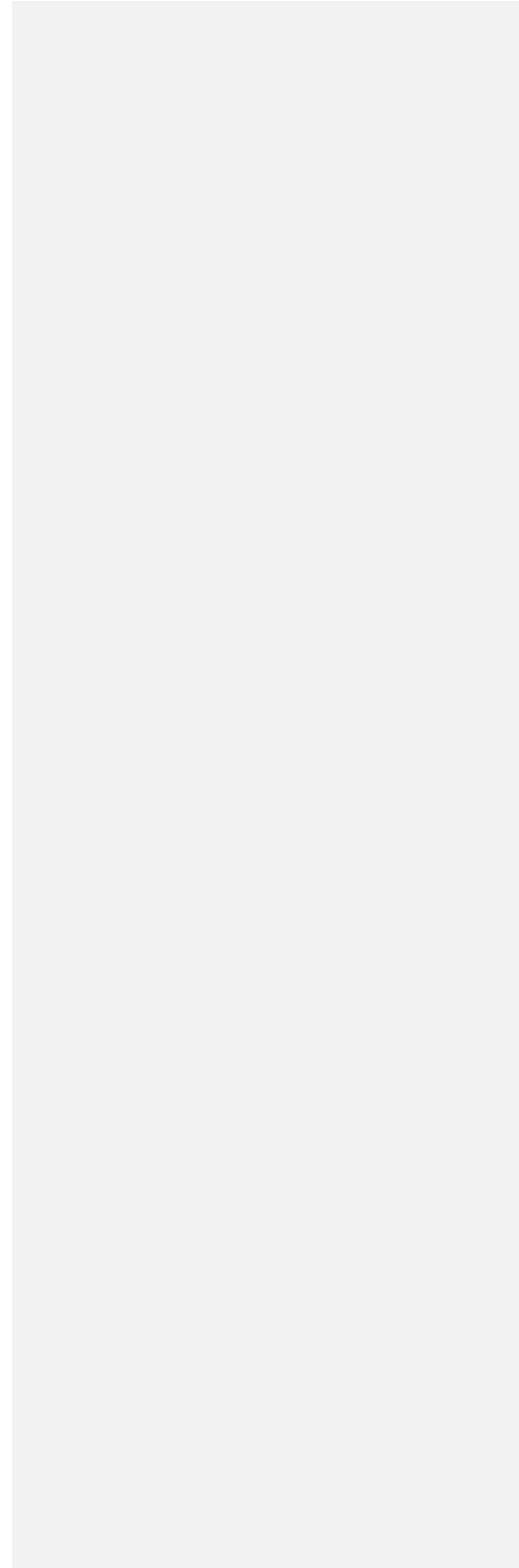


Commonwealth of the Northern Mariana Islands

# Disaster Solid Waste Response and Management Plan

<UPDATE> 202# – Draft for Internal Review



## Contents

I. Plan Overview	4
Scope & Purpose	4
Planning Assumptions	4
Notification - List of Officials	5
Roles and Responsibilities for Waste Management Activities	7
Regulatory Requirements	14
Federal Requirements	14
State Requirements	16
Documentation of Plan Development Process	17
Record of Plan Approvals, Reviews, and Updates	17
II. Materials and Debris Streams	18
List of Anticipated Debris Streams	18
Description of each debris stream	19
III. Debris Quantities	21
Forecast quantity of each type of anticipated debris stream	21
Method for estimating actual debris quantities during/after a disaster	21
<b>EPA? ACE? CNMI Standard?</b>	<b>21</b>
IV. Waste Characterization Sampling and Analysis	21
Sampling	21
Analysis	21
Quality assurance	22
V. Debris Management Strategies/Options	22
Procedures and approaches	22
a. Minimization	22
b. Collection	22
c. Segregation	22
d. Decontamination (equipment, people, waste/materials)	22
e. Accumulation/Storage	22
f. Monitoring of Debris Management Activities	22
Pre-selected debris management sites	26
a. Debris staging and storage (short-term and long-term) locations	27
b. Equipment staging and storage (short-term and long-term) locations	28
c. Decontamination and treatment stations	33
VI. Waste Management Facilities	33
Anticipated types of waste management facilities needed	33
Specific facilities identified	33

VII. Transportation	33
Logistical options	33
Routes (including maps)	33
Hauler information	33
VIII. Debris and Material Tracking and Reporting System	33
General principles	33
Databases or other tracking software to be used	33
Debris tracking report templates	33
IX. Community Communications/Outreach Plan	33
Strategy	33
Contact information for key stakeholder groups	33
Pre-scripted information for debris management activities involving the public	33
Information for a response website once a disaster occurs	33
X. Health and Safety for Debris Management Activities	33
XI. Resource Summary	33
Resource needs	33
Resource sources	33
Appendix to Part 243—Recommended Bibliography	35
40 CFR §258.2 Definitions	37
§258.3 Consideration of other Federal laws.	40

## I. Plan Overview

### Scope & Purpose

This Disaster Response Plan provides operational information reflecting debris management operations on the Commonwealth of Northern Mariana Islands comprising Saipan, Tinian, Rota and the Northern Islands following 2018 Super Typhoon Yutu. It outlines how debris operations were managed with the Department of Public Works and Mayor Offices and identifies the various government entities involved and how they are conducted debris operations with the intent to establish a working action plan to anticipate and manage disaster related solid and hazardous waste needs in the Commonwealth of the Northern Mariana Islands. This plan is developed from the 2020 Typhoon Yutu Debris Report in collaboration with the Inter-island Solid Waste Taskforce (ISWTF), which is composed of representatives from the Saipan Department of Public Works (DPW), the Office of Planning and Development, the Bureau of Environmental and Coastal Quality, and the Mayors of Saipan, Tinian, Rota, and the Northern Islands with support from the U.S. Environmental Protection Agency.

Acknowledging that the importance of providing initial guidance for all of the CNMI in preparation for the next disaster event, and building from the lessons learned specific to 2018 Super Typhoon Yutu, this plan is a living document that requires and is intended to be updated every 3 years and when significant changes occur in operations or when new data becomes available. It provides a continuity document during personnel turnover for the constantly rotating personnel and in the end will provide context for disaster response and recovery elements of the Comprehensive Integrated Solid Waste Management Plan that the ISWTF is supporting data collection and development for to achieve improved preparedness and recovery abilities to build system resilience to meet the 10-year goal that by 2030, 50-80% of the recyclable waste stream will be diverted from CNMI's landfill or RCRA-compliant waste management facilities on Saipan, Tinian, Rota, and the Northern Islands with diverted waste composted, reused, or sold to support sustainable waste management systems.

The contents of this document were developed by staff within the CNMI-OPD, DPW, BECQ, and Mayor Offices with support from USEPA. In creating this prioritized planning document, the Inter-island Solid Waste Management Working Group applied USEPA's April 2019 *Planning for Natural Disaster Debris Guidance*, as well as considered the CNMI's Smart, Safe Growth Guidance and other relevant best practices in disaster preparedness and response from resources listed in the references section of this publication.

### Planning Assumptions

Key data points from DPW-Saipan's 2020 Yutu Debris Report as well as historical information from a variety of typhoon events from the Marianas Region have been used to support planning assumptions regarding loss and damage data. This plan focuses on typhoon preparedness and readiness to address the urgent need of identifying preparedness priorities and streamlining response and recovery in advance of the next wind storm event. The ISWTF leading the development of this plan as well as guiding the Comprehensive Integrated Solid Waste management planning efforts intends to expand disaster risk assessment and mitigation discussion further with details including typhoons, earthquake, wildland fire, and flooding waste streams in the next eighteen-month assessment and reporting period, with support from planning funds allocated from the \$56M Solid Waste Disaster Fund (PL116-20) in response to 2018 Super Typhoon Yutu. Additional background on that Federally Declared Disaster and resulting debris estimates are included in Section II, Debris Management & Assumptions.

Overall waste stream characterizations for CNMI include baseline data in the 2019-2020 Resources Report (OPD, 2020), which summarizes characterization information from DPW's 2018-2019 Marpi Landfill Feasibility Assessment, the 2017 CNMI Catastrophic Typhoon Plan debris estimates from the USACE Estimating Model (COEM) and Draft CNMI Debris Management Plan created in response to Typhoon Soudelor, 2018 Solid Waste Study from the Department of Defense's Draft Environmental Impact Statement on the CJMT (DoD EIS), and Yutu reporting from DPW Saipan, DPW Tinian, USEPA, and FEMA, as well as comparisons of waste

streams from Guam and Hawai'i.

Other assumptions include that there will be a comprehensive “All Disasters Debris” update in the Comprehensive Integrated SWMP by 2022 which will include updates to this plan and supporting guidance. Through this guidance, Saipan, Tinian, Rota and the Northern Islands will be better in coordination and managing their debris during a disaster, because of the implementation work plans, operations and maintenance plans stated in this living document. In addition, this will streamline the process on the specific type of assistance to request from our Federal partners addressing the challenges faced with Debris Removal activities. As such, this plan focuses on typhoon preparedness, readiness and response and recovery, incorporating planning elements from the 2017 CNMI Catastrophic Typhoon Plan, Annex to the FEMA Region IX All-Hazards Plan, February 15, 2019. As noted, an “All Disasters” Solid Waste Management update is pending and will be included in the CNMI’s Comprehensive Integrated Solid Waste Management Plan, and that plan will complement and expand on this typhoon-focused 2021 Disaster Solid Waste Response and Management Plan which has been prepared to inform immediate response, recovery, and preparedness from typhoon impacts specifically.

**Notification - List of Officials (who should be notified in the case of an incident and contact information)**

Figure A-1 below reflects the Joint Response Organization that is activated according to the 2017 CNMI Catastrophic Typhoon Plan. Solid and Hazardous Waste Management activities are not directly identified in that document; therefore, Figure A-2 reflects the addition of the DPW Secretary as the lead for Roads and Solid/Hazardous Waste response, with additional island-specific positions detailed further in Figure A-3. Contact information for this List of Officials who should be notified in case of a solid waste specific management incident are provided at the end of this section and will be periodically revised or updated as needed. Roles and Responsibilities are outlined further in the following subsection.

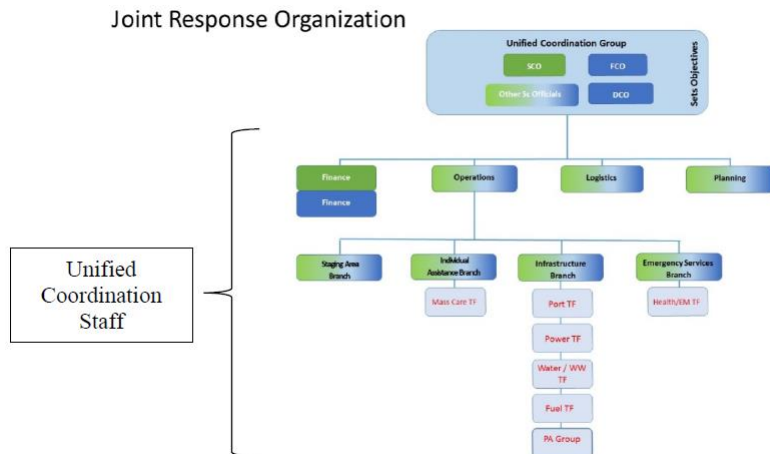


Figure A-1: Joint Response Organization, 2017 CNMI Catastrophic Typhoon Plan

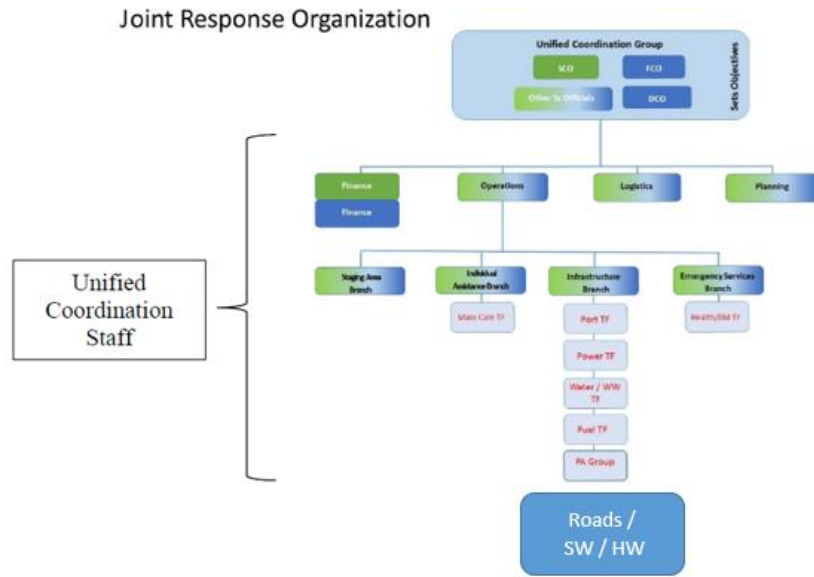


Figure A-2: Joint Response Organization (JRO) with Roads / SW/HZ Added

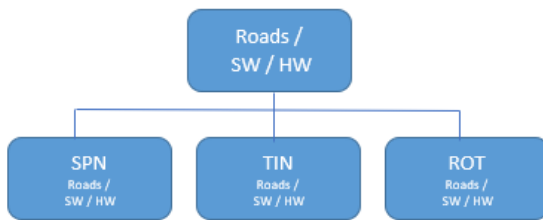


Figure A-3: DPW Response Organization for Saipan, Tinian, and Rota overseen by DPW Secretary under JRO Infrastructure Branch

POC Name	Title	Email
<b>Ray N. Yumul</b>	DPW Secretary	<a href="mailto:ryumul.sec@dpw.gov.mp">ryumul.sec@dpw.gov.mp</a>
<b>Blas Mafnas</b>	DPW-SPN Acting Director	<a href="mailto:btmafnas@yahoo.com">btmafnas@yahoo.com</a>
<b>Joal Untalan</b>	DPW-TIN Resident Director	<a href="mailto:dpwrhd@gmail.com">dpwrhd@gmail.com</a>
<b>George Atalig</b>	DPW-ROT Resident Director	<a href="mailto:george.arctic@gmail.com">george.arctic@gmail.com</a>

### Roles and Responsibilities for Waste Management Activities

Each Municipality oversees its own solid waste management activities, and these roles will be detailed further in the CNMI's Comprehensive Integrated Solid Waste Management Plan. However, as history has demonstrated, when a disaster occurs, coordinated efforts will support efforts to address cross-cutting needs. As such, this section outlines major roles and responsibilities of solid and hazardous waste management in the response and recovery phases after a typhoon event.

<b>POC Name</b>	<b>Title</b>	<b>Role / Responsibility</b>
<b>Ray N. Yumul</b>	DPW Secretary	Oversees coordination between inter-island Solid Waste Management Directors and the JRO, including but not limited to regulatory and first responders from FEMA, USEPA, and CNMI-BECQ / BEH
<b>Blas Mafnas</b>	DPW-SPN Acting Director	Oversees coordination between Saipan waste management (DPW and Mayor's Office) and BECQ / BEH to ensure environmentally compliant solid and hazardous waste management activities
<b>Joal Untalan</b>	DPW-TIN Resident Director	Oversees coordination between Tinian waste management (Mayor's Office, DPW-SPN for shipping coordination of MSW to Marpi and shipping/ ultimate disposal of non-MSW / hazardous waste) and BECQ / BEH to ensure environmentally compliant solid and hazardous waste management activities
<b>George Atalig</b>	DPW-ROT Resident Director	Oversees coordination between Rota waste management (Mayor's Office, DPW-SPN for shipping coordination of MSW to Marpi and shipping/ ultimate disposal of non-MSW / hazardous waste) and BECQ / BEH to ensure environmentally compliant solid and hazardous waste management activities
<b>Eli Cabrera</b>	BECQ Administrator	Coordinates site management with DPW Secretary to ensure pre-approved locations are sufficient to address sorting needs and support response and recovery in coordination with DEQ Director and supporting staff as well as CHCC-Bureau of Environmental Health, EPA, and FEMA as needed

The municipalities are responsible for waste collection and delivery of waste to the Marpi Landfill or other pre-approved staging and sorting location which are detailed further in Section V of this Plan. Each Municipality plays a key role in waste collection especially during disaster response and recovery, at which time waste separation is especially critical. Therefore, as detailed further in the Comprehensive Integrated Waste Management Plan, the following tasks and activities are led by municipalities:

- Each municipality (Saipan, Tinian, Rota and the Northern Islands) elaborates an island-specific waste management plan;
- Continuous communication activities are necessary in order to inform, educate and involve citizens and operators in waste separation at source; and
- The real costs for waste collection need to be calculated and tracked to support response, recovery, and future planning efforts.
- Specific exercises to test the efficiency of the plans

As outlined in the 2019 Typhoon Yutu Report, a successful solid waste management protocol that was established was the creation of an “Interagency Debris Task Force” to facilitate debris related information among CNMI and Federal agencies, to provide a forum for resolving debris related issues, and to investigate possible solutions to both existing and long-range debris related problems. Task Force agencies include:

#### CNMI Government

- o Homeland Security and Emergency Management (HSEM)
- o Bureau of Environmental and Coastal Quality (BECQ)
- o Department of Public Works
- o Department of Labor-Workforce Investment Agency
- o Mayor’s Offices

#### Federal Agencies

- o FEMA
- o US Army Corps of Engineers (USACE)
- o US Environmental Protection Agency (USEPA)

The following operations and response details outline standard operating procedures for the Debris Task Force when the Joint Response Organization is initiated following a disaster event.

#### Operations:

Debris Task Force Meetings. Daily meetings are conducted at 7AM at the Mayor’s Office(s) on Saipan and Rota and at the Transfer Station (due to location of standby back-up generator) on Tinian at the Municipality Operations Center (MOC) in the Mayor’s Office.

Daily Debris Tactics Meeting. A room at the Mayor’s Office has been designated for daily debris tactics meetings. A daily tactics meeting is conducted with MOS and DPW. When activated, Tinian, Rota and the Northern Islands daily tactics meeting is conducted with HSEM and the Governor’s Office. The tactics meeting utilizes an ICS 215 Operational Planning Worksheet to plan the debris crew assignments for the next 1-2 operational periods. Following the Tactics meeting, debris crew assignments are made.

DPW holds separate meeting(s) for management operations for Facilities, Equipment, and Labor. These strategies are reported at the Tactics Meeting to support disaster response and recovery. When activated, Tinian, Rota and the Northern Islands facilitates meetings are held at their MOC in the Mayor Office for Facilities, Equipment, and Labor and other activities operating to the disaster related activities.

#### Response:

As described by the 2020 Typhoon Yutu Report (DPW-SPN), response operations on Saipan focus on four main phases. On Tinian, Rota, and in the Northern Islands, coordinating logistics for shipment of priority disposal materials presents an additional phase of initial response. The overall approach is similar on all three islands therefore island-specific activities are detailed only where



applicable. On the Northern Islands there are no current response coordination procedures in place; this will be addressed further in the pending CNMI Comprehensive Integrated Solid Waste Management Plan.

#### 1. DEBRIS OPERATIONS: Phases I, II, III, IV

The Debris Operations underscore four particular Phases. (I) Clear debris for emergency access; (II) collect debris along curbside; (III) proper disposal through reduction, recycling, and or reusing; (IV) Closing of project. The entire phase could be summarized through an idiom of “Cradle to Grave”.

##### a. Debris Clearance

The initial focus of debris operations is Debris Clearance; actions necessary eliminate immediate threats to lives, public health, and safety and eliminates immediate threats of significant damage to improved public or private property. Phase I involves clearing debris from right of ways to provide access for police, fire and other emergency responders and access to critical facilities. Debris is normally pushed to the side of the road for eventual collection during Phase II, Debris Management. Debris clearance measures are normally considered FEMA Public Assistance program, Category B work (Emergency Protective Measures).

During Typhoon Yutu, in addition to Territory and Municipal clearance efforts, DOD assisted with the Guam National Guard and Army Reserve units for several weeks at the DPW-HQ. Additionally, the Department of Labor (DOL) Workforce Investment Agency (WIA) supplemented DPW with additional laborers for the Yutu Mission.

##### b. Debris Management.

PHASE IIA: Debris Collection and Removal. DPW/DOD/WIA/Mayor Office Emergency Preparedness (EP) teams conduct curbside collection of vegetative debris and C&D/damaged household contents and debris removal from public areas and facilities. BECQ is conducting HHW, White Goods, and e-Waste collections. Residents also drop off disaster debris at TDSRs, HHW/white goods/e-Waste collection sites, and the landfill. DOD assisted in the early stages of collecting primarily vegetative debris. DPW is using force account labor and equipment supplemented by contracts for rental equipment with operators. Rental equipment is integrated with Force Account debris crews and directly supervised and tracked by DPW. FEMA has contracted for additional rental equipment – dump trucks and grapplers to augment municipality equipment. Additional manpower from the Department of Corrections prisoner labor and the Department of Labor Workforce Investment Agency (WIA) grant (emergency hiring program) are assisting with sorting debris curbside and removal from private property. Also the US EPA hired contractors to perform FEMA’s mission based assignment on the cleanup and removal of used oil and water at an Old Generator facility. Collection and shipment of White Goods and e-Waste collections.

DPW completed four curbside collections sweeps of villages by ~ February 2019. Private properties are excluded (none of these are PA eligible) for private properties. Rights of Entry (ROE) already exist for many of the properties under the TETRIS program.

PHASE IIB: Additionally, Territorial Routes have addressed drainage clearances

affected by “Yutu.” This operation is being managed through DPW Roads and Grounds Division and WIA employees. The identified territorial roadways for Saipan stand’s at ~82 miles. This will include drainage systems that prevent flooding and is of particular importance for low-lying, flood-prone areas. A work detail of (1) mile of drainage clearance per day will accumulate to ~82 work-days for all territorials. Production for this project is completed. The methodological calculative approach began at the end of curbside collection in February of 2019. Phase IIB continued with roadside and drainage clearances. This calculation configures 20 workdays per month divided by 82 miles to an ~4.2 months.

It is further understood that hangers and leaners along roadways pose a threat to motorists and pedestrians alike. Using a similar calculation with the current Phase, estimates would give DPW/WIA an additional ~4 months to clear all hangers and leaners added along with drainage clearance for a total of 8 months.

PHASE III: Debris Management Sites (Temporary Debris Staging and Reduction Sites (TDSR), Recycling Sites, HHW/ White Goods/e-Waste sites, C&D to Marpi Landfill and Transfer Station.

As detailed further in this document, dedicated waste exclusion sites are activated after a typhoon disaster declaration to support segregation and environmentally compliant materials management on Saipan, Tinian, and Rota.

Saipan - DPW Lower Base Transfer Station- HHW/White Goods/e-Waste Collection Site. USEPA/BECQ utilize the Saipan Lower Base Transfer Station for HHW, White, Goods, and e-Waste staging, packaging, and final disposal. BECQ and Fire Department collections and residents drop off at this site. The facility is the work-station for the production of the identified waste categories which need to complete production.

Tinian – DPW-DLNR Segregation Staging Area.

Upon disaster declaration, MOT requests designation for use of DLNR site for temporary sorting and staging of excluded materials. Green waste is segregated at a separate approved location.

Rota - DPW Segregation Staging Area.

Upon disaster declaration, dedicated segregation and staging areas are used for excluded waste at the Rota Solid Waste Management Facility. Green waste is segregated at a separate approved location.

To ensure that strict regulations are complied, personnel is necessary in observing and proper management of such wastes from entering the landfill or other approved and environmentally compliant segregation facility. This would take additional personnel to support proper disposal (at least one spotter and one supervisor at each active site at all times), conduct inspections, inform management of findings and delegate through proper channels of communications on proper handling of such waste categories.

Ensuring that these productions are continuous, SWMD will be able to address key concerns of waste inventory build-up, which in turn, diminishes regulatory concerns from an environmental point of view. These concerns have long been a withstanding

regulatory practice for the SWMD ensuring that the landfill prohibits this excluded waste category and inventory of such waste category is completely administered through best management practices (BMPs).

#### Materials Sorting:

sorting disaster debris containing a mix of Waste exclusion waste, and EPA waste stream. Specific categories identified are as follow:

- (1) Waste exclusion stream: C&Ds (Tin, Lumber, Concrete, Dry Wall, etc.), Mattress and Carpets, and Furniture
- (2) EPA waste stream: hazardous waste, white goods (appliances, etc.), and electronic waste.
- (3) DPW Waste Exclusion: Tires

A facility has been used for production of waste on the sorting floor. From the sorting floor, all sorting will begin as detailed:

- All HHW, White Goods, Tires, and E-Waste.
- The sorting team will consist DPW/WIA personnel, equipment, and services.
- Personnel will be involved in sorting out WGs and EWs, and HHW from the mixed pile.
- A Site Safety Officer will be assigned to monitor activity of sorting team for safety concerns. SSO will conduct at 8 am the safety briefing with all involved in the sorting activity. As detailed further in the Emergency Solid Waste Preparedness and Response Training Plan, all personnel supporting waste management activities shall have current OSHA-required HAZWOPER certifications.

#### Operations:

##### Task I:

Each sorting team will sort into their respective categories (WE, EW, and WEW) as stated above in the mater sorting section.

A safety officer will go through safety checklist-as attached-and monitor throughout operation. Work will not begin in the absence of the assigned site safety officer. All staff must be properly trained to use and equipped with appropriate personal protective equipment (PPE). Front line staff that collect, sort, and otherwise manage solid waste are considered "essential" employees that qualify for hazard pay and must be covered by workman's compensation.

##### Task II:

All waste is segregated and special wastes are excluded and managed at the designated Saipan, Tinian, and Rota collection sites in accordance with BECQ-approved waste exclusion plans for Saipan (Marpi and Lower Base), Tinian (Tinian Dump / MSW Facility), and Rota (Rota Dump / MSW Facility). At all sites, the disaster-activated sorting team(s) will load all sorted debris into respective containers for their final disposal destination. At Marpi, the first disposal destination includes section A for tires, section B for EPA regulated special waste streams, and the Marpi Landfill-Cell 1 active phase for sorted acceptable waste. On

Tinian, the designated DLNR segregation site is activated to receive and temporarily store recyclable materials and special waste stream materials while the Green Waste site is used exclusively for green waste and compostable materials. On Rota recyclable and special waste stream materials are segregated at the Rota Municipal Solid Waste Facility (RMSWF) while green waste is segregated either at the RMSWF or the BECQ-approved Temporary Green Waste segregation site in Sinapalo.

#### Site Layout Plan:

As outlined further in the island-specific collection / staging / disposal information that follows, on all islands a site facility is identified to support disaster response sorting operations that identifies the location for the DPW/WIA personnel in contrast to other projects and equipment on the sorting floor. The plan identifies a one-way entrance and ex route for all vehicles and heavy equipment accessing the site. The debris containers are strategically positioned to allow ample safe mobility of the sorting personnel on the sorting floor.

#### **Saipan Collection / Staging / Disposal Areas**

Kagman TDSR. Kagman TDSR is designated only for vegetative debris and will be operationalized in the event of a disaster for green waste segregation.

As Gonno. As Gonno TDSR has been established on the proposed DPW Convenience Center site. The area provides an impermeable barrier for the temporary staging of debris. During response to Typhoon Yutu the TDSR initially accepted separated C&D and vegetative debris. However, on 14 Dec 2018, DPW, BECQ, and MOS made a decision to open this TDSR for mixed/unsorted debris in order to expedite removal of debris from the hardest hit southern villages by shortening the transportation to Marpi on the northern tip of the island. Historically USEPA has supported collection and segregation for HHW, White, Goods, and e-Waste staging, packaging, and final disposal in coordination with BECQ and Fire Department collections and residents drop off at this site.

Marpi Landfill TDSR. This TDSR is located adjacent to the landfill on the “back 40” acres on the Marpi Landfill property. The site accepts sorted C&D and vegetative debris. The Marpi Landfill is a Sub-Title D landfill owned by CNMI Government and managed by DPW Solid Waste Division. It is operated and maintained by MES Corporation under contract to DPW. The contract for operation of the landfill is based on a price per month of operation regardless of the amount of Municipal Solid Waste and, in this case, disaster related debris deposited in the landfill.

#### **Tinian Collection / Staging / Disposal Areas**

Tinian Waste Management Facility (TWMF) / Tinian Dump. The TWMF currently accepts all types of Household Waste (HW) and Recyclable Materials (RM) that are not special excluded wastes. These HW and RM have a designated disposal area which sits on bare ground. All of the HW and RM are to be brought to the site for disposal method. In times of a disaster, the Tinian Dump will be closed unless authorized by the Mayor of Tinian and DPW Director to be open for business. The staffing capacity and operations is managed by DPW Solid Waste Division as authorized for use with conditions set forth by CNMI BECQ.

The TWMF is open from Monday to Saturday, 9AM to 4PM, with two (2) designated Solid Waste employees at the sites (1 spotter and 1 operator) at all times. The spotter redirects customers with excluded materials to the Tinian Temporary Debris Storage and Reduction facility.

- Referred to as an “Open Dump” the designated staging area to dispose of all HHW/CW. The open dump is situated on government land and managed by Tinian DPW Solid Waste Division. Per 2010 Administrative Order issued by the CNMI BECQ to the operations performed deemed unsatisfactory. However, the State BECQ granted and the Municipality of Tinian and Aguiguan for the continued use with terms and conditions applied. Its operational hours are from 8:30 am-5:00 pm Monday -Saturday. On site there is a spotter who is a DPW staff. The spotter will inspect the loads of HHS/CW being brought for disposal. Once the HHW/CW arrive on site, a DPW spotter will inspect the load. If accepted, the spotter directs the operator to the specific location to unload the HHW/CW. If not, the operator is advised and directed to another disposal site. To date, the open dump remains open and is the designated site for the staging and disposal of HHW and CW on an emergency or non-emergency incidents/events,

- **Transfer Station**

- This facility known as the Tinian Transfer Station and Recyclable Center will be the initial point to accept Hazardous waste (HW) and Recyclable materials (RM), including white goods and e-waste materials including batteries, tires, paint buckets, and used oil. Sorting and Segregation will be managed by DPW staff to ensure the HW and RM are placed in designated areas and in preparation to ship out the HW/RM off-island to a RCRA landfill site. However, the facility cannot accept any HW/RM at this time as the Permit to operate it has not been issued by CNMI BECQ. Therefore, all HW/RM are directed to the DLNR site which is activated

- **DLNR (Staging site for Yutu Debris)**

- This site is the staging area for all types of debris from the 2018 Super Typhoon Yutu, and will be activated to support. The stock pile of debris is comprised of

- various metals, car batteries, paint buckets, outdoor equipment, damaged automobiles, tires, white goods and e-Waste, fuel tanks, Hazardous waste (HW), Recyclable materials (RM) and machinery equipment. The debris are not properly segregated and sorted, due to the magnitude of risks and hazards present on site. However, this site remains as the staging area for all disaster related debris.

- It is in the hopes and desires from the Tinian Leadership and the people to request assistance from our State and Federal agencies for the collection, removal, package and ship out of these debris to RCRA landfill. Per RFP on the collection and removal of the remaining Yutu Debris is currently under review by OPD and EPA. If approved by the State and EPA, the operations would be best contracted to perform the immediate actions on the collection and removal of the remaining Yutu

debris. Once completed, the site will no longer accept any disaster related debris and a cease and desist will be strictly enforced by law enforcement personnel. All disaster related debris will be staged on an alternative permitted site.

- Reflecting on the 2018 Super Typhoon Yutu wastestream on DLNR property would have been best managed and controlled at the Tinian Transfer Station and Recyclable Center if it was open to accept the specific debris.
- Currently all used oil is contained in a steel container secured in a housing unit. If an operator needs to dispose, a DPW Solid Waste staff will be at the DPW site to be the handler on the transferring process. Its current state of condition, it needs technical assistance and funds to improve the current system in place.

- **Green Waste (Staging area)**

- A permitted site issued by CNMI BECQ as the staging area for green waste materials, construction and demolition, including bed mattresses. All waste materials staged on site are being monitored by a spotter to ensure segregation and sorting are taken place.
  - In times of a disaster event/ incident, the site will be open to accept Green waste, Bed mattress and Construction & Demolition materials.
  - It is in the hopes and desires from the Tinian Leadership and the people to start a composting activity on site. A way to minimize the stockpile of green vegetation and fire prevention. In addition, to request funding assistance from the State and Federal agencies on the leasing an incinerator to burn away all existing green vegetation; especially on a recovery phase.

-Overall, through comprehensive inter-island solid waste management planning efforts and the Tinian Zero Waste management plans, this may be the conduit to the State and Federal agencies on allocating resources, financial assistance and possibly establishing a RCRA complaint landfill on Tinian.

**Rota Collection / Staging / Disposal Areas**

Rota's DPW manages the designated Tatchok Rota Solid Waste Facility (RSWF) and Sinapalo Green Waste sites to ensure compliance with permit conditions and environmental regulations. This includes assigning personnel to ensure segregation, as well as maintaining sites so that they are sanitary and safe. Spotters oversee waste segregation to ensure that all stockpiling of recyclable materials, as well as "special" or "hazardous" waste, is managed so that these waste streams can be batched and properly disposed of when funding is available to ship waste off island. Compostable waste is processed at the green waste facility to support future re-use applications which may include

landscaping and alternative cover. MSW is currently disposed of at the RSWF, however, efforts are underway to upgrade this facility and to establish and maintain a RCRA-compliant facility through comprehensive inter-island solid waste management planning efforts.

### Recovery

Once collection and segregation efforts have been concluded, disaster response enters the “recovery” phase. During the Recovery Phase, all designated disposal sites will continue to open to the general public as a staging area to dispose of their specific waste until closed by DPW or unless a “STOP Order” has been issued by the CNMI BECQ to cease and desist any activities on site.

The municipality of Tinian and Aguiguan has been granted a land designation on Pina, the new proposed site for Public Landfill. It has gone through clearance from government agencies, but has not progressed to 100% design and is yet to receive a major siting permit from CNMI BECQ. It is in the hopes and desires to have a RCRA Complaint landfill that is to code and standards set forth by the Federal and State Environmental Laws and regulation operating a landfill site. However, funding is the critical component to develop and improve the site with the necessary fixed facilities and specialized equipment to stage, sort and minimize the volume of waste materials on site.

## Emergency Solid Waste Preparedness and Response Training Plan

### **Site Safety Training**

Before mobilizing for typhoon disaster response, all identified staff shall participate in an emergency response training that included a detailed overview of each site-specific Health and Safety Plan, which is discussed further in Section X of this document.

### **HAZWOPER Training**

Hazardous Waste Operations and Emergency Response (HAZWOPER) is a set of guidelines produced and maintained by (Occupational Safety and Health Administration) OSHA which regulates hazardous waste operations and emergency services in the U.S. The OSHA HAZWOPER Standard (29 CFR Part 1910.120) – requires that all workers that are exposed to or handle hazardous materials must take a 24hr or 40hr HAZWOPER Training Course and an 8hr Annual Refresher.

To support ongoing preparedness and disaster response needs, at minimum all solid waste management and emergency response personnel shall complete the 40-hour HAZWOPER within one year of their initial hire, and shall complete annual 8-hour refresher courses annually beginning on their certification date. Additionally, Safety Officers and First Responders shall be offered the 24-hour HAZWOPER training (Level 3). All solid waste management and emergency response personnel shall be eligible for hazard pay and workmen's compensation for the duration of their time spent as spotters or Safety Officers and other covered activities as approved by their respective expenditure authority during the life cycle of disaster response and recovery coordination.



## Regulatory Requirements

Through this and the Comprehensive Integrated Solid Waste Management Plan (CISWMP), the solid waste managers of the CNMI work to meet and exceed all relevant federal and state regulatory requirements to ensure public health and environmental safety. These regulatory requirements apply before, during, and after a disaster event. This Disaster Response Plan as well as the forthcoming CISWMP aim to meet that shared goal while expediting emergency response and recovery actions to address solid and hazardous waste management needs during and after a natural disaster in the CNMI.

## Federal Requirements

The United States Environmental Protection Agency (USEPA) regulates household, industrial, and manufacturing solid and hazardous wastes under the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §§ 6901–6992k) and its regulations (40 CFR parts 240–282). RCRA's goals are to protect us from the hazards of waste disposal; conserve energy and natural resources by recycling and recovery; reduce or eliminate waste; and clean up waste that which may have spilled, leaked or been improperly disposed of. Removal of debris for life, health, and safety is statutorily excluded from the National Environmental Policy Act (NEPA) review as long as this debris is placed in existing permitted landfills. Debris not going into a permitted landfill, but to staging sites, must still comply with all federal, state, and local laws, as well as Executive Orders. Some examples of these laws are the Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Clean Water Act (CWA), Clean Air Act (CAA), and Executive Orders (EO's) for Floodplain Management, and Wetlands Protection.

USEPA also has responsibilities under the National Response Framework (NRF), which aims to help the whole community (i.e., all government and nongovernment stakeholders) prepare for, respond to, and begin short-term actions to recover from a disaster or an incident, including those that may require a coordinated Federal response. Specifically, as a designated support agency under the NRF's Emergency Support Function (ESF) #3 – Public Works and Engineering Annex, EPA provides technical assistance for nonhazardous waste management, including debris management and recycling and reuse opportunities, and expertise on waste and debris disposal options, among other actions. In part to support this mandate, in 2019 USEPA published the *Planning for Natural Disaster Debris* Guidance which was used to develop this plan. The most current version of USEPA guidance will be reviewed and used to support future plan updates. BECQ is the territorial agency that regulates solid and hazardous waste and issues permits for all temporary debris sites, as detailed further in the “State Requirements” section. Federal requirements for Hazardous and Solid wastes are detailed further in the following subsections.

### *Solid Waste Management Requirements*

Non-hazardous solid waste is managed under RCRA Subtitle D, which encourages states to develop comprehensive plans to manage nonhazardous industrial solid waste and municipal solid waste, sets criteria for municipal solid waste landfills and other solid waste disposal facilities, and prohibits the open dumping of solid waste. Supporting regulations found at Title 40 CFR Part 239-258 include specific regulations regarding *Guidelines For The Storage And Collection Of Residential, Commercial, And Institutional Solid Waste* (Part 243), *Source Separation* (Part 246) and *Criteria for Municipal Solid Waste Landfills* (Part 256) which are especially relevant and detailed further here.

- [Part 243 - Guidelines For The Storage And Collection Of Residential](#)  
This section establishes required minimum performance measures for all solid waste collection operators, are mandatory for Federal agencies, and are recommended to States and local governments (40 CFR § 243-100(c)).

Title 40 CFR § 243-200.1(a) requires that “[a]ll solid wastes (or materials which have been separated for the purpose of recycling) shall be stored in such a manner that they do not constitute a fire, health, or safety hazard or provide food or harborage for vectors, and shall be contained or bundled so as not to result in spillage.” It further specifies acceptable types of storage containers and recommended design and operations procedures. Collection systems must be operated in such a manner as to protect the health and safety of personnel associated with the operation (§243.201-1) and all solid waste

personnel should receive instructions and training on safe handling procedures (§243.201-2(a)) as well as receive personal protective equipment (PPE) that meets the applicable provisions of the Occupational Safety and Health Administration Standards for Subpart I—Personal Protective Equipment (29 CFR 1910.132 through 1910.137)(§243.201-2(b)).

All vehicles used for the collection and transportation of solid waste (or materials which have been separated for the purpose of recycling) shall be enclosed or adequate provisions shall be made for suitable cover, so that while in transit there can be no spillage (§243.202-1(b)) and equipment used in the compaction, collection, and transportation of solid waste (or materials which have been separated for the purpose of recycling) shall be constructed, operated, and maintained in such a manner as to minimize health and safety hazards to solid waste management personnel and the public (§243.202-1(c)). The collection equipment used for the collection, storage, and transportation of solid waste (or materials which have been separated for recycling) must meet the standards established by the American National Standards Institute as follows: Mobile Refuse Collection and Compaction Equipment—Safety Requirements, 1992, American National Standards Institute, ANSI Z245.1-1992; and Stationary Compactors—Safety Requirements, 1997, American National Standards Institute, ANSI Z245.2-1997(§243.202-1(d)).

- [Part 246 - Source Separation](#)

This section establishes guidelines as well as required source separation procedures that are mandatory for Federal agencies and are recommended to States and local governments (40 CFR § 246-100(b)). These standards outline management procedures as well as cost analysis and market study methods, contracting, storage and transportation, and public information and education recommendations that are important considerations for comprehensive integrated solid waste management planning in CNMI. Separation categories detailed further in Subpart B include high-grade paper recovery, residential materials recovery, and corrugated containing recovery.

This section recommends that regular recycling of high-grade paper (§ 246-200-7) as well as glass, can, and mixed papers from residential waste streams (§ 246-201-2) should be pursued based on market studies specific to these waste streams. Current waste streams are discussed further in this plan while these source separation recommendations will be explored further through supporting feasibility assessments that will guide long-term planning efforts outlined in the CISWMP,

- [Part 256 – Guidelines for Development and Implementation of State Solid Waste Management Plans](#)

This section provides guidelines and methods for achieving the objectives of environmentally sound management and disposal of solid and hazardous waste, resource conservation, and maximum utilization of valuable resources (40 CFR § 256-01(a)). This Disaster Response Plan is a component of the Comprehensive State Plan that is in development and that will contain at minimum the scope outlined in Section 256-01 in addition to incorporation of Smart, Safe Growth, and Zero Waste principles with the aim to support sustainable production and consumption patterns. Throughout the CNMI the 10-year goal is to divert at least 50% recyclable materials; strategic and implementation planning elements to achieve this will be detailed further in the CISWMP. This plan focuses on disaster debris management with the goal of protecting human and environmental health in the response and recovery phases of a high velocity wind storm event. This plan, as well as other natural disaster relevant planning discussions relating to risk identification and reduction addressing short- and long-term impacts will be expanded, reviewed, and regularly updated not less than every three years (§ 256-03).

*Hazardous Waste Management Requirements*

A solid waste is considered a hazardous waste under RCRA if it can cause injury or death to humans or can pollute the land, air, or water. The regulations specify what wastes are excluded from the definition of a hazardous

waste in 40 CFR 261.4(b), "Materials which are not Hazardous Waste." Many of these excluded wastes such as domestic sewage, spent nuclear waste materials, and industrial wastewater subject to the Clean Water Act may meet the criteria for hazardous waste, but are nevertheless excluded under RCRA.

Under the regulations in 40 CFR 261, there are two basic categories of hazardous wastes: listed wastes, and characteristic wastes. Listed Wastes are any solid waste that contains a specifically "listed" hazardous waste, regardless of the concentration, is regulated as a hazardous waste. The EPA has developed four specific lists of chemicals addressing over 500 specific hazardous waste sources. The four types of listed hazardous wastes as outlined in Subpart D of 40 CFR 261, "Lists of Hazardous Wastes" are:

- Hazardous waste from nonspecific sources such as solvents, plating solutions, and chemical manufacturing processes ("F" wastes);
- Hazardous waste from specific sources which include wastes from industrial processes which employ chemicals and result in generation of an unusable waste ("K" wastes);
- Discarded commercial chemical products, off-specification species, container residues and spill residues considered hazardous waste ("U" wastes); and
- Discarded commercial chemical products, off-specification species, container residues and spill residues identified as acute hazardous waste ("P" wastes).

The F, K, U, and P designations also serve as part of the waste identification number for each of the four types of listed hazardous wastes.

Characteristic hazardous wastes are solid wastes that may not be specifically listed under the F, K, U, or P codes, but which exhibit one or more characteristics of ignitability, corrosivity, reactivity, or toxicity. Specific criteria for each characteristic are defined in 40 CFR Subpart C, "Characteristics of Hazardous Waste." Characteristic wastes are assigned a waste code beginning with the letter "D". Ignitable wastes (D001) have low flashpoints (<140°F or 60°C), can cause spontaneous combustion and/or can create a fire hazard. Corrosive wastes (D002), have a pH of less than 2 or greater than 12.5, or are capable of corroding steel at a certain rate (>6.35mm/year). Reactive wastes (D003) are unstable and are capable of violent reactions or can generate toxic cyanide or sulfide vapors. There are many other categories of D003 reactive materials, such as: explosive, reacts violently with water, reacts violently when exposed to air, and shock sensitive. Waste codes D004 through D043 are applied to toxicity characteristic wastes. These include eight metals, six organic herbicide/pesticide compounds and 26 other organic compounds. Toxicity characteristic wastes contain one or more specific chemical constituents at concentrations equal to or higher than those listed in 40 CFR 261.24, "Toxicity Characteristic." The concentrations are determined by analysis of the leachate from the waste using the Toxicity Characteristic Leaching Procedure (TCLP), which is discussed further in the "sampling" section of this plan. Once a waste is determined to be hazardous, no further testing is required and the waste may be manifested as such. However, waste haulers and treatment, storage and disposal facilities (TSDFs) may not accept the waste without additional analysis/characterization.

The EPA has also promulgated rules that apply to materials which are mixed with, derived from, or contain hazardous wastes. These rules require media which are contaminated with or derived from hazardous wastes to be managed as hazardous wastes until they no longer contain the waste, no longer exhibit the characteristic of the waste, or until the waste is delisted. These rules are described in detail in Title 40 CFR 261.3, "Definition of Hazardous Waste."

#### Cradle to Grave Management and Tracking

Subtitle C of RCRA established a system to manage by regulation a hazardous waste from its moment of generation through transportation to its treatment, storage, and finally, disposal. The name for this comprehensive management system is: Cradle to Grave, where "Cradle" is the point of generation, "to" refers to all steps in transportation, treatment, storage, and "grave" references final disposal. RCRA regulates the generation, transportation, and disposal of hazardous waste, and provides resources to clean up hazardous waste from active facilities. However, RCRA does not address the problem of hazardous waste at inactive or abandoned sites or those resulting from emergency response to spills. Rather, the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), or Superfund, was created to address the problem of

hazardous waste and hazardous substances at inactive or abandoned sites or those resulting from emergency response to spills. Together, RCRA and CERCLA aim to protect people and the environment by regulating and reducing risks of exposure to listed hazardous substances under 40 CFR § 302-4.

During and immediately after a disaster, debris clearing, identification, and sorting are response priorities. Many non-hazardous wastes, recycled materials, and de-regulated hazardous wastes (Universal Waste, Used Oil, etc.) contain hazardous substances such as copper, lead, mercury, zinc, and various regulated compounds. Materials that may contain regulated compounds must be carefully managed to ensure regulatory compliance during and after a disaster event.

#### Land Disposal Restrictions (LDR) Program

As part of the Hazardous and Solid Waste Amendments, many RCRA hazardous wastes are restricted from land disposal unless they are treated first to substantially diminish their toxicity and reduce the likelihood hazardous constituents will migrate from the disposal site. As part of the EPA's Land Disposal Restriction (LDR) rules (40 CFR 268), each waste shipment must be accompanied by a notification stating whether the restricted waste meets specific treatment standards promulgated for hazardous constituents. In most cases the notification can only be completed after laboratory analysis of the waste. If a generator bases a LDR notification solely on user knowledge of the waste, supporting documentation must be kept on record under 40 CFR 268.7, "Waste Analysis and Recordkeeping." User knowledge of the waste is not usually sufficient to determine whether or not the waste is restricted from land disposal.

The LDR program regulations found at 40 CFR Part 268 require that a hazardous waste generator determine if the waste has to be treated before it can be land disposed. This is done by determining if the hazardous waste meets the applicable treatment standards at § 268.40, § 268.45, or §268.49. EPA expresses treatment standards either as required treatment technologies that must be applied to the waste or as contaminant concentration levels that must be met. (Alternative LDR treatments standards have been promulgated for contaminated soil, debris, and lab packs.) Determining the need for waste treatment can be made by either of two ways: testing the waste or using knowledge of the waste (see § 268.7(a)).

If a hazardous waste generator is managing and treating prohibited waste or contaminated soil in tanks, containers, or containment buildings to meet the applicable treatment standard, then the generator must develop and follow a written waste analysis plan (WAP) in accordance with § 268.7(a)(5). A hazardous waste treater must test their waste according to the frequency specified in their WAP as required by 40 CFR 264.13 (for permitted facilities) or 40 CFR 265.13 (for interim status facilities). See § 268.7(b).

If testing is performed, no portion of the waste may exceed the applicable treatment standard, otherwise, there is evidence that the standard is not met (see 63 FR 28567, March 26, 1998). Statistical variability is "built in" to the standards (USEPA 1991c). **Wastes that do not meet treatment standards cannot be land disposed unless EPA has granted a variance, extension, or exclusion (or the waste is managed in a "no-migration unit").** In addition to the disposal prohibition, there are prohibitions and limits in the LDR program regarding the dilution and storage of wastes. The program also requires tracking and recordkeeping to ensure proper management and safe land disposal of hazardous wastes.

General guidance on the LDR program can be found in Land Disposal Restrictions: Summary of Requirements (USEPA 2001d). Detailed guidance on preparing a waste analysis plan (WAP) under the LDR program can be found in Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes - A Guidance Manual (USEPA 1994a). Detailed guidance on measuring compliance with the alternative LDR treatment standards for contaminated soil can be found in Guidance on Demonstrating Compliance With the Land Disposal Restrictions (LDR) Alternative Soil Treatment Standards (USEPA 2002a). In addition to the RCRA hazardous waste identification regulations and the LDR regulations, EPA has promulgated other regulations and initiated other programs that may involve sampling and testing of solid waste and environmental media (such as ground water or soil). Program specific EPA guidance should be consulted prior to implementing a sampling or monitoring program to respond to the requirements of these regulations or programs. For example, EPA has

issued separate program-specific guidance on sampling to support preparation of a delisting petition, groundwater and unsaturated zone monitoring at regulated units, unit closure, corrective action for solid waste management units, and other programs. This and related guidance are incorporated by reference here and will be detailed further in the CISWMP.

#### State Requirements

The CNMI's [Bureau of Environmental and Coastal Quality's Division of Environmental Quality \(BECQ-DEQ\)](#) and the Bureau of Environmental Health also apply environmental and human health regulations at the state level. These include:

- CNMI Constitution Section 9 Article 1 - The [Commonwealth Environmental Protection Act](#) (PL 3-23) was enacted by the Legislature in 1982. To establish and enforce environmental standards to protect and preserve the natural resources of the Commonwealth and the right of each person to a clean and healthful public environment, as guaranteed by Section 9 of Article 1 of the Constitution.
- Title 65-40 Harmful Substance Cleanup Regulations  
The regulations in this chapter are promulgated under the Commonwealth Environmental Protection Act. They establish administrative processes and standards to identify, investigate, and clean up facilities where harmful substances have been located. They define the role of DEQ and encourage public involvement in decision making at these facilities. This chapter provides a workable process to accomplish effective and expeditious clean ups in a manner that protects human health and the environment. This chapter is primarily intended to address releases of harmful substances caused by past activities, although its provisions may be applied to potential and ongoing releases of harmful substances from current activities. Part 100 provides standards for Site Discovery and Reporting, Initial Investigation, Site Hazard Assessment, Commonwealth Remedial Investigation and Feasibility Study, and Selection of Clean Up Actions. Part 200 addresses Clean Up and Monitoring.
- Title 65-50 Hazardous Waste Management  
In 2008, DEQ promulgated new Hazardous Waste Management Regulations that repealed and replaced the regulations originally codified in this chapter
- Title 65-80 Solid Waste Management Regulations  
It is unlawful for any person to perform solid waste management activities or own or operate a SWMF except in accordance with a permit issued under this chapter. All permit applications shall be submitted to DEQ, and all permits will be issued by DEQ. DEQ shall have the authority to impose requirements on all solid waste management activities and SWMFs to ensure compliance with these and all applicable regulations.

As of 2020, solid waste on Tinian is currently transported by residents and business entities to the Tinian Municipal Dump, an open and non-compliant dump site near San Jose located south of the Tinian International Airport. This site does not comply with Resource Conservation and Recovery Act (RCRA) Subtitle D regulations and operates under a notice of violation issued by the CNMI Department of Environmental Quality. The CNMI Department of Public Works is required to maintain the Tinian Municipal Dump in accordance with an Administrative Order (AO) issued by the CNMI Department of Environmental Quality, which requires the application of daily cover material and prohibits burning wastes, among other operational requirements (DEQ 2010). The AO also requires that two spotters be present at the facility during operations hours to ensure proper segregation and disposal of municipal solid waste materials. Hazardous waste is excluded from the Tinian Dump and is received at the DLNR Temporary Segregation Facility, which includes dedicated areas for used oil storage, tire segregation, and e-waste. Operations on Tinian are aimed to support compliance with the AO and facilitate Tinian's transition to an environmentally compliant management facility with reduced waste management needs through implementation of the "Zero Waste" pilot project and subsequent outreach and implementation initiatives.

#### Documentation of Plan Development Process

Prompted by comprehensive planning efforts and the recognition of the immediate need for a Disaster Response

Plan specific to ongoing impacts and project risks, this is the first version of this Disaster Solid Waste Management Plan for CNMI.

### Record of Plan Approvals, Reviews, and Updates

This is the first version of this Disaster Solid Waste Management Plan for CNMI. Updates and revisions shall be tracked using the table below, and the most current PDF shall be hosted at the Office of Planning and Development website and retained as a hard copy by DPW and Mayor Offices-Saipan, Tinian, and Rota offices.

Version	Date	Summary of Changes
<b>Draft V1 Shared with ISWTF for comments</b>	...?	
<b>Version 1</b>	May, 2021	Original Document, endorsed by DPW, Mayors Offices, BECQ, and EPA on <Date?>

*Plan will be incorporated into most current CNMI Comprehensive Sustainable Development Plan as well as the Comprehensive Integrated Solid Waste Management Plan and reviewed and revised as needed **no less than every three years from the date of the most recent ISWTF endorsement.***

## II. Materials and Debris Streams

### List of Anticipated Debris Streams

As described by international Disaster Waste Management Guidelines, typical disaster waste issues and impacts include:

Table 1. Typical disaster waste issues and their impacts

Issue	Typical human and environmental impacts
Uncollected building rubble from damaged buildings	Impeded access and constrained rehabilitation & reconstruction activities. Waste tends to attract more waste since the site is already considered a dumping site.
Dumping in inappropriate areas and/or proliferation of scattered dump sites	Potential human health and injury risks from dump sites too close to settlements, especially from hazardous materials. Destruction of valuable land. Impacts on drinking water supplies and damage to valuable fisheries. Additional costs if waste must be moved later. Increase in disease vectors (flies, mosquitoes, rats, etc.). Risk of waste piles collapsing. Risk of fires. Risk of cuts from sharp materials, including used syringes.
Collapse of municipal solid waste services, including possible loss of experienced waste managers	Lack of collection service and uncontrolled dumping of waste.
Uncontrolled dumping of healthcare waste from hospitals and clinics	Serious health risks to local populations including the spread of disease and infection, for example from used syringes; odour problems.
Asbestos sheet exposure in collapsed structures or in re-use of asbestos for reconstruction	Health risks associated with inhalation.

In their guidance document, the U.N. Environmental Emergencies Section's (UNEES) DWMG outlines how disasters can generate large quantities of solid and liquid waste that threaten public health, hinder reconstruction and impact the environment. Disaster waste (DW) can be generated by the actual disaster and later during the response and recovery phases.

Public health risks can arise from: direct contact with waste accumulated in the streets, hazardous wastes such as asbestos, pesticides, oils and solvents, and indirectly from vectors such as flies and rodents, and from post-disaster collapse of unstable structures. Relief and reconstruction efforts can be hindered when DW blocks access to affected populations and areas.

Environmental impacts, which are closely associated with human impacts, can include waterways, agricultural areas and communities contaminated by chemicals and heavy metals. Physical obstruction of waterways can also occur. DW places more burdens on communities already struggling to cope with catastrophe. DW also presents opportunities: it may contain valuable material such as concrete, steel, and timber as well as organics for composting. This value can be realized as either a source of income or as a reconstruction material, and reduce burdens on natural resources that might otherwise be harvested for reconstruction.

Safe handling, removal and management of DW are therefore important issues in disaster response and recovery. Effective approaches can help manage DW risks to life and health and seize opportunities from the waste to support recovery and development outcomes.

Although the focus of this planning document is wind impacts and storm surge caused by typhoons due to their frequency, it also leverages the opportunity to capture best practices and lessons learned from the ongoing Yutu recovery efforts. The UNEES-DWMG goes on to detail hazard types and their waste characteristics:

**Table 2. Hazard types and their waste characteristics**

<b>Earthquakes</b>	<p>Structures collapse 'in-situ', i.e. floor slabs collapse on top of each other, trapping waste within damaged buildings and structures. This can lead to challenges in sorting out hazardous waste (e.g. asbestos) from non-hazardous (e.g. general building rubble).</p> <p>Handling waste often requires heavy machinery, which communities may not be able to afford or have difficulty to access.</p> <p>Collapsed buildings may overlap across streets, making access difficult for the search and rescue and relief operations.</p> <p>Quantities of waste are high compared to other disaster types since all building contents normally become waste.</p>
<b>Flooding</b>	<p>Floods often lead to mass displacement, which in turn requires shelters and camps and leads to large volumes of household wastes.</p> <p>Initial damage depends on the structural integrity of infrastructure, while building contents are normally damaged extensively. Mould may be present and timber may have begun to rot.</p> <p>Buildings are typically stripped by owners and waste placed on roads for collection. Waste is often mixed with hazardous materials such as household cleaning products and electronic goods.</p> <p>Flooding may bring mud, clay and gravel into affected areas, making access difficult once the floodwater recedes. Removal may be required for relief and recovery operations. The mud, clay and gravel may be mixed with hazardous materials, requiring further assessment before dumping.</p>
<b>Tsunami</b>	<p>Strong tsunamis can cause widespread damage to infrastructure, spreading debris over large areas. Debris is often mixed with soils, trees, bushes and other loose objects such as vehicles. This makes waste difficult to handle and segregate.</p>
<b>Hurricanes typhoons cyclones</b>	<p>Strong winds can tear the roof off buildings, after which walls may collapse.</p> <p>Poorly constructed houses and huts can 'fold' under roof tops. Even brick and concrete walls may collapse.</p> <p>Waste is spread over open land, streets, and marketplaces. This would include roofing materials, small items and dust carried by the wind. This may cause serious problems where asbestos is present</p> <p>Ships and boats are often thrown ashore and destroyed, requiring specialized waste management. Vessels that sink in harbours need to be removed.</p> <p>Electrical and telephone grids as well as transformers containing oil and PCBs may be destroyed.</p>

Source: DWMG, with "conflict" disaster hazards omitted. This plan focuses on typhoon preparedness and response, incorporating planning elements from the 2017 Typhoon Response Plan. An "All Disasters" update is pending.

### Description of Each Debris Stream

Discussion of disaster specific debris stream estimates will be included in the "All Disasters" Response Plan section of the CISMWP (see [Debris Estimates Using Hazard Maps](#)). In general, CNMI-DPW is committed to supporting efforts to maximize reuse and recycling, reduce cross-contamination of materials, and avert future



disposal problems, through debris segregation so that each waste stream can be properly managed to the greatest degree possible. For example, because C&D debris cannot be reused or recycled, it is currently being segregated adjacent to the Marpi facility and at designated sites on Tinian and Rota to be used for cover material. As detailed further in Section V, green waste, recyclables (primarily metal), and potential hazardous wastes are directed to pre-designated sites to support efficient removal, collection, segregation, and management efforts.

Based on recent experience from Typhoon Soudelor (2015) and Typhoon Yutu (2018):

Unique debris streams identified from Typhoon Yutu response include mattresses and box springs (200 CY estimated to be remaining in the “Back 40”). According to the 2017 CNMI Catastrophic Typhoon Plan, Annex to the FEMA Region IX All-Hazards Plan, anticipated debris by volume for Saipan, Tinian, and Rota based on estimates from Typhoon Soudelor is as follows:

<p>Anticipated Debris Volume by Region (Based on estimates from Typhoon Soudelor and COEM)</p>	<ul style="list-style-type: none"> <li>• Zone 1 Saipan reference by division               <ul style="list-style-type: none"> <li>o 615,631 CY</li> </ul> </li> <li>• Zone 2 Tinian               <ul style="list-style-type: none"> <li>o 184,689 CY</li> </ul> </li> <li>• Zone 3 Rota               <ul style="list-style-type: none"> <li>o 184,689 CY</li> </ul> </li> </ul> <p>Total Debris Volume: 985,009</p> <ul style="list-style-type: none"> <li>o Clean Woody: 295,503 CY</li> <li>o Mixed C&amp;D: 689,506 CY</li> </ul> <p>*Debris volume estimates from Draft CNMI Debris Management Plan &amp; the USACE Estimating Model (COEM)</p>
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**HOWEVER -> ADD 2018 YUTU NUMBERS FOR SPN, TIN, PENDING EPA HW CLEANUP REPORTS?**

As detailed in the September 2020 Typhoon Yutu Report (FEMA 4404-DR):

Typhoon Yutu knocked down hundreds of utility poles, essentially destroying the electrical distribution grid. The Red Cross damage assessment for residential properties identified 1,454 destroyed and 3,730 major damaged homes. The initial estimate of debris from the typhoon for Saipan was conducted by the US Army Corps of Engineers and was ~ 500,000 cubic yards. The estimate has been refined and the current estimate of total debris for Saipan is 200,000 CY. The make-up of this debris for this event is not the typical 70% veg 25% C&D, 5% other. The percentage of C&D is much higher at ~50% due to the intensity of the storm destroying or causing major damage to many homes and public facilities. The argument still persists with DPW-due largely to unknown areas left uncalculated-and, as such, would revert to an estimate of ~500,000 CY.

As of April, 2019?, DPW and MOS have removed ~60,000 CY & ~80,000 CY of debris respectively. This data includes final sweep of villages and completed clearance of As Gonno/Kagman TDSR. Additional debris from destroyed or major damaged homes that have not come to the curbside is estimated based on assessments of those properties under the FEMA TETRIS program (Tents and Roofs). Those assessments have identified 1,072 homes with heavy debris. Based on joint FEMA, MOS, DPW and USACE inspections, a rough estimate/average of debris still on those properties is ~ 50,000 CY. Additional debris expected from public facilities and public areas is ~30,000 and vegetative debris (trees, stumps, leaners and hangers are estimated at 15,000 CY. Total debris is estimated at 155,000 CY giving us a percentage ~30% unaccomplished for April 2019 (based upon FEMA estimates).

Algorithmic calculation for percentage is as follows:

**Commented [1]:** Kenn is working on updates...

**Commented [2R1]:** More to add here?

$$\begin{aligned}
100\%/x\% &= 200/140 \\
(100/x)*x &= (200/140)*x \quad 100=1.428*x \\
100/1.428 &= x \\
69.9 &= x \\
x &= 69.9 \text{ or } 70-100=30
\end{aligned}$$

*FEMA estimate of 200,000CY was calculated in December 2018, with ~140,000CY collected up until February 2019 would give us an ~30% unaccomplished.*

*\*200,000CY Commercial debris is FEMA-ineligible and will not be counted.*

A revised DPW estimate of 500,000CY takes further account of 140,000 (collected)+155,000 (uncollected residential, public, & vegetative) +200,000 FEMA Ineligible (commercial) giving us an ~500,000. Total debris uncollected is estimated at 360,000CY giving us a percentage ~70% unaccomplished (based upon DPW estimates).

Algorithmic calculation for percentage is as follows:

$$\begin{aligned}
100\%/x\% &= 500/140 \\
(100/x)*x &= (500/140)*x \quad 100=3.57*x \\
\text{To get } x & \quad 100/3.57=x \\
=28 \text{ or } 30-100 &= 70
\end{aligned}$$

*DPW estimate of 500,000CY is an on-going calculation after Debris Extractions ended on February 2019. The continued extraction beyond February 2019 takes into account identifiable Yutu debris towards Marpi landfill disposal from residents and commercials as well as DPW & MOS extractions. Although commercial debris (200,000) is FEMA-ineligible, DPW finds some of these debris along curbside with limited policing to enforce or prevent littering.*

### III. Debris Quantities

#### Forecast quantity of each type of anticipated debris stream

As outlined in the 2019 Saipan Waste Management Feasibility Study, nearly ¾ of Saipan’s waste stream is composed of “traditionally recyclable” materials with (LEADING)...

Based on DPW scale records in OY 18 of the 58,105.51 tons of waste delivered to the Marpi Landfill facility, approximately 20,783.44 tons were diverted. Green waste comprised 13,346.98 tons or approximately 64% of the recovered waste stream, backfill accounted for 5,754.75 tons or 20% of the recovered waste stream, and 456.97 tons of sewage comprising about 1.64% of the recovered waste stream was beneficially reused. The remaining recyclable materials included:

Material	Tonnage (Rounded to nearest Ton)	% of Recovered OY18 Waste Stream
Metal	524	1.9%
Tires	295	1%
White goods	192	0.7%
Cardboard	137	0.5%
Mixed recycling	50	0.2%
Office paper	23	0.08%
Newspaper	4	0.02%
Glass	5	0.02%
Plastic bottles	3	0.01%

#### Method for estimating actual debris quantities during/after a disaster

EPA? ACE? CNMI Standard? |

Commented [ED3]: EPA / BECQ / DPW guidance here please?

### IV. Waste Characterization Sampling and Analysis

Under 40 CFR 262.11, "Hazardous Waste Determination," generators of solid wastes must determine if their wastes are hazardous. If the solid waste is not specifically excluded in 40 CFR 261.4(b), the generator may either test the waste or apply knowledge of the waste in light of the materials or the processes used. To determine whether a waste is in fact a hazardous waste, it is generally acceptable practice to apply user knowledge of the waste, although it may not be possible to accurately determine all the applicable waste codes without testing. However, it is generally not acceptable to categorize a waste as nonhazardous based solely on user knowledge of the waste. For most practical purposes, the generator should characterize the nature of each waste stream on at least a yearly basis or more often if the waste generating process changes.

More rigorous requirements apply to RCRA-permitted installations which treat, store, or dispose of hazardous wastes (TSD Facilities). Except for small quantity generators, a RCRA permit is required if a facility stores hazardous waste for more than 90 days prior to shipment off-site for treatment or disposal. Under 40 CFR 264.13, "General Waste Analysis," TSD facilities must obtain a detailed physical and chemical analysis of a representative sample of the waste. In addition, a TSD facility must develop and conform to a Waste Analysis Plan (WAP) which is submitted to the EPA with the RCRA permit application. If a TSD facility accepts hazardous waste from an off-site generator, the facility must inspect and analyze each waste shipment to determine that it matches the waste identity as specified on the waste manifest. These requirements are reiterated under the LDR restrictions.

A WAP has two main objectives: to ensure sufficient information is available to determine if the wastes fall within the scope of the facility's permit; and to ensure the facility has sufficient information about the wastes to treat, store, or dispose of them in accordance with the regulations. According to 40 CFR 264.13 (b), the WAP

must include the following elements:

The parameters each waste will be analyzed for and the rationale for these parameters;

- Test methods;
- Sampling methods for obtaining representative samples;
- Sampling and analysis frequency;
- Waste analyses off-site generators have agreed to supply; and
- Procedures used to ensure wastes received from off-site generators match the identity listed on the manifest.

As USEPA guidance indicates, the goals of sampling are (i) to estimate number of samples, identify type of analysis needed for each waste/material type, potential approaches to combine/composite samples, and address Health and Safety issues, such as appropriate PPE for sampling activities and (ii) identify any requirements for transporting the samples to laboratories for testing (e.g., U.S. Department of Transportation (DOT), Centers for Disease Control and Prevention, Department of Energy, U.S. Department of Agriculture). To accomplish this, the guidance notes that two different types of sampling may be needed to meet waste acceptance criteria at waste management facilities and to allay community concerns: 1) sampling to classify and determine compliance with federal, state, local, or tribal regulatory criteria, and 2) sampling to ensure that waste/materials have been effectively decontaminated. Environmental Justice and other community concerns may make it advisable to conduct testing even when it is not legally required or conduct additional sampling and analysis in order to ensure transparency. As this may be cost-prohibitive, an alternative may be managing all waste as hazardous waste under RCRA. The relative costs/benefits should be evaluated, such as available capacity at laboratories and waste management facilities. The guidance also notes that lab selection considerations include capacity, capability, access, cost, time needed to produce results, and anticipated community concerns. Lab analysis is often a bottleneck in an incident response. Labs will be involved in sampling for characterization and clearance of the incident location; therefore, consider sampling strategies in advance to limit the number of samples analyzed, if possible.

Although CNMI makes every effort to comply with solid waste sampling requirements, there are currently no laboratories available to conduct sampling and analysis. As such, regular leachate sampling is conducted through a third-party contractor at the Marpi landfill site, with bi-annual sampling at groundwater monitoring wells and regular leachate monitoring. No WAP is currently in force for sites other than Marpi, and a proposal to develop and implement this sampling and analysis procedure, along with ensuring quality assurance, will be included in the comprehensive integrated solid waste management plan and future RCRA permit revisions.

Commented [4]: DPW / BECQ – is this correct?

Upon completion of the comprehensive integrated solid waste management plan, the WAP will be regularly implemented and reviewed for efficacy and regulatory compliance. Since publication of SW-846 Chapter Nine, USEPA has published a substantial body of additional sampling and statistical guidance documents that support waste and site characterization under both RCRA and the Comprehensive, Environmental Response, Compensation & Liability Act (CERCLA) or “Superfund.” Most of these guidance documents, which focus on specific Agency regulations or program initiatives, will continue to be used, as appropriate. Relevant EPA guidance documents, other references, and resources are identified in the references section of this document, and will be continue to be incorporated into CNMI’s solid waste management planning and guidance documents.

In addition to RCRA program-specific guidance documents issued by EPA’s Office of Solid Waste (OSW), EPA’s Office of Environmental Information’s Quality Staff has developed policy for quality assurance, guidance documents and software tools, and provides training and outreach. For example, the Quality Staff have issued guidance on the following key topic areas:

- The data quality objectives process (USEPA 2000a, 2000b, and 2001a)
- Preparation of quality assurance project plans (USEPA 1998a and 2001b) and sampling plans (2000c)
- Verification and validation of environmental data (USEPA 2001c)

- Data quality assessment (USEPA 2000d).

## V. Debris Management Strategies/Options

### Procedures and approaches

#### a. Minimization

*Actions to minimize waste generation, toxicity, and physical size*

#### b. Collection

*Methods; health and safety requirements*

#### c. Segregation

(equipment, people, waste/materials) *Health and safety requirements*

#### d. Decontamination (equipment, people, waste/materials)

#### e. Accumulation/Storage

#### f. Monitoring of Debris Management Activities

**FROM DPW-SPN Report – revise? EPA guidance:** Relevant legal and regulatory requirements should be considered, including whether waste management activities may trigger compliance with environmental and historic preservation laws, regulations, and Executive Orders. Describe how compliance will be attained. Required permits may include waste processing and recycling operations permits, temporary land-use permits, land-use variances, traffic circulation strategies, air quality permits, water quality permits, coastal commission land-use permits, HHW permits, fire department permits, and burn permits.

Reuse, recycling, and composting are generally preferred options, where appropriate. Consider adding a list of possible materials that can be reused, recycled, or composted. Having advance information on the local and regional markets, capacity, and local and regional recyclers can be important. Consider the impact of potential decontamination approaches on quantities and characteristics of waste and the impact of waste management constraints on potential decontamination approaches. Define the priorities during both the response and recovery phase operations, including for facilities that may be impacted. Describe the coordination process with other entities responsible for managing waste. Consider difficulties and issues regarding removing waste from waterways and sensitive habitats (e.g., shorelines, wetlands, marshes) and their impacts on collection and removal activities. Describe the circumstances under which waste will be removed from private property. Identify the laws that allow the government to intercede in private property matters, the process to obtain permissions to enter onto private property, and the process for recouping costs (such as insurance proceeds). Account for impacts from adverse weather, such as flooding and wind damage. Identify multiple sites/locations to choose from during an incident, if possible. However, designating specific sites/locations in advance of an incident may not be possible. In this case, develop guidelines that could be used to designate sites during an incident. Whether specifying sites/locations or developing guidelines, consider:

- Benefits of on-site vs. off-site management
- Potential impact of having to transport the waste
- Speed with which waste needs to be managed
- Facility requirements and capacity
- Permitting and land-use variance requirements
- Cost of various options

- Community/Environmental Justice concerns
- Site security
- Resources needed, including private sources of equipment
- FEMA's eligibility requirements
- Proximity to anticipated waste generation points
- Ease of access
- Ease of containment of wastes/materials
- Ownership of sites
- Need for buffers and setbacks
- Proximity to environmentally sensitive/protected areas (e.g., wetlands, floodplains, critical habitats, surface water, storm drains and sanitary sewer drains that may lead to waterways, drinking water wells, septic tanks with leach fields)
- Proximity to historically significant areas like historic districts and archeologically sensitive areas
- Environmental and human health concerns of specific waste streams
- Ability to sort waste streams by category to facilitate recycling
- Ability to properly contain radioactive or other highly hazardous waste streams Consider the possible need for long-term groundwater, air, and other environmental monitoring at on-site burial sites and other waste management facilities or sites. Consider the nature of the waste or material being managed. In some cases, long-term storage may be required.

**Recommended Tools:** Interim – Planning Guidance for the Handling of Solid Waste Contaminated with a Category A Infectious Substance <https://www.phmsa.dot.gov/transporting-infectious-substances/interim-planning-guidance-handling-category-solid-waste> Carcass Disposal Decision Tree [https://www.aphis.usda.gov/aphis/ourfocus/emergencyresp/onse/sa\\_tools\\_and\\_training/ct\\_aphis\\_disposal\\_tree](https://www.aphis.usda.gov/aphis/ourfocus/emergencyresp/onse/sa_tools_and_training/ct_aphis_disposal_tree)

The following sections discuss the major types of debris, and the various reduction/disposal alternatives associated with each debris type.

**Vegetative Debris.** Vegetative debris will be the primary type of debris found in this disaster. Where possible, it will be segregated and reduced. The primary means of reduction of vegetative debris are burning in a trench Burner / Air Curtain Incinerator (ACI) or grinding and chipping and subsequent recycling or disposal in an authorized landfill. Vegetative debris that will be recycled or burned must be segregated from treated wood, putrescible waste, household wastes and other materials that will cross contaminate the debris. Burning is the most efficient method of reduction but has associated air pollution and fire safety issues. Bureau of Environmental Coastal Quality (BECQ) has provided authority to burn storm debris to municipal governments impacted by the storm and burning will be the preferred disposal option for clean, vegetative debris. The BECQ will provide letters to the affected municipalities which will have specific requirements and limitations which must be met. However, due to concerns regarding particulate formation and potential nuisance conditions, it is preferred that vegetative debris be burned in a Trench Burner (Air Curtain Incinerator) (Annex G). FEMA has contracted for three Trench Burners. For areas where burning is not allowable, grinding and/or chipping is an alternative reduction method. Grinding and chipping is more environmentally friendly but results in less volume reduction, takes longer to process and results in a byproduct, mulch. Generally, grinding leaves huge piles of mulch / chip material which require recycling or disposal. Mulch that cannot be recycled may require landfill disposal. In most cases, woody debris is in the form of small limbs and small diameter hardwood trees; resulting in a non-usable timber product.

**Construction and Demolition Debris (C&D).** BECQ develops policy on the management of building and structural debris. The terms "construction and demolition debris" and "building and structural debris" refer to the same type of debris. This material is the structural remains of damaged or destroyed buildings or other constructed facilities. Generally, it must be recycled or put in permitted landfills. All efforts will be made to sort debris at the curbside or TDSRs so that it can be recycled or reduced. The remains of Unsortable debris will need to be landfilled. Debris that will be disposed in a landfill must be free of prohibited items such as industrial hazardous waste, batteries, used oil, used oil filters, bulk liquid waste,

appliances containing chlorofluorocarbons (such as air conditioners, refrigerators or freezers). Each disposal site requires evaluation and registration signed by FEMA Environmental and Historical Preservation Office (EHP).

C&D in CNMI contains a significant amount of tin roofing that has been separated and recycled by the 3 contractors on island.

**White Goods.** White goods refer to such items as refrigerators, freezers, washers, dryers, stoves, etc. (Sometimes, air conditioners are included in this category because of the need to remove refrigerants before disposal). Before removal or processing at a storage or disposal site, some white goods must

be emptied of refrigerant or other chemicals. Refrigerators and freezers also must be emptied of all food. If white goods will not be recycled, they should be delivered separately to a landfill that has provisions in place for handling large item disposal. BECQ and the Fire Department are conducting curbside collection operations and residents drop off at this site.

The three local recyclers can break down the white goods by separating the recyclable metal from the plastic, foam, and other non-recyclable components. The metal would be bailed, loaded into a container, and shipped to an available receiver. Typically, the closest markets that receive recyclable materials from Tinian are China, Taiwan, and South Korea.

**Hazardous Materials.** The lead Federal agency for addressing hazardous materials and wastes is the USEPA. Generally, debris removal contractors must remove and segregate identifiable hazardous materials as they are found. These materials will be taken to pre-established staging areas identified by BECQ at As Gonno and Lower Base. These sites have a secondary containment consisting of a liner system and sand bags. USEPA supported by USCG are managing these sites under a FEMA mission assignment.

**Household Hazardous Waste (HHW).** HHW will be separated at the point of pickup. BECQ is conducting collection operations and residents also are instructed to bring their HHW to Lower Base and As Gonno. USEPA has been mission assigned by FEMA to package and dispose of HHW. Disposal will be made in accordance with applicable guidelines.

**Vehicles.** Vehicles are generally private property, and cannot be summarily picked up and disposed of without complying with existing regulations. Owners can be located by license numbers and VINs. In instances where the vehicles are considered debris, they will be addressed in general accordance with local guidelines.

**Boats on Rights-of-Way and Public Property.** In some instances, boats are resting on rights-of-way and private property. They will be addressed in the same manner as vehicles – removal and salvage (or disposal) will be done in accordance with Territory and local laws and regulations.

**E-Waste:** The recycling of e-goods is strongly encouraged. In most States and Territories, electronics may be disposed of in municipal solid waste Type I landfills; however, both EPA and BECQ strongly encourage the segregation and subsequent recycling of electronic waste. Many types of electronic waste are difficult for a landfill to properly incorporate into typical spreading and compaction operations at the landfill.

**Private Property Debris removal (PPDR).** PPDR has not been approved for this event.

**Commercial Property Debris.** There is an estimated 150,000 -200,000 CY of debris on commercial property. This debris is not eligible for FEMA PA funding.

**Demolition Debris.** Eventual demolition of destroyed or major damaged homes by property owners and public facilities by DPW will generate additional large amounts of C&D debris.

9.8. **DEBRIS REPORTING.** The Debris Task Force is required to provide daily reports to the JFO Planning Section, and FEMA headquarters (HQ) on all debris removal operations for Typhoon Yutu conducted in Tinian and Saipan. In order to meet the Debris Task Force's reporting requirements, the FEMA Debris Lead will collect data from DPW and provide it to the FEMA Planning section at the JFO.

The Debris Task Force is required to provide regular updates to the Federal Coordinating Officer (FCO), JFO Planning Section, and FEMA headquarters (HQ) on all debris removal operations for Typhoon Yutu conducted in Saipan or Tinian.

**ANNEX D. DEBRIS MONITORING PLAN**

**Commented [ED5]:** Team please review and revise here – include island specific protocols if needed / relevant?

a. General. Debris monitoring involves monitoring of debris quantities, force account labor and equipment, and debris contracts. This plan doesn't specifically address safety and hazardous material aspects of debris monitoring.

**b. Debris Volume monitoring.**

Debris volume monitoring is currently being accomplished using a single copy Load Ticket (see image at right). It is important to note that there are no unit cost contracts being utilized on Saipan (as of 20 Dec). USACE Debris SMEs (Subject Matter Expert) trained Saipan DPW and BECQ and the Mayor's Office of Saipan debris monitors. The Load tickets are generated at the load

CNMI LOAD TICKET		Ticket No. 708 R96
<b>Section 1</b>		
Prime Contractor:	DPW	Date: 2 April 2019
Subcontractor (Hauler):	ARTMAD	Departure Time: 0710
Driver:	BRAUNO TALANIA	Truck Plate No: 727 5636
Measured Bed Capacity (cu. yds.):	30 CY	
Debris Pickup Site Location: (must be a street address)	AS 6000	
Debris Type:	<input type="checkbox"/> Vegetation <input type="checkbox"/> Mixed <input checked="" type="checkbox"/> Construction & Demolition <input type="checkbox"/> Other	
Loading Site Monitor:	Print Name: Vincent A. King Signature: [Signature]	
Remarks:		
<b>Section 2</b>		
Debris Disposal Site Location: Road Landfill		
Estimate Debris Quantity: cu. yds.	30 CY = 90	Arrival Time: 10:31
Disposal Site Monitor: Print Name:	Mansah Ngidabral Lekekapat	Signature: [Signature]
Remarks:	C & D	

site by a monitor then handed to the truck driver. The truck driver obtained signatures from monitors at the drop off points, TDSRs, Marpi landfill and DMS (Debris Management Site), or metals recyclers. An observation tower was constructed at Marpi Landfill just before adjacent to the scale house and monitors at those sites call the load "fullness". The loads are also scaled and DPW tracks the tonnage. The driver then delivers the ticket to their supervisor and then the supervisor provides all tickets to the Mayor's Office or DPW where is logged in and daily reports provided to CNMI / Municipality leadership and FEMA.

This method for monitoring the volume of debris is currently sufficient for this debris operation as there are currently no unit cost contracts or reimbursements that are directly based on volume (CY). However, it is important to track the volume of debris at each node for management of the debris operation and validation of overall costs / cost per CY expended by the Territory and local government. Truck load Tickets also provide verification of force account and contract equipment work.

Territory / Local monitors must monitor the type of debris collected at the curbside and from other public areas, ensuring debris is eligible, properly sorted, and free of hazardous materials as much as reasonably/practically possible. Monitors should identify safety issues.

FEMA / USACE SMEs should observe debris operations and Territory / local government monitoring program providing quality assurance. Conduct field observations to ensure debris is eligible, observe safety enforcement, and



conduct random samplings of Load Tickets and logs.

Debris piles at TDRS and Marpi DMS should be measured and photographed by a joint FEMA / Local team periodically during operations and upon closure. Measurements should be distributed via SitReps.

c. CNMI, Saipan and Tinian Municipalities - Force Account and Contract Work

Debris operations are being completed by CNMI agencies, primarily Saipan DPW, Mayor's Office, and BECQ using force account labor and equipment augmented with rented equipment with operators.

1) Force Account Labor and Equipment.

CNMI and Saipan Municipal agencies force account equipment and labor hours are being tracked with FEMA force account accounting form or equivalent CNMI forms.

Review of force account costs are reviewed by FEMA PA inspectors. FEMA PA program inspectors generating Project Worksheets should periodically observe debris operations and conduct random sampling validate the force account costs.

2) Rented Equipment for Debris Removal, Hauling and TDSR/DMS Operations

CNMI DHS&EM and Saipan Municipality rent equipment with operators to augment their debris crews for curbside collection and TDSR /DMS operations. Since the contract payments are based on hourly billings, agencies are tracking rental equipment with daily logs. Equipment is integrated with DPW debris crews who directly task and manage the equipment.

Contracts for this work need to be provided to FEMA as soon as possible and FEMA should review equipment rates for reasonableness. In addition, FEMA should periodically observe debris operations and conduct random sampling of daily logs and invoices to validate the rented equipment costs.

Where possible, if contracts are used to process/reduce debris piles at TDSR/DMS sites, competitively bid lump sum contracts based on measured piles should be used as monitoring is minimal for this type of work. A joint CNMI and FEMA measurement of piles prior bidding the work out should be done to concur on the total volume.

3) Metals Recycling. Saipan Municipality is utilizing load tickets for deliveries to the metals recyclers. The recyclers accept the metals for free so utilization of the load tickets is sufficient.

d. FEMA Contracts:

Trench Burner. The FEMA contract is based on a Lump Sum for 3 months of service with an option for an additional 30 days. The Scope of Work is to provide trench burner services.

The burner once fired up needs to operate 24/7 until the ash needs to be removed (2-3 days). FEMA or USACE monitors should observe operations to ensure the contractor maximizes the production rate and to monitor for eligible debris that meets BECQ permit requirements. Monitors will also need to ensure that the contractor is properly disposing of ash in accordance with the BECQ permit.

FEMA or USACE SMEs should provide feedback to the FEMA Contracting Officer (KO) or Alternate at the JFO. Only the FEMA KO can direct the contractor, so reports to the KO should be prompt if direction of the contractor is required.

TOP Burner: The FEMA contract is based on a Lump Sum for 3 months of service with an option for an additional 30 days. The scope of work is to provide top burner services.

Equipment Rental with Operators.

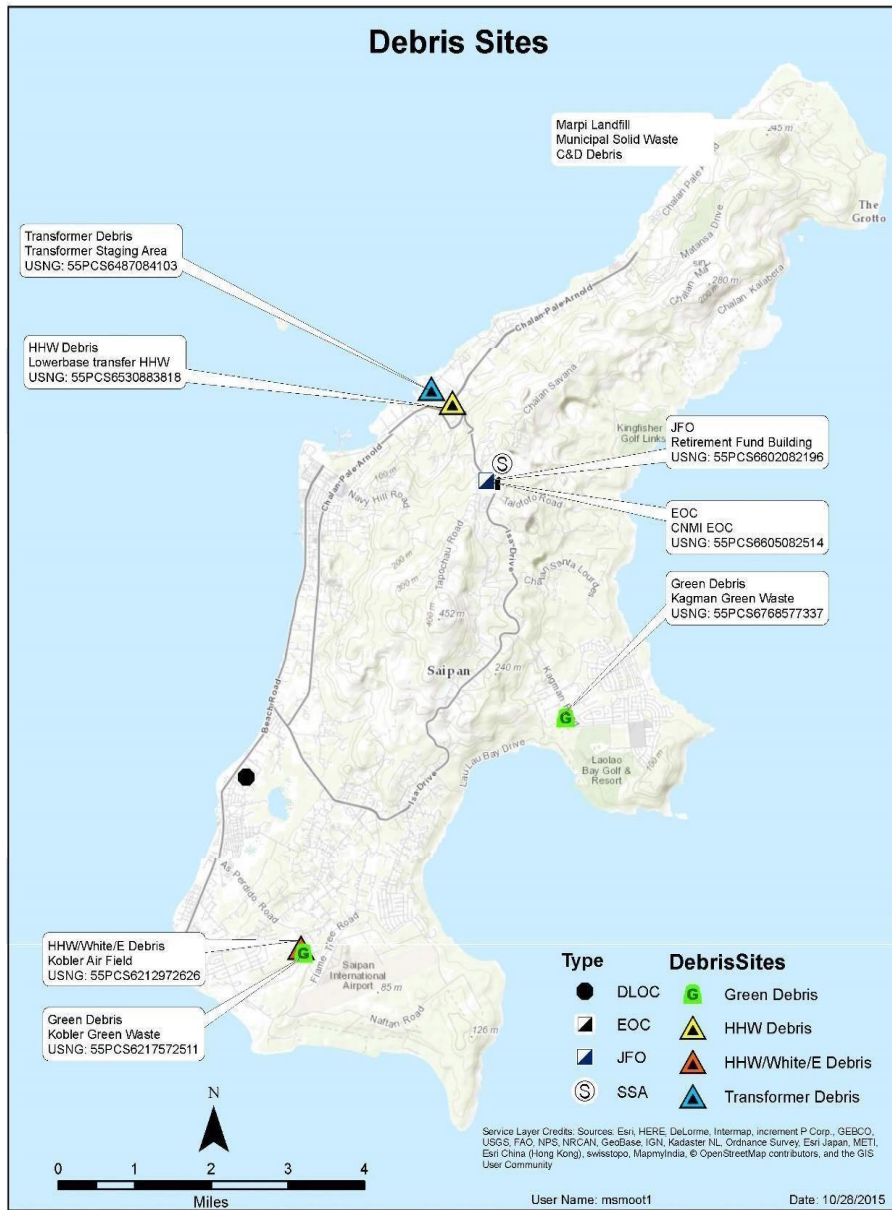
Dump Trucks and Grapplers. FEMA or USACE SMEs should observe operations and provide feedback to the FEMA KO or Alternate. FEMA COR will review contractor submittals.

FEMA KOs: – Clayton Bell 202 701-7831, Deondri Hammonds (Alternate)

Commented [6]: ?

e. Debris Removal Eligibility Deadline. A joint CNMI / Municipality / FEMA debris team will conduct an inspection of villages following each village sweep to determine the completion status and eligibility of additional sweeps or final sweep date and operations of TDSRs.

Pre-selected debris management sites - Saipan



Debris staging and storage (short-term and long-term) locations

Equipment staging and storage (short-term and long-term) locations

b. Decontamination and treatment stations

**Commented [ED7]:** Do we have any of these to note? If not, omit?

## VI. Waste Management Facilities

### Anticipated types of waste management facilities needed

As described in USEPA's Disaster Debris Guidance, temporary debris management sites provide a community with time and space to further segregate and process debris. Processing of debris may be necessary to reduce its volume or toxicity prior to treatment or disposal. These sites can also be used to manage debris streams that pose a potential threat to human health or the environment. For example, refrigerants in white goods like refrigerators, freezers, and window air conditioner units can be removed for proper handling.

Historically, collection, segregation, and storage of white goods and hazardous materials have been especially problematic due to limited number of hazardous waste management facilities or certified staff. In the aftermath of Typhoon Yutu, USEPA and FEMA worked with CNMI-DPW to collect and properly dispose of \_\_\_ CY white goods and hazardous materials; ... **<NEED WHITE GOODS COLLECTION DATA, DISCUSSION ON NEXT STEPS TO ADDRESS REMAINING NEEDS>**

### Specific facilities identified

Primary waste management facilities are located at the Marpi Landfill and Lower Base Transfer Station on Saipan (Kagman transfer station in development as of Dec. 2020); in San Jose village on Tinian (Municipal Dump and Transfer Station), and in Sinapalo on Rota. Temporary sites that have been used historically are also detailed here to support emergency disaster solid waste management needs.

These sites are listed and detailed for Saipan, Tinian, and Rota in the maps that follow:

Marpi Landfill





DPW – Lower Base Transfer Station



Household waste, white goods, and e-waste are segregated at the Lower Base Transfer Station, with tin roofing recycling contractors operating in the same area to support metal recycling / diversion efforts.



### Temporary Debris Staging and Reduction Sites

**Marpi Landfill TDSR.** This TDSR is located adjacent to the landfill on the “Back 40” acres on the Marpi Landfill property. The site accepts sorted C&D and vegetative debris, with sorting and segregation activities ongoing. In response to the influx of disaster debris from Typhoon Yutu, Cell 1 of the Landfill was the focus of a sorting and segregation operation. Comprising of mostly mixed debris, this effort aims to allow for the separation of three (3) separate waste categories: (1) FEMA Reimbursables will find final destination directly into cell1. (2) Hazardous waste that includes the likes of batteries, electronics, and other white goods will be transported to the transfer station for continued processing. (3) waste exclusions such as tires will also be transported to the Lower Base Transfer Station for batching and eventual shipment off island.

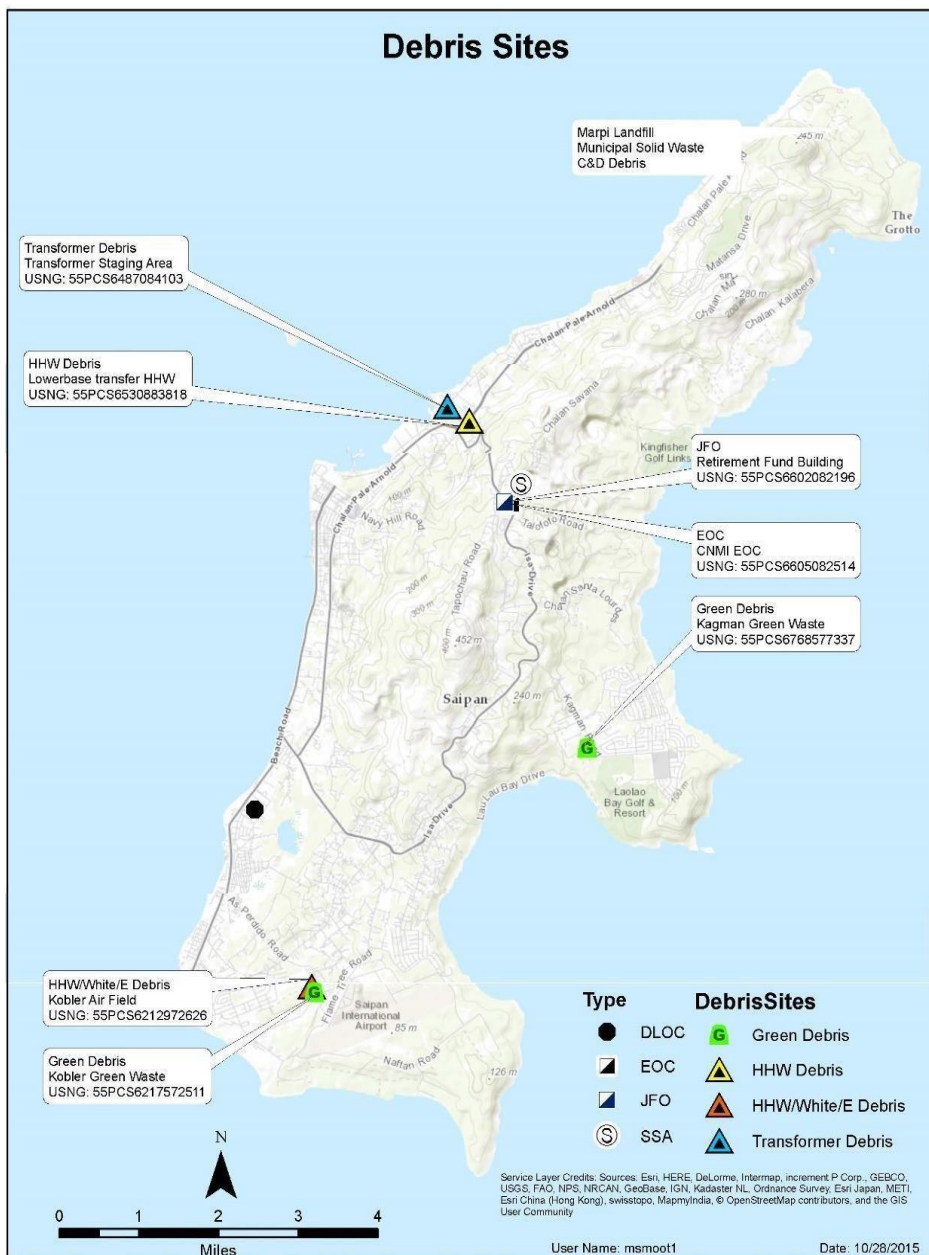
### Kagman TDSR.



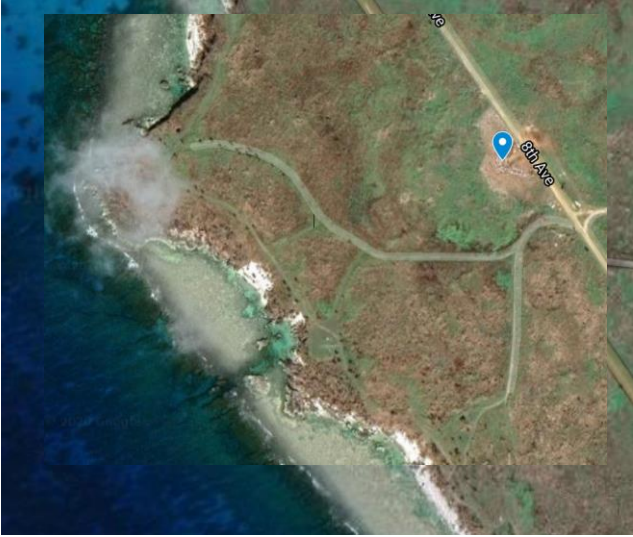
Kagman Temporary Debris Staging  
and Reduction Site (TDSR)



## Debris Sites



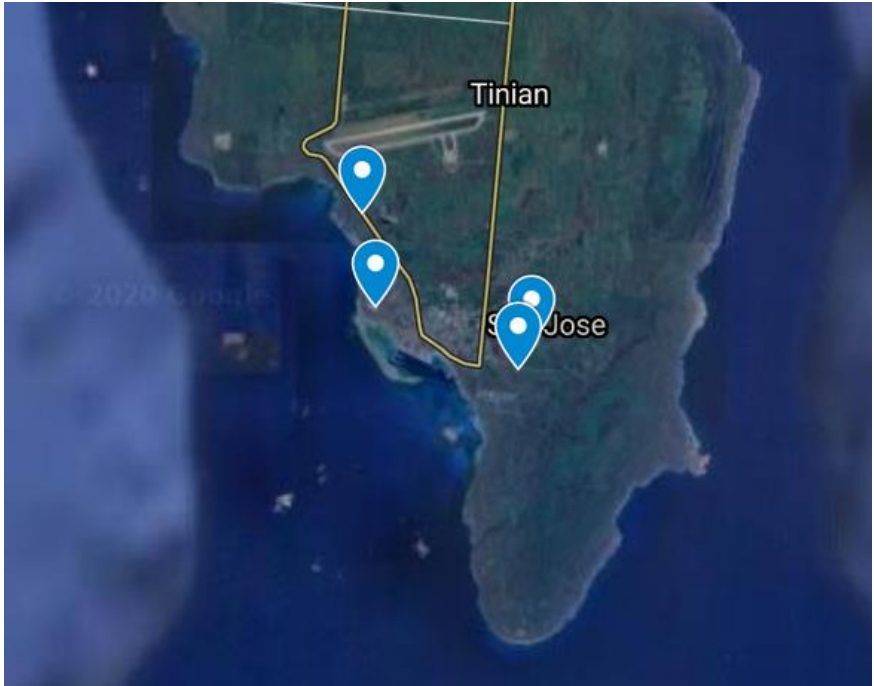
Pre-selected debris management sites – Tinian



Existing "Tinian Municipal Dump" facility (14.98642933541935, 145.61248692808272)



DLNR Facility (14.96719, 145.6386, N. location); Green Waste Facility (14.96348, 145.6365)



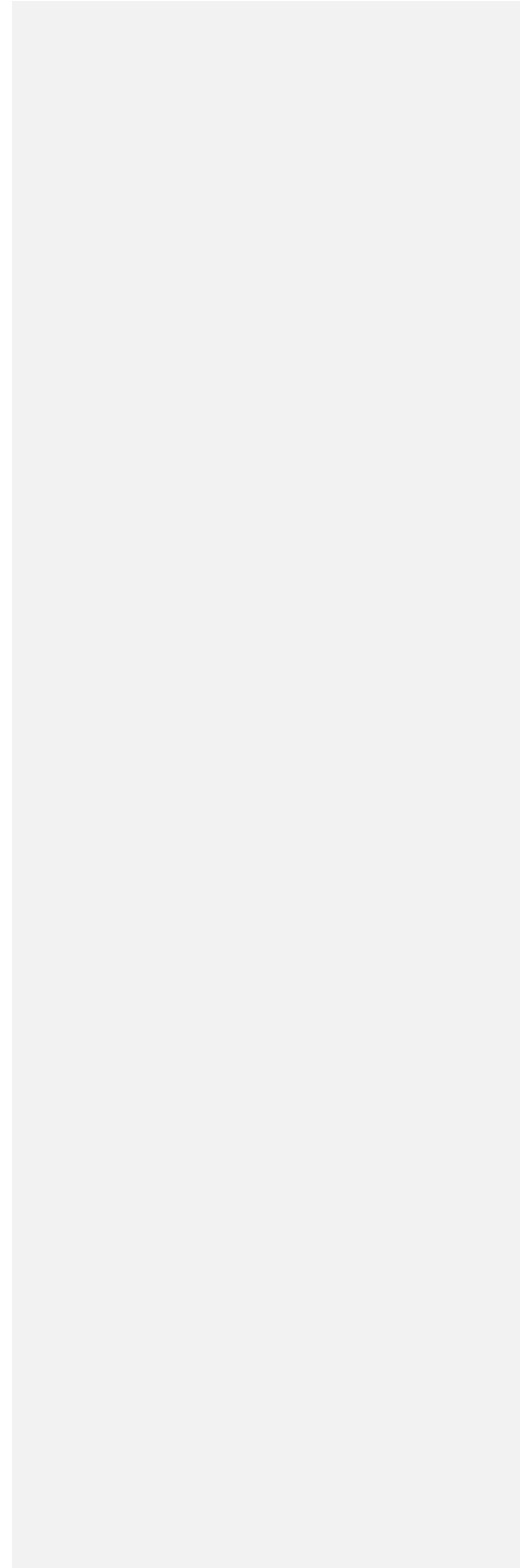
Online map of identified Tinian facilities available at [https://www.google.com/maps/d/edit?mid=1RrqOjcEliUB2tsTEDSpEx\\_4Rh8Ae7Yvs&usp=sharing](https://www.google.com/maps/d/edit?mid=1RrqOjcEliUB2tsTEDSpEx_4Rh8Ae7Yvs&usp=sharing)

## VII. Transportation

Logistical options

Routes (including maps)

Hauler information



## VIII. Debris and Material Tracking and Reporting System

### General principles

#### Databases or other tracking software to be used

- Could use a Survey 123 to track tickets digitally?

#### Debris tracking report templates

- Examples of Yutu forms?

## IX. Community Communications/Outreach Plan

### Strategy

While historically debris has been sorted at a temporary storage site or disposal site, segregating debris is most effectively performed at the original deposit point, such as through curbside or source separation. Thus, moving forward, it is the goal to ensure that residents and businesses are educated on segregating debris into specified piles for recycling, green waste, and other materials to enable public and private debris haulers to collect the different types of debris separately. This strategy will be developed further and updated as a component of the Comprehensive Integrated Solid Waste Management Plan.

### Contact information for key stakeholder groups

322-2745 or 322-2760

Pre-scripted information for debris management activities involving the public  
Information for a response website once a disaster occurs

## X. Health and Safety for Debris Management Activities

### Health and Safety

Before conducting any assessment and removal activities, and to the extent possible, the site should be rendered safe from all structural hazards posed by partially collapsed buildings, electrical line, fall hazards, etc.

A site-specific Health and Safety Plan (HASP) should be developed which meets the Occupational Safety and Health Administration (OSHA) requirement of 29 CFR 1910.120, Hazardous Waste Operations (HAZWOPER), and BECQ Title 65-50.

All elements required by 29 CFR 1910.120 and BECQ Title 65-50, should be thoroughly discussed in the HASP. These elements should address hazardous waste operations and emergency response and include: a health and safety program; site characterization and analysis; site control; personnel training requirements; engineering control work practices; personal protective equipment (PPE) for employee protection; air monitoring; and, decontamination. The goal is to produce a site-specific safety plan that covers all activities being conducted for all personnel entering the site.

Additionally, a community health and safety plan can help increase the public's knowledge and access to the information on the debris removal and the related hazards. This information will help protect the public health and the environment.

### Hazardous Materials Assessment and Removal

Standard operating procedures for conducting hazardous material (hazmat) assessment activities should be followed pursuant to CNMI-OSHA and OSHA HAZWOPER requirements noted in the section above.

Prior to commencing debris removal activities, all areas are to be cleared of hazardous materials, including the removal of easily identifiable (visible) gross asbestos, radioactive, and explosive materials. Explosive material includes firearms and ammunition, black powder, blasting caps, some fireworks, and military ordinance. If explosive materials are identified on-site, they should be handled by trained personnel and removed immediately to ensure safety of the public. Local agencies and contractors will immediately contact the CNMI Department of Public Safety if any explosive materials are found or suspected to be found within the debris removal site.

Prior to the removal of hazardous materials and household hazardous wastes (HHW) a Certified Asbestos Consultant (CAC) should assess and sample all residential, and other affected areas of the site, to identify and remove gross asbestos. This is to ensure that any areas identified as containing gross asbestos material will not be disturbed by hazardous materials cleanup personnel. Once the removal of easily identifiable gross asbestos has been completed, hazardous material and HHW may be identified, segregated, classified, and properly removed from the site.

Initial hazmat assessment activities must include screening for radioactivity and ensuring that a flammable atmosphere does not exist. Typical hazardous materials include HHW such as: automotive/marine batteries; automotive oils and fuel; compressed gas cylinders; propane tanks; herbicides and pesticides; solvents, paint thinners and strippers; oil and latex-based paints; and pool chemicals.

### Air Monitoring and Surveillance

Both onsite (industrial hygiene) and offsite (community based) air monitoring should be considered when planning debris removal operations for disaster recovery. A community-based air monitoring program may be especially important if there are elevated concerns about the impact to the surrounding community from recovery operations.

#### Onsite Air Monitoring

An onsite (industrial hygiene) air monitoring program is defined as one conducted within the immediate debris removal area with the objective of protecting occupational health and quantifying dust mitigation practices.

#### Community Based (Offsite) Air Monitoring

No off-site migration and/or emission of dust or airborne contaminants is expected from disaster debris removal operations when appropriate dust mitigation controls are in place. However, a community-based air monitoring program may be established to monitor off site migration of airborne contaminants, especially if adjacent neighborhoods are reoccupied. Sampling or monitoring can also target sensitive population centers or locations such as schools and hospitals. While community monitoring is not required during disaster recovery efforts, increased community sensitivity following a disaster may justify a monitoring program.

Please see the following section, Best Management Practices, below for guidance on performing air monitoring and sampling during debris and hazardous material removal operations.

#### **Waste Classification**

Because the debris, burn ash, and any other waste identified during cleanup activities may include asbestos, as well as, heavy metals such as mercury or copper, federal regulations such as the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the National Emission Standards for Hazardous Air Pollutants (NESHAP) may be applicable. Any State regulations that are more stringent than the federal requirements may be applicable to conducting the cleanup. State agencies undertaking the removal action should consult with BECQ to identify any regulations that may apply if they have not been suspended or waived under the emergency proclamation.

RCRA, 40 CFR § 261.2 defines a solid waste as any material that is abandoned or recycled or is inherently waste-like. Waste streams are generally characterized through sampling and analysis, although some wastes can be identified through standard industrial and commercial processes. In classifying waste streams, it must be determined whether a material is a waste or a product. This determination is important for establishing requirements for disposition of the material. To make this determination, two questions must be answered:

- (1) What is the material composed of (for example, spent solvent, tires, commercial product, or wastewater, etc.)?
- (2) What is, or has been, done with the material (for example, generated or produced, disposed of, or recycled)?

NESHAP landfill requirements are separate from the Resource Conservation and Recovery Act (RCRA) solid waste regulations and state or local permit requirements. To determine if the material falls within the NESHAP requirements for disposal, the material must contain greater than 1% asbestos identified by the polarized light microscopy (PLM) method. Asbestos-containing waste material (ACWM) can only be disposed of in a landfill that meets the Asbestos NESHAP requirements. Non-friable asbestos which will not be made friable through such demolition or renovation activities as sanding or grinding do not have to comply with these disposal requirements. Asbestos-containing material is also subject to state and local solid waste regulations. During an emergency, local or state proclamations of a State of Emergency may suspend or waive requirements for landfill disposal facilities.

If a waste stream is characterized as non-hazardous waste through analytical results, or the by the generators knowledge of the waste, consideration could be given to transport and dispose of the waste stream as non-hazardous asbestos containing waste. This classification will ensure any burn ash and debris generated after a disaster is properly handled to protect all on-site and disposal facility personnel, waste haulers, and that landfill operators are aware of the potential risk of exposure to the waste stream.

#### **Post Removal Site Control**

Post removal site control (PRSC) includes actions necessary to ensure the effectiveness and integrity of the removal action. Post removal site control may also be conducted by local or state authorities, property owners, responsible parties, or the federal government. Post removal site control may also include institutional controls to restrict activities if hazardous substances remain that may present a long-term health or environmental effect.



Examples of institutional controls include: land or resource use; deed restrictions; well-drilling prohibitions; building permits; and, well use advisories. If no commitment is made to conduct PRSC, site conditions could worsen causing a release or threat to public health and the environment.

**Commented [8]:** Needs revision to include local PRSC regulations

### Best Management Practices

The following Best Management Practices (BMP) should be utilized when undertaking removal actions pursuant to a declared State of Emergency. These BMPs should be undertaken to address the removal of hazardous materials, household hazardous waste (HHW), debris, asbestos containing materials (ACM's), and air monitoring and sampling from the disaster or incident site. Use of BMPs will also ensure the proper management and removal of hazardous materials, debris, burn ash, and other asbestos containing materials in a manner that ensures protection of public health and the environment, as well as, ensuring the health and safety of on-site personnel.

### Health and Safety BMPs

1. It is recommended that all on-site cleanup personnel entering the exclusion zone must be 40-hour HAZWOPER trained Under 29 CFR 1910.120, and BECQ Title 65-50, and will be required to wear Level C PPE.
2. A full time health and safety officer will be assigned to the project. It is recommended that the health and safety officer be a certified industrial hygienist (CIH).
3. Depending on the task and activity, all cleanup contractors' working on-site must have the following certifications and licenses:

- a. Department of Occupational Safety & Health Asbestos Registration Number (If conducting ACM removal).
- c. RCRA EPA ID Number – Issued by USEPA, Region 9
- d. USDOT, Pipeline and Hazardous Materials Safety Administration - Hazardous Material Certificate of Registration
- g. USDOT, Federal Motor Carrier Safety Administration - USDOT Identification Number
- h. CNMI BMV – Motor Carrier permit

### Hazardous Materials and Household Hazardous Waste (HHW) BMPs

1. The property, site or affected area of the disaster should be assessed for hazardous materials and household hazardous waste.
2. An OSHA Certified Asbestos Consultant (CAC) will be utilized to assess the area or each residential or commercial property for easily identifiable and removable pieces of ACM. After assessing each property or area, the CAC will consult with a licensed asbestos removal contractor to identify the location and area of ACM to be removed.
3. A Cal/OSHA certified Asbestos Removal Contractor will be responsible for overseeing the safe removal of ACM identified on-site by the CAC.
4. All on-site personnel working to remove ACM must have received the necessary health and safety training for conducting asbestos removal activities pursuant to OSHA 1910.100, and BECQ Title 65-50, and will be required to wear Level C PPE when working in the exclusion zone.
5. All gross ACM that can easily be removed from the site will be adequately wetted prior to being bagged or bulked for removal. The easily identifiable gross ACM can be double-bagged and appropriately labeled as ACM. (At a minimum the plastic bags must be of at least 6-mil thickness.)
6. If bulk loading of ACM is utilized, the bin or container used for transport (e.g. end-dump trailer or roll-off box) shall be double-lined with 10-mil ploy in such a way that once loaded both layers can be sealed up independently.
7. HHW and hazardous materials identified on-site will be characterized, segregated, staged, consolidated, and packaged for transport and disposal by a licensed environmental contractor.
8. All on-site cleanup personnel must be 40-hour HAZWOPER trained Under 29 CFR 1910.120, and BECQ Title 65-50
9. All hazardous waste and HHW removed from the site will be manifested and transported to a permitted treatment, storage, and disposal facility in good standing with local, state, and federal agencies.
10. Disposal facility emergency waivers and suspension of regulations for disposing of hazardous wastes generated from a disaster or large-scale event must be coordinated with BECQ and the Emergency Management Office.

**Commented [9]:** Need verification and addition of any other requirements

## Debris and Asbestos Containing Material (ACM)

If the burn ash or building material on the ground is from structures completely destroyed by natural forces (as opposed to structures demolished in whole or in part by human activity), this material is not subject to the Asbestos NESHAP as it relates to the demolition and renovation, transport and disposal requirements. If the building material and debris is not completely destroyed and requires further demolition, it may be subject to the Asbestos NESHAP.

At a minimum, the following BMPs should be used for undertaking debris removal activities:

1. An OSHA Certified Asbestos Consultant (CAC) will be utilized to assess the area or each residential or commercial property for easily identifiable and removable pieces of ACM. After assessing each property or area, the CAC will consult with a licensed asbestos removal contractor to identify the location and area of ACM to be removed.
2. An OSHA registered Asbestos Removal Contractor will be responsible for overseeing the safe removal of ACM identified on-site by the CAC.
3. All on-site personnel working to remove ACM must have received the necessary health and safety training for conducting asbestos removal activities pursuant to OSHA 1910.100, and BECQ Title 65-50, and will be required to wear Level C PPE when working in the exclusion zone.
4. As noted in Health and Safety (above), all on-site cleanup personnel must be 40-hour HAZWOPER trained Under 29 CFR 1910.120, and BECQ Title 65-50.
5. The affected disaster or incident area (commercial, residential, or rural properties) will be screened by a CAC to identify all gross ACM that can be easily removed from the ground or structure prior to debris removal activities.
6. During asbestos screening process, it is recommended that bulk samples be collected from 10 to 20 percent of the representative structures that have not been destroyed to determine the presence of ACM above NESHAP regulations, and to ensure residual building materials do not contain asbestos that may change the overall waste classification.
7. All gross ACM that can be safely and easily removed from the site will be adequately wetted prior to being bagged or burrito wrapped to meet the NESHAP leak-tight requirement for removal. The easily identifiable gross ACM can be double-bagged and appropriately labeled as ACM. (At a minimum the plastic bags must be of at least 6-mil thickness, and the contents must remain wet.)
8. If bulk loading of ACM is utilized, the bin or container used for transport (e.g. end-dump trailer or roll-off box) shall be double-lined with 10-mil poly in such a way that once loaded both layers can be sealed up independently.
9. Conduct on-site and off-site air monitoring and sampling for asbestos and heavy metals during all ACM and debris removal operations to demonstrate the effectiveness of engineering controls to protect cleanup personnel and the surrounding community.
10. Engineering controls must be utilized to maintain dust and fiber control during removal activities. A water fog must be used during debris handling, bulking/bagging, and waste loading operations. It is recommended that cleanup contractors will use fire grade firefighting nozzles with shut off valves for dust control. The fire nozzle shall have sufficient water pressure to generate a high mist fog stream. The fire nozzle should have an adjustable flow rate, preferably 20 to 60 gallons per minute, and constructed of hard coated aluminum with brass and stainless steel internal components. Plastic nozzles should not be used. While the costs of metal firefighting nozzles are significantly more than plastic nozzles, metal nozzles are the only equipment able to generate a sufficient fog to control dust.
11. All burn ash and debris must be sufficiently wetted 48 to 72 hours in advance of initiating removal of the material. The water shall be applied in a manner so not to generate significant runoff. Engineering controls for storm water discharges must be in place prior to dust control operations.
12. All waste material that is not loaded out at the end of each workday should be stockpiled, sufficiently wetted, and/or covered to prevent the offsite migration of contaminants.
13. All waste haulers who observe loading operations outside of the vehicle cab, and/or covering (e.g. tarping) the trailer or container must wear Level C PPE
14. All approved landfill operators that may come in contact with the waste during off-loading operations should follow their facilities protocols for wearing PPE and respiratory protection.

16. All ACM and debris removed from the property, site or area must be manifested and transported for disposal to a permitted treatment, storage, and disposal facility in good standing with local, state, and federal agencies.
17. BECQ/OSHA may require procedures for the receiving landfill facility to establish an appropriate site safety plan for the protection of the facility employees to potential ACM in the waste stream.
18. Disposal facility emergency waivers, and suspension of regulations for disposing of wastes generated from a disaster or large scale event, must be coordinated with BECQ and the CNMI Emergency Management Office (EMO).

### **Air Monitoring and Sampling**

To demonstrate the effectiveness of BMPs and the engineering controls used during emergency debris removal actions, air monitoring and sampling activities should be conducted in the exclusion zone (on-site) and along the perimeter of the site (community-based) during removal activities, as well as non-work hours to establish relevant background air pollution levels.

#### **On-Site Monitoring and Sampling**

1. Document onsite air monitoring activities in a Site-Specific Health and Safety Plan (HASP).
2. All personnel entering the immediate removal area should be required to wear Level C PPE, as defined in CCR Title 8 Section 5192; this level of PPE may be downgraded based on results of industrial hygiene air sampling.
3. Sample/monitor for dust, heavy metals, and asbestos. Particulate matter monitoring shall be done by direct reading instruments for real-time analysis. Heavy metal sampling can be conducted via cartridge or filter analysis using National Institute for Occupational Safety and Health (NIOSH) Method 7300 (metal scan). Asbestos samples should be collected with a 50mm antistatic cowel on a 25mm MCEF cassette and analyzed by transmission electron microscopy (TEM) NIOSH Method 7402 (high volume).
4. Collect at least one upwind and two downwind dust samples from the immediate debris removal area in a triangular configuration.
5. Personal air sampling collected in the breathing zone of site cleanup workers should be conducted for dust, heavy metals, and asbestos; Sampling can be representative rather than comprehensive so long as monitored personnel are representative of various onsite operators, laborers, and supervisors.
6. The onsite air monitoring program shall include steps to modify debris removal operations to reduce the potential for exposures above the NIOSH Recommended Exposure Limits, the Threshold Limit Values published by the American Conference of Governmental Industrial Hygienists (ACGIH), or other protective occupational health guidance used in the site specific HASP.
7. It is recommended that a full-time safety officer be assigned to the removal operations, preferably a certified industrial hygienist(CIH).
8. At the conclusion of the debris removal project, a summary of air monitoring activities and any resulting health and safety issues should be provided to the project manager or Operations Chief

#### **Off-site (Community-Based) Monitoring and Sampling**

1. Coordinate any monitoring and sampling efforts with BECQ, DPW, and any other relevant agencies. Additional State and federal resources are available if local resources are unavailable or exhausted.
2. Develop a Sampling Plan and document community monitoring activities in a Community Health and Safety Plan.
3. Monitoring may be for particulate matter alone or in combination with asbestos or other suspected contaminants. Particulate matter can serve as a proxy for the migration of other particulate-type airborne contaminants, but not gases and aerosols, which need separate monitoring.
4. Direct read or near real-time dust measurement instrumentation such as a data ram is preferred and allows immediate feedback to removal operations and to impacted communities.
5. If instituted, community monitoring should be conducted in both upwind and downwind locations relative to debris removal operations and/or the immediate impacted area.
7. Twenty-four hour average particulate matter concentrations (PM<sub>2.5</sub> or PM<sub>10</sub>) should be equal to or less than 35 µg/m<sup>3</sup>; 8-hr averages should be equal to or less than 50 µg/m<sup>3</sup>; and, 3hr averages should be equal to or less than 88 µg/m<sup>3</sup>.

## Storm Water Controls

One of the most prevalent water pollution threats from burn sites is the discharge of ash and other burn related debris into storm drains or natural receiving waters. Sites where debris and ash have been removed are often graded and have soils prepared similar to those of construction projects. Debris removal and site clearing activities increase the exposure of soils to wind, rain, and concentrated flows that cause erosion and adversely impact storm water quality with high levels of total suspended solids (TSD) and many other pollutants, which subsequently impacts surface waters.

The main objective is to provide BMPs that stabilize disturbed soil and reduce sediment transport caused by erosion from entering a storm drain system or receiving water body during debris removal after a disaster. BMPs for storm water controls may include the use of fiber rolls, silt fences, erosion control blankets, hydro seeding, soil binders, and other devices to reduce sediments. Effort should be made to preserve existing vegetation, if practicable. Once the removal has been completed, operation and maintenance of storm water control measures must be maintained by the property owner or the local government.

At a minimum, all impacted or potentially impacted residential/commercial lots should be protected by a combination of the following BMPs:

### 1. Fiber rolls

Description - Fiber rolls (also called fiber logs or straw wattles) are tube-shaped erosion-control devices filled with straw, flax, rice, coconut fiber material, or composted material. Each roll is wrapped with UV-degradable polypropylene netting for longevity or with 100 percent biodegradable materials like burlap, jute, or coir. Fiber rolls complement permanent best management practices used for source control and re-vegetation. Fiber rolls help to slow, filter, and spread overland flows. Fiber rolls also help reduce sediment loads to receiving waters by filtering runoff and capturing sediments.

Application - On slopes, install fiber rolls along the contour with a slight downward angle at the end of each row to prevent ponding at the midsection (California Straw Works, 2005). Turn the ends of each fiber roll upslope to prevent runoff from flowing around the roll. Install fiber rolls in shallow trenches dug 3 to 5 inches deep for soft, loamy soils and 2 to 3 inches deep for hard, rocky soils. Determine the vertical spacing for slope installations on the basis of the slope gradient and soil type.

On projects without slopes, Fiber rolls can also be used at projects with minimal slopes. Typically, the rolls are installed along sidewalks, on the bare lot side, to keep sediment from washing onto sidewalks and streets and into gutters and storm drains. For installations along sidewalks and behind street curbs, it might not be necessary to stake the fiber rolls, but trenches must still be dug. Fiber rolls placed around storm drains and inlets must be staked into the ground. These rolls should direct the flow of runoff toward a designated drainage area. Place them 1 to 1½ feet back from the storm drain or inlet.

Maintenance - The maintenance requirements of fiber rolls are minimal, but short-term inspection is recommended to ensure that the rolls remain firmly anchored in place and are not crushed or damaged by equipment traffic (Murphy and Dreher, 1996). Monitor fiber rolls daily during prolonged rain events. Repair or replace split, torn, unraveled, or slumping fiber rolls. Fiber rolls are typically left in place on slopes. If they are removed, collect and dispose of the accumulated sediment. Fill and compact holes, trenches, depressions, or any other ground disturbance to blend with the surrounding landscape.

### 2. Hydro-seeding or mulching

Description - Seeding is used to control runoff and erosion on disturbed areas by establishing perennial vegetative cover from seed. It reduces erosion and sediment loss and provides permanent stabilization. This practice is economical, adaptable to different site conditions, and allows selection of a variety of plant materials.

Application - Seeding is well-suited in areas where permanent, long-lived vegetative cover is the most practical or most effective method of stabilizing the soil. Use seeding on roughly graded areas that will not be re-graded for at

least a year. Vegetation controls erosion by protecting bare soil surfaces from displacement by raindrop impacts and by reducing the velocity and quantity of overland flow. Grasses typically emerge within 4-28 days.

**Maintenance** - Maintenance for seeded areas will vary depending on the level of use expected. Use long-lived grass perennials that form a tight sod and are fine leaved for areas that receive extensive use, such as homes, industrial parks, schools, churches, and recreational areas. Whenever possible, choose native species that are adapted to local weather and soil conditions to reduce water and fertilizer inputs and lower maintenance overall. In arid areas, consider seeding with non-grass species that are adapted to drought conditions, called xeriscaping, to reduce the need for watering.

Low-maintenance areas are mowed infrequently or not at all and do not receive lime or fertilizer regularly. Plants must be able to persist with minimal maintenance over long periods of time. Use grass and legume mixtures for these sites because legumes fix nitrogen from the atmosphere. Sites suitable for low-maintenance vegetation include steep slopes, stream or channel banks, some commercial properties, and "utility" turf areas such as road banks.

### 3. Silt Fence

**Description** - Silt fences are used as temporary perimeter controls around sites where construction activities will disturb the soil. They can also be used around the interior of the site. A silt fence consists of a length of filter fabric stretched between anchoring posts spaced at regular intervals along the site at low/down slope areas. The filter fabric should be entrenched in the ground between the support posts. When installed correctly and inspected frequently, silt fences can be an effective barrier to sediment leaving the site in stormwater runoff.

**Application** - Silt fences apply to construction sites with relatively small drainage areas. They are appropriate in areas where runoff will occur as low-level flow, not exceeding 0.5 cfs. The drainage area for silt fences should not exceed 0.25 acre per 100-foot fence length. The bottom of the silt fence must be keyed in or water may flow underneath it. A trench should be excavated along the proposed layout line of the fence. After the silt fence stakes have been driven into the trench, backfill over the fence fabric and compact soil.

**Maintenance** - Inspect silt fences regularly and frequently, as well as after each rainfall event, to make sure that they are intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If you find gaps or tears, repair or replace the fabric immediately. Remove accumulated sediments from the fence base when the sediment reaches one-third to one-half the fence height. Remove sediment more frequently if accumulated sediment is creating noticeable strain on the fabric and the fence might fail from a sudden storm event. When you remove the silt fence, remove the accumulated sediment as well.

### 4. Compost Blankets/Mats

**Description** - A compost blanket is a layer of loosely applied compost or composted material that is placed on the soil in disturbed areas to control erosion and retain sediment resulting from sheet-flow runoff. It can be used in place of traditional sediment and erosion control tools such as mulch, netting, or chemical stabilization. When properly applied, the erosion control compost forms a blanket that completely covers the ground surface. This blanket prevents storm water erosion by (1) presenting a more permeable surface to the oncoming sheet flow, thus facilitating infiltration; (2) filling in small rills and voids to limit channeled flow; and (3) promoting establishment of vegetation on the surface. Composts used in compost blankets are made from a variety of feedstock, including municipal yard trimmings, food residuals, separated municipal solid waste, biosolids, and manure. Compost blankets can be placed on any soil surface: rocky, frozen, flat, or steep. The method of application and the depth of the compost applied will vary depending upon slope and site conditions.

**Application** - Compost blankets are most effective when applied on slopes between 4:1 and 1:1, such as stream banks; road embankments; and construction sites, where storm water runoff occurs as sheet flow. Compost blankets are not applicable for locations with concentrated flow. Because the compost is applied to the ground

surface and not incorporated into the soil, a compost blanket provides excellent erosion and sediment control on difficult terrain—including steep, rocky slopes.

Maintenance - The compost blanket should be checked periodically and after each major rainfall. If areas of the compost blanket have washed out, another layer of compost should be applied. In some cases, it may be necessary to add another storm water BMP, such as a compost filter sock or silt fence. .

#### 5. Soil Binders / Chemical Stabilization

Description - Chemical stabilizers, also known as soil binders or soil palliatives, provide temporary soil stabilization. Vinyl, asphalt, or rubber is sprayed onto the surface of exposed soils to hold the soil in place and minimize erosion from runoff and wind. These materials are easily applied to the surface of the soil, can stabilize areas where vegetation cannot be established, and provide immediate protection.

Application - Use chemical stabilizers alone in areas where other methods of stabilization are not effective because of environmental constraints, or use them in combination with vegetative or perimeter practices to enhance erosion and sediment control. Soil binders require a minimum of curing time before becoming fully effective, therefore binders should not be applied during or immediately before rainfall.

Maintenance – Inspect high traffic areas daily and low traffic areas on a weekly basis during debris removal activities. High traffic areas are those exposed to daily use (vehicle or foot traffic) by contractors or other personnel. Low traffic areas are those available for use but not in a daily manner. If necessary, reapply stabilizer.

## XI. Resource Summary

### Resource needs

### Resource sources

- a. Mutual Aid Agreements
- b. Pre-negotiated contracts
- c. Specialized experts
  3. Specialized technical assistance contacts
  4. Contracting
- a. Emergency procurement procedures
- b. Contract oversight plan
  5. Cost accounting/financial management
  6. FEMA eligibility guidance

As outlined in the 2020 Typhoon Yutu report from DPW Saipan to FEMA, debris removal activities, such as clearance, removal, and disposal, are eligible as Category A if the removal is in the public interest based on whether the work:

- Eliminates immediate threats to lives, public health, and safety;
- Eliminates immediate threats of significant damage to improved public or private property;
- Ensures economic recovery of the affected community to the benefit of the community at large;
- Mitigates risk to life and property by removing Substantially Damaged structures and associated structures and appurtenances as needed to convert property acquired using HMGP funds to uses compatible with open space, recreation, or wetlands management practices. Such removal must be completed within 2 years of the declaration date unless extended by the FEMA Assistant Administrator of the Recovery Directorate.

Debris includes, but is not limited to, vegetative debris, construction and demolition debris, sand, mud, silt, gravel, rocks, boulders, and vehicle and vessel wreckage.

For a Private-non-Profit (PNP) applicant, eligible debris removal is limited to that associated with an eligible facility, including debris on the property of the eligible facility. Removal of debris from improved public property and public rights-of-way (ROWs), including Federal-aid roads, is eligible. Incident-related debris on public ROWs is eligible for a limited period of time to be determined by joint Municipality / CNMI / FEMA inspections that should occur following each debris collection sweep through a community.

Removal of debris placed on the public ROWs from commercial properties debris from natural, unimproved land, such as heavily wooded areas and unused areas is not eligible.

Category A debris management work completion deadlines are 6 months from the declaration date. This will include the final collection of debris which ended on the 24<sup>th</sup> of February by a joint FEMA/CNMI/Municipality Task Force. This, however, does not include the Mayor's Office and DPW of Saipan. Their operation continued beyond the final collection date.

#### RECOMMENDED APPENDICES

- Job Aids for debris management staff positions
- List of training classes available for different debris management roles
- Pre-written debris management emergency ordinances, orders, directives, declarations, designations, permits, etc.
- Maps of waste management facilities and sites, transportation routes, critical waste management infrastructure, and key resources
- Links to health and safety information
- Protective Action Guides (<https://www.epa.gov/radiation/protective-action-guides>)
- Glossary and list of acronyms

<ADD FEMA CAT A / B prep and response?>

#### Category A: Eligibility Overview

#### Category A: Eligibility Overview (1 of 3)

Within Emergency Work are two Categories of Work: Category A and Category B. This subsection of Emergency Work discusses Category A: Debris Removal. Recall that Category A work pertains to debris removal. Debris eligibility can be complicated and incidents with extensive debris operations will often require FEMA to create a Debris Task Force with specialists to address the issues.

For more information on debris management and operations, please refer to the course: [IS-632 Introduction to Debris Operations](#).

Common types of debris include, but is not limited to:

- Vegetative debris
- Construction and demolition debris
- Sand
- Mud
- Silt
- Gravel
- Rocks
- Boulders
- Vehicle and vessel wreckage
- Hazardous household waste

#### Category A: Eligibility Overview (2 of 3)

Category A debris removal activities are generally eligible when the work:

- Eliminates immediate threats to lives, public health, and safety
- Eliminates immediate threats of significant damage to improved public or private property
- Ensures economic recovery of the affected community to the benefit of the community at large
- Mitigates risk to life and property

For a private nonprofit, eligible debris removal is limited to that associated with an eligible facility, including debris on the property of the eligible facility.

Generally, debris removal from the following is not eligible:

- Federally maintained navigable channels and waterways
- Flood control works under the authority of the Natural Resources Conservation Service
- Agricultural land
- Natural, unimproved land, such as heavily wooded areas and unused areas
- When debris is placed on the public rights-of-way from commercial properties
- When debris materials are related to the construction, repair, or renovation of either residential or commercial structures



### Category A: Eligibility Overview (3 of 3)

Each type of debris has its own requirements. Because of this, this subsection of Emergency Work will discuss the following common types of debris further:

- Hazardous limbs, trees and stumps
- Hazardous Materials
- Waterways
- Private owned vehicle and vessels
- Private property

After the discussion on common types of debris and their requirements, this module then dives into general considerations for all Category A work (i.e., disposal, costs, flood, environmental and historic preservation, and alternative procedures.



### Category A: Hazardous Materials (1 of 3)

Another common type of debris is hazardous materials. The next two screens discuss eligibility considerations when dealing with the removal of this type of debris. Hazardous materials have properties that make it potentially harmful to human health or the environment.

Examples of types of hazardous material debris are:

- **Household hazardous waste** are hazardous products and materials that are used and disposed of by residential rather than commercial or industrial consumers. Examples include:
  - Some paints, stains, varnishes, solvents, pesticides, and other products or materials containing volatile chemicals that catch fire, react, or explode under certain circumstances, or that are corrosive or toxic
- **Electronic waste (e-waste)** refers to electronics that contain hazardous materials such as cathode ray tubes. Examples include:
  - Computer monitors and televisions
- **White goods** are defined as discarded household appliances. Many white goods contain ozone-depleting refrigerants, mercury, or compressor oils. The Clean Air Act prohibits the release of refrigerants into the atmosphere and requires that certified technicians extract refrigerants from white goods before they are disposed of or recycled. Examples include:
  - Refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, clothes dryers, and water heaters

For more information, please refer to [Public Assistance Debris Management Guide](#) or the online course: [Introduction to Debris Operations](#) course.

### Category A: Hazardous Materials (2 of 3)

Public Assistance grant funding may be available for measures that address widespread hazardous materials contamination. Removal and disposal of pollutants and hazardous substances are generally eligible. Examples of potentially eligible activities include:

- Separation of hazardous materials from other debris
- Specialized procedures for handling and disposing of hazardous materials
- Control or stabilization of the hazardous material
- Pumping and treating water contaminated with the hazardous material
- Clean-up and disposal of the hazardous material
- Testing for contaminants in water, air, or soil (to ensure the immediate threat is eliminated)
- Testing for contaminants for long-term cleanup actions is generally not eligible



#### Category A: Hazardous Materials (3 of 3)

The Applicant must comply with Federal, State, Territorial, Tribal, and Local government environmental requirements for handling hazardous materials. Before handling or disposing of hazardous materials, the Applicant should contact the appropriate Federal, State, Territorial, or Tribal agency and obtain required permits.

Additionally, appropriate certified hazardous waste specialists should handle, capture, recycle, reuse, or dispose of hazardous materials. When providing Public Assistance funding for work involving the handling of hazardous materials, FEMA must ensure compliance with the Resource Conservation and Recovery Act.

#### Category A: Waterways (1 of 5)

The next category of debris and eligibility considerations that will be discussed over the next five screens are debris located in waterways.

The Applicant should be aware of the Ports and Waterways Safety Act (33 U.S.C. 1221). This Act states that the U.S. Coast Guard is responsible for keeping waterways safe and open. While there is no specific language stating that the U.S. Coast Guard is responsible for debris removal from waterways, the U.S. Coast Guard has been tasked to assist in waterway and marine transportation system recovery. Public Assistance and U.S. Coast Guard have the specific authority to remove hazardous materials. Public Assistance reimburses for the removing of such material from inland water zones and U.S. Coast Guard is responsible for coastal water zones.

Debris removal from waterways that is necessary to eliminate the immediate threat to life, public health and safety, or improved property may be eligible to receive Public Assistance funding. Removal of debris in a waterway that does not meet this criterion is not eligible, even if the debris is deposited by the incident.

For FEMA to determine if debris removal from waterways is eligible, the Applicant must provide documentation that:

- Establishes legal responsibility
- Includes the basis of the immediate threat determination
- Identifies locations, types, and quantities of debris
- Demonstrates the debris claimed was deposited by the incident and was not pre-existing

#### Category A: Waterways (2 of 5)

##### **Navigable Waterways**

If the Applicant has legal responsibility for maintenance of a navigable waterway, removal and disposal of debris that obstructs the passage of vessels is eligible to a maximum depth of 2 feet below the low-tide draft of the largest vessel that utilized the waterway prior to the incident. Any debris below this zone is not eligible unless it is necessary in order to remove debris extending upward into an eligible zone.

Again, debris removal from federally maintained navigable waterways is not eligible. U.S. Coast Guard and the U.S. Army Corps of Engineers have specific authorities for removal of hazardous substances, vessels, and other obstructions from federally maintained navigable waterways.



## Category A: Waterways (3 of 5)

### **Non-navigable Waterways**

Debris deposited by the incident may obstruct a natural waterway (a waterway not improved or maintained) or a constructed channel, including flood control works. Removal of the debris from the channel may be eligible if the debris poses an immediate threat, such as when the debris:

- Obstructs, or could obstruct, intake structures
- Could cause damage to structures, such as bridges and culverts
- Is causing, or could cause, flooding to improved public or private property during the occurrence of a 5-year flood

Applicants should be aware of the Natural Resources Conservation Service and how it may impact their grant:

- Removal of the obstruction may be eligible in streams where debris removal would also be eligible under the Natural Resources Conservation Service Emergency Watershed Protection Program unless Natural Resources Conservation Service provides assistance for the debris removal.
- Debris removal from flood control works that are under the specific authority of Natural Resources Conservation Service is not eligible for Public Assistance funding, even if Natural Resources Conservation Service does not have sufficient funding or does not provide assistance.

## Category A: Waterways (4 of 5)

### **Non-navigable Waterways**

Additionally, the Applicant should be aware of the U.S. Army Corps of Engineers Rehabilitation and Inspection Program and how it may impact their grant:

- Debris removal or flood control works may be eligible for the U.S. Army Corps of Engineers Rehabilitation and Inspection Program
- U.S. Army Corps of Engineers does not reimburse Applicants for debris removal but conducts this activity directly when necessary

## Category A: Waterways (5 of 5)

### **Identifying Debris Impact Locations and Documentation**

The Applicant is responsible for identifying debris deposited by the incident that poses an immediate threat. The Applicant should work with the Program Delivery Manager to determine what documentation is required to demonstrate debris impact locations.

- Random surveys to look for debris, including surveys performed using side scan sonar, are not eligible.
- If the Applicant identifies an area of debris impacts and demonstrates the need for a survey to identify specific immediate threat, FEMA may provide Public Assistance funding for the survey in that location, including the use of side scan sonar.

### Category A: Privately Owned Vehicles and Vessels

The next common type of debris found after a disaster are privately owned vehicles and vessels. Removal of privately owned vehicles and vessels may be eligible if all of the following conditions are met:

1. The vehicle or vessel blocks access to a public-use area.
2. The vehicle or vessel is abandoned and the Applicant is unable to identify the owner.
3. The Applicant follows applicable State, Territorial, Tribal, and Local government ordinances or laws for private vehicle or vessel removal.
4. The Applicant verifies the chain of custody of the vehicle or vessel.

A limited timeframe for vehicle and vessel storage may be eligible if it is necessary to remove the item prior to being able to identify the owner. If the owner is subsequently identified, the Applicant must return to FEMA the Federal share of any funds it recovers for storage costs.



### Category A: Debris Removal from Private Property (1 of 7)

If debris on private property is so widespread that it threatens public health and safety or the economic recovery of the community, FEMA may provide Public Assistance funding for debris removal from private property. This debris removal must be in the public interest, not merely benefiting an individual or a limited group of individuals within the community.

In limited circumstances, based on the severity of the impact of an incident, FEMA may determine that debris removal from private property is potentially eligible under the Public Assistance Program. In making its determination, FEMA evaluates whether the impacts of debris on private property affect the general public in that community and whether the Applicant has legal authority to perform the work.

In such cases, FEMA works with the State, Territorial, Tribal, and Local governments to designate specific areas where debris removal from private property, including private waterways, is eligible.

The following slides outline various requirements to determine if the debris on private property may be eligible for funding.

#### Category A: Debris Removal from Private Property (2 of 7)

##### **Written Request**

Prior to commencing work on private property, the Applicant must submit a written request and receive approval from FEMA. The written request must include:

- A public interest determination
- Documentation supporting the Applicant's legal authority to remove the debris
- Indemnification

The Applicant needs to identify the specific properties or areas of properties for which it is requesting approval.

#### Category A: Debris Removal from Private Property (3 of 7)

##### **Public Interest Determination**

The Applicant must provide the basis for the determination that removing the debris from the private property requested is in the public interest. The determination must be made by the State, Territorial, Tribal, county, or municipal government's public health authority or other public entity that has legal authority to make a determination that disaster-generated debris on private property in the designated area constitutes an immediate threat to life, public health, or safety, or to the economic recovery of the community at large.

Additionally, the Applicant must submit its established, specific legal requirements for declaring the existence of a threat to public health and safety.

#### Category A: Debris Removal from Private Property (4 of 7)

##### **Legal Authority and Responsibility**

The Applicant not only must provide documentation to confirm its legal authority and responsibility to enter private property and remove disaster related debris, they must also comply with all the conditions of the Public Assistance grant requirements.

This includes:

- Citation of the law, ordinance, code, or emergency powers for which it is exercising its legal authority to remove debris from private property



- The authority cited must be applicable to the condition representing the immediate threat and not merely the Applicant's uniform level of services
- Typically, solid waste disposal ordinances are part of an Applicant's uniform level of services and not a justification for entering private property to remove disaster-related debris
- Confirmation that a legally authorized official of the Applicant has ordered the exercise of public emergency powers or other appropriate authority to enter onto private property in the designated area to remove debris to address immediate threats to life, public health, and safety



Category A: Debris Removal from Private Property (5 of 7)

### **Indemnification and FEMA Approval**

The Applicant must indemnify the Federal Government and its employees, agents, and contractors from any claims arising from the removal of debris from private property.

FEMA will provide a written response to the request specifying any properties or area of properties for which debris removal is approved.

The Applicant must provide confirmation that it satisfied all legal processes and obtained permission requirements from the property owners (rights-of-entry) and agreements to indemnify and hold harmless the Federal Government before FEMA will provide PA funding for debris removal from private property.

Category A: Debris Removal from Private Property (6 of 7)

### **Duplication of Benefits**

When applying for Public Assistance grant funding, the Applicant must be aware of duplication of benefits, especially when dealing with private property.



The Applicant should work with private property owners to pursue and recover insurance proceeds and credit FEMA the Federal share of any insurance proceeds received. In some circumstances, FEMA may provide Individual Assistance to individuals for debris removal; consequently, FEMA Public Assistance staff will coordinate closely with Individual Assistance staff to ensure FEMA does not fund the same work under both programs.

#### Category A: Debris Removal from Private Property (7 of 7)

Certain types of private properties have specific requirements for debris removal beyond the normal discussion of debris removal from, private property. Such examples are debris removal from gated communities and from commercial property.

##### **Debris Removal from Gated Communities:**

Debris removal from private residential property within a gated community is not eligible. However, if the debris is placed on a private road within the gated community, debris removal from the road may be eligible in accordance with the eligibility and request criteria listed in Chapter 2.VI.A.6 (a).

##### **Debris Removal from Commercial Property:**

Removal of debris from commercial properties, such as industrial parks, golf courses, cemeteries, apartments, condominiums, and trailer parks, is generally ineligible because commercial enterprises are expected to retain insurance that covers debris removal. In very limited, extraordinary circumstances, FEMA may provide an exception. In such cases, the Applicant must meet the requirements of Chapter 2.VI.A.6 (a) and (b).



#### Category A: Disposal of Debris (1 of 3)

FEMA provides Public Assistance funding for various costs related to disposing of debris. The Applicant should dispose of debris in an efficient and cost-effective manner.

Vegetative debris is bulky and can consume a significant volume of landfill space. To minimize the use of landfill space, FEMA encourages the Applicant to reduce the volume of vegetative debris before burying. Costs to reduce vegetative debris using methods such as mulching, grinding, or burning are eligible.

Certain types of construction and demolition debris are reusable or recyclable. The Applicant should conserve landfill space by separating materials for reuse or recycling.



Category A: Disposal of Debris (2 of 3)

### **Temporary Staging Sites**

Establishing and operating a temporary staging site necessary for the purpose of debris separation and reduction is eligible. The cost to lease property is eligible. Additionally, if the terms of the lease require that the Applicant restore the leased property back to its condition prior to the Applicant's use, the costs related to that restoration are also eligible as part of the Category A project.

### **Hand-Loaded Trucks and Trailers**

FEMA has determined that, for vegetative debris, hand-loaded trucks and trailers achieve approximately half the compaction level of mechanically loaded trucks and trailers. Therefore, FEMA only provides Public Assistance funding for 50 percent of the vegetative debris in hand-loaded trucks and trailers.

Similarly, trucks without solid tailgates cannot be compacted to full capacity. Therefore, FEMA will only fund a maximum of 85 percent of the debris in trucks without solid tailgates.

The Applicant must document the types and total quantity of debris that was hand-loaded and the types and total quantity of debris hauled in trucks without solid tailgates and provide this information to FEMA to ensure appropriate reductions are taken for this debris.

## Category A: Disposal of Debris (3 of 3)

### **Tipping Fees**

A tipping fee is the charge levied upon a given quantity of waste received at a waste processing facility. In the case of a landfill it is generally levied to offset the cost of opening, maintaining and eventually closing the site. Landfill tipping fees usually include fixed and variable costs, along with special taxes or fees assessed by the jurisdiction in which the landfill is located.

Eligible tipping fee costs are limited to the variable and fixed costs directly related to landfill operations, such as recycling tax. The components of tipping fees not directly related to landfill operations, such as special taxes or fees related to other government services or public infrastructure, are not eligible as part of the tipping fee. When providing Public Assistance funding for tipping fees, FEMA removes any ineligible components.

The Applicant may use a significant portion of the available capacity of a landfill to dispose of incident-related debris. Although FEMA provides Public Assistance funding for tipping fees, it cannot provide funding for the value of the loss of landfill capacity due to incident-related debris.

### General Category A Considerations

As stated previously, this module provided an overview of common types of debris removal and their requirements.

The next few slides discuss the general considerations an Applicant should make for all Category A projects. This includes the following:

- Monitoring debris removal operations
- Special considerations
  
- Environmental and historic preservation
- Alternative Procedures Pilot Program for debris removal

Once completed, this module discusses Category B of Emergency Work.

### Category A: Monitoring Debris Removal Operations (1 of 2)

The Applicant must provide debris types, quantities, reduction methods, and pickup and disposal locations for FEMA to determine the eligibility of debris removal operations.

FEMA requires the Applicant to monitor all contracted debris operations to document this information and ensure the contractor removes eligible debris. If the Applicant does not monitor these operations, Public Assistance funding for that work may be jeopardized.



#### Category A: Monitoring Debris Removal Operations (2 of 2)

Force Account resources (including temporary hires), contractors, or a combination of these may be used by the Applicant for monitoring. It is not necessary or cost-effective to have Professional Engineers or other certified professionals perform debris monitoring duties.

The use of staff more qualified than necessary for the associated work is considered an unreasonable cost. If staff with professional qualifications are used to conduct debris monitoring, the reason must be documented.

FEMA provides training to the Applicant's force account debris monitors upon request. Eligible debris monitoring activities may include:

- Field supervisory oversight
- Monitoring contracted debris removal at both the loading and disposal sites
- Compiling documentation, such as load tickets and monitor reports, to substantiate eligible debris
- Training debris monitors on debris removal operations, monitoring responsibilities and documentation processes, and FEMA debris eligibility criteria

#### Category A: Special Considerations - Environmental and Historic Preservation

Although debris removal is generally statutorily excluded from National Environmental Policy Act review, FEMA must ensure compliance with other Federal laws, regulations, and executive orders prior to funding the work. The Applicant should contact applicable Federal, State, Territorial, and Tribal regulatory agencies to ensure compliance with requirements and permits for debris-related operations.

Accordingly, FEMA must ensure that the Applicant's debris removal operations avoid impacts to floodplains, wetlands, federally listed threatened and endangered species and their critical habitats, and historic properties.

The Applicant must stage debris at a safe distance from property boundaries, surface water, wetlands, structures, wells, and septic tanks with leach fields.

Upon completion of debris removal and disposal, site remediation may be necessary at staging sites and other impacted areas.

For more information on environmental and historic preservation, please refer to the course: IS-1016 Environmental and Historic Preservation Considerations and Compliance.

#### Category A: Alternative Procedures Pilot Program for Debris Removal

The Applicant may elect to participate in one or more of the following Alternative Procedures for debris removal:

- Increased Federal cost share based on a sliding scale linked to the accelerated completion of debris removal
- Reimbursement of straight-time for Force Account labor
- Retention of income generated from recycling debris
- A one-time 2 percent increased cost-share incentive for a FEMA-accepted debris management plan with pre-qualified debris removal contractors before the start of the incident period

The Applicant must notify FEMA of its intent to participate in the pilot program by signing and submitting the Public Assistance *Alternative Procedures Pilot Program for Debris Removal Acknowledgement* before obligation of its first debris removal project or within 60 days of its Recovery Scoping Meeting, whichever is sooner.

If the Applicant submits the acknowledgement and subsequently wishes to rescind its participation in one or more of the Alternative Procedures, it may do so provided it submits written notification prior to the obligation of its first debris removal project.

For more information on Alternative Procedures Pilot Program, please refer to the IS-1005 Public Assistance Alternative Procedures Pilot Program course

Source: <https://www.govstar.org/article/category-a-eligibility-overview>

## References

*UNEP-EES Disaster Waste Management Guidelines, Published in Switzerland, January 2011 by the Joint UNEP/OCHA Environment Unit Copyright 2011, Joint UNEP/OCHA Environment Unit*

EPA's Managing Materials and Wastes for Homeland Security Incidents:

<https://www.epa.gov/homeland-security-waste>.

The Federal Emergency Management Agency's (FEMA's) "Public Assistance Program and Policy Guide" (FP-104-009-2) was revised in April 2018. Communities can consult this document to help develop debris management plans that may be eligible for public assistance from the federal government, when applicable: <https://www.fema.gov/media-library/assets/documents/111781>.

[National Disaster Recovery Framework | FEMA.gov](#) (see attached as a pdf for what happens when Recovery Support Functions are activated. )

[Community Recovery Management Toolkit | FEMA.gov](#)

What you will find here are templates for planning, a searchable disaster resources library, and post disaster recovery resources

[Assess Needs, Develop a Plan, and Make Decisions | FEMA.gov](#)

What you will find here:

### **Key Resources Include: Access, Plan & Decide**

#### **Define Needs and Analyze Data to Inform Recovery Plans and Projects**

##### **[Disaster Impact and Unmet Needs Assessment Kit and Tools](#)**

Resources for identifying and prioritizing critical unmet needs (*Department of Housing and Urban Development*).

##### **[Integrating Disaster Data into Hazard Mitigation Planning](#)**

Guide to using post event data to develop hazard mitigation actions and improve local hazard mitigation plans (*FEMA*).

#### **Develop and Implement a Strategic Post-Disaster Recovery Plan**

##### **[Long-Term Community Recovery Planning Process](#)**

Guide providing a simple, expedited post disaster planning process to establish goals, long-term recovery initiatives and projects, and secure support of stakeholders and funders (*FEMA*).

##### **[Planning for Post-Disaster Recovery: Next Generation](#)**

Comprehensive guidance for post-event plan development, codes, ordinances, land-use, community engagement, and risk mitigation (*American Planning Association*).

#### **Integrate Equity into Recovery**

##### **[In the Eye of the Storm: A People's Guide to Transforming Crisis & Advancing Equity in the Disaster Continuum](#)**

Comprehensive guide for addressing equity issues (*National Association for Advancement of Colored People*).

##### **[Post-Disaster Recovery Briefing Papers: Public Engagement in Recovery Planning](#)**

Guide outlining importance and strategies for deliberate public engagement and examples of effective engagement for recovery outcomes (*American Planning Association*).

##### **[Building Alliances for Equitable Resilience](#)**

Guide providing examples and concepts for application of equity principles to add elements of emergency management and disaster recovery (*FEMA and Resilient National Partners*).

#### **Incorporate Mitigation and Resilience into Recovery Projects**

##### **[Mitigate Disaster Damage with FEMA Public Assistance](#)**

Basic steps and examples for using funding available under FEMA's Public Assistance Program to support

mitigation actions when repairing and rebuilding (*FEMA*).

**[Integrating Hazard Mitigation into Local Planning - Case Studies and Tools for Community Officials](#)**

Guide on how to incorporate risk reduction strategies into existing local plans, policies, codes, and programs that guide community development or redevelopment patterns (*FEMA*).

**[U.S. Climate Resilience Toolkit](#)**

Toolkit with a series of steps, tools, and data to plan for or build resilience for climate change (*U.S. Global Change Research Program*).

**Flood Maps**

[Flood Maps | FEMA.gov](#)

UNITED NATIONS OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS  
ENVIRONMENTAL EMERGENCIES SECTION  
Disaster Waste Management Guidelines

CNMI SSG, 2018

OPD Resources Report 2019-2020

CNMI Typhoon Response Plan, 2017



#### Appendix to Part 243—Recommended Bibliography

1. American National Standard Z245.1. Safety standard for refuse collection equipment. New York. The American National Standards Institute.
2. Decision-Makers guide in solid waste management. Environmental Protection Publication SW-127. Washington, U.S. Government Printing Office, 1974.
3. Grupenhoff, B. L., and K. A. Shuster. Paper and plastic solid waste sacks; a summary of available information; a Division of Technical Operations open-file report (TO 18.1.03.1). [Cincinnati], U.S. Environmental Protection Agency, 1971. 17 p. [Restricted distribution].
4. Hegdahl, T. A., Solid waste transfer stations; a state-of-the-art report on systems incorporating highway transportation, U.S. Environmental Protection Agency, 1972, 160 p. (Distributed by National Technical Information Service, Springfield, Virginia, as PB 213 511).
5. National Sanitation Foundation standard no. 31 for polyethylene refuse bags. Ann Arbor, The National Sanitation Foundation, May 22, 1970. 6 p.
6. National Sanitation Foundation standard no. 32 for paper refuse sacks. Ann Arbor, The National Sanitation Foundation, Nov. 13, 1970. 6 p.
7. National Sanitation Foundation standard no. 13 for refuse compactors and compactor systems. Ann Arbor, The National Sanitation Foundation, March 1973. 12 p.
8. Operation responsible (a safety training manual for S.W. Collection): Safe refuse collection: instructor's manual with slides, training manual with slides, and 16 mm film. Available from the National Audiovisual Center, General Services Administration, Washington, DC 20409.
9. Ralph Stone and Company, Inc. The use of bags for solid waste storage and collection. Environmental Protection Publication SW-42d. U.S. Environmental Protection Agency, 1972. 264 p. (Distributed by National Technical Information Service, Springfield, Virginia, as PB 212 590).
10. Shuster, K. A., and D. A. Schur. Heuristic routing for solid waste collection vehicles. Environmental Protection Publication SW-113. Washington, U.S. Government Printing Office, 1974. 45 p.
11. Shuster, K. (Office of Solid Waste Management Programs.) Analysis of fuel consumption for solid waste management. Unpublished data, January 1974.
12. U.S. Environmental Protection Agency. Pesticides and pesticides containers; regulations for acceptance and recommended procedures for disposal and storage. FEDERAL REGISTER, 39 (85): 15235-15241, May 1, 1974.
13. U.S. Environmental Protection Agency. Pesticides and pesticides containers; proposed regulations for prohibition of certain acts regarding disposal and storage. FEDERAL REGISTER, 39 (200): 36847-36950, October 15, 1974.

#### 40 CFR §258.2 Definitions

Unless otherwise noted, all terms contained in this part are defined by their plain meaning. This section contains definitions for terms that appear throughout this part; additional definitions appear in the specific sections to which they apply.

*Active life* means the period of operation beginning with the initial receipt of solid waste and ending at completion of closure activities in accordance with §258.60 of this part.

*Active portion* means that part of a facility or unit that has received or is receiving wastes and that has not been closed in accordance with §258.60 of this part.

*Aquifer* means a geological formation, group of formations, or portion of a formation capable of yielding significant quantities of ground water to wells or springs.

*Commercial solid waste* means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.



*Construction and demolition (C&D) landfill* means a solid waste disposal facility subject to the requirements in part 257, subparts A or B of this chapter that receives construction and demolition waste and does not receive hazardous waste (defined in §261.3 of this chapter) or industrial solid waste (defined in this section). Only a C&D landfill that meets the requirements of 40 CFR part 257, subpart B may receive very small quantity generator waste (defined in §260.10 of this chapter). A C&D landfill typically receives any one or more of the following types of solid wastes: Roadwork material, excavated material, demolition waste, construction/renovation waste, and site clearance waste.

*Director of an Approved State* means the chief administrative officer of a state agency responsible for implementing the state permit program that is deemed to be adequate by EPA under regulations published pursuant to sections 2002 and 4005 of RCRA.

*Existing MSWLF unit* means any municipal solid waste landfill unit that is receiving solid waste as of the appropriate dates specified in §258.1(e). Waste placement in existing units must be consistent with past operating practices or modified practices to ensure good management.

*Facility* means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

*Ground water* means water below the land surface in a zone of saturation.

*Household waste* means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

*Indian lands or Indian country* means:

- (1) All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running throughout the reservation;
- (2) All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of the State; and
- (3) All Indian allotments, the Indian titles to which have not been extinguished, including rights of way running through the same.

*Indian Tribe or Tribe* means any Indian tribe, band, nation, or community recognized by the Secretary of the Interior and exercising substantial governmental duties and powers on Indian lands.

*Industrial solid waste* means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: Electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

*Lateral expansion* means a horizontal expansion of the waste boundaries of an existing MSWLF unit.

*Leachate* means a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

*Municipal solid waste landfill (MSWLF) unit* means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under §257.2 of this chapter. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, very small quantity generator waste and industrial solid waste. Such a landfill may be publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion. A

construction and demolition landfill that receives residential lead-based paint waste and does not receive any other household waste is not a MSWLF unit.

*New MSWLF unit* means any municipal solid waste landfill unit that has not received waste prior to October 9, 1993, or prior to October 9, 1997 if the MSWLF unit meets the conditions of §258.1(f)(1).

*Open burning* means the combustion of solid waste without:

- (1) Control of combustion air to maintain adequate temperature for efficient combustion,
- (2) Containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and
- (3) Control of the emission of the combustion products.

*Operator* means the person(s) responsible for the overall operation of a facility or part of a facility.

*Owner* means the person(s) who owns a facility or part of a facility.

*Residential lead-based paint waste* means waste containing lead-based paint, which is generated as a result of activities such as abatement, rehabilitation, renovation and remodeling in homes and other residences. The term residential lead-based paint waste includes, but is not limited to, lead-based paint debris, chips, dust, and sludges.

*Run-off* means any rainwater, leachate, or other liquid that drains over land from any part of a facility.

*Run-on* means any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

*Saturated zone* means that part of the earth's crust in which all voids are filled with water.

*Sludge* means any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant.

*Solid waste* means any garbage, or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

*State* means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

*State Director* means the chief administrative officer of the lead state agency responsible for implementing the state permit program for 40 CFR part 257, subpart B and 40 CFR part 258 regulated facilities.

*Uppermost aquifer* means the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

*Waste management unit boundary* means a vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer.

[56 FR 51016, Oct. 9, 1991; 57 FR 28627, June 26, 1992, as amended at 58 FR 51547, Oct. 1, 1993; 60 FR 52342, Oct. 6, 1995; 63 FR 57044, Oct. 23, 1998; 68 FR 36495, June 18, 2003; 81 FR 85805, Nov. 28, 2016]

### [§258.3 Consideration of other Federal laws.](#)

The owner or operator of a municipal solid waste landfill unit must comply with any other applicable Federal rules, laws, regulations, or other requirements.

## § 65-40-010 Definitions

For the purpose of this chapter, the following definitions shall apply:

- (a) “Act” means any law, and subsequent amendments, enacted by the Commonwealth intended to protect the public health and the environment, including, but not limited to, the Commonwealth Environmental Protection Act, Public Law 3-23 and as subsequently amended by Public Law 11-103, and the Commonwealth Groundwater Management and Protection Act of 1988, Public Law 6-12.
- (b) “Acute toxicity” means the ability of a harmful substance to cause injury or death to an organism as a result of a short-term exposure to a harmful substance.
- (c) “All practicable methods of treatment” means all technologies and/or methods currently available and demonstrated to work under similar site circumstances or through pilot studies, and applicable to the site at reasonable cost. These include “all known available and reasonable methods of treatment” (AKART) for discharges or potential discharges to waters of the Commonwealth, and “best available control technologies” for releases of harmful substances into the air resulting from clean up actions.
- (d) “Applicable Commonwealth and federal laws” means all legally applicable requirements and those requirements that the Division determines, based on the criteria in § 65-40-535(c), are relevant and appropriate requirements.
- (e) “Area background” means the concentrations of harmful substances that are consistently present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site.
- (f) “Carcinogen” means any substance or agent that produces or tends to produce cancer in humans. For implementation of this chapter, the term carcinogen will apply to substances on lists A (known human) and B (probable human) as prepared by the National Toxicology Program, a Division of the U.S. Department of Health and Human Services, and any substance which causes a statistically significant increased incidence of benign or malignant tumors in a single, well conducted animal bioassay, consistent with the weight of evidence approach specified in the United States Environmental Protection Agency’s Guidelines for Carcinogen Risk Assessment as set forth in 51 FR 33992.
- (g) “Chronic toxicity” means the ability of a harmful substance to cause injury or death to an organism resulting from repeated or constant exposure to the harmful substance over an extended period of time.
- (h) “Commonwealth” means the Commonwealth of the Northern Mariana Islands.
- (i) “Containment” means a container, vessel, barrier, or structure, whether natural or constructed, which confines a harmful substance within a defined boundary and prevents or minimizes its release into the environment.
- (j) “Contaminant” means any harmful substance that does not occur naturally or occurs at greater than natural background levels.
- (k) “Day” means calendar day; however, any document due on the weekend or a holiday may be submitted on the first working day after the weekend or holiday.

- (l) “Division” means the Commonwealth’s Division of Environmental Quality (DEQ), or any other governmental agency designated by DEQ to administer the functions under the regulations in this chapter.
- (m) “Direct contact” means exposure to harmful substances through ingestion, inhalation, or dermal contact.
- (n) “Director” means the director of the Division or the director’s designee.
- (o) “Environment” means any plant, animal, natural resource, surface water (including underlying sediments), ground water, drinking water supply, land surface (including tidelands and shorelands) or subsurface strata, ambient air, or ecological system within the Commonwealth or under the jurisdiction of the Commonwealth.
- (p) “Exposure” means subjection of an organism to the action, influence, or effect of a harmful substance (chemical agent) or physical agent. Exposure is quantified as the amount of the agent available at the exchange boundaries (e.g., skin, lungs, gut) and available for absorption.
- (q) “Exposure pathway” means the path a harmful substance takes or could take from a source to an exposed organism. An exposure pathway describes the mechanism by which an individual or population is exposed or has the potential to be exposed to harmful substances at or originating from a site. Each exposure pathway includes an actual or potential source or release from a source, an exposure point, and an exposure route. If the exposure point differs from the source of the harmful substance, the exposure pathway also includes a transport/exposure medium.
- (r) “Facility” means any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, vessel, or aircraft; or any site or area where a harmful substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located.
- (s) “Federal clean up law” means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. 9601, et seq.
- (t) “Food crop” means any domestic plant which is produced for the purpose of, or may be used in whole or in part for, consumption by people or livestock. This shall include nursery, root, or seedstock to be used for the production of food crops.
- (u) “Ground water” means water in a saturated zone or stratum beneath the surface of land or below a surface water.
- (v) “Hazard index” means the sum of two or more hazard quotients for multiple harmful substances and/or multiple exposure pathways.
- (w) “Harmful substance” means any hazardous substance under section 101(14) of the federal clean up law, 42 U.S.C. § 9601(14); petroleum or petroleum products; and any substance or category of substances, including solid waste decomposition products, determined by the Director to present a threat to human

health or the environment if released into the environment. The term harmful substance does not include any of the following when contained in an underground or aboveground storage tank from which there is not a release: crude oil or any fraction thereof or petroleum, if the tank is in compliance with all applicable federal, Commonwealth, and local laws.

(x) "Harmful substance site" means any facility where there has been confirmation of a release or threatened release of a harmful substance that requires remedial action.

(y) "Hazard quotient" or "HQ" means the ratio of the dose of a single harmful substance over a specified time period to a reference dose for that harmful substance derived for a similar exposure period.

(z) "Highest beneficial use" means the beneficial use of a resource generally requiring the highest quality in the resource. For example, for many harmful substances, providing protection for the beneficial use of drinking water will generally also provide protection for a great variety of other existing and future beneficial uses of ground water.

(aa) "Indicator harmful substances" means the subset of harmful substances present at a site selected under § 65-40-530 for monitoring and analysis during any phase of remedial action for the purpose of characterizing the site or establishing clean up requirements for that site.

(bb) "Institutional control" means a measure undertaken to limit or prohibit activities that may interfere with the integrity of a clean up action or result in exposure to harmful substances at the site.

(cc) "Legally applicable requirements" means those clean up standards, standards of control, and other human health and environmental protection requirements, criteria, or limitations promulgated under Commonwealth or federal law, that specifically address a harmful substance, clean up action, location, or other circumstances at the site.

(dd) "Mail" means delivery through the United States Postal Service or an equivalent method of delivery or transmittal, including private mail carriers, or personal delivery.

(ee) "Maximum contaminant level" or "MCL" means the maximum concentration of a contaminant established by either the Commonwealth or the United States Environmental Protection Agency under the Federal Safe Drinking Water Act (42 U.S.C. §§ 300f, et seq.).

(ff) "Method detection limit" or "MDL" means the minimum concentration of a compound that can be measured and reported with 99% confidence that the value is greater than zero.

(gg) "Natural background" means the concentration of a harmful substance consistently present in the environment which has not been influenced by localized human activities.

(hh) "Natural person" means any unincorporated individual or group of individuals. The term "individual" is synonymous with "natural person."

(ii) "Owner or operator" means any person with any ownership interest in the facility or who exercises any control over the facility; or in the case of an abandoned facility, any person who had owned, or operated, or exercised control over the facility any time before its abandonment. The term does not include a person who, without participating in the management of a facility, holds indicia of ownership primarily

to protect the person's security interest in the facility.

(jj) "Permanent solution" means a clean up action in which clean up standards of part 500 can be met without further action being required at the site being cleaned up or any other site involved with the clean up action, other than the approved disposal of any residue from the treatment of harmful substances.

(kk) "Person" means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, the federal government, or other governmental entity.

(ll) "Potentially liable person" means any person whom the Division finds to be a potentially responsible person under federal clean up law, or any person (including any past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility) whom the Division finds to have contributed to, or be contributing to, the past or present handling, storage, treatment, transportation or disposal of any harmful substance, where such handling, storage, treatment, transportation or disposal may present an imminent and substantial endangerment to health or the environment. "Potentially liable person" does not include any person that treats water for a harmful substance in compliance with the CNMI Drinking Water Regulations [NMIAC, title 65, chapter 20] and has not been deemed to have contributed to a release of a harmful substance(s) in accordance with the regulations in this chapter.

(mm) "Practicable" means (except when used in the phrase "permanent to the maximum extent practicable" which is defined in § 65-40-120(e)) capable of being designed, constructed, and implemented in a reliable and effective manner including consideration of cost. When considering cost under this analysis, an alternative shall not be considered practicable if the incremental cost of the alternative is substantial and disproportionate to the incremental degree of protection provided by the alternative over other lower cost alternatives.

(nn) "Preliminary remediation goals" or "PRGs" means those initial clean up goals that are developed under federal Risk Assessment Guidance for Superfund issued by the U.S. EPA's Office of Emergency and Remedial Response.

(oo) "Reasonable maximum exposure" means the highest exposure that can be reasonably expected to occur for a human or other living organisms at a site under current and potential future site use.

(pp) "Release" means any intentional or unintentional entry of any harmful substance into the environment, including but not limited to the abandonment or disposal of containers of harmful substances.

(qq) "Relevant and appropriate requirements" means those clean up standards established under Commonwealth and federal law that, while not legally applicable to the clean up action, the Division determines address problems similar to those encountered at the site. The criteria specified in § 65-40-535(c) shall be used to determine if a requirement is relevant and appropriate.

(rr) "Remedy" or "remedial action" means any action or expenditure to identify, eliminate, or minimize any threat posed by harmful substances to human health or the environment, including any investigative and monitoring activities with respect to any release or threatened release of a harmful substance and any health assessments or health effects studies conducted in order to determine the risk or potential risk to human health.

(ss) “Restoration time frame” means the period of time needed to achieve the required clean up levels at the points of compliance established for the site.

(tt) “Risk” means the probability that a harmful substance, when released into the environment, will cause an adverse effect in exposed humans or other living organisms.

(uu) “Saturated zone” means the area below the water table in which all interstices are filled with water.

(vv) “Secondary maximum contaminant level” means the maximum concentration of a secondary contaminant in water established either by the Commonwealth or the United States Environmental Protection Agency under the Federal Safe Drinking Water Act (42 U.S.C. §§ 300f, et seq.) and published in 40 C.F.R. 143.

(ww) “Sensitive environment” means an area of particular environmental value, where a release could pose a greater threat than in other areas including: wetlands; critical habitat for endangered or threatened species; wildlife refuge; critical habitat, breeding or feeding area for fish or shellfish; wild or scenic river; rookery; riparian area.

(xx) “Site” means the same as facility.

(yy) “Soil” means a mixture of organic and inorganic solids, air, water, and biota which exists on the earth’s surface above bedrock, including materials of anthropogenic sources such as slag, sludge, etc.

(zz) “Surface water” means all natural waters, fresh, brackish, or marine including wetland, around and within the Commonwealth and as further delineated and defined under the Marine Sovereignty Act of 1980, Public Law 2-7.

(aaa) “Technically possible” means capable of being designed, constructed, and implemented in a reliable and effective manner, regardless of cost.

(bbb) “Total excess cancer risk” means the upper bound on the estimated excess cancer risk associated with exposure to multiple harmful substances and multiple exposure pathways.

(ccc) “Underground storage tank” or “UST” means an underground storage tank and connected underground piping as defined in the rules adopted under the Act.

(ddd) “Unrestricted site use conditions” means restrictions on the use of the site or natural resources affected by releases of harmful substances from the site are not required to ensure continued protection of human health and the environment.

(eee) “Upper bound on the estimated excess cancer risk of one in one hundred thousand ( $1 \times 10^{-5}$ )” means the upper 95<sup>th</sup> percent confidence limit on the estimated risk of one additional cancer above the background cancer rate per one hundred thousand individuals.

(fff) “Upper bound on the estimated excess cancer risk of one in one million” means the upper 95<sup>th</sup> percent confidence limit on the estimated risk of one additional cancer above the background cancer rate per one million individuals.

(ggg) “Wastewater facility” means all structures and equipment required to collect, transport, treat, reclaim, or dispose of domestic, industrial, or combined domestic/industrial wastewater.

Modified, 1 CMC § 3806(c), (d), (e), (f), (g).



CHAPTER 65-80  
SOLID WASTE MANAGEMENT REGULATIONS  
§ 65-80-005 Purpose & Prohibitions

- (a) The purpose of the regulations in this chapter is to establish the requirements and criteria for new and existing solid waste management activities and solid waste management facilities (SWMFs) including, but not limited to, municipal solid waste landfills and other landfilling operations, incineration, solid waste collection and transfer, materials processing, recycling, composting, and salvage. These requirements and criteria ensure the protection of human health and the environment.
- (b) All new and existing solid waste management activities and SWMFs failing to comply with the regulations and criteria in this chapter are prohibited. Facilities for the disposal of solid waste that fail to satisfy the requirements of this chapter are considered open dumps, and the use of open dumps is prohibited.

Modified, 1 CMC § 3806(d).

History: Adopted 23 Com. Reg. 18088 (June 19, 2001); Proposed 22 Com. Reg. 17329 (July 20, 2000).

§ 65-80-010 Definitions

- (a) Definitions from federal regulations incorporated by reference are included in the appendices to this chapter.
- (b) The following are additional definitions included for clarity as they pertain to the CNMI Solid Waste Management Regulations, codified in this chapter:
- (1) "Acts" mean the CEPA, SWMA, and the CEAA unless otherwise stated.
  - (2) "Bioconversion" means the processing of the organic fraction of the waste stream through biological or chemical means to perform composting or to generate products, including, but not limited to, fertilizers, feeds, methane, alcohols, tars, and other products. This term includes, but is not limited to, biogassification, acid hydrolysis, pyrolysis, and fermentation. This term does not include any form of incineration or methane gas extraction from a MSWLF.
  - (3) "CEAA" means Commonwealth Environmental Amendments Act, 1999, PL 11-103.
  - (4) "CEPA" means Commonwealth Environmental Protection Act, 1982, 2 CMC §§ 3101 to 3134.
  - (5) "CESQG wastes" means hazardous wastes from a conditionally exempt small quantity generator as defined in 40 CFR 261.5 (1999).
  - (6) "CFR" means the United States Code of Federal Regulations, 1999.
  - (7) "Closure" means those actions taken by the owner or operator of a solid waste management facility to cease disposal operations and to ensure that closure is in conformance with applicable requirements as described in part 200.
  - (8) "CNMI" or "Commonwealth" means the Commonwealth of the Northern Mariana Islands.
  - (9) "Collection" means the removal of solid waste from a generation or transfer point and the subsequent transport of the solid waste to a site/facility for further processing, additional transfer, or disposal.
  - (10) "Composting" means a process in which organic solid wastes, such as biosolids (sewage sludge), vegetative waste materials, manures, and non-treated wood chips and shavings, are biologically decomposed and stabilized under controlled conditions to produce a stable humus-like mulch or soil amendment. This term includes the processing of organic and non-treated wood waste materials for the generation of wood chips or other materials that can be used as soil amendment, planting mixes, mulches for horticultural and agricultural applications, landfill cover, and land reclamation.
  - (11) "Convenience center" means waste handling facilities performing limited transfer station operations and receiving less than five tons per day of exclusively household/residential waste.
  - (12) "Cover material" means soil or other suitable material that has been approved by the Director of DEQ for use as cover material for solid waste at a MSWLF.
  - (13) "DEQ" means the CNMI Division of Environmental Quality.
  - (14) "Director" means the Director of the CNMI Division of Environmental Quality or person designated to act

by the Director unless otherwise specified.

(15) "DPW" means the CNMI Department of Public Works unless otherwise specified.

(16) "Hazardous waste" means any waste defined as hazardous under 40 CFR part 261 (1999).

(17) "Incineration" means the destruction of solid waste by combustion in a furnace designed for such purposes where solid waste essentially is reduced to ash, carbon dioxide and water vapor.

(18) "Nuisance" means an act or an omission of an act which annoys, injures, or endangers the comfort, health, or safety of others, offends decency, or unlawfully interferes with, or obstructs or tends to obstruct, any public park, square, street, or highway, or in any way renders other persons insecure in life, or in the use of property.

(19) "Permit" means any authorization, license, or equivalent control document issued under the authority of DEQ that regulates the management of solid waste including location, design, construction, operation, groundwater monitoring, corrective action, closure, post-closure care, and financial assurance elements applicable to solid waste management activities and SWMFs.

(20) "Permit by rule" means an abbreviated procedure by which those solid waste management facilities considered by the Director of DEQ to have limited impact to the community and the environment may begin operations in accordance with § 65-80-108 of this chapter.

(21) "Person" means an individual, firm association, co-partnership, political subdivision, government agency, municipality, industry, public or private corporation, or any other entity whatsoever.

(22) "Post-closure" means the requirements placed upon landfill disposal sites after closure to enable their environmental safety for a thirty-year period.

(23) "Premises" means tract or parcel of land with or without buildings.

(24) "Processing" means an operation to convert solid waste or recyclable materials into a useful product or prepare such materials for disposal.

(25) "Pyrolysis" means the process in which solid waste is heated in an enclosed device in the absence of oxygen to vaporize the waste, producing a hydrocarbon-rich gas capable of being burned for recovery or energy.

(26) "RCRA" means the federal Resource Conservation and Recovery Act, 1976, as amended to 1999, 42 USC §§ 6901 to 6992.

(27) "Refuse" means anything putrescible or non-putrescible that is discarded or rejected as waste.

(28) "Reserved" means a section having no requirements and which is set aside for future possible rulemaking as a note to the regulated community.

(29) "Salvage" means the incidental removal of solid waste for reuse under the control of the facility owner or operator.

(30) "Solid waste management activity" means any activity that provides for the systematic administration of the collection, source separation, storage, transportation, transfer, transformation, processing, treatment, and disposal of solid waste.

(31) "Solid waste management facility" (SWMF) means any site at which solid wastes are aggregated for storage, transfer, transformation, processing, or disposal, including but not limited to municipal solid waste landfills (MSWLFs), (as defined under 40 CFR part 258 (1999) adopted by reference under part 200 of this chapter), non-municipal, non-hazardous waste disposal units that receive conditionally exempt small quantity generator (CESQG) waste (as defined under 40 CFR part 257 (1999) adopted by reference under part 300 of this chapter), transfer stations, recycling operations, or incinerators, but not including sites where a single person has collected his/her own solid wastes for a brief period prior to removal to a solid waste management facility, unless such person has created thereby a public nuisance or health hazard.

(32) "Solid waste management permit" means a permit issued by DEQ to a public or private entity that is involved in the collection and disposal of solid waste.

(33) "Source separation" means separation of solid waste into some or all of its component parts at the point of generation of the solid waste.

(34) "Storage" means the holding of solid waste materials for any temporary period.

(35) "Stream" means the point at which any confined freshwater body of surface water reaches a mean annual flow rate of twenty feet per cubic second.

(36) "Surface water" means all lakes, rivers, ponds, streams, inland waters, salt waters and water courses within the jurisdiction of the CNMI.

(37) "SWMA" means Solid Waste Management Act, 1986, 2 CMC §§ 3511 to 3521.

(38) "Transfer station" means a site to which solid wastes are brought from their point of generation or previous

transfer and where such wastes are temporarily stored prior to transfer to a site of additional transfer or separation, recycling, storage, processing, or disposal.

(39) "Treatment" means the physical, chemical or biological processing of solid waste to make such solid waste safer for storage or disposal, amenable for energy or material source recovery, or reduced in volume.

(40) "Used oil transporter" means a person licensed or certified under local, state, or federal requirements to transport used oil.

Modified, 1 CMC § 3806(c), (d), (f).

History: Adopted 23 Com. Reg. 18088 (June 19, 2001); Proposed 22 Com. Reg. 17329 (July 20, 2000).

Typhoon Yutu Report – Procedures, PPE,

Sorted wastes items will be loaded on to their waste containers and transported to their final destination as follows:

EPA Waste Stream: Contractor trailer; transport waste to Section

B. Waste Exclusions: Contractor trailer; transport tires to Section

A.

HHW: transport sorted mixed waste to Marpi **Landfill Cell #1** active phase.

Labor:

A total of 15 personnel will be utilized in this operation. The team will consist of (5) personnel (with HazMat Certified supervisor). There will be an alternate sorting personnel each day of the operation to allow switch out of personnel in the event that any personnel require to take a break for safety reason, or in the event personnel on the sorting floor gets injured and needs to be substituted. A list of Personal Protective Equipment (PPE) and Site Safety Checklist from the Sept. 2020 Typhoon Yutu report are included in Appendix # for reference. All PPE must meet or exceed OSHA requirements. Potential Hazards and General Recommendations are included in Appendix #.

Equipment:

(1) 2-Trailer – (1) for EPA wastes streams; (1) for tires to be hauled to respective sections

Supplies:

- (1) Rubber Gloves - 15 pairs: for picking up HHW
- (2) Safety Hard Hat – 15: for personnel protection from head injuries
- (3) Safety shoes - 15 pairs: for personnel protection from foot injuries
- (4) Safety goggles - 15 pairs: for eye protection
- (5) Safety vests – 15: for personnel protection from heavy equipment traffic
- (6) Safety Eye Wash – 1: for washing eyes when exposure to dust or another contaminant
- (7) First Aid Kit – 2: for minor cut injuries or other site injuries
- (8) Knives – 7: for dismantling material from springs
- (9) Hammer-8: for dismantling wood from springs

**SITE SAFETY CHECKLIST**

- Conduct a job hazard safety briefing to identify all hazards prior to beginning site activity.
- Assign key personnel and alternates responsible for site safety.
- Describe risks associated with each operation conducted.
- Confirm that personnel are adequately trained to perform jobs.
- Proper Protective clothing and equipment must be worn by each sorting personnel at all times during the operation.

- Monitor personnel for safety concerns throughout work activity.

#### POTENTIAL HAZARDS AND GENERAL RECOMMENDATIONS

HAZARD 1: Slips, Trips, Falls Risk from Unstable piles mixed waste and unstable work surfaces Risks: Serious injuries or illnesses can occur due to slips, trips, falls, or collapsing materials.

- General Recommendations:
  - Sorting personnel shall not climb up to any waste pile.
  - Sorting personnel shall have on safety shoes footwear, safety vest, hard hat, gloves, and proper clothing attire before being allowed to get on the sorting floor.
  - All site personnel must safely observe their surrounding for safety hazard, especially around moving heavy equipment and vehicles.

HAZARD 2: Loud Noise Risks: Communication and possible noise induced hearing loss.

- General Recommendations:
  - Sorting personnel shall have on hearing protection devices when necessary
  - A safety whistle shall be used to alert all site personnel of imminent danger

HAZARD 3: Air Borne Contaminant and Dust Inhalation Risks - Breathing dust containing fine airborne particles, gases and exhaust fumes: May cause irritation of the eyes, nose, throat, and lungs.

- General Recommendations:
  - Sorting personnel shall be protected from breathing airborne contaminants
  - Dust Masks or Respirators must fit properly to protect workers inhalation hazards
  - Dust control measure at the site shall be implemented during sorting operation to reduce dust concentration. Can be done by spraying water on the sorting floor area.
  - Maintain low speeds on construction equipment to keep dust down

HAZARD 4: Heat Stress Risks from working in a hot, humid climate: Significant fluid loss can progress to clinical dehydration, raised core body temperature, impaired judgment, disorientation, fatigue, muscle cramping, which may result in heat stroke.

- General Recommendations:
  - Adjust work schedules, rotate personnel, and add additional personnel if needed.
  - Consider personnel and environmental monitoring plans.
  - Know the warning signs of heat related illnesses. If you feel exhausted, “take a break.”
  - Provide shelter for personnel in shaded areas.
  - block out sun or other direct sources of heat from work locations when possible.
  - Prevent sun related overexposure to skin by using a sunscreen lotion.
  - HYDRATE AS OFTEN AS POSSIBLE

HAZARD 5: Work Zone Traffic Risks: Traumatic or fatal injuries due to failure of or improper use of equipment or workers being struck by moving equipment.

- General Recommendations:
  - Establish a traffic control plan for motorists
  - Use barriers to limit motorist intrusion into the work zone.
  - High visibility safety garments should be provided for on-site workers
  - Seat belts and rollover protection should be used on equipment and vehicles
  - Workers on foot need to know the routes construction vehicles will use.
  - Be mindful of limited visibility (e.g. – blind spots) which heavy machine operators have while driving machines at the work site.
  - Maintain safe driving distances, avoid using cell phones while driving.

HAZARD 6: Sharp and Flying Object Risks - Eye, face, hand, and head injuries from flying objects: Traumatic injuries, ranging from minor injuries requiring first aid to serious injuries requiring immediate medical attention such as eye injuries, or deep cuts. Risk may result in a disabling or even fatal traumatic injuries.

- General Recommendations:
  - use protective eyewear, face shields, and protective head gear at all times

- Educate workers regarding safe work procedures before beginning work.
- Provide workers with a full array of personal protective equipment
- workers do not walk under heavy equipment being used to lift objects. HAZARD 7: Severe weather Risks: Serious injuries can occur due to heavy weather and storms.

- General Recommendations:

- NO WORK WILL OCCUR DURING RAINY DAYS

