# KENNEDY SPACE CENTER (KSC)
# SCHWARTZ ROAD LANDFILL, CLASS III
# OPERATIONS PLAN

***Prepared for:***

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**
**Kennedy Space Center, Florida 32899**

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## 1.0 INTRODUCTION

This Operation Plan has been developed for NASA to serve as a guide to meet the operational requirements of Chapter 62-701, F.A.C. The plan will be maintained by NASA Kennedy Space Center's Operation and Maintenance Contractor, referred to as the contract from this point on, and will be accessible to facility operators. All records, analytical results, modifications to the plan will be kept on file as indicated in Section 9.0.

The KSC Schwartz Road Class III Landfill is located on the Kennedy Space Center (KSC) in Brevard County, Florida (Figure 1.1).

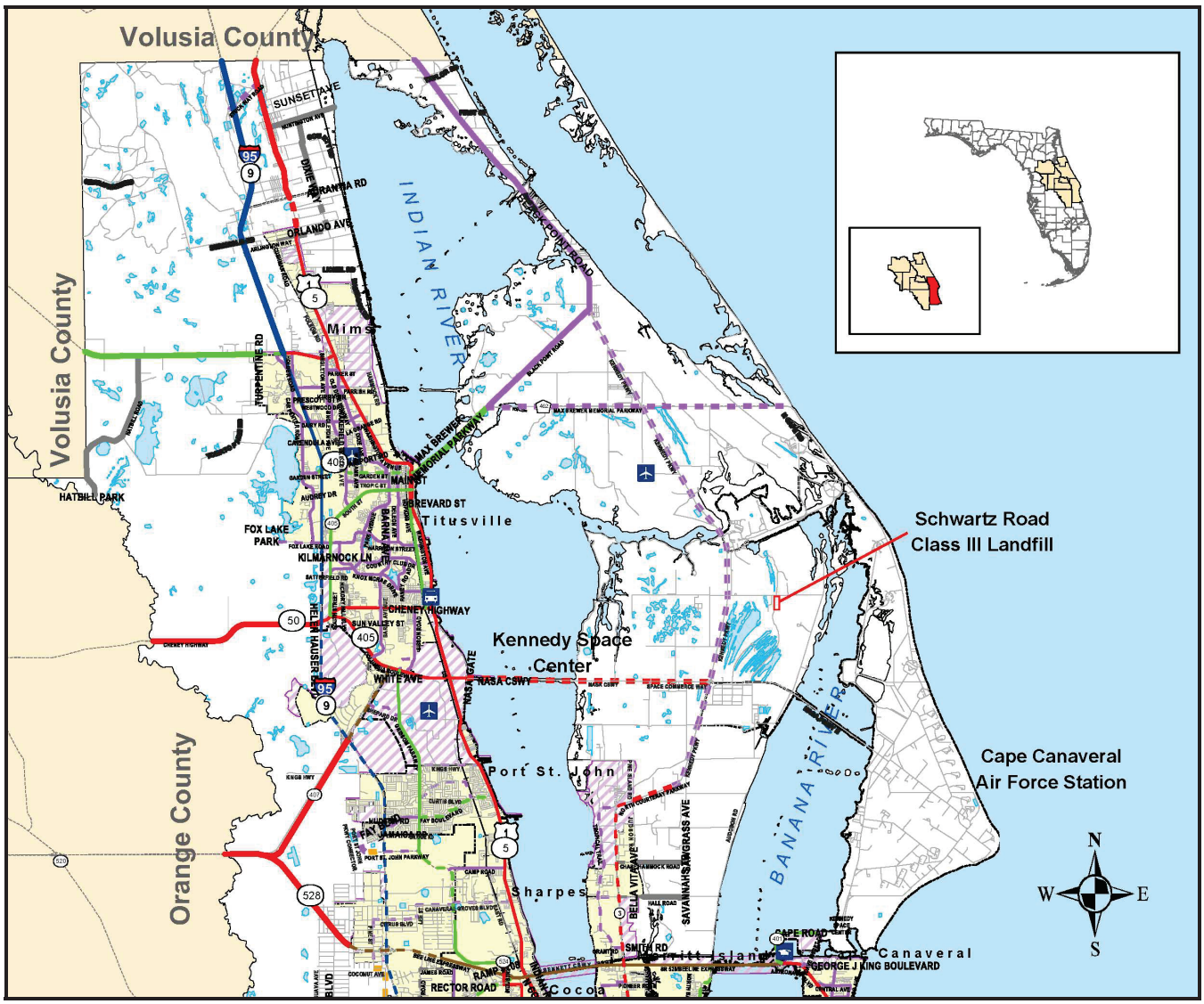



**Figure 1.1 General Site Location Map**

The landfill is located in the southeast quarter of Section 20, Township 22 South, Range 37 East, with an approximate latitude of 28°33'30" North and longitude of 80°38'36" West. The approximate landfill location and general topography are shown by Figure 1.2 derived from the USGS Orsino Quad Map.

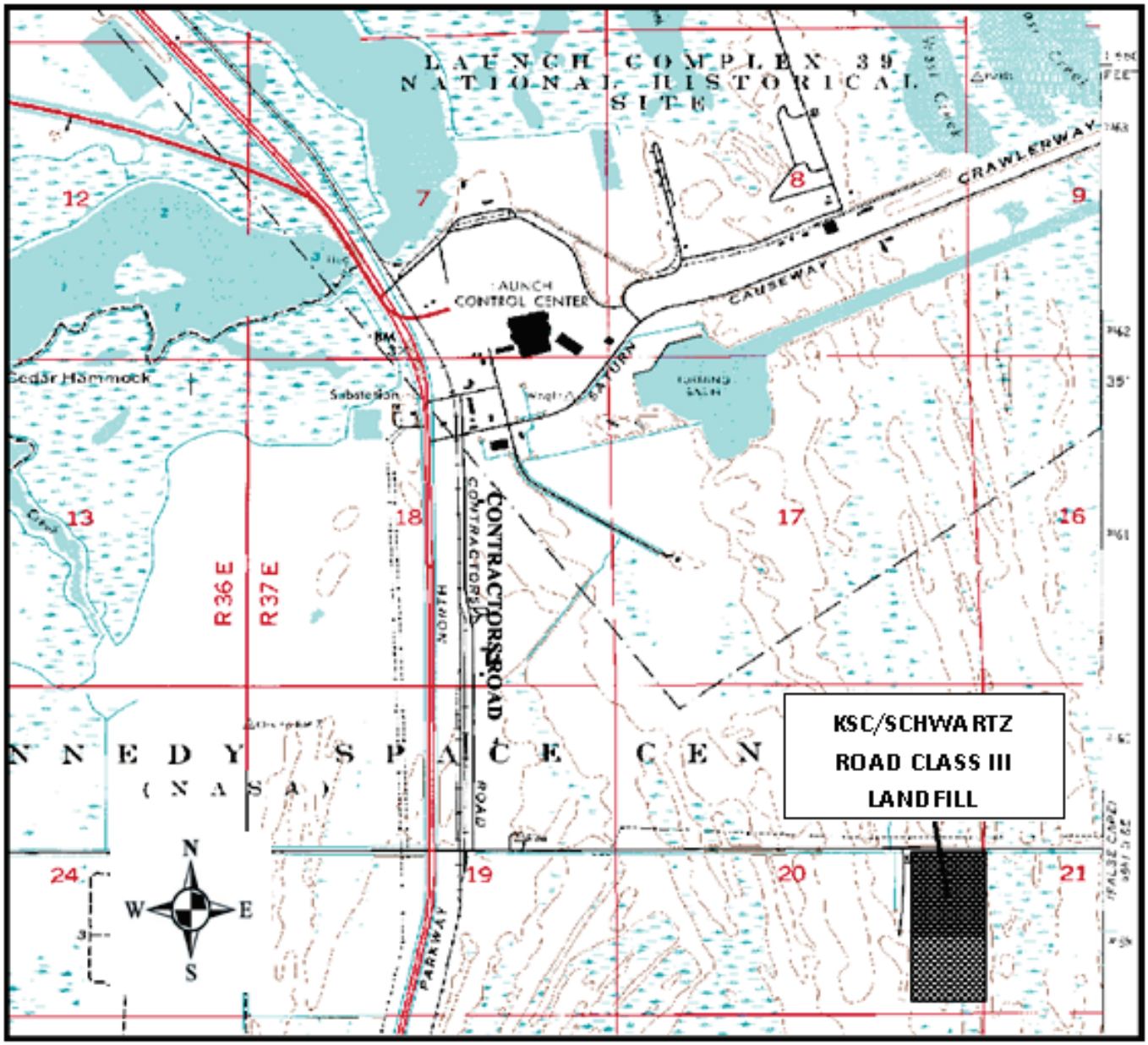



**Figure 1.2 KSC Schwartz Road Class III Landfill Site**

# 2.0 LANDFILL RESPONSIBILITY

## 2.1 Management

Responsibility for overall management of the landfill facility rests with the NASA Center Operations Directorate. The Landfill Engineer located within the Facilities Operations and Maintenance Branch of the Center Operations Directorate monitors performance of the landfill processes. Douglas Czerwinski (321-867-4542) is the NASA Landfill Operations and Maintenance Engineer responsible for the engineering aspects of the landfill. The Environmental Assurance Branch (EAB) within the Center Operations Directorate is designated applicant/owner and is the day-to-day contact organization for regulatory compliance matters. The NASA Environmental Permitting and Compliance Lead (321-867-8415) is the NASA Environmental Assurance Branch point of contact and should be contacted for all regulatory compliance matters. Rosaly Santos (321-867-8402) is the NASA Environmental Assurance Branch Chief and should be contacted for all official correspondence regarding regulatory compliance matters.

## 2.2 Operations Personnel

The day-to-day operation of the landfill is performed by the contract. The contract provides a full-time, trained, landfill manager/operator as well as properly trained spotter(s). Additional personnel include a scale house attendant and an equipment operator who with appropriate training, may act in multiple roles as operator, equipment operator and/or spotter. The contract personnel will implement the contingency operations outlined in Section 3.0.

## 2.3 Training

Operators and spotters receive required training in accordance with Chapter 62-701.320(15) (b) and (c). F.A.C. that includes identifying and properly managing hazardous and unauthorized/prohibited wastes received at the landfill. The training program emphasizes identification of containers and labels typically used for hazardous wastes and hazardous materials.

Training for the staff is conducted off site, primarily at classes offered by the University of Florida's (UF) Center for Training, Research & Education for Environmental Occupations (TREEO) or other approved facilities. Details of the training requirements are outlined in the Training Plan (EAP-REF-0001A) submitted with the permit application as required by FDEP. Training for the correct use and operation of the landfill scale is given on site. Copies of the Training Plan and personnel training certificates/records are kept on site at the scale house.

## 3.0 CONTINGENCY OPERATIONS

Emergency conditions may be created by a natural disaster such as a hurricane, flooding, or fire. During emergency conditions, the solid waste facility may temporarily close. The following procedures are to be initiated at the onset of a major storm (for example: declaration of HURCON III conditions).

The landfill stormwater management system allows for disposal operations to continue during periods of inclement weather. Temporary berms, ditches, and grading are used to drain stormwater away from the active face of the landfill and into the perimeter stormwater swales.

In the event of a natural disaster, operational hours may be extended after reactivation of the landfill (as appropriate) to meet the needs of KSC. Should any need for contingency operations arise, NASA will be immediately notified so that they may notify the FDEP, Solid Waste Section (407-897-4100) Central District Office within 24 hours. The call will be confirmed with a detailed follow-up letter sent to the FDEP by NASA within 7 days of the event.

**Emergency Personnel and Contact Information**

| NAME | ORGANIZATION | PHONE NUMBER |
|---|---|---|
| NASA Environmental Permitting and Compliance Lead | NASA – EAB Landfill and Compliance Inspection | 321-867-8415 |
| Douglas Czerwinski | NASA – Landfill Operations and Maintenance | 321-867-4542 |
| Donald Humphrys | The Contract – Quality, Safety & Environmental (QSE) Landfill Compliance | 321-867-0478 |
| Derick Fowler | The Contract Landfill Operations and Maintenance | 321-861-6297 |

In the event of a fire contact the KSC fire department immediately at 911 from a landline or (321) 867-7911 from a cell phone. Ensure access to the fire is clear and open for the fire department. Notify the contract QSE POC of the incident so they can notify NASA and NASA can forward the information to FDEP. Prohibit all dumping in the landfill until the fire is extinguished and all clear authorized by NASA, the KSC fire department, and the contract QSE.

The following guidance is used during imminent hurricane impact:

HURCON – Hurricane condition categories established at KSC which are used as guides to ensure the progress of precautionary measures in advance of a storm. These categories are keyed to forecast arrival times of 50 knot winds related to tropical storms and are as follows:

HURCON IV 72-Hours to arrival of 50 knot winds

- Start a log of events and keep updated.
- Notify all employees of declaration of HURCON IV via email and request implementation of HURCON IV preparation activities.
- Initiate recall of essential personnel.
- Develop pyramid alert roster and identify mission essential personnel.
- Solicit volunteers for ride out and designate DART team members to be recalled.
- Ensure scale house is secured.
- Prepare equipment and vehicles for deployment or safe storage at KSC.
- All depressed and eroded areas are to be protected, and the stormwater management system is to be inspected, repaired, and cleaned out, as necessary.
- Secure, relocate and dispose of identified hazards.
- Request all necessary hurricane supplies from supply area.
- Notify the Emergency Operations Center (EOC) via the Division Hurricane Coordinator (DHC) when all actions are complete.

HURCON III 48-Hours to arrival of 50 knot winds

- Ensure HURCON IV actions are complete.
- Ensure all loose equipment are properly secured or stored.
- Ensure all equipment, vehicles, generators, etc. are fueled and tested for operational status.
- Begin covering sensitive electronic equipment and computers that are not in use in plastic, secured with tape, to prevent water damage. Elevate if possible. Be ready to cover all remaining equipment and computers before the end of the workday or the declaration of HURCON II.
- Back up computer hard drives as necessary, power down computers and electronic equipment and cover electronic equipment with plastic.
- Disconnect unnecessary electrical equipment and turn off lighting.
- Removal of landfill records from scale house to a secure facility.
- Disconnect all unnecessary electrical equipment and turn off unnecessary lighting. Back up any new data files.
- Secure vehicles not in use in designated parking locations. Leave parking brake set, doors unlocked, windows closed, and keys in ignition.

- Berms are to be constructed to divert stormwater away from the working face.
- Six inches (minimum) of compacted cover is to be applied to all exposed refuse.
- All landfill equipment is to be parked near natural windscreens, such as earthen mounds.
- All lightweight signs and equipment are to be collected and stored in a secure area.
- Maintain accountability of all personnel.
- Review HURCON II activities for possible declaration.
- Notify the EOC via the DHC when all actions are complete.

HURCON II 24-Hours to arrival of 50 knot winds

- Ensure all HURCON IV/III actions are complete.
- Maintain accountability of all personnel.
- Secure all electrical equipment prior to personnel evacuation.
- Email final recall roster to all employees.
- Secure all equipment and roll offs.
- Upon approval by the contract Program Manager, release employees not required for preparation and ride out team.
- Notify EOC of any problems identified.
- Lock facilities that contain sensitive data or equipment (EOC and Security have keys if access is necessary).
- Notify the EOC via the DHC when all actions are complete.

HURCON I 12-Hours to arrival of 50 knot winds

- Ensure all HURCON IV/III/II actions are complete.
- Release personnel not required for ride out team.

The landfill is designed to remain operational in the time surrounding a severe storm, hurricane, or other disaster except during the actual event. Should any repair work be required to restore operating capability of the landfill, such repairs are to be performed immediately following the event.

**Note:** In the event the landfill is required to close, the Emergency Operations Center will make the decision to re-open the KSC-Schwartz Road Class III landfill. Representatives from NASA Environmental Assurance Branch (EAB) and the contract will inspect the landfill for regulatory compliance prior to reopening. NASA EAB will notify FDEP post closure of damage to the landfill that may affect compliance with the permit.

# 4.0 OPERATING PROCEDURES

## 4.1 Control of Incoming Solid Wastes

### 4.1.1 General Awareness of Authorized and Unauthorized Waste Types

The KSC Environmental Requirements document, KNPR 8500.1, instructs all organizations to refer to this Landfill Operations Plan for specific solid waste management requirements including authorized and unauthorized wastes delineated below. (NOTE: Although wastes are authorized for disposal by the FDEP landfill permit, NASA policy may preclude one or more of them from being accepted. Examples include cardboard, office paper, and aluminum cans. If in doubt, organizations may call the contract QSE at (321) 867-0478 for clarification prior to shipment. Waste exceeding eight (8) feet in length will not be accepted unless approved by the landfill operator. Acceptance of asbestos-containing materials is with written authorization by the NASA EAB (321-867-8415) as outlined in Section 5.0.

#### 4.1.1.1 Authorized Wastes

The following types of waste are authorized for disposal at the KSC/Schwartz Road Landfill by FDEP permit/regulation:

- Aluminum Cans – Recycling is preferred.
- Carpet – Recycling is preferred.
- Clean Spent Blast Media - The landfill will accept spent blast media on a case-by-case basis, the NASA EAB may approve the disposal of spent blast media in the KSC Landfill if the material meets certain conditions (e.g., it is non-hazardous waste under Resource Conservation and Recovery Act (RCRA) regulations; an unregulated waste under Toxic Substances Control Act (TSCA) regulations; a low risk for leaching and potential future remedial actions. This waste will only be accepted at the KSC landfill if it is accompanied by a Spent Blast Media Disposal Certification (KSC Form 28-1117 available at the KSC Forms Home Page). A copy of the approved form is required for each waste load delivery to the landfill.
- Clean Soil (used as landfill cover material)
- Construction and Demolition Debris - Materials considered not to be water soluble and that are 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 activities.
- Furniture
- Non-Regulated Asbestos Containing Material (NRACM) – any material containing more than one percent asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR part 763, Section 1, Polarized Light Microscopy that, when dry, cannot

be crumbled, pulverized, or reduced to powder by hand pressure. Handling/disposal requirements of this waste type are defined in Section 5.0, Asbestos Waste. An approved KSC Form 28-1084, NASA-KSC/Schwartz Road Landfill Non-Friable Asbestos Landfill Disposal Verification Form must be obtained before disposing of NRACM in the KSC landfill.

- 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 as defined in 62-701.200(14), F.A.C. An approval from FDEP will be requested by the NASA EAB prior to disposal.
- PCB Bulk Product Waste – Per 40 CFR 761.62, F.A.C., “Disposal of PCB bulk product waste”, Definition of PCB Bulk Product Waste: PCB bulk product waste means waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the concentration at the time of designation for disposal was 50 ppm or greater. PCB bulk product waste includes, but is not limited to:
    1. Non-liquid bulk wastes or debris from the demolition of buildings and other man-made structures manufactured, coated, or serviced with PCBs. PCB bulk product waste does not include debris from the demolition of buildings or other man-made structures that is contaminated by spills from regulated PCBs which have not been disposed of, decontaminated, or otherwise cleaned up in accordance with Subpart D of this part.
    2. Plastics (such as plastic insulation from wire or cable; radio, television and computer casings; vehicle parts; or furniture laminates); preformed or molded rubber parts and components; applied dried paints, varnishes, waxes or other similar coatings or sealants; caulking; Galbestos; non-liquid building demolition debris; or non-liquid PCB bulk product waste from the shredding of automobiles or household appliances from which PCB small capacitors have been removed (shredder fluff); paper and felt or fabric products such as gaskets.
- Plastic
- 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.
- Wood - non-pressure treated and wood scraps
- 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.

#### 4.1.1.2 Unauthorized Wastes

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

- Any waste not permitted by FDEP regulations to be disposed of in a Class III landfill as defined in Rule 62-701.200(14), F.A.C.
- Biomedical Waste
- Contaminated Soil

- Drums (empty or full)
- Fluorescent Light Ballasts
- Hazardous Wastes as specified by the U.S. Environmental Protection Agency (EPA). EPA defines hazardous waste as those wastes that exhibit flammability, corrosively, reactivity, and/or toxicity characteristics. (40 CFR Part 261, Subpart D)
- Lead-acid Batteries
- Liquid Polychlorinated Biphenyls (PCBs)
- Liquid and Oily Wastes (containerized or non-containerized)
- Materials that are recycled at KSC such as cardboard, office paper, glass bottles, and plastic bottles, steel, copper, and lead.
- Paint chips, coating chips, paint chips mixed with blast media, and coating chips mixed with blast media unless approved by the NASA EAB
- PCB Bulk Product Waste Not Acceptable for Disposal in the KSC Landfill:
    a. Oil-containing or oil-contacted electrical and mechanical equipment (drained or not drained)
    b. Construction and demolition debris that contain materials specifically prohibited for disposal in the landfill
    c. 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
- Pressure Treated Wood (including chromated copper arsenate treated wood)
- Putrescible (brown-bag) Waste and General Office Trash
- Radioactive Material - Excluding naturally occurring radioactive material (NORM) with NASA KSC's Environmental and Medical Contract /Health Physics review and NASA concurrence
- Regulated Asbestos Containing Material (RACM) means (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart. Remove means to take out RACM or facility components that contain or are covered with RACM from any facility.
- Small Capacitors
- Tires - Other than "shredded waste tires"
- White Goods - Meaning inoperative and discarded refrigerators, ranges, washers, water heaters, freezers, and other similar domestic and commercial large appliances.

Signs are installed and maintained at the landfill detailing what wastes will or will not be accepted at the facility (see paragraph 9.6).

### 4.1.2 Scale House Monitoring of Incoming Waste Loads

All vehicles entering the landfill for the purpose of disposing waste must stop at the scale house to be weighed, visually inspected, and directed to the appropriate area of the facility. The scale house attendant will question the driver as to the type of waste load and observe the vehicle to detect the presence of unauthorized waste. If the scale house attendant suspects the presence of unauthorized waste, he/she will visually examine the load to the greatest extent possible. If unauthorized waste is found in the load, the hauler will not be allowed to enter the facility and will be instructed to arrange for subsequent proper disposal. If no unauthorized waste is suspected to be present or found during a visual inspection, the hauler shall be directed to the appropriate disposal or waste diversion area. Information such as the date and time, and transporter information such as company name, driver's name, vehicle plate number, type of waste, and weight load for all incoming waste loads and waste diversion loads, will be recorded.

### 4.1.3 Random Load Checking

FDEP requires a load-checking program at the landfill to detect and discourage attempts to dispose of unauthorized wastes. The KSC load checking program at the landfill shall consist of checking at least three (3) random loads of solid waste delivered to the landfill each week. Haulers selected by the operator for random load checking will be directed to a designated area within the facility to off-load waste that is to be inspected. There will be no exclusion of haulers, all loads delivered to the landfill are subject to random checks.

The waste shall be spread to enable inspectors the ability to identify unauthorized waste. One-tenth of all sealed bags shall be opened for inspection. Sealed bags of ACM shall be visually inspected from the outside and will not be opened. The driver shall be released once the load has been discharged and he/she has provided landfill personnel with name, company/organization, vehicle license plate number, and source of waste.

If unauthorized waste is found, the generator, hauler, or other party responsible for shipping the waste to the facility will be immediately contacted to determine the identity of the waste sources and request removal from the landfill. The landfill operator will contact the contract QSE at (321) 867-0478 to coordinate the disposal of the unauthorized materials, if required, and to notify the NASA Environmental Assurance Branch to allow prompt notification of FDEP if necessary.

For unauthorized hazardous waste, the area where the wastes are deposited will be immediately cordoned off from further access to dumping. If the generator or hauler cannot promptly be notified, the landfill operator will call the contract QSE at (321) 867-0478 to initiate the cleanup, transportation, and disposal of the waste by NASA KSC's Environmental and Medical Contract (KSC EMC), Waste Management non-emergency spill response team. If a

suspected hazardous waste is released during the inspection process, the landfill operator / attendant will immediately evacuate the area and contact KSC 911 spill response.

Precautionary measures will be taken when accepting subsequent shipments from sources found or suspected to be responsible for the previous shipping of unauthorized or regulated hazardous waste. Subsequent loads received from the offending source will be subject to continuing inspection until the landfill operator is satisfied and the situation has been corrected.

Detailed written records of each random load check will be kept on site at the scale house for the current month and keep at least three (3) years of records at the contract FSEU Heavy Equipment Department Office. Recorded information will include the following:

- The date and time of inspection.
- The driver's name and company/organization of the vehicle driver.
- The vehicle license plate number.
- The waste sources as stated by the driver.
- Observations made by the inspector during the detailed inspection.

### 4.1.4 Spotting at Working Face

There shall be at least one trained spotter at the working face at all times when the landfill receives waste to detect unauthorized wastes. A properly trained equipment operator may act also as a spotter. As waste is being unloaded from a vehicle, the spotter will watch for the presence of unauthorized waste. If any such waste is observed or suspected, the spotter will secure the area and inform the landfill operator of its presence.

If any unauthorized wastes are detected, the procedure described for unauthorized waste in section 4.1.3, Random Load Checking will be followed. Other types of unauthorized waste that are not permitted in the landfill (e.g., putrescible waste, used tires, white goods) will be either turned away at the scale house or removed from the landfill by the hauler or by landfill personnel, as determined by the landfill operator or manager. These wastes will be transported to the proper permitted waste management facility for disposal.

### 4.1.5 Wood and Green Waste Program

Clean, separated loads of pallets and green waste are accepted at the landfill and temporarily placed in a separate recovery area. When a sufficient quantity of material is collected, a vendor will grind the material to a size no larger than 3" in any dimension. The ground material will be combined with excess soils for use as initial or intermediate landfill cover on an as needed basis.

The following guidelines apply:

- Pallets and green waste must be free of contaminants, such as rock, concrete, plastic, metal and other contaminants which can damage wood waste processing equipment and reduce the quality of the ground material.
- CCA-pressure treated wood is not accepted.
- For large amounts of vegetative and land clearing debris contact the scale house before delivering to the landfill.
- If more than 50 cubic yards will be generated at one time the debris must be ground to a size no larger than 3" in any dimension prior to delivering to the landfill.

## 4.2 Weighing of Incoming Wastes

As required by the FDEP, all solid waste entering the landfill is weighed using a calibrated truck scale located near the site entrance. Tare weights of the trucks are determined as the emptied vehicles leaving the site. Tare weights for NASA-KSC haulers that regularly visit the site will be recorded to avoid trucks having to be weighed each time they leave the site. Monthly waste tonnage records are recorded and provided to NASA and copies shall be provided to FDEP by NASA annually not later the January 20$^{th}$ of each year.

## 4.3 Traffic Maintenance and Erosion Control

### 4.3.1 Control of Access to Landfill

Access to the landfill is through a single point-of-entry located along Schwartz Road. Access to waste disposal areas is controlled by scale house personnel who are on duty during posted daily operating hours. Gates are used to limit access to the site and are locked when the landfill is not open for operation.

The operating hours for the landfill are Monday through Friday 7:30 a.m. to 11:00 a.m., closed for lunch between 11:00 a.m. and 12:00 p.m., and open again from 12:00 p.m. to 3:00 p.m. These days/hours may be reduced by the direction of NASA, depending on anticipated volume of waste and operating budget.

Figures 4.1 and 4.2 show the traffic routing for the landfill. Traffic enters the landfill site at the entrance gate off Schwartz Road and proceeds to the scale. The scale is situated such that the scale house is on the driver's left side. From the scale the vehicles proceed to the working face of the landfill. Directional and speed limit signs are posted to control traffic traveling to and from the working face of the landfill. Once at the active face, a spotter directs traffic to the proper location to deposit refuse. Once a vehicle has been emptied, it returns to the scale to be reweighed before leaving the site. Any NASA-KSC vehicles whose tare weights have been previously recorded at the scale house can exit the landfill directly after being emptied. All traffic exits via the Schwartz Road entrance.

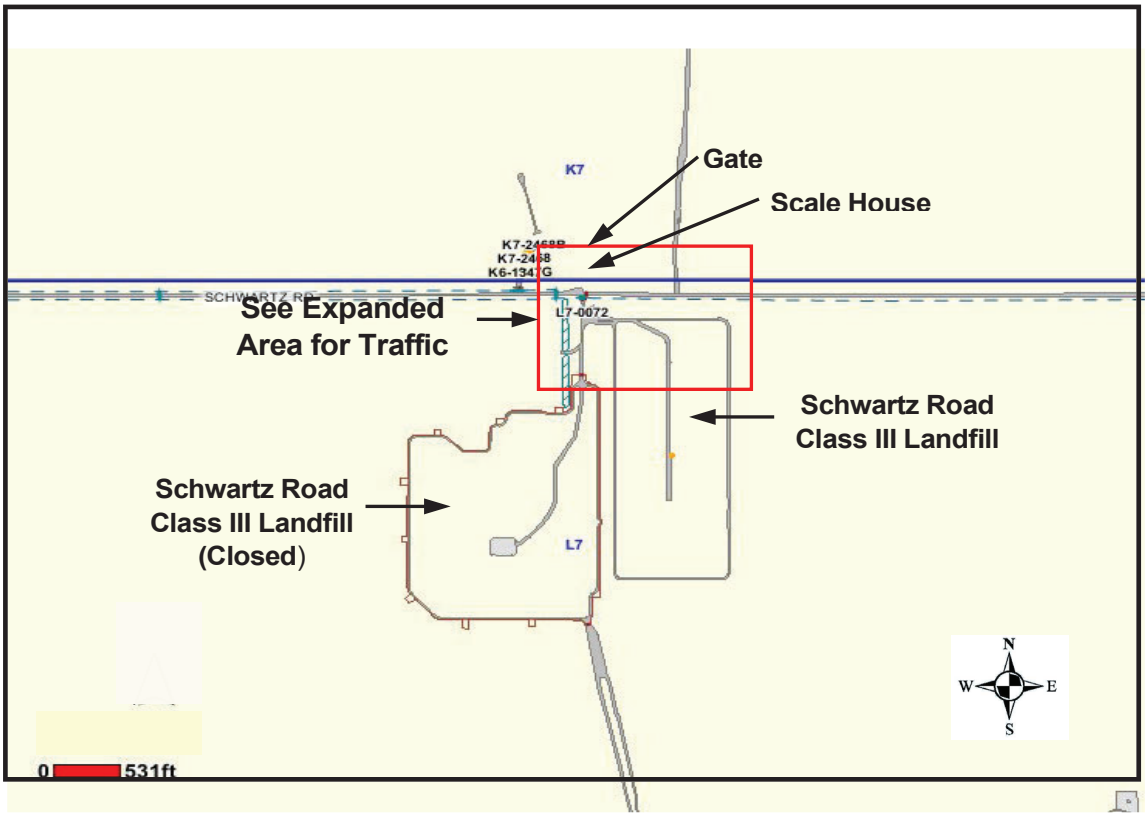



Figure 4.1 Traffic Route Map Location

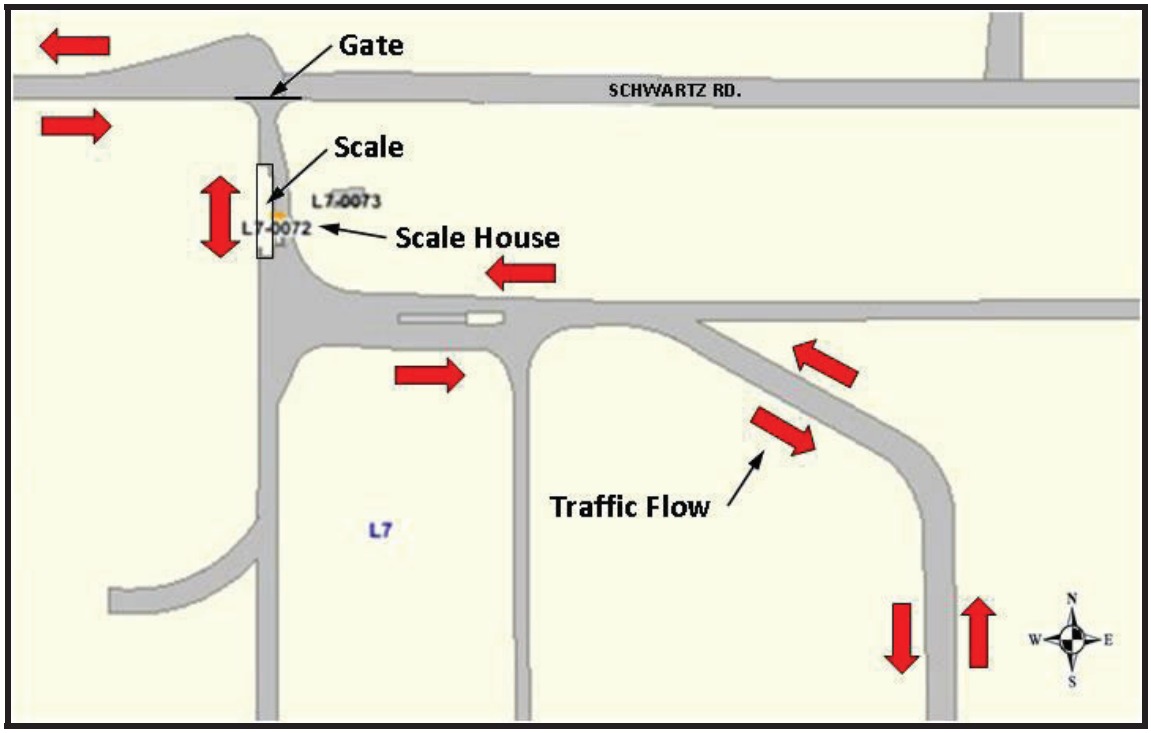



Figure 4.2 Traffic Route Map

### 4.3.2 Maintenance

Mowing is performed four times per year, by the NASA Grounds Maintenance Contractor. Maintenance of the stormwater system (including control and drainage structures) and grading of access roads are performed routinely. Clean fill is added as required to depressions atop the first and second lifts caused by settling to prevent ponding of rainwater.

### 4.3.3 Erosion Control

Areas at the perimeter of the landfill may be prone to erosion, particularly along the perimeter berms. The landfill operator or representative inspects all controls each operating day for operational readiness. Erosion control measures shall be employed to correct any erosion which exposes waste or causes malfunction of the stormwater management system. Such measures shall be implemented within three days of occurrence. If the erosion cannot be corrected within seven days of occurrence the landfill operator shall notify the contract QSE. the contract QSE will notify NASA EAB and NASA EAB will notify the Department and propose a correction schedule.

## 4.4 Method and Sequence of Filling Waste Cells

### 4.4.1 Filling Sequence

#### 4.4.1.1 Weekly Cell Construction

The basic building unit in the operation of a Class III landfill is the weekly cell. The weekly cell is constructed exclusively from the refuse deposited at the landfill during a particular workweek. All refuse within a weekly cell is compacted as described in paragraph 4.5.1.

At the end of each workweek, initial cover is applied to the weekly cell as described in paragraph 4.5.2. A new weekly cell is constructed the following week and will be built against previously filled cells. No interior berms will be constructed around weekly cells except for temporary berms used in preventative action prior to the onset of a major storm, hurricane (HURCON III), or flooding (See section 3.0, Contingency Operations) or if needed for NRACM disposal (See section 5.6).

At the beginning of each new workweek, the approximate dimensions of the weekly cell (as illustrated in Figures 4.3 and 4.4) are to be established so that its final shape can be controlled. The working face of the current cell shall not have a slope greater than a 3:1 ratio and shall be only wide enough to accommodate vehicles discharging waste and to minimize the exposed area and unnecessary use of cover material. To minimize erosion, a shallower interior perimeter berm slope than shown on Figures 4.3 and 4.4 may be maintained until cell construction takes place.

#### 4.4.1.2 Row Construction

A row consists of weekly cells that are connected end to end. Figure 4.3 shows a row that is constructed of weekly cells. The first row shall be constructed east to west or west to east along the perimeter berm at the southern edge of the landfill. The next row shall be constructed against the first, running the opposite direction. Each subsequent row shall alternate, working northwards toward the perimeter toe of the designed landfill.

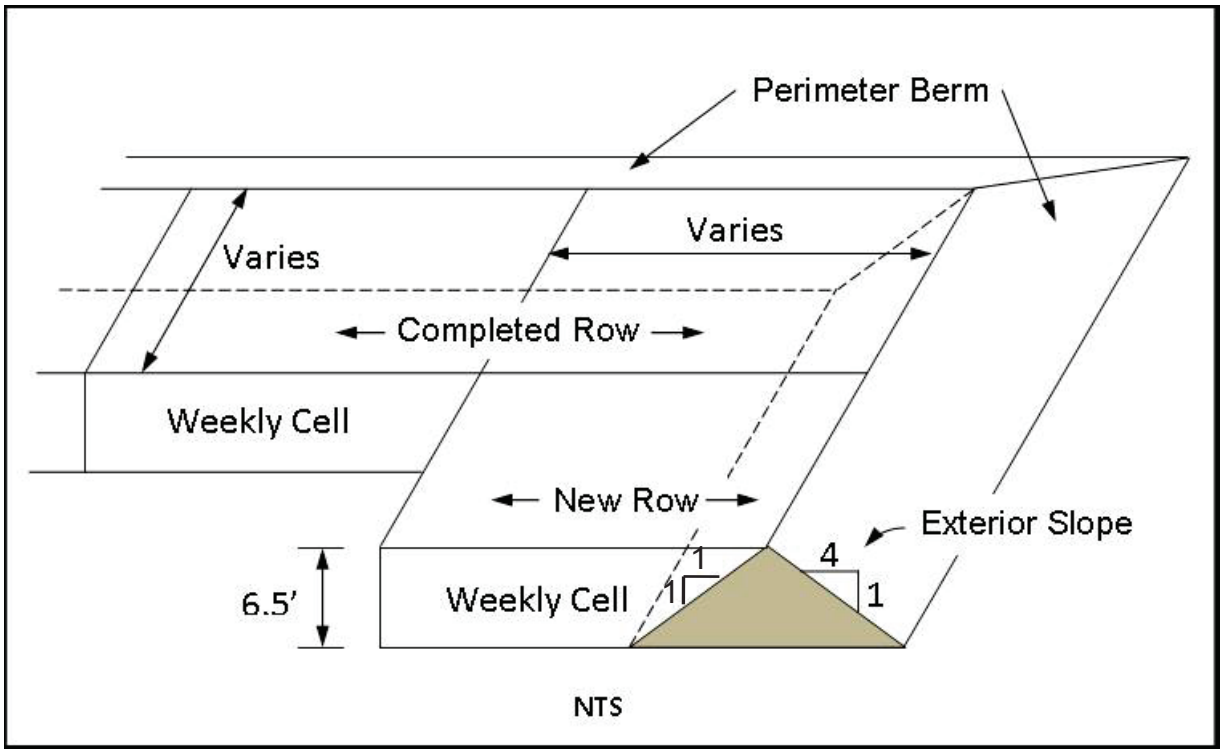



**Figure 4.3 Weekly Cell and Row Construction**

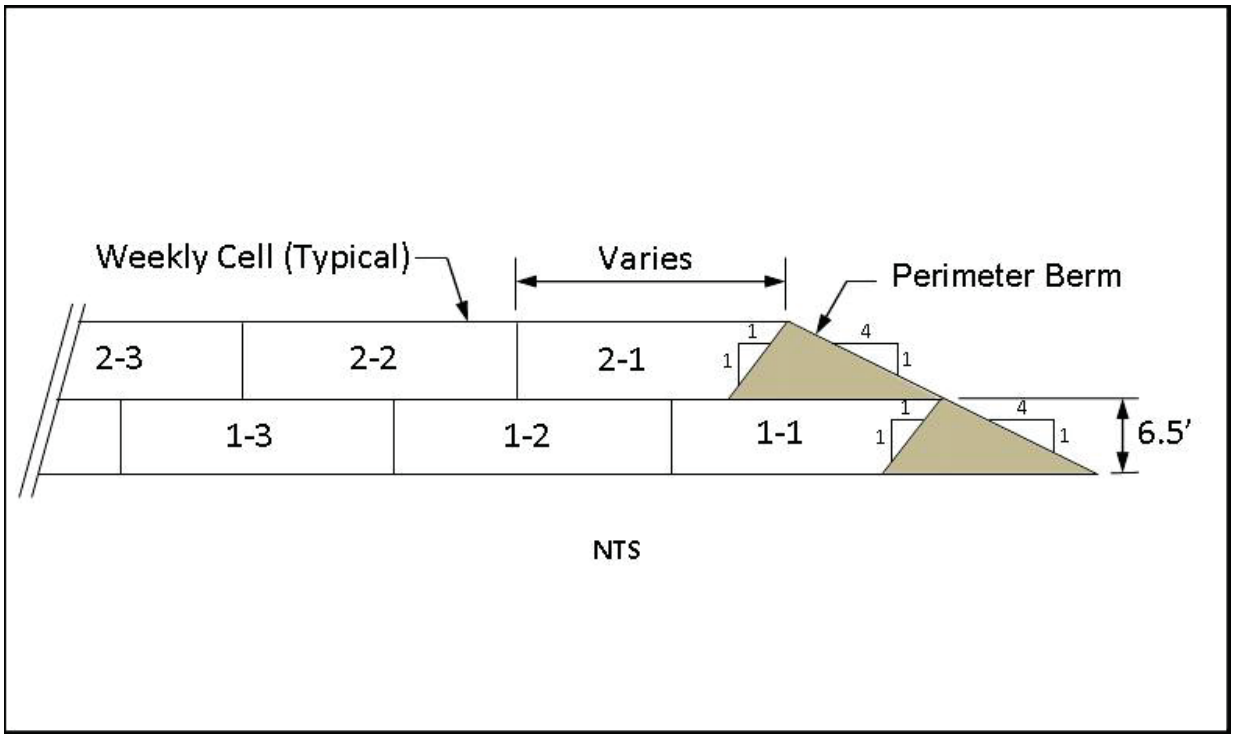



**Figure 4.4 Side View of Construction of Lifts from Rows**

## 4.5 Waste Compaction and Cover Application

### 4.5.1 Refuse Compaction

Waste shall be spread in layers and compacted weekly. To achieve proper compaction, the equipment used for compaction is to be operated on as flat a slope as possible (no greater than 4:1).

### 4.5.2 Cover

#### 4.5.2.1 Initial and Intermediate Cover

The intent of initial cover is to minimize adverse environmental, health, and safety effects such as those resulting from birds, animals, blowing litter, and fires. The minimum initial cover requirement for the Class III facility is 6 inches of compacted soil on all exposed faces. Initial cover will be applied weekly at the end of the workweek (except for asbestos wastes – See Section 5.5).

In areas where active filling will not occur for 180 days or more, a minimum of 1 foot of intermediate soil cover will be applied over the initial cover within seven days of cell completion. This intermediate layer may be removed prior to placing additional waste or installing final cover per 62-701.500(7) (f), F.A.C.

#### 4.5.2.2 Final Cover

The final cover cap will consist of a low permeability barrier soil 18 inches thick placed in 6-inch thick lifts (or FDEP-approved alternate material and appropriate methodology). Over this barrier layer will be placed a final 18-inch layer of soil that will sustain a protective overlying vegetative cover. Final cover will be installed over the entire surface of each completed section of filled area within 180 days following the final placement of waste. The FDEP Permitted Plans show a typical final cover that may be used for the landfill.

## 4.6 Diversion and Reuse of Reclaimed Soils

Soils brought to the KSC landfill as part of a land clearing maintenance operation or excess soils from construction projects will be free of known contamination. The soils will be diverted from the working face and reserved for cover and/or utilized in the construction of perimeter berms. The landfill operator will continually place excess materials not required for cover along the perimeter of the active lift to extend the perimeter berm. When the active lift is sufficiently constructed or operations call for confining berms elsewhere, the operator will direct placement of excess materials to the area of need. The construction of the berms will follow dimensions illustrated in Figures 4.3 and 4.4. The same erosion protection requirements outlined in section 4.3.3 apply to any newly constructed berms.

## 4.7 Operation of Gas Controls

A landfill gas monitoring program is established at the landfill to monitor the production and migration (if any) of landfill gas. Monitoring points have been established around the perimeter of the landfill facility and are monitored semiannually for lower explosive limit and concentration(s) of combustible gas.

After closure, landfill gas that is generated in the landfill will be vented to the atmosphere through passive gas vents to be provided through the final cover and installed at the time that final cover is constructed. As a result, access to these areas of the landfill will be generally limited to maintenance equipment only. Should a gas vent be damaged, it will be repaired immediately using appropriate pipe materials and fittings.

Personnel installing gas vents must be made aware of the nature of materials into which they are digging. All necessary safety precautions are to be used to prevent injury and other potential hazards to personnel from gases venting through the bore hole. Precautions are to be taken against personnel working in an oxygen-deficient atmosphere as well as for fires and/or explosions from the possible presence of combustible gases.

The application of initial cover and minimization of the working face area usually are satisfactory measures for prevention of gas problems. In addition to these measures, intermediate cover will be applied at the landfill as soon as the control elevations are reached.

## 4.8 Leachate Handling

The KSC/Schwartz Road Class III Landfill is an unlined landfill as permitted by the FDEP. Consequently, there is no designed leachate collection system for this landfill. However, an effort is made to control the production of leachate by accepting into the landfill only approved, solid, non-leachable wastes. The production of leachate is also controlled by constructing and maintaining the stormwater system to redirect stormwater to stormwater control areas and away from the active working areas of the operation. This reduces infiltration, percolation, and subsequent contact of stormwater with buried waste. A groundwater/surface water monitoring program is established to monitor the production/migration of leachate and is discussed in detail in Section 7.0.

## 4.9 Stormwater Controls

### 4.9.1 Stormwater and Erosion Control

All stormwater runoff that does not percolate to the subsurface is directed to the perimeter drainage ditches that surround the landfill. The stormwater ditches, culverts, and wet detention pond are designed to convey, retain, and discharge stormwater runoff generated from a 25-year, 24-hour-duration storm event. Within the active portion of the landfill, all working areas are maintained and graded to allow stormwater to flow away from the active face of the landfill toward the perimeter drainage ditches. Structures (e.g., culverts, weirs), berms, swales, and slopes are utilized to control the flow of runoff down the sides of the landfill areas to avoid causing erosion. Sod and/or seeding will be utilized as required to minimize erosion on the sides of the landfill.

### 4.9.2 Stormwater Control on Completed Landfill Area

The swale system around the perimeter of the landfill, as shown on the FDEP Permitted Plans, is designed so that stormwater runs off the final cover of the landfill and flows into the stormwater treatment ponds and ultimately to a ditch system that runs along the south side of Schwartz Road. The flow of runoff from the finished and capped landfill is controlled by the swales and drainage structures (e.g., culverts and weirs). These swales and structures also assist in the prevention of erosion damage to the landfill's final cover. The stormwater management system has been designed to meet or exceed permit requirements.

## 4.10 Phased Closure

The Landfill will be constructed in lifts during its useful lifetime. Final cover will be installed over the entire surface of each completed section of filled area within 180 days following the final placement of waste. Disposal rates are variable, and the estimated time to complete the first phase (layer) is difficult to predict at this time. It is no longer proposed that closure of the

landfill take place in two separate phases, as shown on the Conceptual Final Cover Drawing submitted with the original permit application; refer to section 4.5.2 for interim closure procedures. Instead, it is anticipated that the entire landfill will be capped when design heights have been met or the operation of an active landfill is no longer required.

## 4.11 Closure Plan

This section describes the final cover design and final grades for the KSC/Schwartz Road Class III Landfill. NASA will submit an updated closure plan along with the closure permit application to the FDEP at least 90 days prior to the date when waste will no longer be accepted at the landfill.

The purpose of this plan is to provide guidelines for closure procedures and long-term inspection and maintenance of the facility and stormwater system. The following paragraphs describe the closure design, final use of facilities, closure operations, post-closure care, and financial responsibility for the KSC/Schwartz Road Class III Landfill at Kennedy Space Center, Florida.

### 4.11.1 Design

Final cover and seeding or planting of vegetative cover will be placed on each disposal unit within 180 days after it has reached its final grade. Final cover will consist from bottom to top of a 12-inch-thick sand layer, an 18-inch-thick barrier layer with a maximum hydraulic conductivity of $1x10^{-5}$ cm/sec, an 18-inch thick soil fill, and a 6-inch topsoil layer capable of supporting vegetation and graded and compacted as necessary to eliminate ponding, promote drainage, and minimize erosion. Final side slopes will be constructed with minimum slopes of 4 horizontal to 1 vertical (4:1) and a bench terrace for stormwater control. Finished grades for the top of the landfill will be constructed on 3% slopes. Landfill construction will be phased and completed areas will have final cover applied within 180 days of completing waste filling operations. Grass vegetation will be planted on each covered area immediately after final cover has been constructed.

### 4.11.2 Final Use

Final use of the entire completed site has not been determined at this time; it is anticipated that the site will be left undisturbed.

### 4.11.3 Closure Operations

Intermediate cover will be placed over the entire surface of each completed section of filled area within 180 days following the final placement of waste as final design grades are achieved. Final cover will be applied when design heights have been met or the operation of an active landfill is no longer required. All systems associated with closure, such as stormwater

controls, erosion control, cover, and vegetation, will be implemented and maintained during normal site operations. Additional equipment, personnel, or special operations will therefore not be necessary to provide closure.

### 4.11.4 Post-Closure

Post-closure operations will be continued at the landfill for a period of 30 years, in accordance with Rule 62-701.620, F.A.C. Post-closure, long-term care will include maintenance of stormwater management controls, groundwater monitoring, and erosion control. Groundwater quality monitoring will be continued, as described in the Groundwater Monitoring Plan, including any revision that may be required at the time of closure. Detailed maintenance procedures will be developed prior to facility closure.

### 4.11.5 Financial Responsibility

The total closure cost estimate for the landfill is provided as part of permit application documentation and will be updated on an annual basis in accordance with 62-701.630(4)(a). Proof of financial responsibility as applicable to NASA as an agency of the Federal Government is provided as part of operating and closure permit application documentation.

### 4.11.6 Closure Schedule

Information regarding design life of the landfill is provided as part of permit application requirements. Notice will be made to FDEP one year prior to ending waste acceptance as required by Rule 62-701.600(2) (a), F.A.C. and the closure schedule will be made an addendum to the landfill permit. Approximately 90 days prior to the date when waste will no longer be accepted, a closure permit application will be submitted to FDEP with detailed closure documentation as required by Rule 62-701.600(3) F.A.C.

## 5.0 ASBESTOS WASTE

The KSC/Schwartz Road Class III landfill is permitted to accept both regulated (friable) (RACM) and non-regulated (non-friable) asbestos containing material (NRACM) wastes. Currently, NASA policy does not allow receipt of RACM into the KSC Landfill. However, NASA may elect to receive RACM in the future with appropriate notice to FDEP. A KSC Form for approval of RACM will be developed at that time. NASA has elected to designate and construct a specific area within the landfill as a disposal area for NRACM debris. This area will be utilized for asbestos disposal only until the current working face overtakes the segregated asbestos area – at which point a new asbestos cell will be created and the process repeated. The asbestos cell will follow all requirements listed in this document in terms of construction and operation.

## 5.1 Pre-Approval for Disposal and Scheduling

Approval for disposal of NRACM asbestos waste at the KSC/Schwartz Road Landfill will be evaluated on a case-by-case basis. Persons wishing to dispose of NRACM will submit KSC Form 28-1084, NASA-KSC/Schwartz Road Landfill Non-friable Asbestos Landfill Disposal Verification (available at KSC Forms Home Page), for approval by the NASA Environmental Assurance Branch. Once approved for disposal, the generator shall notify the landfill a minimum of 24 hours in advance of the disposal date(s) to ensure the landfill has prepared the designated asbestos cell and has the personnel, equipment, and cover material available to properly dispose of the NRACM waste. NRACM will only be accepted at the landfill with prior arrangement with the scale house attendant from Monday through Friday during regular landfill hours but will not be accepted later than 1400 hours.

## 5.2 Asbestos Waste Handling Procedures

### 5.2.1 The Scale House

Upon entering the landfill, all vehicles hauling NRACM wastes will proceed to the scale house to check-in with the scale house attendant to present the required asbestos disposal approval form and for vehicle weigh-in. After visual inspection, the scale house operator will direct the hauler to the active designated asbestos disposal cell.

### 5.2.2 The Disposal Area

Prior to delivery of NRACM waste to the landfill, the landfill operator will designate and prepare a segregated section for the NRACM disposal cell. This designated section will have a 40-foot setback from the toe of the exterior side slopes of the landfill to avoid possible erosion on NRACM material. The heavy equipment operator will prepare the designated area for the disposal of asbestos waste (which may include the construction of temporary berms) and ensure there is sufficient daily cover to accommodate the volume of incoming waste.

### 5.2.3 Off-Loading NRACM Waste at the Disposal Area

The spotter shall direct the waste transporter to the designated NRACM waste disposal cell. The waste hauler is responsible for following the directions of the spotter and/or heavy equipment operator in the placement of the NRACM waste into the disposal area. The hauler should unload the NRACM wastes as close as possible to the final disposal site within the segregated area to minimize movement by the heavy equipment and reduce the possibility of non-friable asbestos from becoming friable.

### 5.2.4 Spotting the Load

A properly trained spotter is present during the off-loading of every load of NRACM waste in order to inspect those loads and ensure proper placement within the segregated area. If properly trained, the equipment operator or scale house attendant may serve as spotters.

A small amount of water may be present with the NRACM, which is normal and typical. Masks, wipes, gloves, and other materials that may have come in contact with NRACM waste may also be present.

NRACM waste loads containing significant quantities of other wastes such as empty paint cans, office trash, putrescible food waste, and other chemical containers are to be refused. The hauler may be given the option of removing any unauthorized materials, or the entire load may be rejected by the spotter. At no time will the spotter(s) handle the NRACM waste being off-loaded.

NRACM wastes are to be accepted at the landfill only if they are containerized and properly marked as NRACM waste.

### 5.2.5 Releasing the Hauler

The hauler will be released from the disposal area once all the NRACM waste is properly off-loaded and is considered acceptable to the landfill personnel. At this point, the hauler will return to the scale house. If the vehicle tare weight is on file, the scale house attendant will allow the vehicle to directly exit the landfill. If not, the attendant will acquire the empty vehicle weight.

## 5.3 Perimeter Controls and Barriers

It is the responsibility of the landfill operator to prevent unauthorized access to the asbestos disposal cell and to prevent exposure of personnel and haulers to potential health and safety hazards at the disposal site. To prevent the dumping of unauthorized waste via the road access, the landfill gate is locked when the landfill is closed. Natural barriers at unfenced portions of the KSC/Schwartz Road Landfill perimeters are sufficient to prevent unauthorized access and dumping. Warning signs around the asbestos disposal areas are installed to further deter unauthorized access.

### 5.3.1 Asbestos Signs and Markers

Asbestos warning signs are installed to identify and delineate NRACM disposal locations. They are clearly marked and maintained in accordance with the most recent version of 40 CFR 61.154. These warning signs are displayed at all entrances and at intervals of 100 meters (330 feet) or less along the perimeter of the sections of the site where NRACM is deposited. The warning signs conform to the size requirements of 51 cm x 36 cm (20 inches x 14 inches) and are posted in such a manner and location that any person can easily read the legend.

Signs display the following legend with letter sizes and styles of a visibility at least equal to those specified in this paragraph. Spacing between any two lines must be at least equal to the height of the upper of the two lines.

| Legend | Notation |
|---|---|
| Asbestos Waste Disposal Site | 2.5 cm (1 inch) San Serif, Gothic or Block |
| Do Not Create Dust | 1.9 cm (3/4 inch) Sans Serif Gothic or Block |
| Breathing Asbestos is Hazardous to Your Health | 14 point Gothic |

## 5.4 Disposal Location

In accordance with operating permit conditions and 40 CFR Part 61.154, the disposal location of all ACM wastes shall be identified and recorded. This shall be accomplished by establishing the latitudinal and longitudinal coordinates of each segregated ACM waste disposal cell using a Global Positional Satellite (GPS) receiver and shall be recorded on a map or diagram of the disposal facility or within a logbook and shall include the depth and quantity of the ACM waste. Records shall be maintained until closure of the facility and is described in detail in Section 5.10.

## 5.5 Cover Requirements

ACM waste shall be covered immediately after disposal with a minimum of 6 inches of soil or other approved, non-asbestos material. After the application of the initial 6 inches of soil or other suitable cover material, the waste may be compacted by heavy equipment or other effective compacting machinery. During compacting, care shall be taken so that ACM waste material shall not be exposed to the air or tracked away from the segregated disposal area. Proper compaction reduces litter, long-term settlement, and maintenance costs. The requirements for intermediate and final cover are equivalent to the requirements established for a Class III landfill, which are detailed in the previous section 4.5.2.

## 5.6 Stormwater and Asbestos Waste

Stormwater control measures shall be employed as required to correct any erosion or condition that exposes NRACM waste or causes stormwater to accumulate in or on the segregated NRACM waste disposal units and may include trenching and/or berming around the segregated cell(s). In the case of excessive rainwater accumulation in a segregated NRACM waste disposal area, acceptance and disposal of NRACM waste shall be postponed until the standing water has subsided or condition is corrected by landfill operator.

## 5.7 Litter Control of NRACM Waste

After NRACM waste has been off-loaded, the landfill staff shall monitor the immediate area in the vicinity of the disposal area for any litter related to the NRACM waste disposal operation. If litter is present, the hauler should be instructed to collect the litter and place it with the NRACM wastes being buried. All litter shall be placed into the NRACM disposal area before covering of the waste, or if located after the asbestos is covered, immediately buried in a similar manner as the NRACM waste. The presence of a significant amount of litter should be brought to the attention of the landfill operator, and steps taken to inform the hauler to comply with the disposal regulations and policies. Subsequent loads of waste from that hauler will be heavily scrutinized for noncompliance, and the hauler will not be released from the site until landfill staff is assured that no litter was released during the dumping process.

## 5.8 Personal Protective Equipment and Air Monitoring

The appropriate personal protective equipment (PPE) shall be utilized for asbestos handling. The contract Safety may be contacted for questions involving the handling of NRACM waste and the selection of appropriate PPE.

Air monitoring activities may be conducted during major NRACM disposal projects to confirm that disposal activities are not creating hazardous conditions with respect to the release of asbestos fibers. The projects monitored and the duration of monitoring will be requested by NASA and will be coordinated during the scheduling phase of the NRACM disposal operation.

## 5.9 Disturbance of Covered Asbestos Waste

The FDEP must be notified in writing at least 45 days prior to excavating or otherwise disturbing any buried NRACM waste material. The following information will be included in the notification:

- Scheduled starting and completion dates.
- Reason for disturbing the waste.
- Procedures to be used to control emissions during the excavation, storage, transport and

ultimate disposal of the excavated asbestos-containing waste material.

- Location of any temporary storage site and the final disposal site.

### 5.10 Records

Copies of NRACM waste receipt records will be retained for at least two years, except the location map and/or GPS coordinates, which will be retained until proper closure of the landfill is completed. If a discrepancy is discovered between the quantity of waste designated on the waste shipment records and the quantity actually received, an attempt will be made to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days of receipt of waste, a report will be sent to NASA through the contract QSE for submittal to the FDEP. This report will describe the discrepancy and attempts made to reconcile it.

## 6.0 PCB BULK WASTE

The KSC/Schwartz Road Class III landfill accepts certain types of PCB Bulk Product Waste. These types of waste include non-liquid bulk construction and demolition wastes. PCB bulk product waste does not include debris from the demolition of buildings or other man-made structures that is contaminated by spills from regulated PCBs which have not been disposed of, decontaminated, or otherwise cleaned up in accordance with 40 CFR 761 Subpart D. 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 50 parts per million (ppm) or greater. Bulk waste from construction and demolition projects will be assumed greater than 50 ppm PCBs unless laboratory analysis results are provided that indicate otherwise. PCB Bulk Product Waste that is accepted at KSC/Schwartz Road Class III landfill include: plastics (such as plastic insulation from wire or cable); molded rubber parts and components; applied dried paints, varnishes, waxes or other similar coatings or sealants; and other non-liquid bulk construction and demolition wastes.

If the concentration of PCBs at the time of designation for disposal is 50 ppm or less, the waste is not considered PCB Bulk Product Waste. NASA encourages all organizations generating metal waste containing PCBs 50 ppm or less to recycle this material, when possible. If these materials cannot be recycled, they should be disposed of in the same manner as PCB Bulk Product Waste.

***Note:*** All PCB Bulk Product Waste received at KSC Schwartz Road Landfill will be managed as a Class III waste. PCB Bulk Product Waste will not be segregated but will be placed along with other Class III landfill waste in the active working face and handled in accordance with Section 4.0, Operating Procedures.

## 7.0 WASTE SCREENING

Hazardous Material/non-authorized waste screening is an essential KSC operational process that must be followed when receiving any approved waste including PCB Bulk Product Waste at the landfill to minimize the potential for hazardous material/waste and other prohibited wastes to be commingle with waste delivered to the landfill.

**Objectives:**

The objectives of the KSC waste screening program include:

- Comply with state regulatory requirements to prevent prohibited waste from entering the KSC/Schwartz Road Class III landfill;
- Protect worker health and safety;
- Protect long-term liability of the solid waste facility operator;
- Ensure that all hazardous and controlled waste is identified, characterized, managed, and disposed of appropriately.

These objectives are achieved by KSC by imposing strict operational requirements on waste generators as well as the operators of the KSC/Schwartz Road Class III landfill.

**Waste Screening Activities:**

Waste screening activities to preclude unapproved wastes, including unauthorized PCB wastes, from entering the landfill consist of five main activities: KSC generator guidance and education; employee training; surveillance of incoming wastes at the landfill: incoming waste load inspections; and established KSC hazardous and controlled waste management operations.

**Generator Guidance, Education:**

Waste generators are informed by NASA's publication entitled KSC Environmental Requirements, KNPR 8500.1 of the KSC/Schwartz Road landfill policy regarding non - acceptance of hazardous and other prohibited wastes, and that waste loads are subject to random or intentional checks at any time. KNPR 8500.1 also requires hazardous and controlled wastes generated by KSC organizations and their subcontractors to be characterized and properly disposed of through the established Process Waste Questionnaire/Technical Response (PWQ/TRP) process which provides individual written instruction to generators on storage and disposal of wastes. At the Landfill, facility signage list typical prohibited wastes and states that prohibited wastes are not accepted at the facility and that loads are subject to waste screening.

**Employee Training:**

Hazardous and controlled waste generators at KSC including subcontractors must be trained on proper identification, storage, and disposal of hazardous and controlled wastes. As outlined in previous sections of this plan, KSC Landfill personnel receive training in effects of hazardous

substances, identification of prohibited materials, and notification and response procedures when unauthorized wastes are found.

**Landfill Surveillance:**

Incoming loads to the landfill are screened at the entrance scale house visually and by camera surveillance for the presence of hazardous or other prohibited wastes. This allows rejection of obvious unauthorized wastes before they can be delivered to the Landfill working face for disposal.

**Waste Inspection:**

At the working face, required random and frequent intentional waste inspections are conducted by trained personnel involving a more extensive examination of particular waste loads. Obvious unauthorized wastes are rejected, and suspect loads are emptied in a designated area for a more extensive inspection before disposal in the working face. Landfill personnel are authorized to request the generator or the KSC Post Emergency Spill Cleanup Team to remove identified unauthorized wastes.

**Waste Management:**

KSC EMC provides a Waste Management service that all KSC organizations and subcontractors must use to characterize and receive instruction on hazardous and controlled waste storage and disposal (See PWQ/TRP above). KSC EMC also picks up hazardous and controlled wastes from all KSC organizations and is responsible for its proper disposal. A separate KSC EMC office performs routine inspections of all KSC organization hazardous and controlled wastes sites to confirm that these wastes are being handled and disposed of appropriately. In addition, waste disposal compliance inspections are conducted internally by KSC organizations.

## 8.0 GROUNDWATER AND SURFACE WATER MONITORING PROGRAM

As required by the FDEP, groundwater and surface water in the vicinity of the landfill is monitored to detect the presence and migration of leachate. A detailed description of the groundwater monitoring plan for the KSC/Schwartz Road Class III Landfill is provided as part of the permit application submittal set. Groundwater and surface water samples are collected on a semiannual basis by NASA's KSC EMC and submitted for laboratory analysis. Compliance monitoring reports documenting each monitoring event are prepared and submitted by the KSC EMC to the NASA EAB and forwarded to the FDEP for review and approval.

# 9.0 MISCELLANEOUS OPERATIONS

## 9.1 In-Service and Reserve Equipment

### 9.1.1 In-Service Equipment

The required equipment used at the landfill is present on site and suitable for placement and compaction of refuse, hauling of borrow from the on-site borrow storage areas and from earth hauling trucks. Other equipment is available to provide grading, road construction and maintenance, equipment maintenance, and other needs as required. Equipment is sized appropriately to maintain daily site operations and ancillary functions as required. Equipment available includes a compactor, bulldozer, front-end loader, grader, dump trucks, and track-hoe.

### 9.1.2 Reserve Equipment

Sufficient reserve equipment is readily available in case of failure of a primary piece of equipment from the extensive pool of equipment maintained by the contract Heavy Equipment Operations. The primary piece of equipment would then be repaired at the contract Heavy Equipment Maintenance or sent to a service facility for repairs. No major mechanical repairs are performed at the landfill.

### 9.1.3 Equipment Safety

All laws and regulations regarding safety concerning vehicles and equipment used by employees at the landfill are followed. Seat belts are provided on all equipment, as required, and to meet applicable safety laws. Audible warning devices are in place on landfill equipment for reverse operation. There is sufficient communication equipment for emergency and routine communications.

Warning signs and barricades are used to control access to the landfill, as required, and provide information regarding areas or facilities which are potential health hazards.

## 9.2 Personnel Shelter, Sanitary Facilities, First Aid

No potable water is supplied on site from the NASA-KSC water distribution system. A water cooler is available for employee use. Suitable employee shelter and a portable hand washing station are provided. Port-O-Let(s) are on site, as well as sanitary facilities at nearby NASA-KSC facilities. Communications equipment is provided in the forms of telephones, and radios. Solar generated electrical service is provided to the scale house and other landfill facilities where required. First Aid is provided by NASA's KSC EMC at the Occupational Health Facility (OHF), and advanced aid is available by calling 911, or 867-7911 if using a cellular phone.

## 9.3 Dust Control Methods

Dust is controlled at the landfill by establishing vegetative cover on final cover slopes immediately following placement of final cover. FDEP has determined that vegetative cover establishment for areas with intermediate cover shall be sufficient to prevent erosion of cover. It is not required to seed/sod intermediate cover in areas not prone to stormwater erosion. Areas not active for extended periods are planted or allowed to establish naturally with grass cover to minimize erosion, control dust, and for aesthetic purposes. Any dust issues internal to the landfill are addressed as they arise and remedial methods are implemented.

## 9.4 Landfill Fires

Fire protection facilities on site consist of soil stockpiles in the vicinity of the working face. The initial cover used in the landfill operation provides an effective firewall. Should a fire occur at the landfill, the employees are instructed to call for emergency response by dialing 911, or 867-7911 if using a cell phone, and report the fire. If safe to do so, personnel will alert other personnel at the site. The employee should then notify the contract QSE who will notify NASA EAB and the landfill operator. The equipment operator(s) will move any equipment away from the path of the fire as time permits without putting the employee(s) in danger. The employees shall wait at the entrance to the facility for the arrival of the fire department to provide information and support as needed. It is anticipated that fire response from the nearby fire station will take 3 to 5 minutes.

## 9.5 Litter Control Devices

Litter is to be monitored on property boundaries and as required in the immediate proximity of the landfill to control any problems that may arise from blowing debris from trucks traveling to the landfill. Both the landfill and the adjoining areas on site are to be inspected for litter on an operational daily basis. Litter outside the working area shall be picked up within 24 hours per 62-701 .500(7) (I), F.A.C. Any litter discovered is to be picked up and properly disposed of the same day. Fences and vegetative barriers should serve as an effective deterrent and help control blowing litter. Should the described measures not be sufficient to control litter, additional

measures will be developed and implemented by the Landfill Supervisor or his/her designated representative.

## 9.6 Landfill Signs and Barricades

Signs are used to convey important information concerning the landfill. A sign to provide information on operating hours, holidays observed, etc., is located near the entrance of the landfill. An example of this type of sign is provided on Figure 9.1. An additional sign detailing the waste types that will and will not be accepted at the landfill is provided in Figure 9.2. Even if a particular waste is authorized by the FDEP permit for this facility, it still may not be acceptable in accordance with NASA policy. The information contained on these example signs is updated by landfill personnel as required.

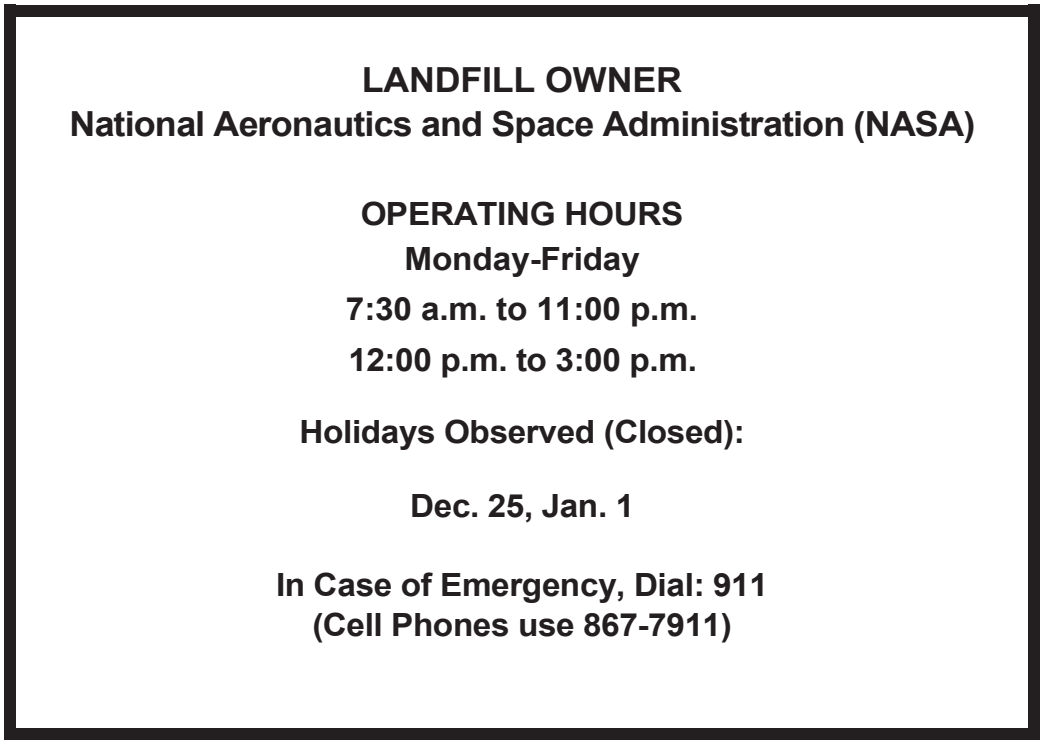



**Figure 9.1 Landfill Information Sign**




**Figure 9.2 Example Waste Information Sign**

## 9.7 All-Weather Access Roads

The on-site landfill service roads are all-weather roads and are graded as shown on the FDEP Permit Plans. An asphalt apron is provided in the vicinity of the scale. All roads are to be maintained for adverse weather condition usage. An inside perimeter road and other on-site roads shall be maintained to allow access to monitoring devices and stormwater controls, for landfill inspections and firefighting.

## 9.8 Insect and Rodent Control

Sufficient initial cover and proper compaction of wastes are provided at the landfill to prevent access to the food sources upon which insects and rodents thrive and eliminate the breeding areas used by these pests. Ponding water breeds many troublesome insects. Proper implementation of the drainage design reduces ponding on the site.

Eliminating breeding places and food sources best controls rodents; however, if rodent problems develop, FDEP-approved poisons will be used for rodent control. If insect problems develop, an insecticide approved by the Florida Department of Agriculture and Consumer Services will be applied as necessary to bring the insect population under control.

## 9.9 Scavenging

Scavenging is not permitted at the landfill. Persons observed scavenging at the landfills are asked to leave the site. Signs are posted, access is restricted, and other measures will be implemented as necessary to prevent scavenging. Controlled salvaging for recycling purposes is authorized but is to be closely monitored by the Landfill Operator.

# 10.0 ADDITIONAL RECORDKEEPING

Records of all information used to develop or support the permit applications and any supplemental information submitted to comply with FDEP Chapter 62-701 pertaining to construction of the landfill are to be retained throughout the design period of the landfill. Records pertaining to the operation of the landfill are also to be kept for the design period of the landfill, unless specifically excluded from this requirement by the FDEP.

Records of all monitoring information, including calibration and maintenance records, and copies of all reports required by permit, are to be retained for at least 10 years. Weigh tickets shall be kept for five years. Background water quality records are to be kept for the design period of the landfill. An annual estimate of the remaining life and capacity in cubic yards of the landfill is to be maintained. The annual estimate is to be based on a summary of the heights, lengths and widths of the solid waste disposal units. The estimate is to be made by the contract and reported annually to FDEP by NASA EAB. Figure 10.1 provides a table of the location of documents related to the Schwartz Road Landfill. All original signed documents are maintained by NASA EAB. Records which are more than five years old and which are required to be retained may be archived, provided that the landfill operator can retrieve them for inspection within seven days.

| Document Title | Storage Location Primary Copy | Storage Location Alternate Copy |
|---|---|---|
| KSC/Schwartz Road Landfill Class III – Closure Permit | NASA EAB Office | Schwartz Road Landfill Scale House |
| KSC/Schwartz Road Landfill Class III – Operation Permit | NASA EAB Office | Schwartz Road Landfill Scale House |
| KSC/Schwartz Road Landfill Class III – Closure and Operation Permit Application | NASA EAB Office | Schwartz Road Landfill Scale House |
| Kennedy Space Center (KSC) Schwartz Road Landfill, Class III Landfill Operations Plan | NASA EAB Office | Schwartz Road Landfill Scale House |

| Document Title | Storage Location Primary Copy | Storage Location Alternate Copy |
|---|---|---|
| (EAP-REF-0001) | | |
| Kennedy Space Center (KSC) Schwartz Road Class III Active and Closed Class III Landfills Training Plan (EAP-REF-0001A) | NASA EAB Office | Schwartz Road Landfill Scale House |
| Training Records | Schwartz Road Landfill Scale House | UF Training, Research & Education for Environmental Occupations (TREEO) website http://landfill.treeo.ufl.edu/ |
| Monitoring Plan Implementation Schedule (MPIS) Technical Report | NASA EAB Office | KSC EMC - ESAM Office |
| KSC Environmental Sampling Plan for KSC Schwartz Road Landfills | NASA EAB Office | KSC EMC - ESAM Office |
| KSC Monthly Waste Report | NASA EAB Office | The contract FSEU Heavy Equipment Department |
| Semiannual Gas Monitoring Report | NASA EAB Office | KSC EMC - ESAM Office |
| Semiannual Groundwater and Surface Water Monitoring Report | NASA EAB Office | KSC EMC - ESAM Office |
| Notification required by permit | NASA EAB Office | KSC EMC - ESAM office |
| Annual Closure Cost Estimating Report for Solid Waste Facilities | NASA EAB Office | The contract QSE Office |
| Miscellaneous Historic and Archived Documents | The contract FSEU Heavy Equipment Department | N/A |

**Figure 10.1 Location of Documents Related to the Schwartz Road Landfill**

# APPENDIX A

## FDEP CORRESPONDENCE

Florida Department of Environmental Protection
Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

By E-Mail
John.p.matthews@nasa.gov

Mr. John P. Matthews
Acting Chief, Environmental Assurance Branch
NASA-John F. Kennedy Space Center
Mail Code: TA-B1B
Kennedy Space Center, FL 32899

OCD-SW-09-0059

Brevard County – SW
KSC Schwartz Road Landfill, Class III
Permit No. SO05-0150308-004; WACS ID # 16450
Temporary Suspension of Condition #33

Dear Mr. Matthews:

Your February 10, 2009 letter requested immediate relief from the TCLP sampling requirement specified in special condition #33. You did not request a modification of the permit language. You stated when then the permit renewal is issued the permit language could be formally changed then. Specific condition 33 states:

> 33. Painted Materials: Representative samples of all painted materials identified to be demolished shall be tested using the TCLP testing procedures as outlined in the most recent edition of 40 CFR 261.24. The landfill shall reject any painted materials that test above the TCLP limits for barium, chromium, lead and mercury. Large pieces of demolition debris, including wood, concrete, or metal painted with lead-based paint that test below the TCLP limit for lead may be accepted for disposal at the Schwartz Road Class III Landfill. Chips, dust, contaminated soils, and sludges which may be contaminated with lead-based paint, but test below the TCLP limit for lead, shall be placed in plastic bags or other airtight containers and taken to a Class I landfill for disposal.

Other Class III and C&D disposal facilities in our area are not doing, and do not require, TCLP testing before they accept large pieces of wood or concrete that have paint. As stated in DEP policy memo # SWM-21.6 (dated February 13, 2002), DEP does not expect these materials to be sampled for heavy metals. TCLP testing of "chips, dust, contaminated soils and sludges" is expected. However, the disposal method specified in special condition #33 for these materials when they test below the TCLP limit for lead is not required by Department rule.

During several conversations after receipt of your February 10 letter, the possibility of receiving "PCB bulk product waste" at the landfill has been mentioned. Paints that contained PCBs have been used at KSC. Also, available information indicates PCB paints are on electrical panel boxes that are used by everyone, not just KSC. The Department does not expect the

generators of construction and demolition debris to test whether electrical panels or other commercially available painted metal surfaces are "PCB bulk product waste." This Department policy does not relieve the generator of the waste, nor the disposal facility, from the responsibility to ensure the requirements in 40 CFR 761.62, "Disposal of PCB bulk product waste," are met when applicable.

The Department agrees to suspend specific condition #33 of Permit No. SO05-150308-004. From now until your permit renewal application is submitted, you need to determine how your Operation Plan should be changed. Your application must specifically describe what changes were made in your operations to ensure hazardous waste would not be disposed in the landfill. Also, the application and Operation Plan must discuss how PCB bulk product waste will be identified and handled. Regardless of whether testing is or is not done on the waste, the landfill operator is responsible for any ground water impacts from the waste.

Sincerely,



Waste Program Administrator

Date: March 5, 2009

FTL

Copy to:
Diane Callier, KSC TA-B1, diane.k.callier@nasa.gov
Rodney Brown, KSC TA-B1B, rodney.j.brown@nasa.gov