material has been tested to determine its PCB content.

19.8.4 PCBs have been found in various paints and coatings at KSC and NASA-operated facilities at CCAFS. Each KSC organization shall properly sample, manage, and dispose of painted and coated waste materials that potentially contain PCBs.

19.8.5 Sampling and testing for PCBs in paints or coating is recommended to maximize recycling and minimize waste disposal (especially metals and concrete). Sampling and testing for PCBs can also reduce storage requirements, disposal costs, and worker protection requirements.

19.8.6 There are no established industry standards and methods for the collection of paint samples that potentially contain PCBs; therefore,

a. Paint samples shall be obtained in accordance with the cold-scraping method described in [American Society for Testing and Materials \(ASTM\) E1729-05](#), "Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques". However, the heat gun method described in this standard is not approved for the collection of the paint or coatings.

b. If the laboratory requires at least 30 grams of paint or coating to run [EPA SW-846 Method 8082](#) (PCBs by Gas Chromatography), a composite sample can be produced from multiple painted locations to achieve the 30 gram requirement.

c. Photographs of the individual sample locations making up the composite sample and the sample identification number shall be documented in the project file and be submitted to the KSC Waste Management Office during the PWQ and TRP process.

19.8.7 Representative samples of the paints and coatings shall be collected and analyzed to determine PCB concentrations.

19.8.7.1 All layers of paints and coatings at each sampling location shall be included in the sample.

19.8.7.2 For large, continuous, homogeneous areas (such as a painted wall or coated concrete floor) multiple samples are required due to potential variations in PCB concentrations from one location to another.

- a. Homogeneous areas are defined as painted or coated areas that are similar in color, function, and form. Sample locations shall be randomly selected to cover the entire area.
- b. Table 6 defines the minimum required number of paint or coating samples based on the area square footage.

Table 6: Paint or Coating Samples Recommendations

SURFACE AREA (SQUARE FEET)	MINIMUM NUMBER OF PCB SAMPLES
less than 500	1
500 to 1000	3
1000 to 5,000	5
5,000 to 10,000	7
greater than 10,000	9

c. After the initial round of sampling, it may be desirable to collect additional paint and coating samples to delineate areas where PCB concentrations were greater than or equal to 50 mg per kg. If feasible, it may be beneficial to segregate and manage material from areas above 50 mg per kg separately from areas below 50 mg per kg.

19.8.7.3 For individual pieces of equipment and small building materials, one paint or coating sample is enough to determine the PCB content. If multiple pieces of equipment or building materials (e.g., doors) contain the same paint or coating, one PCB sample can represent all the items.

19.8.8 If paint or coating samples are not collected and no information exists which documents that the paint or coating does not contain PCBs, generators shall assume that the PCB concentrations in the paint are greater than or equal to 50 mg per kg and manage the material as a regulated PCB waste in accordance with [40 CFR 761](#).

19.8.9 If there is adequate documentation that the paint or coating does not contain any PCBs or that the concentration is less than 50 mg per kg (e.g., proof that all layers of paints or coatings were manufactured after 1979, MSDS, etc.), sampling and testing for PCBs does not need to be conducted. The documentation shall be maintained in the project file and submitted to the KSC Waste Management Office during the PWQ and TRP process.

19.8.10 Additional paint or coating sampling and testing for other regulated compounds (e.g., heavy metals) may be required depending on the planned disposition of waste. KSC Waste Management Office will advise, request, and require the needed sampling in order to process the PWQ and issue the TRP for waste disposal.

19.8.11 Additional paint or coating sampling and testing may be required for industrial health and worker protection requirements. Consult [KNPR 1840.19](#) (KSC Industrial Hygiene Programs) and contact the KSC Aerospace Medicine and Occupational Health Branch for additional guidance.

19.9 Inspections and Recordkeeping

19.9.1 The NASA EAB shall implement an inspection program for PCB management and inspect facility projects involving PCB wastes and PCB storage areas (including the KSC PCB waste storage facility [K7-0115]) for compliance with regulations and requirements identified in this chapter.

19.9.2 When compliance concerns are identified, the operational organization shall be responsible for corrective action.

19.9.3 By July 1 of each year, the KSC Waste Management Office shall prepare the annual document log in accordance with [40 CFR 761](#). The annual document log documents all PCB waste management activities of the previous calendar year.

CHAPTER 20. RADIOACTIVE MATERIALS

20.1 KNPD 1860.1, KSC Radiation Protection Program

20.1.1 [KNPD 1860.1](#) describes the policy for handling of radioactive materials at KSC. This KNPD documents ionizing and non-ionizing radiation protection program policy and responsibilities to ensure conformance with referenced regulatory agency requirements for licensing, possession, and use of radiation sources for the KSC. This KNPD applies to all KSC organizational elements, facilities, geographical areas, and operations under KSC jurisdiction or direction, including civilian and military personnel, prime and subcontractor organizations, tenants, principal investigators, and visitors.

20.1.2 The basic principles are documented in [KNPD 1150.24](#), [KNPD 1860.1](#), [KNPR 1860.1](#), and [KNPR 1860.2](#). Reference the most current version of [KNPD 1860.1](#) for more detailed instruction concerning authorities, definition, responsibilities, general provisions, applicable documents, the summations, implementation, and functions.

CHAPTER 21. ENVIRONMENTAL NOISE

21.1 Regulatory Requirements

Under the Noise Control Act of 1972, the state and local governments have primary regulatory authority which Federal facilities shall honor. Florida statute directs the FDEP to “establish standards for the abatement of excessive and unnecessary noise”. The CAA establishes an EPA Office of Air, Noise, and Radiation. Under the CAA, the EPA may require any Federal facility to control noise deemed to be a public nuisance.

21.2 Responsibility

The noise generating organization is responsible for ensuring compliance with the regulations. The NASA EMB, shall assist KSC organizations in determining the appropriate actions to control noise and notify the responsible organization of any public complaint associated with operational noise, including those that may have impacts to wildlife.

21.3 Monitoring

21.3.1 Monitoring of noise due to public complaint or regulatory intervention shall be performed by the Aerospace Medicine and Occupational Health Branch.

21.3.2 Occupational Health shall submit the monitoring report to the appropriate OR's and the NASA EMB.

21.3.3 NASA EMB shall maintain copies of the monitoring reports.

CHAPTER 22. REMEDIATION ACTIVITIES

22.1 Regulatory Requirements

22.1.1 KSC has a Hazardous and Solid Waste Amendment (HSWA) permit that mandates the investigation of any releases of hazardous waste or hazardous constituents at the facility regardless of the time at which the waste was released. KSC is also required to take appropriate corrective action for any such releases.

22.1.1.1 The permit requires the facility to comply with all land disposal restrictions.

22.1.1.2 The investigation and cleanup of KSC's contaminated sites is performed with guidance and direction from the EPA Region 4 and the FDEP.

22.2 Documentation

22.2.1 All KSC organizations shall ensure all discovered or suspected releases to the environment are reported to the NASA EAB.

22.2.2 The notification shall include, at a minimum, the location of the areas of concern (AOC), SWMU, or PRL and all available information pertaining to the nature of the release (e.g., location of site(s) on a topographic map of appropriate scale; general dimensions of affected area; media affected; hazardous constituents released; and magnitude of release).

22.2.3 The NASA EAB shall:

- a. Report to the FDEP all AOC discovered or suspected of having a probable release that may endanger human health or the environment.
- b. Notify the FDEP in writing, within 15 calendar days of discovery, of any newly discovered release(s) of hazardous waste or hazardous constituents; any suspected new areas of concern (AOC), any additional SWMU or PRL(s) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means.
- c. Modify the FDEP HSWA permit to include the new operation or facility on the Corrective Action Management Plan.

22.3 Modifications to Operational SWMU's

22.3.1 Modifications to facilities located at, on, or in any SWMU's require notification to and approval by the FDEP prior to the implementation of the modification.

22.3.2 All KSC organizations shall use the KSC Environmental Checklist ([KSC 21-608V2](#)) to identify facility modification plans to the NASA EAB.

22.3.3 The NASA EAB shall coordinate the modification plans with the FDEP.

22.4 Remediation of SWMU's

22.4.1 The NASA EAB shall maintain a schedule, in accordance with the permit, to investigate and clean up SWMUs and suspected PRLs.

22.4.2 The NASA EAB shall:

- a. Manage and coordinate with the FDEP the performance of confirmatory sampling, RCRA facility investigations, interim measures, corrective measures studies, and selected remedies for all sites.
- b. Keep the results of work plans, studies, and decisions in an administrative file in the NASA EAB.
- c. Conduct all investigations in accordance with the KSC [Decision Process Document](#) for the RCRA Corrective Action Program ([KSC-TA-6168](#)), Health and Safety Reference Manual ([KSC-TA-6167](#)), Environmental Setting Reference Manual ([KSC-TA-6166](#)), Sampling and Analysis Plan ([KSC-TA-6169](#)), and the [Investigations Derived Waste Management Plan](#).

22.5 Controls

22.5.1 All KSC organizations that are involved in the handling of hazardous waste or materials shall:

- a. Ensure that their activities are conducted in a manner that prevents the uncontrolled release of these wastes or materials into the environment.
- b. In the event of a release, take steps to immediately clean up the release and limit the area impacted by the release. The organization causing the release shall notify the NASA EAB at the time of the release per the procedures described in Chapter 4 of this KNPR.

22.5.2 For OR's that discover contamination, or if the NASA EAB informs them that there is contamination at their facilities, the OR shall:

- a. Review all ongoing procedures to ensure that current operations are not causing or adding to the contamination.
- b. Take measures to eliminate the sources of any releases.
- c. Provide corrective measures to the NASA EAB within 30 days of being notified of the discovery of contamination.

22.5.3 The NASA EAB shall review the corrective measures documentation to determine if the corrective actions are appropriate and provide comments, if required.

22.5.4 The NASA EAB is responsible for the overall investigation of suspected and contaminated sites and the management of corrective actions. Through the KSC Environmental Checklist ([KDP-P-1727](#)) process, the NASA EAB shall issue guidance on the requirement for operations and training at active SWMU's.

22.5.5 The NASA EAB shall manage the identification and reporting of contaminated sites to the regulatory agencies, identify a Potential Responsible Party (PRP), and develop funding through Environmental Compliance and Regulation budget for the management of cleanups at sites not covered by a PRP.

22.6 Training

Personnel involved in the investigation or remediation of a SWMU shall have the training outlined in Title 29 [CFR](#) 1910, Subpart Z and Title 40 [CFR](#) Parts 264 and 265.

CHAPTER 23. Emergency Planning and Community Right-To-Know Act (EPCRA)

23.1 The EPCRA

23.1.1 The EPCRA, Title III of the Superfund Amendments and Reauthorization Act of 1986, requires reporting of the amount and location of hazardous chemicals produced, stored, used, or released to the environment each year in the US.

23.1.2 EPCRA is divided into three sections:

- a. Subtitle A - emergency planning and notification of hazardous materials (Sections 301 through 304).
- b. Subtitle B - reporting requirements for chemical inventories and releases (Section 311 through 313).
- c. Subtitle C - general provisions dealing with trade secret protection, public access to records, and penalties for noncompliance (Sections 321 through 330).

23.2 Reporting Requirements

23.2.1 The following sections of EPCRA require reports to be submitted to the SERC or other regulatory entities. All reports filed by KSC shall be submitted through the NASA EMB.

23.2.2. Section 302 is a one-time reporting requirement. Any organization that has an Extremely Hazardous Substance (EHS) present at KSC in amounts greater than or equal to the threshold planning quantity (TPQ) of the substance, shall notify the NASA EMB. A list of EHS's and their respective TPQ's is available in 40 [CFR](#) 300 and 355.

23.2.2.1 To determine whether a contractor has an EHS that meets or exceeds the TPQ, the contractor shall calculate the total amount of the EHS present at any one time at the facility, regardless of location, duration, number of containers, or methods of storage. The SERC defines all areas of KSC, including NASA-controlled areas at CCAFS, as one facility.

23.2.2.2 To determine if the EHS meets or exceeds the TPQ, all sources of EHS's, both pure forms and in mixtures at a level greater than or equal to one percent, shall be added together and the total amount compared to the TPQ. The unit of the TPQ is pounds.

23.2.2.3 If the amount is equal to or greater than the TPQ, it shall be reported under Section 302.

23.2.2.4 If the EHS is present in a solution or mixture in an amount less than one percent (de minimis), it does not have to be added to the total amount for determination of exceedance of the TPQ and is exempt from reporting.

23.2.2.5 If a total amount of an EHS is present at less than the TPQ, it is exempt from the Section 302 reporting requirements.

23.2.2.6 The NASA EMB shall notify the SERC as appropriate.

23.2.3 Section 303 is a one time notification to the SERC of an emergency contact at the facility. At KSC, the Chief of the NASA EMB is the emergency contact.

23.2.4 Per section 304, all releases of chemicals listed as EHS or CERCLA hazardous substances shall be reported to state and federal authorities. These lists are available in the appendices of [40 CFR 355](#) and table [302.4 of 40 CFR Part 302](#).

23.2.5 Per section 311, government agencies shall submit MSDS or a list of certain chemicals present within their facilities to the SERC.

23.2.5.1 Chemicals and thresholds covered by this section are:

- a. Any of the EHS's that meet or exceed the TPQ or 500 pounds, whichever is less.
- b. Any of the hazardous chemicals that meet or exceed 10,000 pounds for which OSHA requires an MSDS to be maintained. (In both cases, the amount is the total amount that is present either in a pure form or in a mixture on any one day. It is not a cumulative amount.).
- c. Lists of EHS's and their TPQ's are given in Appendices of 40 [CFR 355](#).

23.2.5.2 No list of OSHA regulated chemicals exists. Chemicals are ranked by OSHA as 1 of 9 physical hazards or 1 of 15 health hazards ([29 CFR 1910.1200](#)). An MSDS form shall list the hazards associated with the substance. In general, if a material has an MSDS, it is an OSHA-regulated substance.

23.2.5.3 While [40 CFR 355](#) calls for MSDSs for each chemical that meets reporting requirements per Section 311 be submitted to the state committees, the Florida SERC prefers facilities submit a list of chemicals instead of the MSDSs. Chemicals on the list shall be grouped by the five EPA physical and health hazard categories:

- a. Fire hazard.
- b. Sudden release of pressure hazard.
- c. Reactive hazard.
- d. Immediate (acute) health hazard.
- e. Delayed (chronic) health hazard.

23.2.5.4 A chemical can fit more than one hazard category and all applicable categories must be noted on the report list. The OSHA hazard groupings noted on MSDSs must be converted to the five EPA categories.

23.2.5.5 Each contractor shall determine which chemicals used, stored, or processed by the contractor meet reporting requirements under Section 311. Guidelines and formulas for calculating chemical quantities are given in the Section.

23.2.5.6 Concentrations shall be listed on the MSDS for the hazardous chemical. If the concentration is not listed, then the person reporting is not required to search any further for the value and can assume the value is less than 1 percent (or 0.1 percent in the case of a carcinogen). The chemical is not required to be added to the total amount for comparing to the TPQ.

23.2.5.7 Reporting under Section 311 is a one time requirement. When a chemical meets requirements for reporting, then the SERC shall be notified within 90 days.

23.2.6 Section 312 requires the chemicals covered by Section 311 and their location be reported to the SERC on an annual basis (Tier Two report). The Tier Two report is due to the SERC by March 1 for the previous calendar year.

23.2.6.1 The NASA EMB shall submit the Tier Two report to the SERC.

23.2.6.2 All contractors and NASA operations at KSC shall annually report the amounts of covered chemicals that exceed 10 percent of the reporting threshold stated in 23.2.5.1 to the EMB.

23.2.7 Section 313, the toxic chemical releases section, applies to all Federal facilities associated with the manufacture, processing, or other use of a listed toxic chemical in amounts that meet or exceed the TPQ.

23.2.7.1 A Toxic Chemical Release Inventory (TRI) Form (Form R or Form A) shall be filed for each chemical present above the threshold level.

a. The threshold level for manufacturing, importing, or processing any listed chemical is 25,000 pounds per year.

b. The threshold for other use (which includes cleaning) is 10,000 pounds per year.

23.2.7.2 Contractor and NASA operators shall report all quantities of covered chemicals to the NASA EMB.

23.2.7.3 The NASA EMB shall submit TRI forms to the SERC and to the EPA in Washington, DC by July 1 for the previous calendar year.

CHAPTER 24. NATURAL RESOURCES

24.1 Threatened and Endangered Species

24.1.1 Section 7 of the ESA requires all Federal agencies to consult with the US Fish and Wildlife Service (FWS) on all actions that may affect a threatened and endangered (T&E) species or its habitat.

24.1.1.1 The rules and requirements for these consultations are delineated in Title [50 CFR Part 402](#), which identifies the type of regulation required (e.g., formal, early, informal), parties involved, and timing.

24.1.1.2 Under the provisions of the ESA, it is the duty of NASA and all Federal agencies to protect and enhance these species and their habitats. Therefore, prior to taking any actions on KSC, potential impacts to all natural resources shall be considered. This includes impacts to wildlife species as well as their habitats.

24.1.2 KSC is home to many species that are listed as threatened, endangered, or protected as species of special concern (SSC) by state and local agencies as described in the NASA ERD, [KSC-PLN-1911](#). These species shall be protected, even if the review and consultation requirements under the ESA do not apply.

24.1.3 When the response to the KSC environmental checklist ([KDP-P-1727](#)) or REC indicates that a project may impact a T&E species, a biological survey shall be completed by the NASA EMB.

24.1.4 If an unavoidable impact or one that cannot be mitigated is identified, then a formal consultation with the US FWS shall be conducted.

24.1.5 All species shall be treated as protected unless otherwise directed by the NASA EMB. Questions regarding the level of protection required for any species on KSC are to be directed to the NASA EMB. NASA EMB has several plans and guidelines that are used to address impacts to threatened, endangered, and SSC at KSC as follows:

- a. Gopher Tortoise Management Plan.
- b. Osprey Management Plan.
- c. Terns and Skimmers Management Plan.
- d. Light Management Plan.

24.1.6 Mitigation for project impacts often involves the requirement to compensate for the loss of habitat. For example, taking of scrub habitat for construction typically requires that existing, low quality scrub habitat be restored elsewhere on KSC. The NASA EMB is responsible for the overall management and coordination of mitigation activities with input from other KSC organizations, as appropriate. Funding for such activities may be required from the program or project implementing the action.

24.2 Coastal Zone Consistency Determination

24.2.1 By law, all states shall develop and implement coastal zone management programs. The coastal zone management act also requires all federally conducted or supported activities be consistent with the state program in which they are undertaken.

24.2.2 All Federal agencies performing or approving work in the coastal zone of any state shall determine if their activities directly affect the coastal zone of that state, and if they do, provide the state with the determination at the earliest possible time, but at least 90 days prior to the final approval of implementation of the activity, to allow the state time to concur or non-concur.

24.2.3 The [Florida Coastal Zone Management Plan](#) describes the entire state of Florida to be within the coastal zone. However, it also lists several entities which are considered to be outside the coastal zone.

24.2.3.1 KSC is listed as outside the coastal zone. This does not mean, however, that KSC projects are exempt from the regulatory requirement of determining consistency with the Florida Coastal Zone Management Program.

24.2.3.2 Each project and activity shall be reviewed to determine if the action affects areas outside KSC.

24.2.3.3 If the project affects the coastal zone, a consistency determination shall be prepared and submitted to the state by the NASA EMB.

24.2.3.4 The determinations are typically included in the EA or EIS for the proposed project

[\(KDP-P-1726\)](#).

24.3 Wetlands and Floodplains

24.3.1 [EO 11988](#), "Floodplain Management," [EO 11990](#), "Protection of Wetlands," and the CWA direct Federal facilities to avoid impact to floodplains and wetlands, whenever practicable, and to develop procedures for protection of floodplains and wetlands.

24.3.2 An analysis of all alternatives and early public notice of proposed impacts are required prior to approval of projects with floodplain or wetland impacts through state and Federal permitting.

24.3.3 Mitigation is required for all wetland impacts and these costs shall be estimated and included in the project design costs.

24.3.4 Biological analysis shall be performed prior to destruction of wetlands for use as criteria for mitigation efforts and analysis of impacts to protected wildlife species. This analysis is performed by the EMB as part of the ERP process.

24.3.5 Actions in floodplains and wetlands shall be avoided unless there is no practicable alternative.

24.3.6 Project proponents shall ensure their organizations do not approve a project in a wetland or floodplain without proper documentation.

24.4 NASA Use of Areas Managed by the United States Department of the Interior

24.4.1 Of the 140,000 acres of land and water which comprise KSC, only a small portion has been developed by NASA (approximately 6,000 acres). The remainder is managed for NASA, by agreement, by the US FWS as the Merritt Island National Wildlife Refuge (MINWR) per [KCA-1649](#) and by the National Park Service as a portion of the Canaveral National Seashore.

24.4.1.1 The NASA operational areas include the Industrial Area, Complex 39, the Shuttle Landing Facility, the KSC Visitor Complex, KSC roads, and various other smaller areas.

24.4.1.2 The KSC areas not developed for operational facilities are required as buffer zones because of the hazards associated with the launching and landing of space vehicles.

24.4.2 When a project or action is proposed outside a KSC operational area within the MINWR, a special use permit from the FWS is required. These permits are usually valid for 1 year.

24.4.3 If the project is intended to last longer than one year or is permanent, the impacted area shall be removed from refuge lands and considered a new or additional KSC operational area. The procedure for withdrawal of refuge land is implemented by the Center Operations Directorate per [KDP-P-3235](#).

CHAPTER 25. CULTURAL RESOURCES

25.1 Regulatory Requirements

25.1.1 In 1966, Congress passed the NHPA to ensure places of historic value were preserved and enhanced. Section 106 of the Act requires Federal agencies to consult with

the National Advisory Council on Historic Preservation (ACHP) on actions affecting listed properties.

25.1.2 Under [36 CFR Part 800](#), Protection of Historic Properties, consultation with the ACHP is conducted primarily through the Florida State Historic Preservation Office (SHPO). This is usually conducted using the state clearinghouse coordination system established under [EO 12372](#), Intergovernmental Review of Federal Programs, but may be performed directly with the SHPO.

25.2 Documentation

25.2.1 KSC is mandated by the NHPA to consider the effects on historic and archaeological properties from any action undertaken by NASA, its contractors, or tenants on KSC land.

25.2.2 There are two categories of concern:

- a. Properties listed on the National Register of Historic Places (NRHP).
- b. Properties eligible for listing on the NRHP.

25.2.3 A list of historic properties is available on the NASA EMB home page (<http://environmental.ksc.nasa.gov>), [KSC Environmental SharePoint site](#), or by contacting the KSC Historic Preservation Officer (HPO). The archaeological sites listed or eligible for listing can be obtained by contacting the KSC HPO due to the sensitivity of these sites.

25.2.4 KSC has executed a Programmatic Agreement (PA) for the Management of Historic Properties, signed by representatives from the ACHP, the SHPO, and the KSC Center Director to streamline the Section 106 consultation process. Whenever a project or undertaking may adversely affect one of these properties, KSC shall consult with the SHPO and the ACHP by initiating the Section 106 process, and by applying the PA.

25.2.4.1 A Memorandum of Agreement (MOA), or other agreement-type document, shall describe the undertaking, adverse effects, and mitigation measures to be taken by all parties. The MOA is signed by the Center Director and the SHPO. Other agreement-type documents are signed by the KSC HPO and the SHPO.

25.2.4.2 The process of considering the effects on historic and archaeological properties is the responsibility of the KSC HPO as documented in [KDP-P-1733](#), Historic and Archaeological Site Flowchart. Determination of the need for consultation is typically done through the use of the KSC Environmental Checklist ([KSC Form 21-608 V2](#)) process ([KDP-P-1727](#)).

25.3 Controls

25.3.1 No action shall be taken on any listed or eligible historic property without concurrence from the KSC HPO and the SHPO, if it is determined by the KSC HPO that the property is adversely affected.

25.3.2 All actions involving listed or eligible historic properties shall be coordinated with KSC EMB through the use of the KSC Environmental Checklist process ([KDP-P-1727](#)).

25.3.3 Archaeological sites are found throughout KSC. Therefore, prior to any digging or excavation, the KSC HPO shall be consulted after using the KSC Environmental Checklist ([KDP-P-1727](#)) or the Excavation Permit Application and Siting Approval Environmental

Review Process to determine if there is a potential to affect a known or unknown site.

25.3.4 If excavation results in an unanticipated discovery of archeological artifacts or other resources potentially historic in nature, work shall cease and the KSC HPO contacted immediately. Refer to [KDP-P-1733](#) for the process to modify a Historic and Archaeological Site.

CHAPTER 26. POLLUTION PREVENTION, SOLID WASTE DIVERSION, RECYCLING, AND GREEN PURCHASING

26.1 Regulatory Requirements

26.1.1 Section 6002 of the RCRA and [EO 13514](#), Federal Leadership in Environmental, Energy, and Economic Performance, directs Federal agencies to establish solid waste diversion goals and establish and maintain cost-effective pollution prevention programs.

26.1.2 Reporting

26.1.2.1 NASA EMB shall collect data on green purchasing, recycling, and waste diversion practices at KSC through an annual data call.

26.1.2.2 All NASA and contractor organizations shall respond to the annual NASA EMB data call.

26.1.2.3 NASA EMB shall input the data into NETS during the annual RCRA 6002 data call.

26.2 Pollution Prevention

26.2.1 KSC's goal is to reduce the volume and toxicity of solid and hazardous wastes to the extent economically practicable. All personnel shall adopt this practice in day-to-day operations and are encouraged to introduce new ideas concerning waste minimization opportunities to management.

26.2.2 All NASA and contractor organizations shall contribute to agency and Center waste diversion goals.

26.2.3 The NASA EMB shall provide guidance and direction to help achieve KSC's goals.

26.2.4 KSC Waste Minimization Elements

26.2.4.1 Management Support - Management of each NASA and contractor organization shall show support of waste minimization efforts by using these techniques:

- a. Incorporate waste minimization as an integral part of organizational strategies to increase productivity and quality.
- b. Set goals for the reduction of both volume and toxicity of waste streams consistent with those established by the NASA EMB.
- c. Commit to implementing recommendations identified through assessments, evaluations, and waste minimization teams.
- d. Designate a waste minimization coordinator who is responsible for facilitating effective implementation, monitoring, and evaluation of the program.

- e. Publicize waste minimization success stories and recognize individual and group accomplishments.
- f. Raise employee awareness of the waste generating impact that results from daily operations and work procedures.

26.2.4.2 Characterization of Waste Generation and Waste Management Costs - The MESCS shall track types and amounts of waste generated at KSC and the direct costs associated with waste disposal. True costs affect the economic practicability of waste minimization activities and include:

- a. Additional costs of regulatory compliance oversight.
- b. Reporting requirements.
- c. Cost of labor and materials.
- d. Employee exposure and health care.
- e. Liability insurance.
- f. Possible corrective action costs.

26.2.4.3 Periodic Waste Minimization Assessments - The NASA EMB will assist each waste generating organization in performing process or facility assessments to identify opportunities at all points in a process where materials can be prevented from becoming waste. These waste minimization opportunities shall be analyzed based on true costs associated with management of the waste.

26.2.4.4 Technology Transfer - Useful and valid waste minimization techniques can be shared within waste generating organizations and among other waste generating organizations. Functions at KSC, such as the KSC Environmental Solutions Partnering Team, provide a forum for sharing these technologies and techniques.

26.2.4.5 Project Implementation - If feasible and practicable, recommendations developed through the waste minimization assessments should be implemented.

- a. The KSC EMB will assist the KSC waste generating organizations in monitoring the overall effectiveness of waste minimization activities in relation to waste minimization goals.
- b. The MESCS will help these efforts through distribution of periodic reports on the amount of hazardous waste generated and the associated direct disposal costs.

26.2.5 Waste Minimization Options (in order of preference)

26.2.5.1 Prevention through Source Reduction - Source reduction is the practice of reducing the amount of hazardous substances, pollutants, or contaminants entering any waste stream or otherwise released into the environment before recycling, treatment, or disposal. Source reduction reduces or eliminates the hazards to employees, the public, and the environment along with the liability of regulatory compliance. Several source reduction techniques are listed below:

- a. Initial Environmental Design - Incorporation of environmental considerations into the initial process or facility design to limit or prevent pollution or waste generation from occurring.
- b. Process Efficiency Improvement - Changes to a process or facility to reduce requirements for hazardous substances, pollutants, or contaminants.
- c. Material Substitution - Substitution of non-hazardous or less hazardous materials into a process to reduce the toxicity of the resulting waste stream.
- d. Inventory Control - Control of hazardous materials in inventories to promote efficient use and to avoid shelf-life expiration and waste generation. Emphasize issuing only the quantity of a material needed for the job.
- e. Preventive Maintenance - Designing equipment for maintainability can result in detection and avoidance of equipment problems before failures and associated spills and leaks of hazardous materials occur.
- f. Improved Housekeeping - A clean, well-organized facility and awareness by personnel, regarding the proper management and use of toxic and hazardous materials, can greatly reduce the frequency and amount of accidental spills, releases, and subsequent waste generation.

26.2.5.2 Recycling and Waste Diversion - Recycling and waste diversion such as reuse are the most preferred method of waste minimization for those hazardous substances, pollutants, or contaminants that cannot be reduced at the source.

26.2.5.3 Treatment - Treatment options shall only be employed when wastes cannot be prevented or recycled.

26.2.5.4 Disposal - Disposal shall only be used when the waste could not be prevented, treated, or recycled.

26.3 Solid Waste Diversion and Recycling

26.3.1 The recycling coordinator shall enable Center-wide recovery and sale, reuse, or exchange of recyclable materials owned by the Government. The implementation of this program is designed to ensure all employees comply with [EO 13423](#) and [EO 13514](#).

26.3.2 The recycling coordinator shall work closely with the property disposal contracting officers to provide solid waste diversion and recycling requirements when modifying existing contracts and creating requirements for new contracts.

26.3.3 KSC's overall goal is to maximize the amount of materials diverted and recycled while reducing the amount of recyclable material going to our onsite landfill and Brevard County landfill. KSC civil servants and contractors shall maximize the recovery and sale of recyclable material owned by the Government which has no value other than its basic material content.

26.3.4 Recycling Program Implementation

26.3.4.1 The NASA EMB administers recycling programs for aluminum cans, plastic and glass bottles, paper, cardboard, and others as they are developed. All other sales of excessed recyclable commodities are conducted by the property disposal officer in the Center Operations, Logistics and Services Branch. See Chapter 27, KSC Environmental Requirements for Reclamation and Salvage.

26.3.4.2 Aluminum cans, and plastic and glass bottles (with necks only) shall be placed in the designated recycling bins located in various buildings throughout KSC. The bins are emptied on a weekly basis by the recycling contractor staff.

26.3.4.3 Cardboard and items similar to cardboard shall be deposited in the dumpsters located outside of various facilities. These items include:

- a. Newspapers.
- b. Magazines.
- c. Catalogs.
- d. Notepads.
- e. Spiral bound notebooks.
- f. Booklets.
- g. Brochures.

26.3.4.4 All debris shall be emptied from cardboard boxes before recycling. Break down (flatten) boxes only if this can be done safely. Non-recyclable cardboard includes:

- a. Chemically contaminated cardboard.
- b. Paperboard such as cereal boxes.
- c. Cardboard with wax coating.
- d. Cardboard with food or beverage residue.

26.3.4.5 Under no circumstances shall recyclable cardboard be deposited in the trash dumpsters.

26.3.4.6 Mixed office paper shall be disposed of in blue desktop bins and large wheel around containers labeled for paper recycling located in the corridor or janitor's closet. The following mixed office papers are acceptable:

- a. All white and colored bond, notebook, and adding machine paper (with or without staples).
- b. White computer paper (with or without colored print).
- c. Non-coated office newsletters such as KSC Bulletin and Spaceport News.
- d. Copier paper (non-coated).

NOTE: Do not place the wrappers of copier paper in the recycling bins.

- e. Colored tabs, Post-It notes, and colored paper.
- f. KSC telephone directories.

26.3.4.7 The following are not acceptable in the mixed office paper bin:

- a. Binder clips.
- b. Coated paper.
- c. Thermal fax paper.
- d. NCR paper.
- e. Carbon forms.
- f. Wet garbage.
- g. Document protectors.
- h. Commercial telephone directories.
- i. Copier and printer paper wrappers.

26.3.4.7 Spent toner cartridges are recyclable through vendors or supply organizations.

26.3.4.8 Employees are encouraged to take other recyclable containers (i.e. containers without necks) and commercial telephone books home for inclusion in curbside collection programs.

26.3.4.9 PCBs have been regularly detected in various building materials across KSC and CCAFS. Such construction and demolition debris requires sampling before it can be recycled or sold through KSC's Property Disposal Office at the Ransom Road RRMF or transferred to the construction contractor as a project off-set.

- a. Project managers shall maximize recycling and divert solid waste from disposal when cost-effective.
- b. Cost evaluations shall be retained with the project file for audit purposes. (Reference Chapter 19 for further information on the proper handling, storage, and disposal of materials containing PCB's).

26.3.5 Use of Recycling Funds

26.3.5.1 Public Law 103-329 authorizes Federal agencies to receive and use funds resulting from the sale of recycled materials for additional recycling, pollution prevention, or environmental management programs. All proceeds from recycling shall be deposited into a designated fund code provided by the NASA Institutional Resources Office.

26.3.5.2 A formal request for new projects to use recycling funds shall be disseminated through points of contact internal to KSC twice a year per [KDP-P-1449](#).

26.4 Diverted Aggregate Reclamation and Collection Yard (DARCY)

26.4.1 The DARCY is a cleared, 10-acre parcel located north of the closed KSC landfill and west of the existing permitted class III, C and D landfill. The DARCY provides a temporary

storage and processing area for reuse of waste concrete and other aggregate-based materials such as river rock, limestone, and gravel.

26.4.2 Material to be brought to the DARC Y shall be segregated at the source (project location) and be free of other construction debris and excess soils. Diverted concrete materials may contain rebar, wire fabric, or other metallic material. Any external metallic material must not protrude more than 4 inches from the concrete surface.

26.4.3 Upon entering the landfill, all vehicles shall proceed to the scale house for weigh-in with the scale house attendant.

26.4.4 The landfill operator shall retain records of material deliveries to the DARC Y for at least 2 years.

26.4.5 Records of material removed from the DARC Y for reuse shall be maintained on a yearly basis by the project manager removing the material and reported to the NASA EMB.

26.4.6 Clean, unstained, and unpainted concrete can be accepted at the DARC Y without conducting any sampling. If the concrete has paint or coating on it, further evaluation is required to determine acceptability at the DARC Y.

26.4.6.1 Painted or coated concrete shall be accepted at the DARC Y only if one of the conditions listed below is met; otherwise, the painted or coated concrete must be disposed of in the KSC landfill as regular construction and demolition debris.

a. The paint or coating is sampled to determine if the total PCBs and total metals (this is not the same as the Toxicity Characteristic Leaching Procedure [TCLP] testing) are below the state of Florida Residential SCTLs. The most likely heavy metals of concern found in KSC paints and coatings are lead, chromium, and cadmium. The current state of Florida Residential SCTLs are listed below:

- 1) Total PCBs = 0.5 mg per kg.
- 2) Total Lead = 400 mg per kg.
- 3) Total Chromium = 210 mg per kg.
- 4) Total Cadmium = 82 mg per kg.

b. Documentation is provided (e.g., MSDS) that all layers of all paints and coatings on the concrete do not contain any PCBs or heavy metals.

c. The paint or coating is sampled for total PCBs, the concentration is less than 50 mg per kg.

26.4.6.2 The paint and coating do not need to be sampled for metals or TCLP for placement in the DARC Y unless required for worker protection reasons.

26.4.6.3 The paint or coating can be removed from the concrete prior to placement in the DARC Y. Project managers shall coordinate the removal process with the NASA EAB and the removed paint or coating must be managed per Chapter 13.

26.4.7 No oil-stained concrete is accepted at the DARC Y. When feasible, stained concrete must be segregated from clean concrete. Because of the potential to contain PCBs, all

removed concrete associated with oil-containing electrical equipment shall be disposed through the KSC Waste Management Office as a regulated PCB waste.

26.4.8 No contractor is allowed to conduct any land disturbing activities at the DARCY without prior written consent of the NASA EMB. Land disturbing activities include, but are not limited to, scraping of soil, removal of soil for offsite activities, and digging. Land disturbance may require that environmental permits be secured and erosion and sediment controls implemented prior to conducting these activities. Failure to properly notify the NASA EMB or to secure a permit will have a negative impact on actions and shall be the responsibility of the contractor.

26.5 Green Purchasing

26.5.1 All NASA and contractor organizations shall comply with [EO 13423](#) through procurement of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-content products, goods and services such as:

- a. Recycled content products designated in EPA's Comprehensive Procurement Guidelines (CPG).
- b. Energy Star products identified by the DOE and EPA, as well as Federal Energy Management Program (FEMP)-designated energy-efficient products.
- c. Water-efficient products, including those meeting EPA's WaterSense standards.
- d. Energy from renewable sources.
- e. Biobased products designated by the US Department of Agriculture in the Bio-Preferred Program.
- f. Environmentally preferable products and services, including Electronic Product EA Tool (EPEAT)-registered electronic products.
- g. Alternative fuel vehicles and alternative fuels required by the Energy Policy Act.
- h. Products with low or no toxic or hazardous constituents.
- i. Non-ozone depleting substances, as identified in EPA's significant new alternatives program.

26.5.2 NASA's EMB shall facilitate awareness across the Center, assess performance, and compile Center-wide information for annual reporting requirements associated with KSC's Green Purchasing Program.

26.5.3 Annual RCRA 6002 data are due to the NASA EMB within 30 days after FY-end. All NASA and contract organizations shall submit the following information regarding the purchase of products on the US EPA CPG list and Recovered Materials Advisory Notices (RMAN):

- a. The total dollar amount of each item purchased during the previous FY.
- b. The total dollar amount of each item purchased during the previous FY that contained at least the minimum recommended percentages of recycled content or bio-based content.

- c. The total dollar amount of each item purchased during the previous FY that contained recycled content or bio-based content less than the minimum recommended percentages of recycled content or bio-based content.
- d. The number of waivers and the name of the item in each waiver submitted to the NASA EMB during the previous FY.
- e. The total dollar amount for each waived item purchased during the previous FY.
- f. A narrative explanation of constraints for purchasing each item that did not meet green purchasing content requirements during the previous FY.

26.5.4 The following links should be referenced to identify green purchasing products:

- a. CPG products – www.epa.gov/cpg.
- b. Bio-based products – www.biopreferred.gov.
- c. Environmentally preferable products - www.rethinkrecycling.com/government/eppg .
- d. Electronics products – www.epeat.gov.
- e. FEMP - <http://www1.eere.energy.gov/femp/>.
- f. Energy Star Products - <http://www.energystar.gov/>.

26.5.5 Procurement of items which do not meet the minimum standards in Section 26.5.1 require a waiver. Waiver requests shall be submitted to the NASA EMB Chief or contractor environmental managers for contractor Green Purchasing Program using [KSC Form 28-825](#) and following KDP-KSC-P-8530, Sustainable Acquisition Process. The decision to grant a waiver is based on a determination that the items:

- a. Are not reasonably available within a reasonable period of time.
- b. Fail to meet the performance standards set forth in the applicable specifications or fail to meet the reasonable performance standards of the procuring agencies. This determination shall be made based on the guidelines of the National Institute of Standards and Technology.
- c. Are only available at an unreasonable price.

CHAPTER 27. KSC ENVIRONMENTAL REQUIREMENTS FOR RECLAMATION AND SALVAGE

27.1 Reclamation and Salvage

This chapter sets forth the Center's Environmental requirements regarding reclamation, salvage, and resale of Center materials through the KSC RRMF. Categories of materials covered by this chapter include, but are not limited to:

- a. Oil-filled equipment.
- b. Lead acid batteries.
- c. Scrap metal.

- d. Electronic equipment.
- e. Heavy or movable equipment.
- f. Compressed gas cylinders.
- g. Severed flex hoses.

27.2 Responsibility

All NASA and contractor organizations responsible for environmental contamination at the RRMF which occurs as a result of failure to follow the requirements in this chapter shall be held liable for all cleanup and remediation costs associated with such contamination.

27.3 KSC RRMF

27.3.1 Safe salvage and reclamation operations at the RRMF are achieved by using good environmental management practices, preventing spills and releases, and properly identifying, describing, and documenting materials before they are transferred to the RRMF.

27.3.2 The RRMF shall accept materials only if they meet the following criteria:

- a. No leakage of any type of fluid from equipment or containers.
- b. No visible indication of old spills or releases on outside of equipment or containers that could be washed off from rainfall.
- c. Drained of all fluids.
- d. Accompanied by required documentation, KSC [Form 7-652](#) (or equivalent), to include a full, written commercial description clearly identifying in writing as intended for sale as scrap only.

27.3.3 Sampling analysis for metals (totals or TCLP) is not necessary for items to be recycled.

27.3.4 Paints and coatings manufactured prior to 1979 have the possibility to contain PCBs. PCB-containing paints and coatings have been found across KSC and in NASA-operated facilities at CCAFS. All equipment being offered for sale or as scrap shall meet the following requirements. (See chapter 19 for more guidance and requirements for managing and disposing of PCBs.)

27.3.4.1 If the total PCB concentration in the paint or coating is greater than or equal to 50 mg per kg, the entire item is a regulated PCB waste and cannot be transferred to, sold, or recycled through the KSC RRMF.

27.3.4.2 Oil inside electrical and mechanical equipment may contain PCBs and shall be sampled to determine the PCB concentration.

27.3.4.3 Oil-containing equipment where the PCBs concentrations in both the oil and paint are less than 50 mg per kg can be excessed through the RRMF. The oil shall be removed from the equipment and sample results provided to the RRMF.

27.3.4 Any equipment which is found to be leaking during the initial inspection of the delivery to RRMF shall be reported as a spill. It is the financial and environmental responsibility of the organization sending the equipment to the RRMF to ensure appropriate clean-up and disposition of the equipment and any other contamination it caused.

27.3.5 Liquid-containing items which are delivered to the RRMF with the intent of resale but which are at some point re-designated for sale as scrap metal, shall be properly drained into impermeable containment sufficient to collect and contain 100 percent of all liquids in the equipment by RRMF personnel and thereafter managed under the requirements for scrap metal.

27.3.6 Once material has been accepted by the RRMF personnel, it is their responsibility to ensure that the material is stored in a manner that prevents environmental contamination.

27.3.7 Table 7 summarizes the requirements for some of the most common materials sent to the RRMF. This listing summarizes only the major environmental requirements for delivery and acceptance of materials to the RRMF as well as general storage requirements of the materials while at the RRMF.

Table 7: Materials Allowed at RRMF

Oil-Filled Equipment	<p>a. Oil-filled equipment shall be drained of free-flowing liquids and the exterior visually free of oil or other contamination.</p> <p>b. Items, which previously contained dielectric fluid, shall be accompanied by a copy of analytical results taken within the past 6 months documenting that the fluid did not contain PCBs equal to or less than 50 PPM.</p> <p>c. Once at the RRMF, this equipment shall be stored on an impervious surface with rain protection.</p>
Batteries: Lead-Acid and Silver-Zinc	<p>a. Lead-acid and silver-zinc batteries may be brought to the RRMF undrained, but shall not be leaking.</p> <p>b. The batteries shall be secured to pallets or containerized and protected against short circuits.</p> <p>c. Batteries shall not be stacked in any way that puts weight on the battery terminals.</p> <p>d. Batteries shall be stored in a segregated location inside shelter on an impervious surface with rain protection.</p> <p>e. The batteries shall be identified as lead-acid or silver-zinc and be accompanied by MSDS and KSC Form 7-652 or equivalent.</p>
Drums	<p>a. Drums may be brought to the RRMF emptied of all free-flowing liquid, crushed and palletized.</p> <p>b. Crushed drums shall be stored on pallets on impervious surface with rain protection.</p> <p>c. The drums shall be accompanied by PWQ and TRP and KSC Form 7-652 or equivalent.</p>
Equipment	<p>a. Equipment containing ODS (e.g., Freon) that is no longer usable</p>

<p>Containing ODS (e.g., Freon) – <i>Unusable Equipment</i></p>	<p>may be brought to the RRMF but shall be properly drained (recover ODS) and labeled as “Empty”.</p> <p>b. The equipment shall be accompanied by KSC Form 7-652 or equivalent.</p>
<p>Equipment Containing ODS (e.g., Freon) – <i>Usable Equipment</i></p>	<p>a. Equipment containing ODS that is offered for sale as usable equipment may be brought to the RRMF. This equipment does not need to be drained of the ODS, but shall be accompanied by certification that the equipment is not leaking and by KSC Form 7-652 or equivalent.</p> <p>b. This equipment shall be stored in an area with rain protection.</p>
<p>Scrap Metal and Structural Steel</p>	<p>a. Scrap metal and structural steel shall be visibly clean of all residual oils or contaminants and clearly identified in writing as intended for sale as scrap only.</p> <p>b. These materials shall be accompanied by KSC Form 7-652 or equivalent.</p>
<p>Flex Hoses</p>	<p>a. Flex hoses shall be decontaminated and certified as such.</p> <p>b. The hoses shall be mechanically rendered unusable (by cutting, crushing, or other means) for anything but scrap. The hoses may then be stored with other scrap metal for sale.</p> <p>c. These materials shall be accompanied by KSC Form 7-652 or equivalent.</p>
<p>Compressed Gas Cylinders (non-acetylene)</p>	<p>a. Empty compressed gas cylinders (non-acetylene) shall be returned to vendors, if possible.</p> <p>b. If impossible to return to vendors, ensure cylinders are empty, remove valves, and drill a hole large enough that the inside of the cylinder can be seen and verified to be clean and dry.</p> <p>c. These materials shall be accompanied by KSC Form 7-652 or equivalent.</p>
<p>Acetylene Gas Cylinders</p>	<p>a. Empty acetylene gas cylinders shall be returned to vendors, if possible. Acetylene cylinders may contain asbestos so coordinate with MESCC Environmental Health before cutting or disturbing structural integrity of acetylene cylinders.</p> <p>b. If the cylinder is found to contain asbestos, RRMF cannot recycle them and they shall be disposed of as a hazardous waste.</p> <p>c. These materials shall be accompanied by KSC Form 7-652 or equivalent.</p> <p>d. Refer to OMI Q3108 Rev. D 3/13/03 Compressed Gas Cylinders Handling and Use at KSC and CCAFS and LSV-P-5121, Management of Government/Vendor Owned Cylinders, for further guidance.</p>

Magnetic Tapes	Magnetic tapes may be brought to the RRMF and stored in an area with rain protection. These materials shall be accompanied by KSC Form 7-652 or equivalent.
Electronic Equipment – <i>Unusable</i>	<p>a. Unusable electronic equipment is identified as E-Waste. E-Waste is a generic term for a variety of waste containing electronic components including products used for data processing, telecommunications, or entertainment such as computers, monitors, TV sets, mobile phones, PDAs, and electronic equipment used in industrial settings.</p> <p>b. All hazardous materials shall be removed (e.g., mercury, PCBs, etc.) and certified as being clean for sale as scrap.</p> <p>c. The equipment shall be identified as intended for sale as scrap and accompanied by KSC Form 7-652 or equivalent.</p>
Electronic Equipment – <i>Usable</i>	<p>a. Electronic equipment that is intended for resale as usable equipment shall be stored in an area with rain protection.</p> <p>b. The equipment shall be accompanied by KSC Form 7-652 or equivalent.</p>
Precious Metals	Precious metals may be brought to the RRMF and stored in an area with rain protection. These materials shall be accompanied by KSC Form 7-652 or equivalent.
Heavy or Movable Equipment (e.g., forklifts, lawn mowers, etc.) - <i>unusable</i>	<p>a. Unusable heavy or movable equipment (e.g., forklifts, lawn mowers, etc.) may be brought to the RRMF drained of all fluids (fuel, hydraulic oil, etc.) and the exterior shall be visibly clean of all oil or contaminants.</p> <p>b. The equipment shall be stored on an impervious surface with rain protection.</p> <p>c. The equipment shall be identified as intended for sale as scrap and accompanied by KSC Form 7-652 or equivalent.</p>
Heavy or Movable Equipment – <i>usable</i>	<p>a. Heavy or movable equipment for sale as usable equipment shall be inspected and certified to insure all fluid lines and reservoirs are intact and not leaking.</p> <p>b. The exterior of all equipment shall be visibly clean of all oil or contaminants.</p> <p>c. The equipment shall be stored on an impervious surface with rain protection and segregated from scrap materials.</p> <p>d. The equipment shall be accompanied by KSC Form 7-652 or equivalent.</p> <p>e. Once at the RRMF, RRMF personnel shall conduct routine inspections for leaks, promptly clean up any contamination from leaks, and store equipment in secondary containment until leak is fixed.</p>

27.3.8 The following materials shall not be accepted for salvage or reclamation at the RRMF:

- a. Visibly leaking equipment or containers.
- b. Spent blast media.

- c. Uncrushed drums.
- d. Treated lumber.
- e. Explosives or ordnance.
- f. Radioactive materials.
- g. Intact compressed gas cylinders and acetylene cylinders containing asbestos.
- h. Intact flex hoses.
- i. Hazardous materials.
- j. Biomedical wastes.
- k. Non-lead and non-silver zinc batteries such as:
 - 1) Lithium batteries (managed as UW).
 - 2) Mercury batteries (managed as UW).
 - 3) Nickel-cadmium wet cell batteries containing potassium hydroxide electrolyte solution (managed as UW).
 - 4) Nickel-cadmium dry cell batteries (managed as UW).

27.4 Procedures

27.4.1 To successfully implement the requirements in this chapter, NASA and contractor organizations shall develop and implement adequate procedures addressing inspection, transportation, and storage activities at the RRMF and other Center locations to prevent environmental contamination.

27.4.2 The organization transferring items to the RRMF for reclamation, salvage, or resale shall ensure that all materials sent to the RRMF meet the requirements of this chapter at the time of delivery to RRMF.

CHAPTER 28. ENERGY MANAGEMENT

28.1 KSC Policy

28.1.1 The KSC Energy policy is found in [KNPD 8500.1, KSC Environmental Management](#).

28.1.2 All KSC organizations shall comply with Federal requirements and perform day-to-day activities as energy efficiently as possible (e.g., designing efficient equipment and facilities, buying efficient products, operating and maintaining equipment and facilities at peak efficiency, and turning off systems when not in use).

28.2 Responsibilities

28.2.1 All KSC employees and tenants shall:

- a. Conduct day-to-day functions with good energy efficiency practices.
- b. Report energy waste from improperly operating equipment to appropriate Trouble Call Office and submit opportunities for improvement to organizational EWG member.

28.2.2 The KSC Energy Manager shall:

- a. Represent KSC on the NASA Energy Efficiency Panel and at NASA Energy and Water meetings.
- b. Chair the KSC EWG.
- c. Lead planning and program implementation to ensure compliance with Federal and NASA mandates and communicate progress through metrics.
- d. Ensure effective energy utility purchases.
- e. Ensure submittal to NASA HQ of deliverables such as budget exhibits, reports, self-assessments, spot check responses, and special data collections.
- f. Serve as technical contact for energy budgeting and manage special funds for energy projects such as Utility Rebates and DOE funding.

28.2.3 NASA KSC program and institutional organizations including supporting contractor organizations (for operations and maintenance of facilities under their responsibility) shall:

- a. Participate in the EWG.
- b. Plan and implement an energy management program that ensures compliance with Federal and NASA mandates consistent with the KSC Energy Program and communicate progress through metrics.
- c. Ensure efficient and cost-effective utility use by applying energy conservation techniques and shifting load to cheaper rate times.
- d. Contribute to deliverables to NASA HQ such as budget exhibits, reports, self-assessments, spot check responses, and special data collections via NETS and otherwise.
- e. Forecast energy consumption and cost for assigned facilities.

28.2.4 KSC facility and equipment design organizations shall ensure new construction and modifications are compliant with Federal and NASA energy mandates.

28.2.5 Center Operations Logistics and Services Branch shall coordinate KSC's response to transportation mandates with the General Services Administration.

APPENDIX A: Acronyms

ACBM	Asbestos-Containing Building Material
ACHP	Advisory Council on Historic Preservation
AF	Air Force
AOC	Areas of Concern
ASD	Accumulation Start Date
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
BCNRMO	Brevard County Natural Resources Management Office
BMP	Best Management Practice
CAA	Clean Air Act
CATEX	Categorically Excluded
CCAFS	Cape Canaveral Air Force Station
CFR	Code of Federal Regulations
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CPG	Comprehensive Procurement Guidelines
CUP	Consumptive Use Permit
CWA	Clean Water Act
DARCY	Diverted Aggregate Reclamation and Collection Yard
DOT	Department of Transportation
DYCOH	Drop Your Chemicals Off Here
EA	Environmental Assessment
EAB	Environmental Assurance Branch
EHS	Extremely Hazardous Substance
EIS	Environmental Impact Statement
EMB	Environmental Management Branch
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EPEAT	Electronic Product Environmental Assessment Tool
ERD	Environmental Resources Document
ERP	Environmental Resource Permit
ESA	Endangered Species Act
EU	Emission Units
E-WASTE	Electronic Equipment Waste
EWG	Energy Working Group
FAC	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDOH	Florida Department of Health
FEMP	Federal Energy Management Program
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FWS	Fish and Wildlife Service
FY	Fiscal Year
HPO	Historic Preservation Officer
HQ	Headquarters
HSWA	Hazardous and Solid Waste Amendment
HWDIP	Hazardous Waste Determination in Progress
IOZ	Inorganic Zinc
ISC	Institutional Services Contract
IT	Information Technology
KDP	Kennedy Documented Process

kg	Kilogram
KIWI	Kennedy Industrial Wastewater Inventory
KNPD	Kennedy NASA Policy Directive
KNPR	Kennedy NASA Procedural Requirements
KSC	Kennedy Space Center
LQG	Large Quantity Generator
MESC	Medical and Environmental Support Contract
mg	Milligram
MINWR	Merritt Island National Wildlife Refuge
MOA	Memorandum of Agreement
MSDS	Material Safety Data Sheets
MSSW	Management and Storage of Surface Waters
MVAC	Motor Vehicle Air Conditioner
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NESHAP	National Emission Standard Hazardous Air Pollutants
NETS	NASA Environmental Tracking System
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NOT	Notice of Termination
NPD	NASA Policy Directive
NPDES	National Pollutant Discharge Elimination System
NPR	NASA Procedural Requirements
NRACM	Non-Regulated Asbestos Containing Materials
NRHP	National Register of Historic Places
ODS	Ozone Depleting Substance
OHF	Occupational Health Facility
OR	Organizational Representative
OSHA	Occupational Safety and Health Administration
OSTDS	Onsite Sewage Treatment and Disposal Systems
P.E.	Professional Engineer
PA	Programmatic Agreement
PAFB	Patrick Air Force Base
PCB	Polychlorinated Biphenyl
PCW	Petroleum Contact Water
PIR	Pollution Incident Report
PPE	Personal Protective Equipment
PPM	Parts Per Million
PRL	Potential Release Location
PRP	Potential Responsible Party
psi	Pounds Per Square Inch
PWQ	Process Waste Questionnaire
RACM	Regulated Asbestos-Containing Material
RAI	Requests for Additional Information
RCRA	Resource Conservation and Recovery Act
RDRL	Release Detection Response Level
REC	Record of Environmental Consideration
RMAN	Recovered Materials Advisory Notice
RMP	Risk Management Plan
RRMF	Reutilization, Recycling, and Marketing Facility
RSA	Recycling and Sustainable Acquisition
SAA	Satellite Accumulation Area
SCT	Spill Cleanup Team
SCTL	Soil Cleanup Target Level

SDWA	Safe Drinking Water Act
SERC	State Emergency Response Commission
SHPO	State Historic Preservation Office
SJRWMD	Saint Johns River Water Management District
SPCC	Spill Prevention, Control, and Countermeasures
SSC	Species of Special Concern
SWIF	Seawater Water Immersion Facility
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
T&E	Threatened and Endangered
TCLP	Toxicity Characteristic Leaching Procedure
TMDL	Total Maximum Daily Load
TPQ	Threshold Planning Quantity
TRI	Toxic Chemical Release Inventory
TRP	Technical Response Package
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage, and Disposal Facility
UN	United Nations
UPW	Universal Pharmaceutical Waste
US	United States
USC	United States Code
UST	Underground Storage Tank
UW	Universal Waste
VEO	Visual Emission Observation