Dryden Flight Research Center
Edwards, California 93523

DCP-S-102, Revision A-1
Expires August 31, 2014

Dryden Centerwide Procedure

Code S

Environmental Management System Chemical Management

(With changes 08-10-10)

Electronically approved by
Assistant Director for Management Systems

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NND11372962R

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1.0 PURPOSE OF DOCUMENT

This document describes how Dryden personnel will manage hazardous material (HM), including hazardous waste (HW), as part of the DFRC Environmental Management System (EMS).

2.0 PROCEDURE SCOPE & APPLICABILITY

Scope: This procedure applies to the purchasing, storing, distributing, tracking, and disposing of hazardous materials and hazardous waste.

Examples of hazardous materials (and resulting hazardous wastes) include the following:

- Adhesive strippers
- Antifreeze
- Batteries
- Cleaners
- Diesel fuel
- Fluorescent light tubes
- Gasoline
- Jet fuel
- Laboratory and photographic chemicals
- Oils and lubricants
- Paints and thinners
- Solvents
- Metals and composites

Applicability: This procedure applies to DFRC personnel whose job responsibilities involve the purchase, storage, issue, tracking, and use of hazardous materials, and the generation, storage, tracking, and disposal of hazardous waste.

3.0 PROCEDURE OBJECTIVES, TARGETS, METRICS, & TREND ANALYSIS

Objective:	Reduce the generation of HW to below 25,000 pounds per year by reducing the amount of HM discarded due to excessive shelf life, substituting less hazardous materials where possible, tightly controlling the purchase, use and storage of HM, and other HM and HW management methods outlined in this procedure
Target:	The generation of HW will be below 25,000 pounds per year.

Metric:	Pounds of hazardous waste generated per year
Objectives:	Hazardous Material is returned
Target:	All Hazardous Materials are returned within 48 hours
Metric:	Length of time taken to return Hazardous Material

Trend Analysis: Pounds of waste disposed of is plotted in a chart and reported during audits.

4.0 WAIVER AUTHORITY

A waiver is available for extended use of HM by an authorized user in an authorized zone that is anticipated to exceed the maximum allowed 48-hour return requirement. The Zone Manager must request the waiver from the Environmental Officer. The decision to grant the waiver and for how long will be the Environmental Officer's. (See Section 12.1.5)

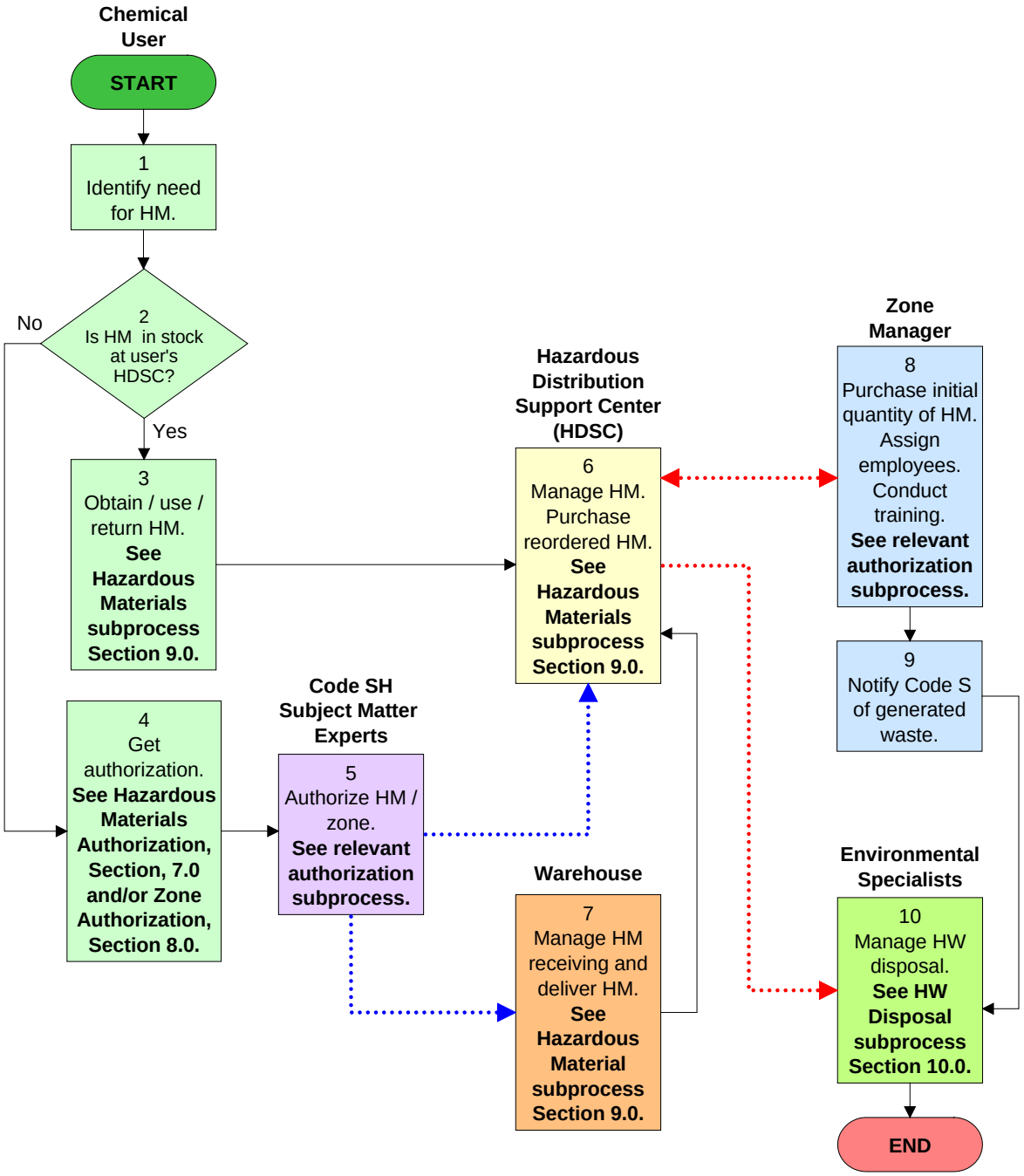
5.0 OVERVIEW

DFRC's chemical management system (CMS) is based on the concept of managing all HM:

- from the time they enter the Center
- as they pass through centralized hazardous material distribution support center (HDSC) issue points (located in Buildings 4809, 4810, 4823, 4833, 4840, 4852, and 703)
- if they are not completely used and become HW

The CMS ensures proper storage, issue/return of the hazardous materials, and management of any resulting hazardous wastes through ultimate disposal (cradle to grave).

6.0 M/HW PROCESS FLOW OVERVIEW



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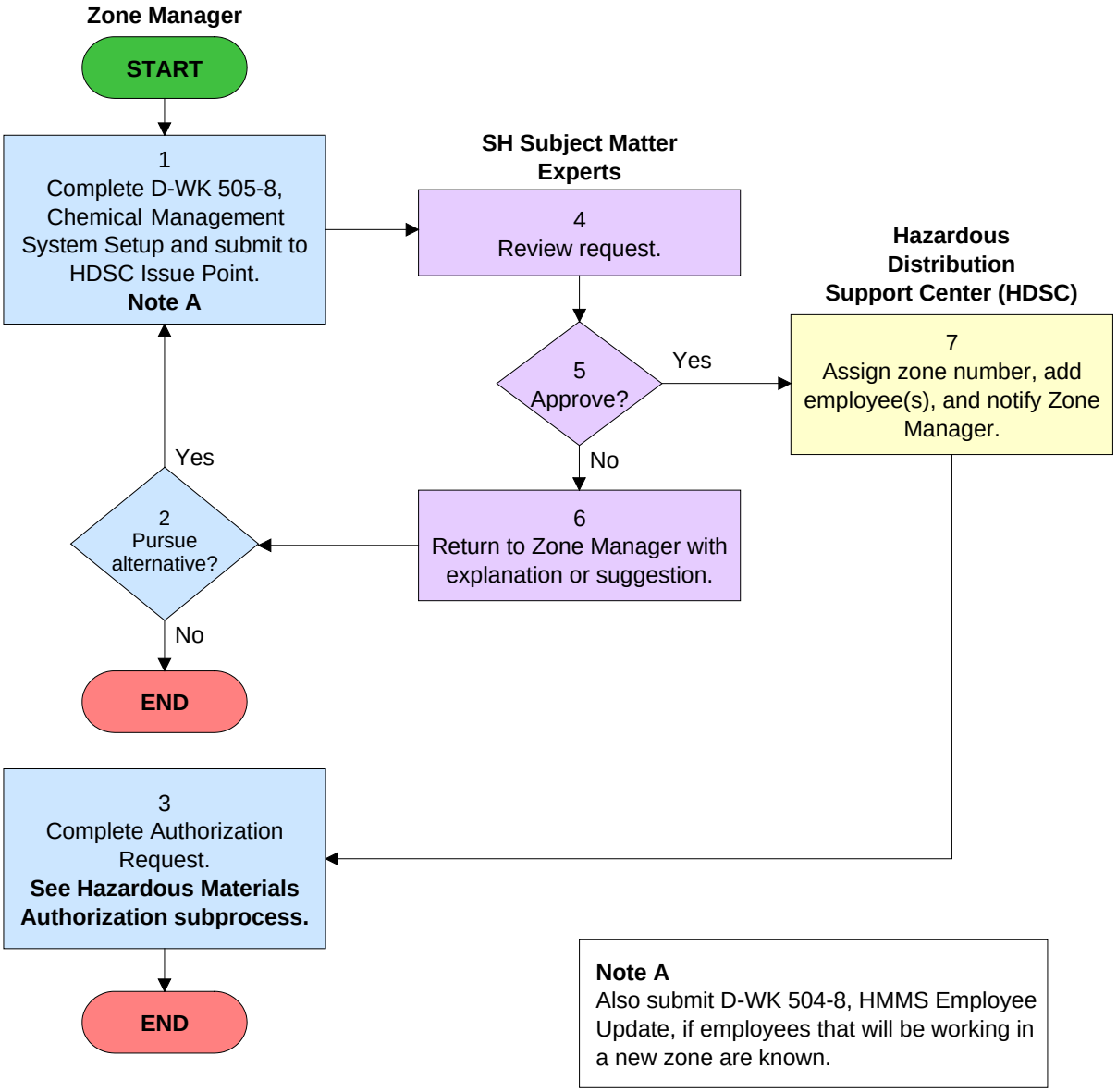
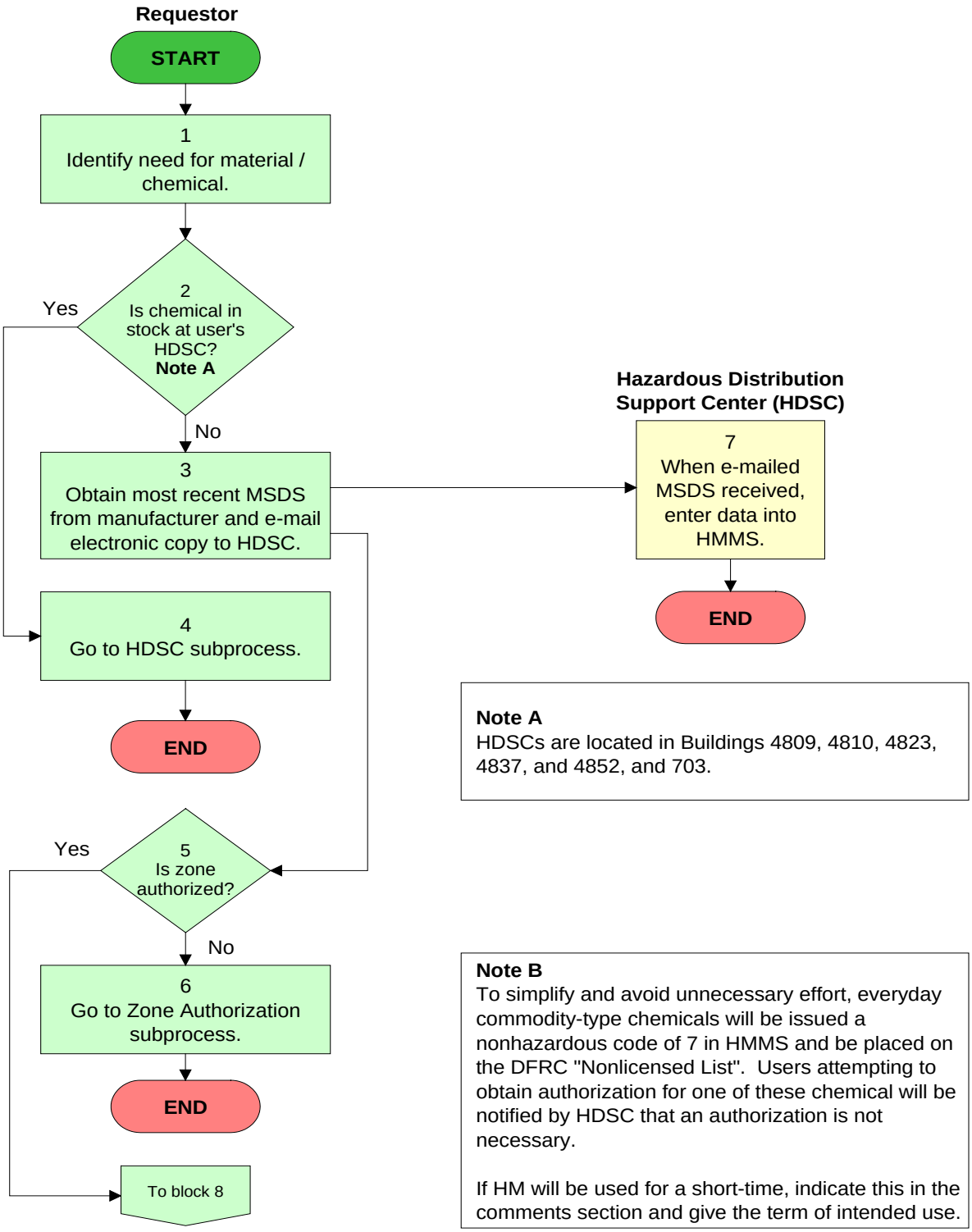
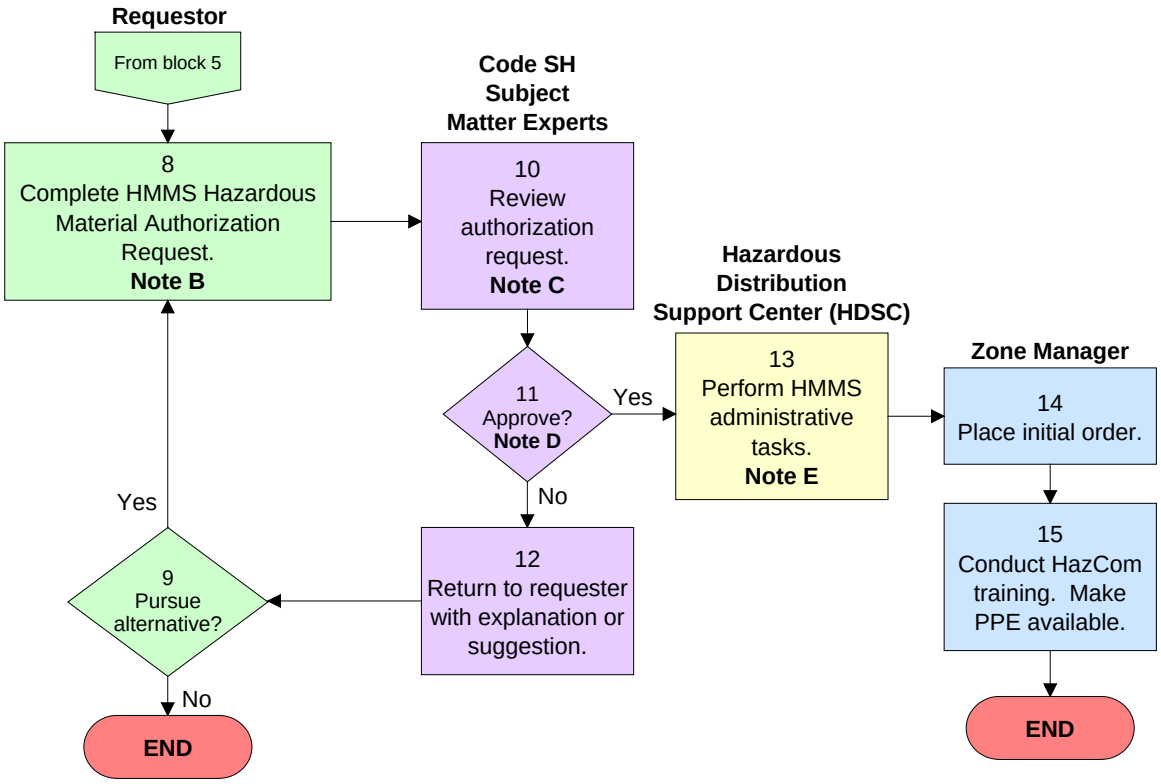
7.0 ZONE AUTHORIZATION PROCESS FLOW



8.0 HAZARDOUS MATERIALS AUTHORIZATION PROCESS FLOW





Note C
Subject Matter Experts:
-- Industrial Hygienist
-- Chem Mgmt./Pollution Prevention
-- Air Mgmt.

Experts review authorization for:
-- Suitability of workplace
-- Safety of chemical
-- VOCs/ODCs
-- Needed PPE
-- Training requirements
-- Storage requirements

Subject Matter experts may also suggest a more environmentally acceptable chemical.

IH assigns hazard code to each approved chemical.

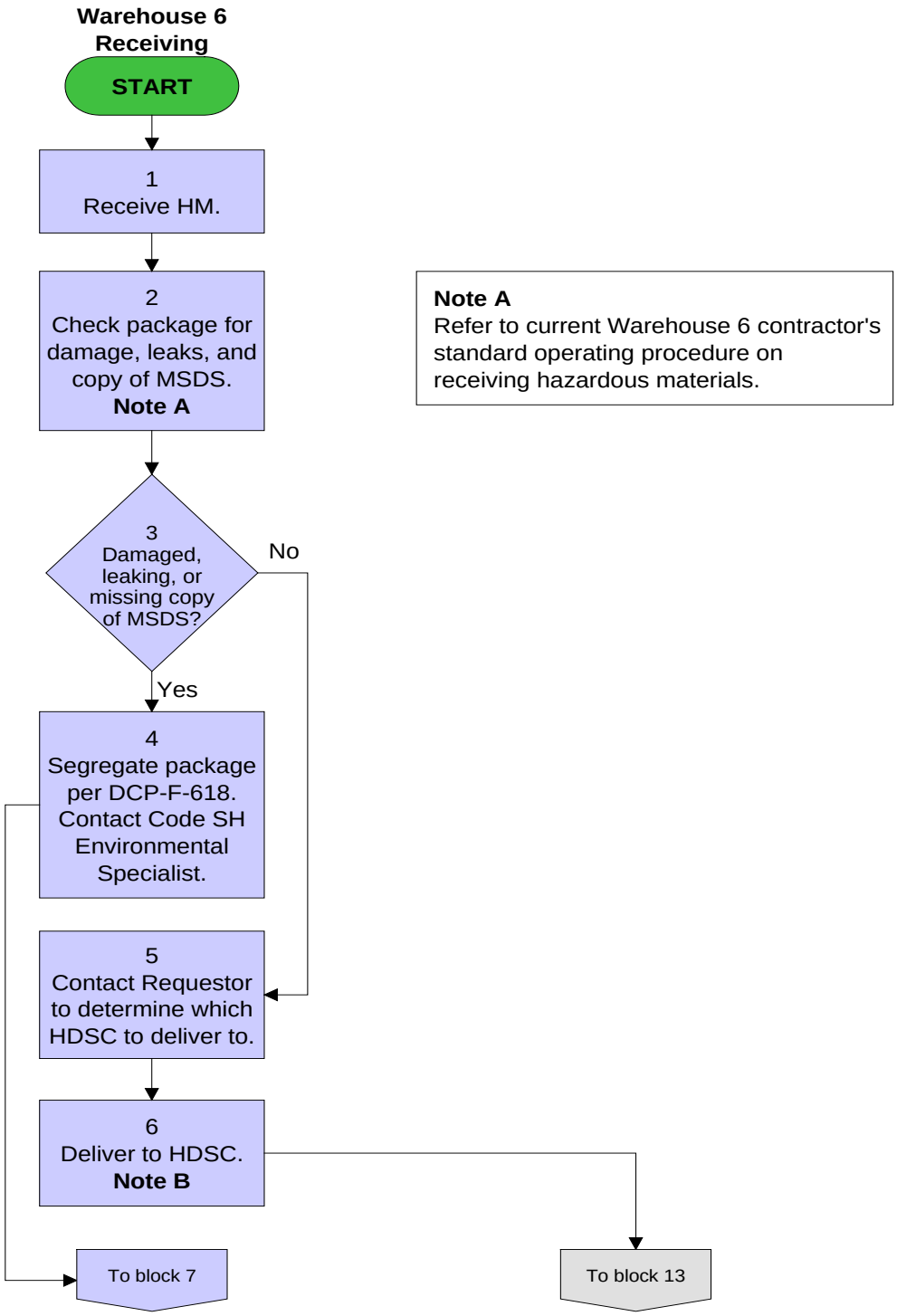
Note D
Once approved, HMMS will automatically register chemicals by placing them in the authorized use list (AUL). National Stock Number or substitute is added to zone.

Note E
HDSC also performs administrative tasks:

Long-term hazardous materials
-- Notify Zone Manager of approval to purchase, quantity, required PPE, and required training
-- Barcode
-- Restock and reorder point

Short-term hazardous materials
-- Enter AUL expiration date
-- Set restock/reorder point to zero
-- Notify user of approval, required PPE, and required training

9.0 HAZARDOUS MATERIALS MANAGEMENT PROCESS FLOW



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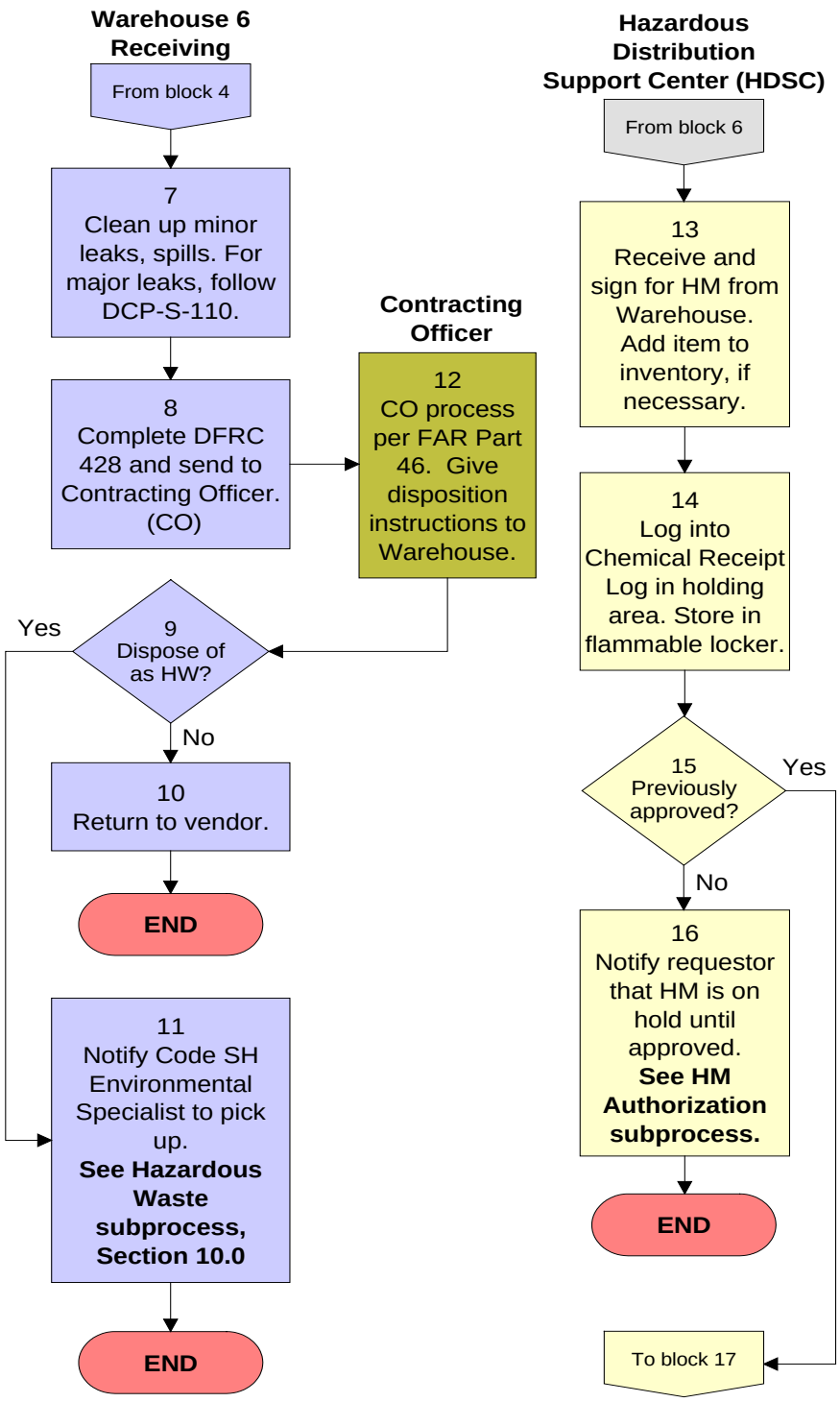
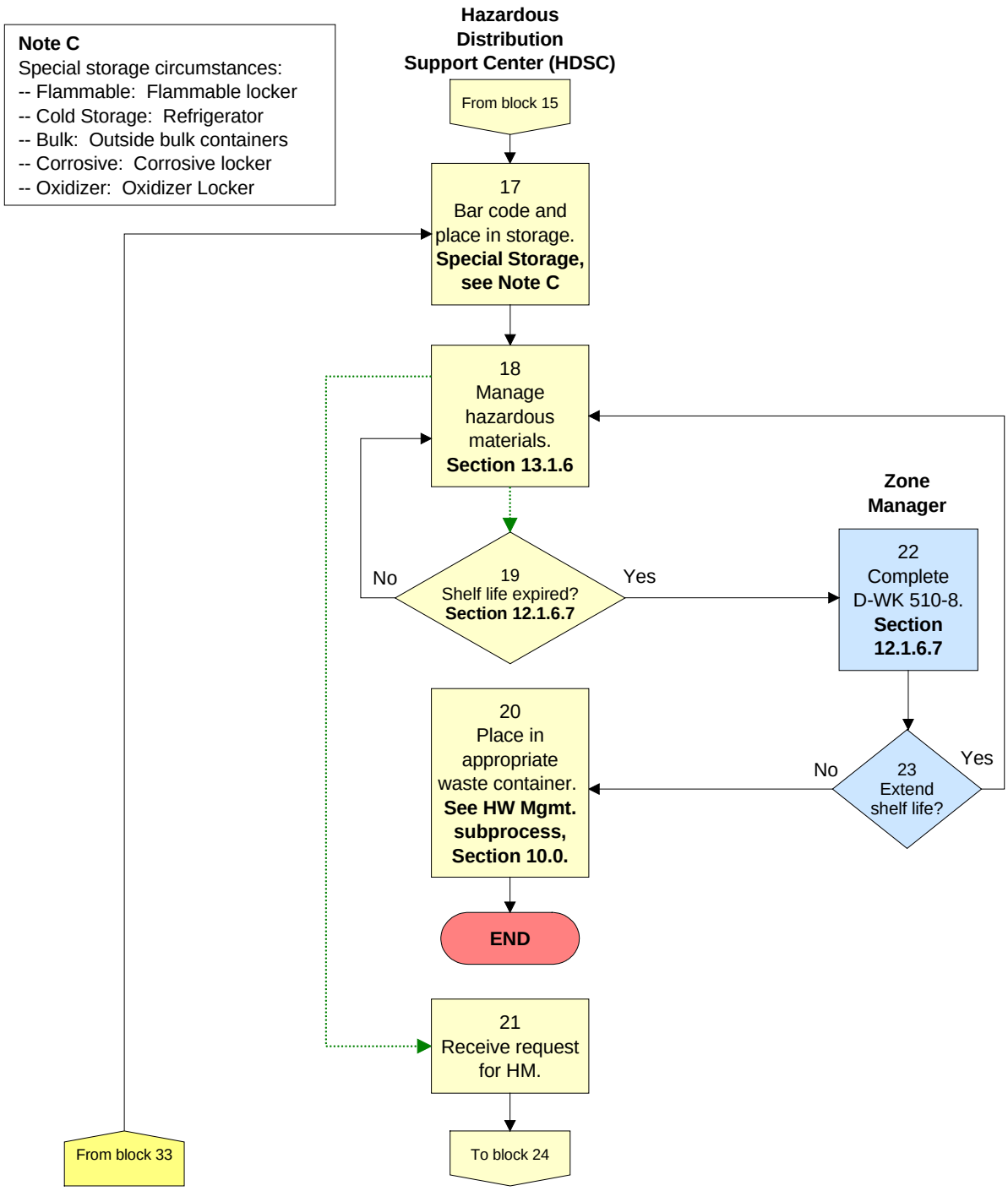

Warehouse 6 Receiving
From block 4
7 Clean up minor leaks, spills. For major leaks, follow DCP-S-110.
8 Complete DFRC 428 and send to Contracting Officer. (CO)
Contracting Officer
12 CO process per FAR Part 46. Give disposition instructions to Warehouse.
9 Dispose of as HW?
Yes
No
10 Return to vendor.
END
11 Notify Code SH Environmental Specialist to pick up. See Hazardous Waste subprocess, Section 10.0
END
Hazardous Distribution Support Center (HDSC)
From block 6
13 Receive and sign for HM from Warehouse. Add item to inventory, if necessary.
14 Log into Chemical Receipt Log in holding area. Store in flammable locker.
15 Previously approved?
Yes
No
16 Notify requestor that HM is on hold until approved. See HM Authorization subprocess.
END
To block 17



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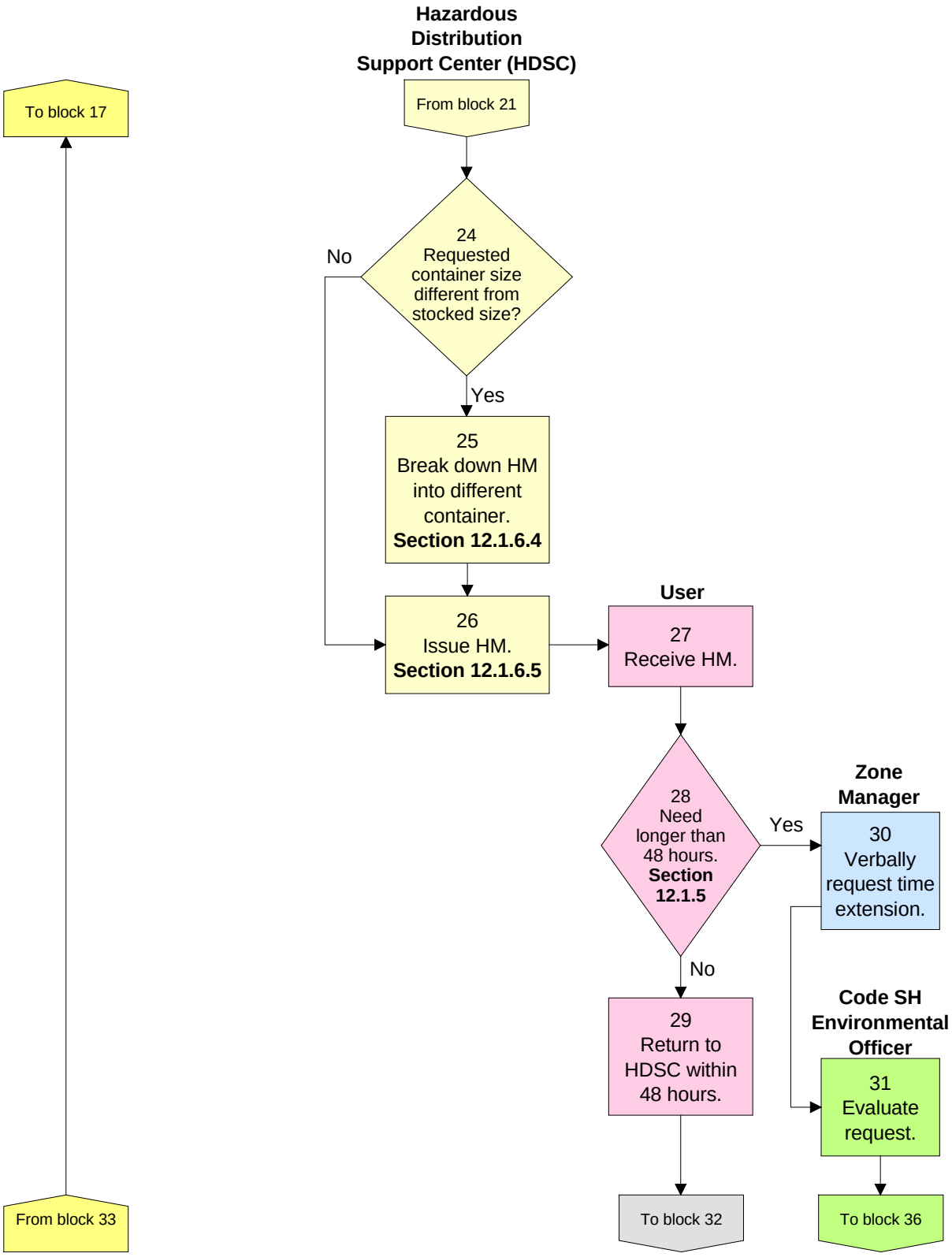
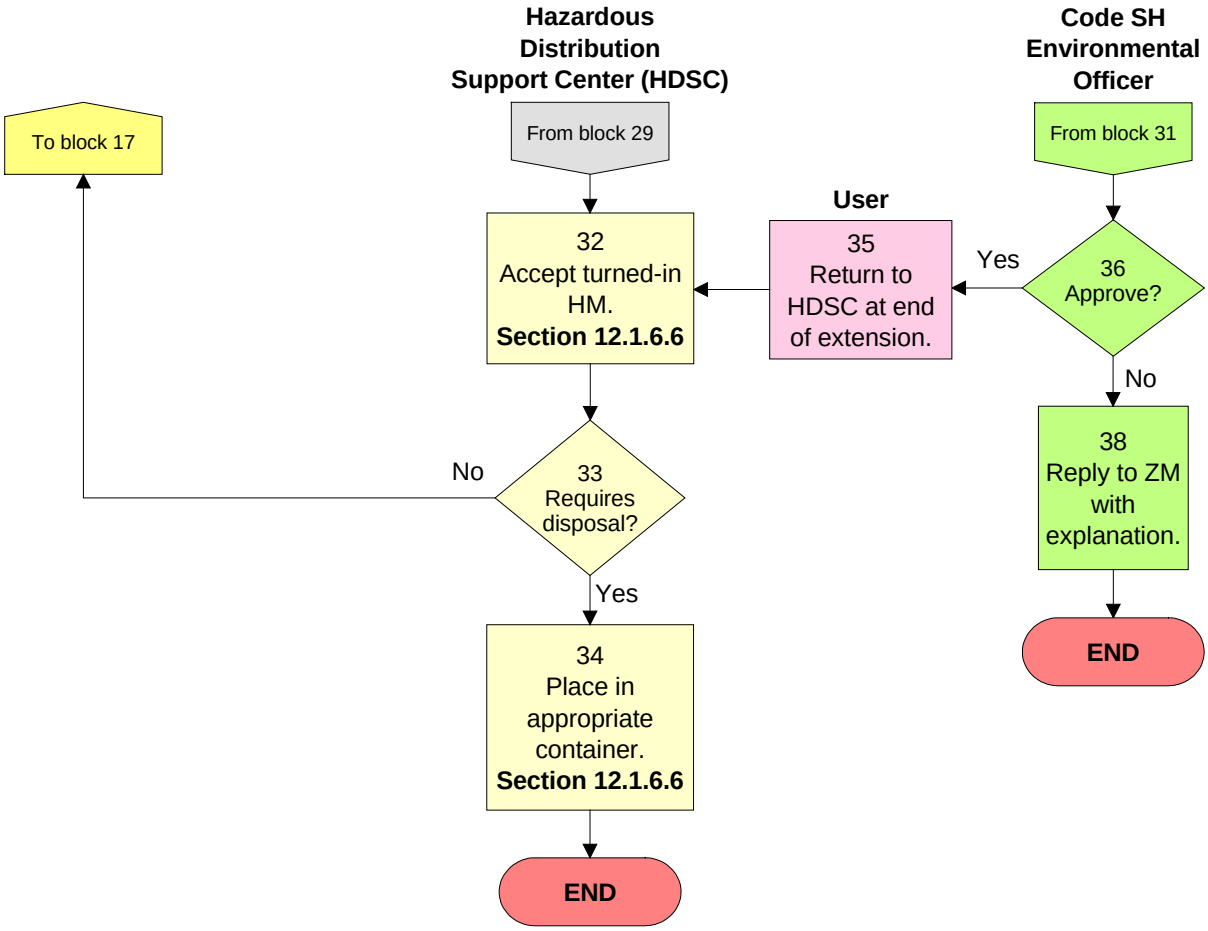
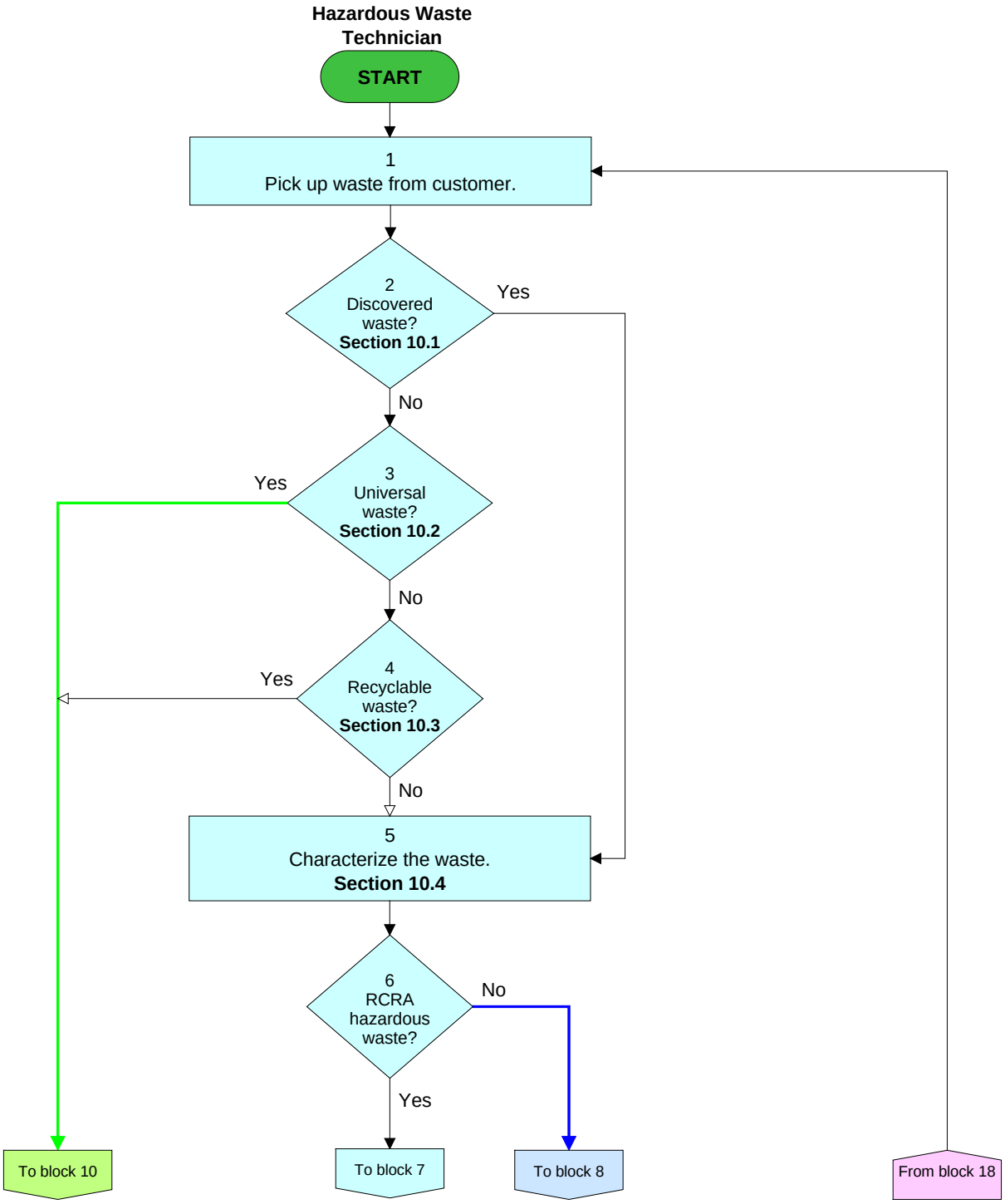
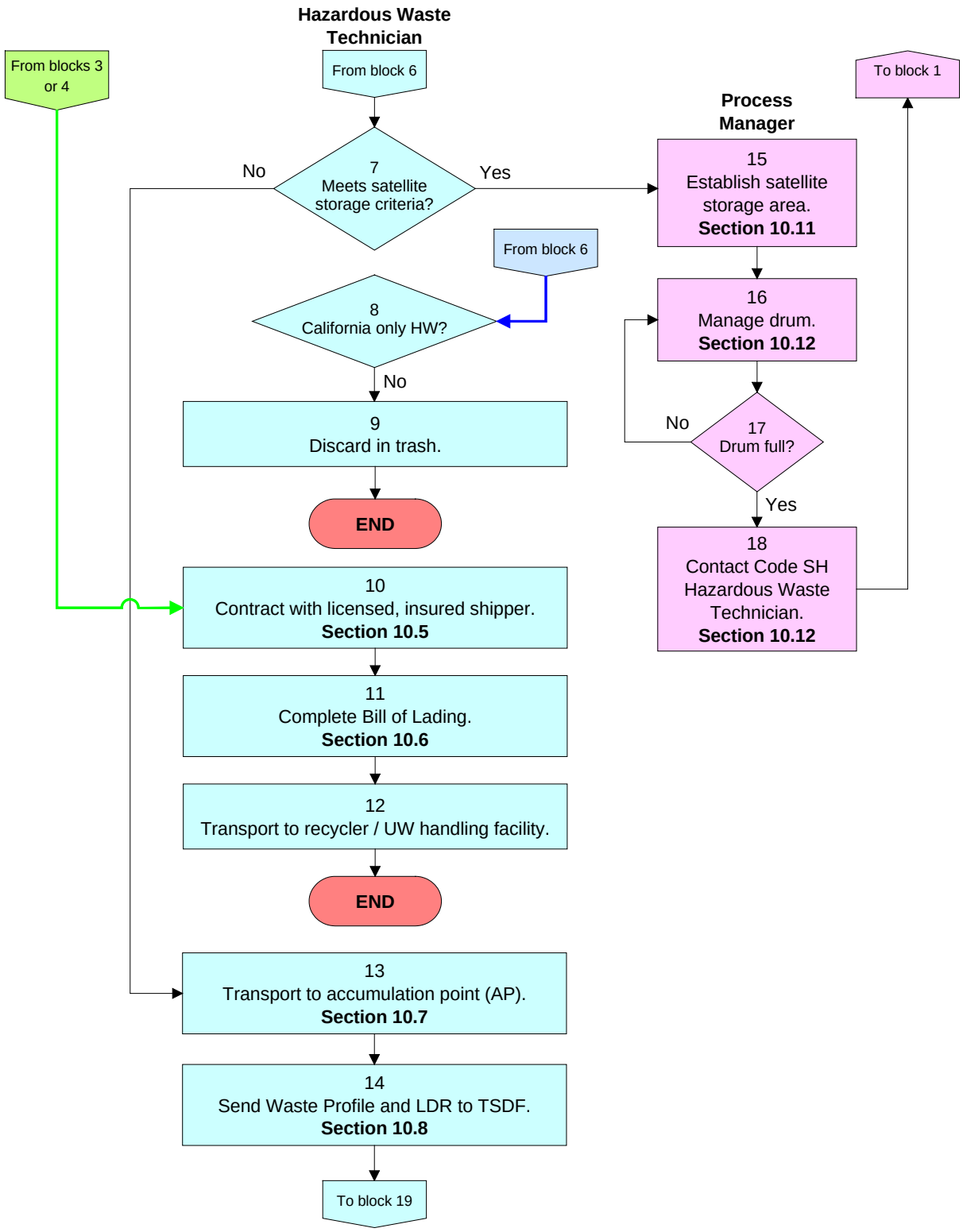
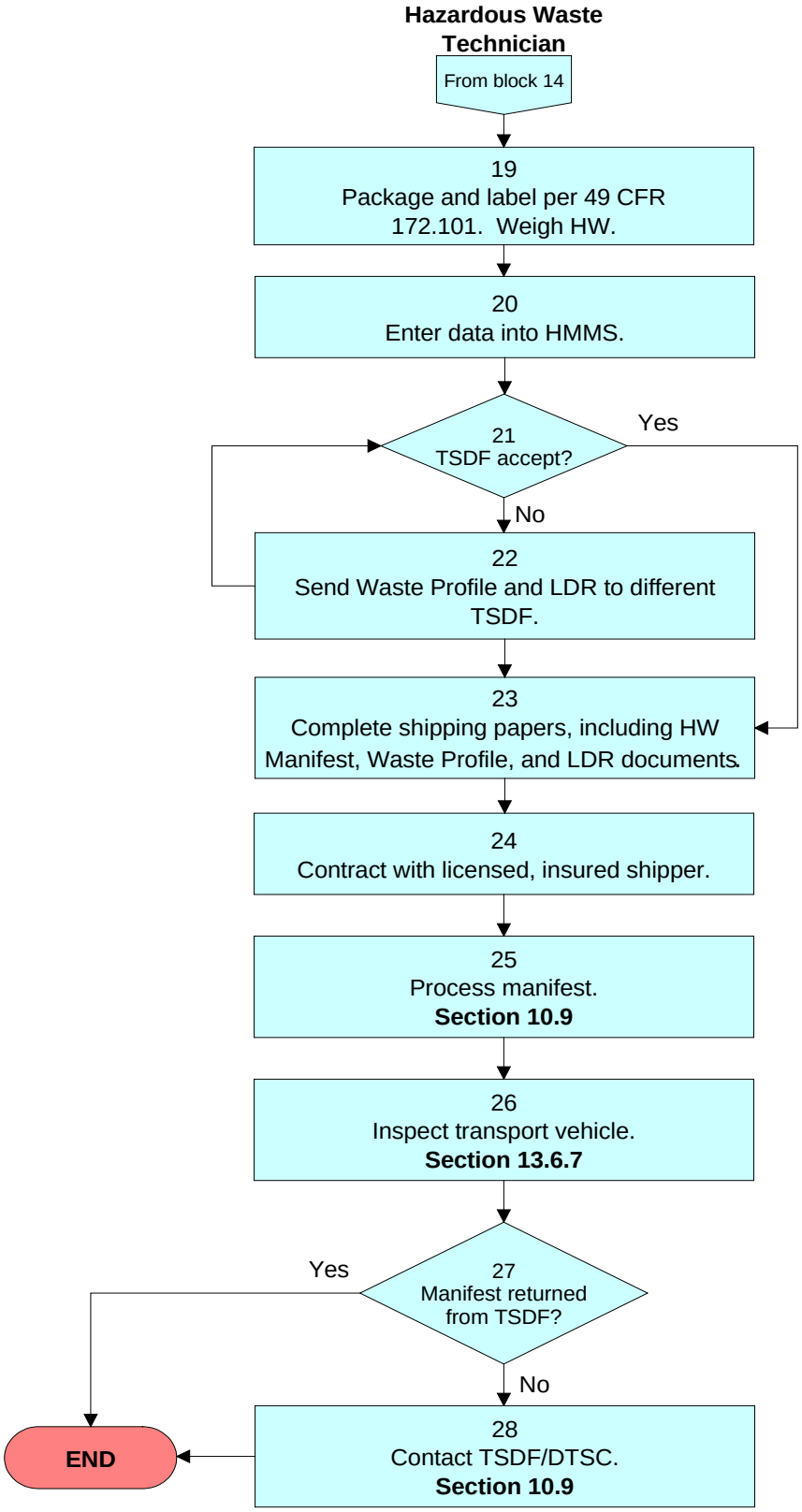

Hazardous Distribution Support Center (HDSC)
To block 17
From block 21
24 Requested container size different from stocked size?
No
Yes
25 Break down HM into different container. Section 12.1.6.4
26 Issue HM. Section 12.1.6.5
User
27 Receive HM.
28 Need longer than 48 hours. Section 12.1.5
Yes
No
Zone Manager
30 Verbally request time extension.
29 Return to HDSC within 48 hours.
Code SH Environmental Officer
31 Evaluate request.
From block 33
To block 32
To block 36


Hazardous Distribution Support Center (HDSC)
Code SH Environmental Officer
User
To block 17
From block 29
From block 31
32 Accept turned-in HM. Section 12.1.6.6
35 Return to HDSC at end of extension.
Yes
36 Approve?
No
38 Reply to ZM with explanation.
END
No
33 Requires disposal?
Yes
34 Place in appropriate container. Section 12.1.6.6
END

10.0 HAZARDOUS WASTE MANAGEMENT PROCESS FLOW




Hazardous Waste Technician
From blocks 3 or 4
From block 6
7
Meets satellite storage criteria?
No
Yes
From block 6
8
California only HW?
No
9
Discard in trash.
END
10
Contract with licensed, insured shipper.
Section 10.5
11
Complete Bill of Lading.
Section 10.6
12
Transport to recycler / UW handling facility.
END
13
Transport to accumulation point (AP).
Section 10.7
14
Send Waste Profile and LDR to TSDF.
Section 10.8
To block 19
Process Manager
To block 1
15
Establish satellite storage area.
Section 10.11
16
Manage drum.
Section 10.12
17
Drum full?
No
Yes
18
Contact Code SH Hazardous Waste Technician.
Section 10.12


Hazardous Waste Technician
From block 14
19
Package and label per 49 CFR 172.101. Weigh HW.
20
Enter data into HMMS.
21
TSDF accept?
Yes
No
22
Send Waste Profile and LDR to different TSDF.
23
Complete shipping papers, including HW Manifest, Waste Profile, and LDR documents.
24
Contract with licensed, insured shipper.
25
Process manifest.
Section 10.9
26
Inspect transport vehicle.
Section 13.6.7
27
Manifest returned from TSDF?
Yes
No
28
Contact TSDF/DTSC.
Section 10.9
END

11.0 RESPONSIBILITIES

11.1 Safety, Health, and Environmental Office, Code SH

A. Operational Controls

1) Assure the operational functions of the DFRC Chemical Management System (CMS), such as the following.

- Data quality
- Software updates
- Hazardous material user support
- Hazardous waste generator support
- Universal waste, recyclable waste recycling/reuse support
- Hazardous waste accumulation points (AP) and satellite storage area management

2) Work with customers to identify opportunities to eliminate, reduce, reuse, or recycle hazardous materials (i.e., pollution prevention) and consequently minimize the generation of hazardous waste. (Also, see DLP-8540.1-009, Pollution Prevention Plan.)

3) Review Chemical Authorization Requests in HMMS, project documents, and procurement documents for health, safety, HM management requirements, and pollution prevention opportunities.

4) Evaluate hazardous materials to determine if they can be reused or must be declared a waste.

5) Evaluate wastes to determine if they are HW. When necessary, complete waste profiles using process knowledge and/or laboratory analysis.

6) Evaluate new waste streams to determine if the end products are hazardous.

7) Ensure that all containers previously holding hazardous materials are empty according to California standards prior to disposal.

8) Arrange for the shipping of recyclable hazardous materials to the appropriate permitted facility.

9) Perform periodic inspections of chemical issue points and locations where hazardous materials are used.

10) Maintain DFRC's Certified Unified Program Agency (CUPA) permit issued by the Kern County Environmental Health Service and annually update the Business Plan.

11) Track quantities of hazardous waste generated to determine the applicability of California's Hazardous Waste Source Reduction and Management Review Act (SB-14). Complete required reports and implement source reduction measures as necessary.

12) Conduct and document weekly and/or daily inspections, as required, of all hazardous waste accumulation points.

13) Maintain required AP management documents (Inspection logs, Contingency Plan, and this document, which includes the written Training Plan).

14) Ensure that hazardous waste is packaged in accordance with U.S. Department of Transportation (DOT) requirements before shipment.

15) Ship hazardous wastes to a permitted treatment, storage, or disposal facility (TSDF) within 90 days of the earliest date of generation, inspect vehicle for required placards, shippers name plate, and driver's HW rider on license.

16) Ensure that each shipment of hazardous waste is accompanied by a completed Uniform Hazardous Waste Manifest (manifest). Include the required Land Disposal Restriction (LDR) notification unless it is already on file at the TSDF.

17) Ship universal wastes (e.g., fluorescent lamps, batteries [except lead-acid automotive type], mercury thermometers, electronic components), and drained used oil filters to a permitted facility within one year of generation.

18) Submit the blue copy of each hazardous waste manifest to DTSC within 30 days of the shipping date. Ensure that a copy of each manifest is signed and returned by the TSDF to DFRC within 30 days of the date of shipment. Submit an exception report to DTSC if the TSDF copy is not received within 45 days of the shipment date.

19) Arrange for analysis of wastes suspected to contain PCBs to determine if they contain levels that subject them to regulation as PCB wastes.

20) Assure that fluorescent light ballasts are managed as hazardous waste unless they are marked by the manufacturer as not containing PCBs.

21) Maintain, and keep supplied, spill control kits at appropriate locations throughout the Center.

22) Arrange for the payment of the following fees.

- Business Emergency Plan and Chemical Inventory fee paid to Kern County Environmental Health Services
- Hazardous Waste Disposal fee paid to DTSC
- Hazardous Waste Manifest fee paid to DTSC

23) Retain the records listed in Section 18.0 of this document.

24) Conduct HMMS administrative and maintenance tasks.

B. Communication

1) Coordinate hazardous material/waste management issues within DFRC and serve as point of contact with the following external agencies and organizations.

- US Environmental Protection Agency (US EPA)
- US Department of Transportation (DOT)
- National Response Center
- California Environmental Protection Agency – Department of Toxic Substances Control (DTSC)
- California Office of Emergency Services
- California State Water Resources Control Board – Lahontan Region (LRWQCB)
- California State Board of Equalization
- Kern County Environmental Health Services
- NASA Headquarters Environmental Management Division (NASA EMD)
- Air Force Flight Test Center/Environmental Management (AFFTC/EM)
- Edwards Air Force Base (AFB) Fire Department
- Los Angeles County Fire Department

2) Immediately submit a verbal notification to Center Management, the California Office of Emergency Services, LRWQCB, and AFFTC/EM when hazardous material/waste is released to groundwater or is in excess of a state reportable quantity. Releases exceeding a Federal reportable quantity will also be reported to the National Response Center.

3) Within 10 business days, follow up verbal hazardous material release notifications with a written report (in the prescribed format) to the agencies initially notified.

4) Coordinate with Code F and EAFB to evaluate the use of pesticides.

5) Submit (by March 1st of each year) an updated version of the DFRC Business Emergency Plan and Chemical Inventory to the Kern County Environmental Health Services, Los Angeles CUPA, Los Angeles County Fire Department, and the Edwards AFB Fire Department.

6) Check periodically the quantities of HM used at the Center and if the regulatory threshold is exceeded, submit (by July 1st of each year) a Toxic Release Inventory Report to the US EPA and the DTSC for Emergency Planning and Community Right-to-Know Act Section 313 chemicals stored, used, or released at DFRC in excess of threshold quantities.

7) Provide updates, as requested, of the Edwards AFB Spill Prevention, Control, and Countermeasure Plan (SPCCP) to AFFTC/EM. (This includes the DFRC aboveground storage tank list for the LRWQCB Storage Statement (due by July 1st of even numbered years.)

8) Provide updates, as requested, of the Edwards AFB Storm Water Pollution Prevention Plan (SWPPP) to AFFTC/EM.

9) Submit California Hazardous Waste Source Reduction and Management Review Act (SB-14) Reports to DTSC every four years if more than the threshold of applicable hazardous waste is generated.

10) Submit a biennial hazardous waste report to DTSC by March 1 of each even numbered year.

C. Documentation/Document Control

1) Maintain the following plans:

- DFRC Business Emergency Plan and Chemical Inventory
- DFRC Pollution Prevention Plan
- Required HW Contingency plan

2) Retain copies of the following plans

- Edwards AFB Pest Management Plan
- Edwards AFB SPCC Plan

- Prepare and submit the following reports by regulatory required dates:
  - Biannual HW Report
  - Assembly Bill 2588 Toxic Hot Spots Report

D. Training

1) Hazardous Material/Waste Technicians must maintain a Hazardous Waste Operator Emergency Responder (HAZWOPER) certification (required – initial 40 hour and annual 8-hour refresher).
2) Obtain training on Department of Transportation (DOT) regulations (required for Hazardous Material/Waste Technicians and Environmental Officer every three years).
3) Attend Hazardous Waste in California (CCR 22) training annually (Hazardous Waste Technicians).
4) Assist Supervisors in fulfilling their Hazard Communication responsibilities as required by DCP-S-009, Safety & Health Requirements Manual, Chapter 9 (required – as needed).
5) Provide Chemical Management System (CMS) training, including HMMS training, to Hazardous Distribution Support Center (HDSC) issue point attendants (required – initial and as needed).
6) Provide Spill Prevention, Control, and Countermeasures Plan (SPCCP) training to personnel whose job activities may result in a chemical release (required – annually).
7) Provide Storm Water Pollution Prevention Plan (SWPPP) training to personnel whose job activities may affect storm water quality (recommended – annually).

E. Emergency Preparedness and Response

1) Maintain Spill Response Station supplies.
2) Act as On Scene Commander for hazardous material/waste releases that require an emergency response because they cannot be contained and cleaned up by the immediate user.
3) Assist hazardous material users for releases that cannot be contained and cleaned up within the limits of the user's Hazard Communication training or the areas spill response station capacity.
4) Assist AFFTC spill responders for hazardous material/waste releases that cannot be contained and cleaned up within the limits of DFRC resources.
5) Report spills or releases of HM or HW as required by 22 CCR and 40 CFR, and to upper DFRC management.

6) Prepare and submit follow-up written spill reports as required by California HSC Division 20, Chapter 6.95.

11.2 Logistics Management Branch, (Warehouse 6, Code F)

A. Operational Controls

1) Inspect incoming hazardous material shipments when they are received at the warehouse, and deliver them only to the authorized HDSC.

2) Do not release hazardous materials from the warehouse that are not properly labeled, are in a leaking container, or are not accompanied by an MSDS.

3) Segregate damaged, leaking, or mislabeled HM, contact Code SH Environmental Specialist, following DCP-F-618.

4) Ensure HM going to store or program stock are coded as HM in the NSMS database

B. Communication
Immediately notify Code SH Environmental Specialist and Contracting Officer of any release of HM, or leaking or damaged HM containers.

C. Documentation/Document Control
Become informed of the location of and are familiar with MSDSs for all HM used in your workplace.

D. Training

1) Attend Hazard Communication training (per DCP-S-009, Safety & Health Requirements Manual, Chapter 9) before handling hazardous materials (required – initial and as needed).

2) Attend Storm Water Pollution Prevention Plan (SWPPP) training provided by Code SH (recommended – annually).

3) Ensure that you have reviewed and are familiar with your responsibilities under DCP-S-110, Emergency Preparedness and Response for Hazardous Material Releases.

4) Ensure you have received appropriate PPE training (from supervisor or IH) before using PPE required by MSDSs.

E. Emergency Preparedness and Response

1) Call 911 immediately to report a hazardous material release when the cleanup effort is beyond your Hazard Communication training (see DCP-S-009, Safety & Health Requirements Manual, Chapter 9

and DCP-S-110, Emergency Preparedness and Response for Hazardous Material Releases).

2) Notify Code SH Environmental Technician if supplies in spill response (SR) station become low.

11.3 Hazardous Material Users
(e.g., Codes F, O, M, P, R)

A. Operational Controls

1) Work with Code SH to identify opportunities to eliminate, reduce, reuse, or recycle hazardous materials (i.e., pollution prevention) and consequently minimize the generation of hazardous waste.

2) Submit Hazardous Material Request (form D-WK 506-8) to Code SH for purchase approval of any potentially hazardous material, including purchases using purchase cards (reference DCP-A-007, Purchase Card Process). All requests must be accompanied by the manufacturer's most recent MSDS.

3) Use hazardous materials, while wearing the proper personal protective equipment, in the zone(s) and in the manner for which they are authorized through the Chemical Management System (CMS).

4) Clean up hazardous material releases within the limits of Hazard Communication training (see DCP-S-009, Safety & Health Requirements Manual, Chapter 9) or the capacity of the spill response station.

5) Return unused hazardous materials and empty containers to the HDSC they were issued from within 48 hours of issuance, or, in special circumstances, obtain a waiver from Code SH Environmental.

6) Coordinate with the HDSC attendant to place recyclable hazardous materials (e.g., used oils and lubricants, recovered aircraft fuel) in designated storage containers.

B. Communication

1) Request CMS training from Code SH Environmental, as needed.

2) Immediately notify Code SH Environmental of any release of hazardous materials.

C. Documentation/Document Control

1) Retain a copy of the Edwards AFB Pest Management Plan (Code F Maintenance).

2) Become informed of the location of and become familiar with MSDSs for all HM used in your workplace

D. Training

1) Attend Hazard Communication training (per DCP-S-009, Safety & Health Requirements Manual, Chapter 9) before handling hazardous materials (required – initial and as needed).

2) Attend Spill Prevention, Control, and Countermeasures Plan (SPCCP) training as requested by Code SH (required – annually).

3) Attend Storm Water Pollution Prevention Plan (SWPPP) training as requested by Code SH (recommended – annually).

4) Ensure that you have reviewed and are familiar with your responsibilities under DCP-S-110, Emergency Preparedness and Response for Hazardous Material Releases.

E. Emergency Preparedness and Response – Call 911 immediately to report a hazardous material release when the cleanup effort is beyond your Hazard Communication training (see DCP-S-009, Safety & Health Requirements Manual, Chapter 9 and DCP-S-110, Emergency Preparedness and Response for Hazardous Material Releases).

11.4 Supervisors of Hazardous Material Users (Zone Managers) & Satellite Storage Area Managers

A. Operational Controls

1) Ensure that only trained persons with appropriate protective equipment use hazardous materials in the zone(s) and in the manner for which they are licensed through the Chemical Management System (CMS).

2) Ensure that contracts require hazardous materials/wastes to be managed according to this procedure.

3) Establish new HM use zones or new HM following this procedure, as required.

4) Unsure that all HM containers used in zones are kept closed and secured when not in use, stored properly when not in use, and properly labeled at all times.

5) Ensure that satellite storage areas within your area of responsibility are managed as outlined in this procedure.

6) Ensure that all HM or potentially hazardous material used within your area of responsibility have been approved within the CMS and are being managed by this procedure, including items purchased using purchase cards and short-term HM.

7) Work with the HDSC attendant in extending the shelf life of HM, where appropriate.

B. Communication

1) Request assistance, as necessary, from the Code SH Industrial Hygienist (IH) in fulfilling Hazard Communication responsibilities as required by DCP-S-009, Safety & Health Requirements Manual, Chapter 9.

2) Provide immediate updates to employee chemical use zone assignments (new or departing employees) to Code SH using the CMS Employee Update form (D-WK 504-8).

3) Notify Code SH Environmental when any hazardous waste is generated or satellite storage drum is full, or within 270 days of the accumulation start date listed on the drum.

C. Documentation/Document Control

Maintain Hazard Communication training records for all required personnel.

D. Training

1) Ensure that employees who use or may be exposed to hazardous materials receive Hazard Communication training (per DCP-S-009, Safety & Health Requirements Manual, Chapter 9) and this procedure before handling hazardous materials (required – initial and as needed).

2) Ensure that HM users within zones have reviewed and are familiar with their responsibilities under DCP-S-110, Emergency Preparedness and Response for Hazardous Material Releases.

3) Ensure that all zone personnel using PPE have received appropriate training from you or the Code SH IH.

E. Emergency Preparedness and Response
Call 911 immediately to report a hazardous material release when the cleanup effort is beyond your Hazard Communication training. (See DCP-S-009, Safety & Health Requirements Manual, Chapter 9, and DCP-S-110, Emergency Preparedness and Response for Hazardous Material Releases.)

11.5 Hazardous Distribution Support Center (HDSC) Issue Point Attendants

A. Operational Controls

1) Work with Code SH and hazardous material users to identify opportunities to eliminate, reduce, reuse, or recycle hazardous

materials (i.e., pollution prevention) and consequently minimize the generation of hazardous waste.

2) Perform HM receiving, issuing, and inventorying tasks.

3) Ensure that all HM containers are in good condition, compatible with the materials stored in them, kept closed and secured during storage, and properly labeled.

4) Break down bulk hazardous materials into units of common usage as necessary.

5) Ensure that Chemical Management System (CMS) tracking labels are attached to all hazardous material containers prior to issue.

6) Issue hazardous materials only to personnel who are authorized for that HM and assigned to an authorized zone through the CMS, and have the relevant training for the use of the material.

7) Monitor hazardous materials for shelf life expiration and coordinate with the Zone Managers for shelf life extension, if desired. Assist ZM in completing form D-WK 510-8.

8) Receive unused/unneeded hazardous materials or empty containers, store in proper container, and notify Code SH HW Technician for disposal.

9) Restock hazardous materials as appropriate (e.g., within shelf life, containers in good condition, and properly labeled).

10) Complete form D-WK 751-8, Hazardous Waste and Hazardous Material Turn-in Document and obtain the MSDS for hazardous materials that cannot be restocked.

11) Clean up hazardous material releases within the limits of Hazard Communication training. (See DCP-S-009, Safety & Health Requirements Manual, Chapter 9.)

B. Communication

1) Forward Hazardous Material Request (form D-WK 506-8) and associated MSDSs to Code SH SMEs for review and approval.

2) Provide an MSDS to the customer the first time they are issued a hazardous material and upon request.

3) Contact Code SH Environmental Specialist when assistance is necessary to determine if a hazardous material can be restocked.

4) Assist customers with HM procedural or usage questions.

C. Documentation/Document Control

1) Maintain an MSDS for all hazardous materials in the HDSC.

2) Ensure HMMS records are kept up-to-date.

D. Training

1) Attend Hazard Communication training per DCP-S-009, Safety & Health Requirements Manual, Chapter 9, before handling hazardous materials (required – initial and as needed).

2) Attend Code SH training on the use of the Chemical Management System (CMS) (required – as needed or as requested by Code SH).

3) Obtain HMMS MSDS Date Entry training.

4) Obtain HMMS Issue Point and Receiving training.

5) Review and become familiar with responsibilities under DCP-S-110, Emergency Preparedness and Response for Hazardous Material Releases.

6) 6) Central HDSC issue point attendant: Attend HMMS POC and/or Users Workshop as requested by the Environmental Officer

E. Emergency Preparedness and Response

1) Call 911 immediately to report a hazardous material release when the cleanup effort is beyond Hazard Communication training (See DCP-S-009, Safety & Health Requirements Manual, Chapter 9 and DCP-S-110, Emergency Preparedness and Response for Hazardous Material Releases).

2) Notify Code SH Environmental after a minor spill has been cleaned up (this is for recordkeeping purposes).

3) Ensure the spill response station supplies are maintained in good order. Contact the Code SH Environmental Technician for resupply.

11.6 Contracting Officer, Code A

A. Operational Controls
Assist Warehouse 6 with processing D-WK-428-6, Incoming Inspection Status Report

B. Communication

1) Contact manufacturer for information on disposition of damaged HM

2) Inform Warehouse 6 of method of disposition

C. Documentation/Document Control
None

D. Training
None

E. Emergency Preparedness and Response
None

12.0 HAZARDOUS MATERIALS MANAGEMENT PROCESSES

By definition, hazardous materials include the hazardous raw material or manufactured product and the resulting hazardous waste. Therefore, both will be discussed in this section.

12.1 Hazardous Materials

Hazardous materials are managed at DFRC by a method commonly called the Pharmacy System. The key elements of this system include strict control of hazardous materials starting when they are first contemplated for use, through purchasing, receiving, storage, issuing for use, use at the Center, and finally the disposition of residual materials and containers (See Hazardous Material Authorization, Hazardous Material Management, and Hazardous Material Receiving Sub Process flow charts.)

12.1.1 Obtaining Authorization

There are three types of authorizations: use zone, HM, and short-term use. In addition, users must obtain authorization to use specific HM. The Zone Manger (ZM) obtains a user authorization when a use zone is established or when a new employee is added to an existing use zone.

12.1.1.1 Zone

DFRC has been divided into HM use zones, which segregate specific processes or shops where HM are used. Individual HM are authorized for use in assigned zones only, and only authorized personnel within a zone are allowed use of the HM. The Zone Manager (ZM) establishes a use zone following the procedure described in the Zone Authorization Sub Process flow chart. Note that individual use zones will be established for HM with hazard classes C, E, or M, (see Section 12.2 for a description of hazard classes) and the ZM

should ensure that only employees that must use the HM are attached to these zones.

12.1.1.2 Hazardous Material

A material is considered hazardous based upon its potential to harm human health or the environment. This determination is made by Code SH subject matter experts (SME) in the environmental, safety, and health disciplines (See Hazardous Material Sub Process flow chart) as part of the screening process. The process starts when a Zone Manager contemplates purchasing a HM for use. The process is as follows (refer to the Hazardous Material Management subprocess flow chart):

A. The Zone Manager fills out a HM Authorization Use Request (AUR) form in the Hazard Material Management System (HMMS) software and attaches a copy of the manufacturer's Material Safety Data Sheet, which is then electronically distributed to the SMEs for review. The ZM needs to identify the specific users within the use zone that need authorization to use the HM and the maximum quantity that the users will need for any shift.

B. In reviewing the AUR, SMEs perform the following tasks:

- Ensure that the HM can be used safely within the proposed zone, to include radiation, noise, etc.
- Evaluate the appropriateness of the HM for the zone environment
- Determine spill potential
- Assign a Hazard Class to the HM (done by the IH SME, following IEX Coding Criteria)
- Identify any needed PPE or controls using the latest ACGIH Threshold Limit Values (TLV), BEIs TLVs for Chemical Substance and Physical Agents and Biological Exposure Indices, NIOSH Pocket Guide to Chemical Hazards, and the Quick Selection Guide to Chemical Protective Clothing (Ref: Code SH Industrial Hygiene Hazardous Materials Request Review Procedures, 8/21/2006)
- Identify any unique training requirements
- Research alternative HM that may be safer to use or that are more environmentally friendly and propose the alternatives to the proponent

- Include the Radiation Safety Officer in the review if the request involves radioactive materials

C. If the SMEs approve the HM for use in the zone, the ZM is sent an Authorized Use List form in HMMS. The AUL will identify any needed PPE. It is the ZM's responsibility to obtain the PPE and either conduct or arrange for the needed training (DCP-S-009 Chapter 9, HAZCOM training at a minimum), including training on usage of any required PPE.

D. At the same time, the HDSC issue point attendant will input the remaining MSDS data into HMMS, input the users requested by the ZM into the Authorized User field for that zone, and, after consultation with the ZM, input the reorder point and the reorder quantity.

E. If the HM is not authorized, the ZM will be notified with reasons or recommendations for a more environmentally preferable substitution. At this point, the ZM may resubmit a new HM AUR using a different HM.

12.1.1.3 Short-term Use of HM

If a user intends to use a HM for only a short-term, single use, such as for a construction project, experiment, or test, it is possible to obtain an authorization for this short-time use that will minimize the complexity of managing the HM. To obtain the short-term use authorization, the requester must complete the HM AUR form in HMMS (refer to the HM Authorization subprocess flow chart). In the comments section, add:

- The term of intended use at DFRC, in days
- The use zone the material will be used in
- Supply a current MSDS

The following completes the process:

- Once the AUR is approved, the HDSC attendant will set the AUL expiration date to match the period requested, the reorder point to zero, and the requestor will be notified
- The user must then bring the authorized HM to the HDSC to be processed into the CMS as normal (weighed, bar-coded, labeled, etc.)

- The user is then free to take the HM to the workplace (note storage and usage requirements, below)
- Once the project is completed, the user will bring the empty or partially empty containers back the HDSC for normal processing
- If the use was for an Airborne Sciences experiment or test, the user must then remove the residual HM and/or empty containers from DFRC and return them to the point of origin

Following is the criteria that will be used in evaluating requests for short-term use:

- The request can only be granted if the HM will be at DFRC for less than 60 days and only if it will be used in an authorized HM Use Zone
- The user must agree to store and use the HM following the manufacturer's and DFRC's health and safety requirements
- The user must receive DCP-S-009 Chapter 9, Hazcom training on the safe use of the HM, obtain all required PPE, receive any required training, and use required PPE
- The user must follow any special requirements prescribed by Code SH, e.g., following the DC-8 Airborne Laboratory Experimenters Handbook
- The user must agree to deliver the HM to the HDSC and return all containers, including empties, to the HDSC when the short-term project is complete
- The user must notify Code SH Environmental Technician to pick up any HW that is generated
- The user must remove all unused HM and containers to the user's origination point

If the project must be extended or if the user needs to bring additional HM (in excess of the original authorization) onto DFRC, contact the Central HDSC for instructions.

12.1.2 Hazardous Material Receiving (Warehouse 6)

All hazardous materials must be processed through Warehouse 6 - users may not receive hazardous materials directly from a vendor.

A. *When HM is received at the warehouse, it must be inspected to ensure* that the container is not damaged or leaking and that there is a manufacturer's MSDS. If there is a problem with the shipment (leaking or damaged container, no MSDS, etc.), contact the Code SH Environmental Specialist and submit form D-WK-428-6, Incoming Inspection Status Report, to the Contracting Officer. If the leaking material can be cleaned up, follow spill procedures. Code SH will assist with repackaging (overpack) the material for disposition/return to manufacturer. If the leak is beyond the capabilities or training of warehouse staff, call 911.

B. All HM is required to go directly to one of the HDSCs at the Center. No *HM* may be delivered to any other location.

12.1.3 Stock Replenishment

After a HM has been authorized, the ZM makes the initial purchase. Subsequent purchases will be initiated by a notification from HMMS to the ZM that the reorder point has been reached. The ZM will determine if the HM is still needed. The ZM will also adjust the reorder point and reorder quantity when necessary

12.1.4 Zone Management

When the ZM receives notification from HMMS that a HM has been authorized, the ZM may then initiate the first purchase of the HM. In addition, the ZM must:

A. Ensure that only the minimum number of users are authorized to use a HM necessary to perform the mission tasks

B. Ensure that the MSDS and PPE is available to all employees that may come into contact with the material

C. Ensure that needed PPE is available in appropriate sizes for all authorized users and that appropriate PPE training, including specialized PPE training, e.g., respirator use, is given (schedule with Code SH IH Office)

D. Ensure (or if the supervisor, conduct) DCP-S-009, Chapter 9, HAZCOM training for all employees that will come into contact with the material

E. Ensure that daily use and special circumstance materials are stored properly when not in use

F. Notify the HDSC attendant when authorized employees leave the zone and when new employees are attached to the zone (this is so that HMMS may be updated)

As required by DCP-S-009, Chapter 9, supervisors are required to attend the DCP-S-009, Chapter 9, HAZCOM training that is periodically offered by the Code SH IH Office.

12.1.5 HM Use

Users may use only authorized HM. HM may be obtained only from an HDSC. HDSCs are located at Buildings 4809 (DFRC AGE contractor), 4810 (facilities contractor), 4837, 4852, and 703. The Central HDSC is located at Building 4823. The user must have a NASA security badge and be on the authorized user list for a specific HM to receive it. HM will be issued by the HDSC attendant in the smallest quantity required to do the job. (This information is provided by the ZM and is coded into HMMS for each use zone.) Daily use HM will be issued for 48 hours only, except for special circumstances (see below). The user must return the container the HM was issued in, even if it is empty, within 48 hours (generally before the end of the second shift after receipt) unless the HM is issued prior to a weekend or holiday, in which case the HM must be returned before the end of that shift. The user must ensure that proper PPE is donned during use and that all HM are properly stored when not being used (container lid replaced and moved to a safe location).

If the ZM determines that special circumstances require the use of a HM beyond 48 hours, the ZM must contact the Environmental Officer or designee a minimum of 24 hours prior to the intended use, explaining the special circumstances and requesting a waiver from the 48 hour rule. Waivers will be authorized at the discretion of the Environmental Officer. Environmental Officer will notify the appropriate HDSC and record the waiver in the Waiver Log Book kept at the Code SH Office and the appropriate HDSC notified.

12.1.6 Hazardous Distribution Support Center Operation

Although all HDSCs are operated the same, the Central HDSC, located at B4823, has some additional responsibilities. Other HDSCs should coordinate their efforts with the Central HDSC and refer to that staff for information and guidance in HDSC operation.

12.1.6.1 Receiving HM

When HM is delivered by Warehouse 6 to an HDSC, the HDSC can either accept or deny the receipt of the transfer from central receiving. A rejection might take place if the transfer is not complete or contains incorrect items. Once the material is accepted, the HDSC must then perform the following operations

A. Log the HM into the HM Receipt Log

B. Confirm HM is approved by researching AUL and MSDS

C. Notify customer if the HM is not approved, hold at HDSC until it becomes authorized, or contact Warehouse 6 to arrange for return to manufacturer

D. If not approved, temporarily store HM in the receiving area and in an appropriate holding locker for the hazardous material (flammable, toxic, corrosive, or oxidizer)

12.1.6.2 Storage

Once the transfer is accepted at the issue point, it should be assigned to a specific location within the issue point. Defining these specific locations speeds finding the material when the time comes to issue it. Properly storing HM requires the following steps:

A. If bulk, place in containers designed for chemical storage; ensure compatibility

B. Place bar code on containers:

- In HMMS “New Inventory” screen add MSDS number, expiration date, lot number, and shelf bin
- Bar codes will be generated with serial number range
- Apply bar codes to product inventory.

C. Determine special storage circumstances:

- Flammable: Flammable locker
- Cold Storage: Refrigerator (for chemicals either requiring refrigeration or chemicals with shelf life that can be extended with refrigeration). **Note:** If HM must be kept at a specific temperature range, label accordingly and store in refrigerator capable of maintaining this temperature range. Label all other HM stored in refrigerators with “No specified

temperature range required." **Important:** All materials in refrigerators need a label for either the required temperature range or "No specified temperature range required."

Note: Temperature of refrigerator must be monitored with a calibrated temperature gauge.

- Bulk: Outside bulk containers
- Corrosive: Corrosive locker

D. Place bar-coded item in storage
Reactiveness of incompatible materials will be considered prior to packaging and storing

12.1.6.3 HM Preparation and Issuance

The HDSC must issue the HM in the smallest quantity possible that will serve the customer's immediate needs (as coded in HMMS). If containers are in stock in the needed volume, the HDSC attendant will issue that container. In some cases, the HM is stored in bulk and the HM must be broken down into a smaller size.

12.1.6.4 Break Down of HM into Smaller Containers

Use the following procedure to break down HM into smaller containers:

A. Retrieve container from shelf bin

B. At container breakdown screen in HMMS, enter serial number of the original container into serial number field, container quantity, the unit of measure, and the number of containers

C. Click save icon

D. Take chemical to pour center, retrieve smaller container (gallon, quart, pint, etc.), don PPE

E. Transfer requested amount into smaller container

F. Apply bar code to container and fill out an NFPA label with information from product, and apply to container

G. Place HM on scale and issue chemical from "issue material" screen in HMMS

H. Scan employee NASA badge to employee field and select zone and building where product will be used,

I. Place HM on scale and scan bar code

J. Press “print” on scale to enter weight and click “save” in HMMS

K. Click “save” in HMMS

12.1.6.5 Issuing HM

To issue HM to a user, the HDSC attendant follows the following steps:

A. Issue chemical from issue material screen in HMMS

B. Scan employee badge to employee field

C. Select zone and building where product will be used

D. Place HM on scale, scan bar code, and press “print” on scale to enter weight

E. Click “save” in HMMS

12.1.6.6 HM Returns Processing

To receive a returned HM from a customer, the HDSC attendant does the following:

- Turn in product from turn in search screen in HMMS
- Scan product bar code into search criteria field and click, “go”
- Place product on scale, press “print” on scale to enter returned weight into field, choose appropriate product status from drop-down menu, and press “save”.
- Return to shelf bin.
- If HM or empty container is going to waste choose appropriate waste container in HMMS, press “save”. (**Note:** Each HDSC will have different waste containers, dependent upon the types and volume of wastes generated. Contact Code SH Environmental for assistance.)

  Note: Oxidizers such as dry chemical chlorine require isolation from combustible and flammable materials

12.1.6.7 Shelf Life Management

HM manufacturers normally establish the length of time from sale of the HM that the product is capable of functioning as

intended. This information is placed in HMMS by the HDSC attendant and HMMS notifies when the shelf life is about to expire. However, since many products are actually useful well beyond the manufacturer's expiration date, ZMs often wish to extend the shelf life and continue using the product. The following is the shelf life management process performed by the HDSC attendant:

A. Run report in HMMS on expired inventory on about the 15th of each month

B. Retrieve all expired inventory from shelf-bins based on report

C. Fill out Shelf-Life Extension Authorization (D-WK 510-8) on individual products and submit to appropriate ZM

D. ZM will designate and provide inspection criteria to a current user of the product to perform the product inspection. Following the inspection, the ZM and designated user complete form, either extending shelf life up to half of the shelf life of the product or instructing the HDSC attendant not to extend the shelf life.

E. Signed form must be returned to HDSC attendant

F. If shelf-life is to be extended, go to the Shelf Life Extension Data screen in HMMS, enter National Stock Number of product into the search criteria, and click" go"

G. Select by lot number, complete all fields, click "save"

H. Go to reprint label screen in HMMS, enter beginning and ending serial numbers, click to view details, and click "print"

I. Apply new barcodes to product

J. Return to shelf bin for issue

K. If HM's shelf life will not be extended, or if extension form is not returned, place HM in proper disposal bin

12.1.6.8 Inventory Control

All inventories of HM are managed through HMMS. All HM are bar coded and have a designated place to which they are assigned. An annual inventory reconciliation is conducted by the HDSC attendant to confirm that the product on hand and the HMMS database coincide. A hand-held inventory computer is used to facilitate the inventory.

The Central HDSC will query HMMS monthly to determine status of issued HM. If there are any HMs that have not been returned within the authorized period, the HDSC attendant will notify the appropriate ZM, who will ensure that the HM is returned. If the HM is not returned within 48 hours, the attendant will notify the Environmental Officer. The Environmental Officer will re-contact the ZM, and then contact the ZM's supervisor, if necessary.

(Reactiveness of incompatible materials will be considered prior to packaging and storing)

12.1.6.9 Equipment Calibration

Calibration is done on a six month or one year period, depending on manufactures specifications. (See DCP-O-007). The HDSC attendants will coordinate calibration with Metrology and file the calibration tags in the calibration file for one year.

12.1.7 HM Transport

Generally, HM may be transported anywhere within the Center as long as it is in its original manufacturer's container. However, when transporting HM to or from the Center to the Dryden Aircraft Operations Facility (DAOF), the transport will occur over public highways and special steps must be taken. The following applies to the transport of hazardous materials between the Center and DAOF:

A. These instructions are for HM only. No hazardous wastes are allowed to be moved except under direction of Code SH Environmental

B. Use the original packaging that the product came in (49 CFR - CHAPTER I - PART 173.24)

C. If the product has been removed from the original shipping package and you no longer have it, repackage the containers in drums (overpack). The Code SH Environmental Specialist (X7403) has drums and will give assistance. Materials in the overpacks must be compatible with each other and the drum (no acids with bases, for example). Per Part 173: "There will be no mixture of gases or vapors in the package which could, through any credible spontaneous increase of heat or pressure significantly reduce the effectiveness of the packaging."

(Reactiveness of incompatible materials will be considered prior to packaging and storing)

D. All packages must be undamaged, closed, and sealed (usually with tape)

E. All materials within the vehicle must be compatible. Incompatible materials must be on separate shipments

F. Each vehicle may contain no more than a combined gross weight of 200 kg (440 lbs) of HM. If this is impossible for some reason, contact the Environmental Officer (x3976)

G. The driver must have a copy of the MSDS for each separate material being shipped

H. The driver must have a Bill of Lading (the Environmental Specialist will assist)

I. The driver must have a list of emergency contacts (the Environmental Specialist will provide)

If all of the above conditions cannot be met, the shipment must be performed by a commercial hauler that has the required licensing. Contact the Environmental Specialist for assistance.

12.2 Hazard Class Codes

The following are the hazard class codes that are assigned by the IH SME when a HM is approved for use:

Table 1, Hazard Class Codes

Code	Hazard Class
A	Creates HW. No health hazard
B	Potentially hazardous
C (formerly IEX Code 9)	Acutely hazardous (carcinogens, etc.)
E	Environmental hazard/health hazard
M	Class I ozone depleting substance (ODS)
N	On the EPA 17 List
S	Hazardous Air Pollutant (HAP)
U	Undetermined hazard level

Hazard class A materials do not have a health hazard, but are an environmental concern because if they are no longer needed, they become HW. Certain other materials do not have a health hazard or an environmental concern. These materials are considered consumer commodity products under State and Federal law. They are not given a hazard class code, are not entered into the CMS, and they may be purchased and used without restriction. These materials are listed on the

current No License Required list at http://xnet.dfrc.nasa.gov/Organizations/SMA/CodeSH/environmental.html.

Some chemicals and medicines used exclusively by the DFRC Health Unit are also exempted from the CMS and included on a separate list, the DFRC Health Unit Medications Supplies list (see Attachment C). All other hazard classes must be processed through the CMS and receive authorization to be used. NLR and exempted materials used at the Health Unit will not receive a CMS label and are the only HM or potentially HM that may be used at the Center without a CMS label.

12.3 Hazardous Material Training

As required by 29 CFR 1910.1206, personnel handling HM must obtain Hazard Communication training. In addition, these personnel should become familiar with appropriate sections of this DCP and the following training as a minimum:

12.3.1 HDSC Attendants

- HMMS basic training (OJT)
- MSDS Date Entry (on-the-job-training (OJT))
- HMMS Issue Point and Receiving , Inventory Control, and other HDSC Procedures (OJT)
- HDSC Hardware (scanners, printers, etc.) (OJT)
- Hazard Communication (OJT)
- SPCC (annual)

12.3.2 Zone Managers

- HM Authorization and other procedures in HMMS (OJT)
- Hazard Communication (OJT)

12.3.3 HM Users

Hazard Communication (HAZCOM - OJT)

12.3.4 Timing

Employees must not work unsupervised until they have completed the training requirements of this subsection.

12.3.5 Recordkeeping

Documentation that required training has been given (attendance sign-up sheets)

13.0 HAZARDOUS WASTE MANAGEMENT

Hazardous wastes are managed at DFRC to ensure "cradle-to-grave" tracking using HMMS and other recordkeeping while minimizing potential loss due to spills. HW may originate from several sources:

- A waste stream, including one where the waste is temporarily held in "satellite storage"
- A discovered waste such as one that is not normally part of a waste stream, generated from a maintenance operation, or generated during an abatement operation for asbestos or lead-based paint
- Unique wastes from modification of older facilities that are no longer used in construction at DFRC, such as asbestos, lead based paint, and polychlorinated biphenyls (PCBs)

Although not strictly considered HW, DFRC will also manage the following as part of the HW Management process:

- A universal waste as defined by California CCR Title 22, Division 4.5, Chapter 23
- Recycled HM such as lead-acid batteries or used oil filters

DFRC has two locations that have EPA ID numbers and that are allowed to generate HW: the main Center complex and the DAOF. The Center complex is a large quantity generator. Although the DAOF has been in operation for only a short time, we anticipate that it will be a small quantity generator (less than 1,000 kg/month or 6,000 kg at any one time). The primary difference between a large and small quantity generator is that a SQG may accumulate HW on site for up to 180 days, as opposed to 90 days for a LQG, and that training requirements are less stringent. The HW management process is shown at the HW Sub-Process flow chart.

13.1 Determination of HW

A material or chemical becomes a waste as soon as the user has no further use for it and discards it or intends to discard it. At this point, the user becomes a generator and must submit a Hazardous Waste and Hazardous Material Turn-in Document, form D-WK 751-8, to Code SH Environmental Specialist.

At that point, the Environmental Specialist must make a determination of whether the waste is hazardous, following Federal and state procedures. In California, HWs are determined by first determining if the waste is excluded by CCR Title 22, Paragraph 66261.4(a) or 66261.4(b). The next determination is does the waste meet the definition of a HW as shown in 66261.3 by being part of a HW list. Finally, it must be determined if the waste meets one of the defined characteristics of a HW specified in Title 22, Article 3, Chapter 11. In addition, the Environmental Specialist may declare a waste as a HW based upon knowledge of the waste or past determinations of an individual waste stream.

13.2 Waste Characterization

Characterization of a waste may be required to determine if it is a HW. Wastes in established HW streams will have already been characterized or otherwise identified using an MSDS. If the waste is from a new waste stream or is an unknown, it must be sampled, a Chain-of-Custody form prepared, and sent to a lab (see HW Sub Process flow chart).

Once a waste has been characterized, the information is transmitted to the TSDF where it will be disposed and the TSDF prepares a Waste Profile form. The WP form is maintained in the Code SH Environmental Office for a minimum of 3 years.

13.3 Satellite Storage

In some cases, a waste from a process is generated in small quantities and is allowed to be temporarily stored in a single, small container (55 gallons or less) at or near the point of generation for up to 270 days. This is called satellite storage and has special rules of operation. (Contact a Code SH environmental specialist for assistance is setting up a satellite storage station):

A. The storage container must be under the control of the process generating the waste (the ZM or process manager)

B. The container must be labeled, marked, and visible for inspection, with the start date of the first deposit into the container, the words “Hazardous Waste”, and the composition and physical state of the waste, etc.

C. The container must be kept closed except when necessary to add or remove wastes

D. Once the container is full it must be sealed and the ZM or process supervisor must notify Code SH Environmental

E. The process manager must contact Code SH Environmental Office when the waste in the container is 270 days old

F. The Code SH environmental specialist will process the container for shipment as HW before 365 days of the "accumulation start" date marked on the container

Note: Special rules apply to ignitable or reactive wastes (22 CCR 66265.198), incompatible wastes (66265.199), and to manage air emissions from HW (66265, articles 27, 28, and 28.5)

13.4 Accumulation Point

DFRC maintains Accumulation Points (APs) located at Buildings 4852 (central AP), 4809 (tank), 4833 (tank), and 716 that are allowed to store HW for up to 90 days (180 days at the DAOF). However, it is expected that the wastes will be disposed of within 60 days at the Center and 120 days at the DAOF. Code SH environmental technicians are the AP Managers. APs are required to operate under the following conditions:

A. The AP must be fenced or otherwise secured, have spill prevention controls and emergency spill control materials available on site, portable fire extinguishers, be lighted and have emergency phones available. At DFRC, APs are located in areas that meet all of these conditions and are kept locked when not in use

B. Wastes stored within the AP must be kept in sealed containers, tanks, and/or containment buildings must be compatible with the stored contents

C. Containers must be properly grounded

D. Tanks must have secondary containment and release detection devices

E. Wastes stored within the AP must be segregated by compatibility and a minimum isle space must be maintained between containers

F. Waste containers must be marked with the "accumulation start date" showing when the waste was first placed in the container, the words "Hazardous Waste" affixed to the containers, and a label affixed that contains specific information, such as the composition and physical state of the waste and DFRC's name and address

G. APs with tanks must be inspected daily and non-tank APs must be inspected weekly

H. All AP inspections must use DFRC form SH-83, which must be filed at the Code SH Environmental Office and retained for a minimum of three years

I. Special rules apply to ignitable or reactive wastes (22 CCR 66265.198), incompatible wastes (66265.199), and to manage air emissions from HW (66265, articles 27, 28, and 28.5)

J. The emergency coordinator must be on-call 24 hrs to respond to spills or other emergencies (Code SH environmental technicians will act as emergency coordinators for APs)

K. APs are covered in the HW Contingency Plan and the written training plan contained in this DCP

13.5 Packaging and Labeling HW for Shipment

Once the waste is transported to an AP and characterized, the Code SH environmental specialist will ensure that the waste is packaged and labeled as required by CCR Title 22 and 49 CFR. In summary, this means that the HW must be suitably packaged, usually in a drum, as appropriate and have a HW label affixed to the outside surface. Other labels and markings may be required, such as the proper shipping name, UN number, etc.

13.6 Processing HW for Shipment

13.6.1 Waste Profile

When a new waste stream is created or a new Treatment, Storage, and Disposal Facility (TSDF) is being used, the waste must first be profiled by the TSDF. The environmental specialist submits required information to the TSDF and then completes a waste profile sheet. One copy of the WP is retained at the Environmental Office for a minimum of three years or as long as the waste stream exists, and one is given to the HW shipper the first time the waste is transported to the TSDF.

13.6.2 Land Disposal Restrictions

Certain HW are either prohibited from being disposed on land or restricted. The TSDF is required to identify HW that they accept and ensure that they comply with appropriate land disposal restrictions (LDR). As the generator, DFRC is required to submit a one-time notification to the TSDF if a HW is exempted or waivered. The SH environmental specialist will obtain all required lab analyses, submit required reports, certifications and notifications to TSDFs, and retain all records relating to LDR for a minimum of 3 years. A copy of the TSDF LDR notification is given to the HW shipping contractor's driver when the HW is first shipped to the TSDF.

13.6.3 Lab Packs

A lab pack is a container containing several separately packaged, compatible HM. Lab packs are profiled and manifested instead of the individual comingled wastes. At DFRC, all lab packs will be disposed of by incineration

13.6.4 Bill of Lading (BOL)

A Bill of Lading is required for disposal of universal and non-hazardous wastes (recyclable). The BOL form is a commercially available form and is completed by the Code SH environmental specialist prior to shipment. Two copies of the form are given to the shipping driver and one is retained. The forms are filed at Code SH Environmental Office and are retained for three years.

13.6.5 HW Manifest

The HW Manifest is a DTSC form that is required for shipment of all HW to a TSDF, regardless of which state the TSDF is located in. The Code SH environmental specialist completes the manifest and:

A. Obtains authorized government signature (signer must have the training required by CFR 49, Subchapter B, Chapter 1, Subchapter C, Parts 171-180).
B. Gives all copies except Generator and DTSC copies to the HW shipper
C. Sends DTSC copy to DTSC within 30 days
D. Files TSDF copy when returned
E. If TSDF copy is not returned within 15 days, notifies TSDF (phone call)
F. If TSDF copy is not returned within 30 days, files Discrepancy Report with DTSC

Manifests are filed at the Code SH Environmental Office and retained for a minimum of three years

13.6.6 Contracting with HW Shipper

By California law, HW shippers must have current HW liability insurance. The law allows the shipper to obtain a certificate of insurance or a bond issued by a California licensed surety company, or to establish evidence of qualification as a self-insurer.

Code SH environmental specialist must obtain a copy of the current insurance vehicle and ensure that the effective dates coincide with the intended shipping period. The copy will be filed with the HM Manifest and retained for a minimum of three years.

13.6.7 Inspecting HW Transport Vehicle

Before loading a HW shipper's vehicle, the Code SH environmental technician must ensure the following:

A. The driver has a copy of the shipper's current DTSC registration certificate and identification number

B. The vehicle has proper placards per 49 CFR 172.514(C) and 172.504, on all four sides of the vehicle

C. The driver has a current commercial drivers license with a HM endorsement

D. The vehicle has the name of the transporter company on each side of the vehicle

The environmental technician must complete a DFRC form D-WK247-8, Hazardous Waste/Material Shipment Checklist, and file it at the Environmental Office. Forms must be maintained for a minimum of three years.

The general rules for loading HW vehicles are at 49 CFR 177.834.

13.7 Universal Waste

Certain non-Resource Conservation and Recovery Act (RCRA) wastes are classified as universal wastes (UW) in California. UW is required to be sent to a licensed destination facility (recycler) instead of being disposed. The following UWs are routinely recycled by DFRC:

A. Small batteries

B. Electronic devices

C. Mercury thermostats, switches, thermometers, etc.

D. CRT materials

E. Nickel-cadmium and nickel-iron batteries (must be managed per CCR Title 22, Division 4.5, Appendix XII)

All UW must be managed per CCR Title 22, Division 4.5, Chapter 23. Code SH environmental specialist prepares the BOL, distributes one copy to the shipper, and retains the original in the Environmental Office for a minimum of three years.

13.8 Recyclable Waste

California law requires all recyclable materials to be recycled instead of being disposed. The following are routinely recycled at DFRC:

A. Spent lead-acid batteries (must be managed per CCR Title 22, Section 66266.81)

B. Oil filters (must be managed per CCR Title 22, Section 66266.130)

C. Lamps (fluorescent, mercury vapor, etc.)

Code SH environmental specialist prepares the Bill of Lading, distributes one copy to the shipper, and retains the original in the Environmental Office for a minimum of three years.

13.9 Business Plan

The DFRC Business Plan is required by California HSC, Division 20, Chapter 6.95. The Plan is developed and maintained by Code SH Environmental Specialist and is updated and submitted electronically to DTSC annually. The Plan lists all HM used at DFRC that meets threshold quantity limits, the maximum amount used, emergency response information, contact information, and ongoing training information. The Plan is maintained at the Code SH Environmental Office.

13.10 Biennial HW Report

The California DTSC requires that DFRC submit a biennial report listing all of the HW generated during the reporting year and specific information on each HW stream. The reports are developed and maintained by Code SH environmental specialist and are retained for a minimum of 3 years.

13.11 TSDF Inspection

Federal and State laws maintain generator liability from “cradle to grave”, which means that DFRC retains joint and several liability with all the TSDFs where our wastes have been disposed. Code SH Environmental Office will periodically (minimum of biennially) inspect these TSDFs to ensure that the facilities are being operated in a legal and environmentally safe manner. The Environmental Office inspector should consult with NASA HQ to obtain the most recent inspection procedures and checklist. The inspection report must be filed and retained indefinitely.

13.12 HW Training

As required by 22 CCR 66256.16, personnel handling HW must obtain the following training as a minimum:

13.12.1 Accumulation Point Managers

The following fulfills CCR Title 22, Division 4.5 requirements for a Training Plan:

- HMMS or other program MSDS Date Entry (on-the-job-training (OJT))
- HMMS Issue Point and Receiving (OJT)
- Hazardous Communication (OJT)
- California Title 22 regulations (classroom, off-site)
- 49 CFR regulations (classroom, off-site)
- HAZWOPR (classroom, off-site)
- SPCC (computer-based, on-site)

13.12.2 Zone Managers, Satellite Storage Managers & Other Personnel

- Hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed (OJT)
- Methodology to respond effectively to emergencies, including emergency procedures, emergency equipment, communication, and emergency systems (OJT)
- Hazardous Communication (HAZCOM - OJT)

13.12.3 Timing

Employees must not work in unsupervised positions until they have completed the training requirements of this subsection.

13.12.4 Annual Review

Personnel must take part in an annual review of the initial training required in this subsection.

13.12.5 Recordkeeping

- The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job
- A written job description for each position, which includes the requisite skill, education, or other qualifications, and duties of facility personnel assigned to each position
- Documentation that required training has been given

14.0 EMERGENCY RESPONSE

DFRC has a Memorandum of Understanding, under the Edwards AFB Alliance, that provides the Base HAZMAT Response team to respond to significant spills or other HM/HW incidents. Small housekeeping type spills will be handled by Center personnel, using spill response (SR) materials located throughout the Center.

14.1 Spill Response & Reporting

Minor spills that can be easily and safely contained and cleaned up using spill response (SR) materials located at SR stations will be handled by Center personnel. Once the spill has been contained and cleaned up, personnel must report the incident to Code SH Environmental Officer. Code SH will evaluate the clean up response to determine if further action is required and investigate the root causes of the spill. Incidents will be recorded in the IRIS incident recording system and evaluated to determine patterns.

Major spills must be responded to following procedures in DCP-S-110, Emergency Preparedness and Response for Hazardous Material Releases.

14.2 Spill Response Station Management

The Code SH environmental technician will maintain the SR materials when notified by shop personnel or identified during inspection. SR stations are located at:

- The NASA fuel station
- The HDSCs
- In front of flight ops trailer 20
- The emergency response truck
- Warehouse 6

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Code SH SR stations will be inspected weekly by the Code SH environmental technician as part of the AP inspections, other SR stations will be inspected by the owner.

15.0 HMMS ADMINISTRATION & MAINTENANCE

The Hazardous Material Management System (HMMS) is an automated system providing cradle-to-grave tracking, management, and reporting capabilities for hazardous materials and waste. HMMS supports business process improvements to achieve management goals and help satisfy federal, state, and local reporting requirements for each organization and its Hazardous Distribution Support Center (HDSC) issue point.

Since its deployment, HMMS functionality has been extended to include

- An electronic repository for Materiel Safety Data Sheets (MSDS) that track hazardous material from procurement, receipt at the facility, issue to technicians, and onward through disposal of unused or waste by-products
- A database of authorized materials uses and users
- Technician certification to handle various materials
- Personnel exposure dates and time (This is from the time of checkout to return.)
- Required protective equipment
- Other safety-related data

Other features link management or supervisory workstations to precision measurement scales and automatic identification technology equipment that tracks by unique serial numbers, bulk container quantities, issued and returned material amounts in containers allocated to technicians at their shops, and other functionalities.

Other offices can access HMMS to update or query stored information about the hazardous material at each location. HMMS also provides capabilities to gather, correlate, and produce reports to federal, state, local, and installation organizations. Code SH manages the HMMS.

15.1 HMMS Systems Management Duties & Responsibilities

Tasks include system administrator, database administrator, and the application administrator. These duties and responsibilities are outlined below:

15.1.1 System Administrator (SA)

- Maintain server file structure, install security patches, and install O/S patches as required.
- Ensure backups are occurring, and preserve backups in a safe location.
- Check system security and application logs to ensure server is in a healthy state.
- Check system services to ensure that Oracle services are running.

15.1.2 Database Administrator (DBA)

- Maintain tablespaces and sizing; install security patches as released by Oracle.
- Check on logs and maintain Apache logs insuring logs do not exceed file limits.
- Install upgrades as released by the HMMS vendor.
- Work with HMMS vendor personnel to resolve problems.
- Create application user accounts as needed.

15.1.3 Application Administrator (AA)

- Setup and maintain the site rules for data that will be entered into the HMMS application.
- Maintain application data and support site users.
- Coordinate contact with HMMS vendor hotline personnel about open problem logs.
- Work with hotline and HMMS vendor personnel to resolve problems.

15.2 Location of HMMS workstations

Workstations are located at all HDSCs and various other sites and managed as ODIN seats.

15.3 HMMS Administration

Code SH performs all HMMS administration functions.

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15.3.1 HMMS Reports

HMMS is capable of supplying a number of reports on the HM and HW data. Contact Code SH for more information.

15.3.2 Getting a Password & User Identification

Code SH issues passwords and user IDs. All users having access to the system must take precautions to safeguard their individual passwords and any sensitive data required to provide intended system functionality. It is required that users change their individual passwords every three months. When any individual no longer requires access to the system, their user ID/password are set to inactive in the application and the Oracle database, the login history remains in the HMMS DB tables.

15.3.3 Program Management Team

DFRC participates in an HMMS management team that consists of service leads from participating agencies. The team's purpose is to provide direction to the HMMS Program Management office, which then provides direction to the HMMS vendor, and develops and administers the budget. As one of the service leads, DFRC provides guidance and assistance to new agencies, informs about changes in relevant regulations, laws or rules; provides beta testing of new HMMS modules, and submits discrepancy reports, and change requests.

The Code SH service lead and other Code SH Environmental staff attend four Program Management Team Meetings per year, two of which occur in conjunction with the Point Of Contact and User conferences.

The POC Conference is, as the name implies, primarily for the site POCs. Site POCs consist of one HM POC and one HW POC. There are two primary objectives for the POC Conference. The first is for the POCs to be able to convey their current requirements, concerns, and problems with the system, review and prioritize the software change requests, and provide ideas for improvements. The second objective is to keep the POCs informed of programmatic issues, new technology, new or proposed functionality, functional and technical plans and progress, and other topics relevant to the HMMS program and their missions.

15.3.4 Training Protocol

User training will be conducted on-demand when new users or HDSCs are created. Training will be conducted by Code SH and is OJT. Training is documented by training session sign-in sheets.

15.3.5 Miscellaneous Administrative Tasks

In addition to the above, the following tasks are routinely performed (at a minimum annually) by Code SH:

- Purge authorized employees from the HMMS database that are no longer active
- Purge hazardous materials that are no longer in use

15.4 HMMS Maintenance

Code SH performs all HMMS maintenance. Some HMMS maintenance tasks include:

15.4.1 Daily tasks

- Check event logs for errors, call the HMMS hotline 877-565-4234 if there are any errors
- Check available disk space, call the HMMS hotline 877-565-4234 if the server is running out of disk space
- Check memory/CPU for runaway processes during peak load period, call the HMMS hotline 877-565-4234 if there are any runaway processes
- Check backup logs for errors. Call the HMMS hotline 877-565-4234 if there are any errors.
- Check for available operating system updates, install if available
- Check that all Oracle services are running correctly. If the service is not running, restart the service. If the service will not restart the call the HMMS hotline 877-565-4234
- Check that daily batch files have run
- Check that daily backup has completed

15.4.2 Weekly tasks

- Prior to production startup, reboot the server, stop oracle services, copy the log files to $envx_home/as/logs/logname_date.log, clean the log file, restart Oracle Services

- Conduct Database Job Queue Review: Description: Unauthorized users may bypass security mechanisms by submitting jobs to job queues managed by the database to be run under the security context of the database or system. These queues will be monitored monthly to detect any such unauthorized job submissions. Any unauthorized jobs found are to be documented, reported to the Information Systems Security Officer (ISSO), and to the HMMS Hotline for confirmation and instructions on removal from the server
- Monitor database software files for unauthorized modification
- Monitor vulnerability. Discussion: Changes to files in the Oracle RDBMS home directory such as scripts, batch files, or executable files can indicate possible Trojan horses. File changes to non-executable files, such as log files and data files, do not usually reflect unauthorized changes, but are modified by Oracle as expected. These false positives can be ignored
- Monitor any changes made to the database software
- Check that weekly backup has completed
- Update Oracle accounts if any employees, or users have left

15.4.3 Monthly tasks

- All items in the daily and weekly tasks, plus insert a cleaning cartridge for the tape drive
- Remove the front panels and clean the dust buildup from the front, and rear of the server
- Delete log files except Security log files in accordance with site policy
- Clean out Apache log files.
- Move the last daily and weekly backups to a secure location, and put the months prior back into rotation
- Check alert and listener logs for problems

15.4.4 Yearly tasks

- All items in the daily, weekly, and monthly tasks, plus delete the security log files
- Do weekly and monthly tasks, plus move log files to external location, and remove proceeding years logs
- HMMS yearly tasks daily and weekly backup for the year to a secure location, and put the years prior back into rotation

15.5 Security

HMMS is an unclassified system. However, due to the necessity of protecting individual privacy data, access to the system needs to be limited to users having a need to use it in order to accomplish the mission of the site. Issuing a user ID and password to those requiring access to the system controls this access. For this System Security Authorization Agreement () effort, HMMS is the target system identified for formal security certification and accreditation using Air Force guidelines with appropriate linkages to NASA certification and accreditation rules.

16.0 FAILURE TO PROCEED / ESCALATION

If an individual or Organization fails to perform in any capacity within this DCP, they will be notified by Code SH of such failure. Code SH will work with the individuals or the area at the lowest level possible to resolve the issues. If the problem persists, Code SH will escalate the issue to the next higher management level, proceeding up the chain-of-command until the matter is resolved.

17.0 MANAGEMENT RECORDS & RECORDS RETENTION

Reference the Code S Records Log (form DFRC 79) for retention requirements for the following management records associated with this procedure. Unless otherwise specified in NPR 1441.1, all records are kept in the Environmental Records Repository for a minimum of three years.

- Hazardous Materials Request (form D-WK 506-8), authorization form in HMMS
- 48 hour return waiver
- Hazardous Waste and Hazardous Materials Turn-in Document (form D-WK 751-8)
- 90 Day Hazardous Waste Accumulation Site Inspection (retain at SH Environmental Office for a minimum of 3 years)
- Training records (Hazardous Waste Operator Emergency Responder Certificate, Department of Transportation Hazardous Material/Waste Technician Training, Chemical Management System customer training, and OJT documentation) on current personnel are kept until closure of the facility. Training records on former employees are kept for at least three years from the date the employee last worked at the facility.
- Training conducted for CMS customers (e.g., hazardous material users, HDSC attendants)

- MSDSs for all hazardous materials located at DFRC (retained in Building 4823)
- Signed copies of Uniform Hazardous Waste Manifests, form DTSC 8022A (including the copy signed and returned by the TSDF and retained in the SH Environmental Office for 3 years from the date the waste was accepted by the initial transporter)
- LDR notices for wastes shipped to a TSDF from new waste streams or waste streams shipped to a new facility
- Weekly inspections of hazardous waste accumulation points, initial accumulation points, and the hazardous waste processing facility
- Incidents that require implementation of the TSDF Hazardous Waste Contingency Plan and resulting reports to agencies
- Monthly visual inspections of aboveground storage tanks
- Inspection and maintenance records for each item that contains concentrations of PCBs > 50 parts per million. (Retained for at least 3 years after disposal of the item.)
- Hazard Communication training
- Spill Prevention Control and Countermeasures Plan training
- Storm Water Pollution Prevention Plan training
- Reportable hazardous material/waste release reports
- External regulatory inspections and associated findings of non compliance
- Biennial Reports and any Exception Reports
- Test results, waste analyses, or other determinations made characterizing a HW
- Waste Profile obtained from TSDF
- Form D-WK 247-8, Hazardous Waste/Material Shipment Checklist
- AP plans such as the Contingency Plan, etc.
- Reportable hazardous material/waste releases – Incident Reports sent to agencies
- External regulatory inspections and associated findings of noncompliance
- D-WK 510-8, Shelf-Life Extension Authorization

18.0 RELEVANT DOCUMENTS

18.1 Authority Documents

40 CFR 240-299	Resource Conservation and Recovery Act
CCR Title 22, Division 4.5	Environmental Health Standards for the Management of Hazardous Waste
NPD 8500.1	NASA Environmental Management
NPR 8530.1A	Affirmative Procurement Program and Plan for Environmentally Preferable Products
NPR 8553.1	NASA Environmental Management System
See Also	Attachment B – Regulatory Overview

18.2 Reference Documents

NPR 8820.3	Pollution Prevention, March 1999
DCP-F-618	Transportation Management For Incoming Shipments
DCP-S-009	Safety and Health Requirements Manual
DCP-S-110	Emergency Preparedness and Response for Hazardous Material Releases

18.3 Informational Documents

AFFTC Oil Hazardous Substance Spill Prevention and Response Plan

California Hazardous Material Spill/Release Notification Guidance

Guidance Manual for Complying with the Hazardous Waste Source Reduction & Management Review Act of 1989

NASA Dryden Flight Research Center Facilities Maintenance/Pride Asbestos Operation and Maintenance Plan, March 2004

NASA Dryden Flight Research Center Pollution Prevention Plan, September 1995

NASA Dryden Flight Research Center Affirmative Procurement Plan, 2008

18.4 Forms

DFRC 45-4	Stock Issue and Turn In Slip
D-WK-504-8	HMMS Employee Update
D-WK 505-8	Chemical Management System Zone Setup
D-WK 506-8	Hazardous Materials Request
D-WK 510-8	Shelf-life Extension Authorization

D-WK 714-4	Parts Request
D-WK 751-8	Hazardous Waste and Hazardous Materials Turn-in Document

Attachment A – Related Internet Web Site Links

California EPA Aboveground Petroleum Storage Act
http://www.swrcb.ca.gov/cwphome/agt/law.html

California Code of Regulations
http://ccr.oal.ca.gov

California Environmental Protection Agency
http://www.calepa.ca.gov/

California EPA Department of Toxic Substances Control
http://www.dtsc.ca.gov/

California EPA DTSC Onsite Tiered Permitting Flowchart
http://www.dtsc.ca.gov/HazardousWaste/upload/onsite-tiered-permitting-flowchart.pdf

California Health and Safety Code – Hazardous Waste Control
http://caselaw.lp.findlaw.com/cacodes/hsc.html

California State Water Resources Control Board
http://www.swrcb.ca.gov/

Code of Federal Regulations
http://www.gpoaccess.gov/cfr/index.html

Department of Pesticide Regulations
http://www.cdpr.ca.gov/

Department of Pesticide Regulations Strategic Plan
http://www.cdpr.ca.gov/docs/dept/planning/stratmenu.htm

Enviroene – US EPA Pollution Prevention Home Page
http://www.epa/gov/p2/

Executive Order 13101 – Greening the Government Through Waste Prevention, Recycling and Federal Acquisition
http://www.epa.gov/fedreg/eo/eo13101.pdf

Executive Order 13148 – Greening the Government Through Leadership in Environmental Management
http://www.epa.gov/opptintr/epp/pubs/eo13148.pdf

Federal Insecticide, Fungicide and Rodenticide Act
http://www4.law.cornell.edu/uscode/7/ch6.html

Hazardous Material Management System
http://www.hmms.com

Hazardous Materials Transportation Act
http://www4.law.cornell.edu/uscode/49/stIIIch51.html

Hazardous Waste Source Reduction Management Review Act
http://www.calepa.ca.gov/Legislation/1997/ab1089.htm

NASA KSC Joint Group on Pollution Prevention (Lead Center Function)
http://www.jgpp.com

NASA KSC Recycling and Affirmative Procurement (Lead Center Function)
http://environmental.ksc.nasa.gov/ems/recycle.htm

Pesticide Information Profiles
http://ace.ace.orst.edu/info/extoxnet/pips/ghindex.html

Pollution Prevention Act
http://www4.law.cornell.edu/uscode/42/ch133.html

Pollution Prevention Yellow Pages
http://www.p2.org/inforesources/nppr_yps.html

Resource Conservation and Recovery Act
http://www4.law.cornell.edu/uscode/42/ch82.html

Toxic Substances Control Act
http://www4.law.cornell.edu/uscode/15/ch53.html

US EPA
http://www.epa.gov

US EPA Environmental Planning and Community Right-to-Know Act
http://www.epa/gov/emergencies/index.htm

US EPA Office of Solid and Hazardous Waste
http://www.epa.gov/epaoswer/osw/hazwaste.htm

US EPA Toxic Release Inventory (TRI) Program
http://www.epa.gov/tri/

VendInfo (Database of Pollution Prevention Products and Services)
http://es.epa.gov/vendors/

Attachment C – DFRC Health Unit Medications & Supplies – No License Required

Accu-Chek Comfort Curve Test Solution
Accu-Chek Comfort Curve Test Strips (100/BX)
Accu-Chek Comfort Curve Test Strips (100/BX)
Accu-Chek Comfort Curve Test Strips (50/BX)
Accu-Chek Comfort Curve Test Strips (50/BX)
ACE Wrap: Bandage Elastic ACE-Type 3" 10
ACE Wrap: Bandage Elastic ACE-Type 3" 10
Acetaminophen (MDV)
Adenosine (Adenocard® 2ml 3mg/ml) Ansyr Syringe
Adenosine (Adenocard® 2ml 3mg/ml) Ansyr Syringe
Adenosine (Adenocard® 3mg/ml) Ndls Syringe: 2 ml
Albuterol HFA Inhaler
Albuterol MDI 17 GR
Alcohol Prep 2-Ply Med 200/BX Sterile
Aminophyline 10ml 25mg/ml ampule
Amiodarone
Amoxicillin 500 mg Btl/30
Artificial Tears
Aspirin 325 mg Tab IP 250 x 2
Aspirin, Chewable
Aspirin 325mg Tabs IP 250 x 2
Audiometer Paper F/RA400 5/PK (Tracor Printer) Silver
Bacitracin® Individual Pkgs
Bactrim
Bed Pan
Calcium Chloride
Carpuject Holder
Cephalexin (Keflex®)
Cervical Collar (Philadelphia) 3.25" LARGE
Cervical Collar (Philadelphia) 3.25" MEDIUM
Cervical Collar (Philadelphia) 3.25" SMALL
Cervical Collar Stubbs 4" Flexible
Chemstrip 10 UA Dipstick SG 417145 (100 Each)
CO2 Detector (Easy Cap II)
D5W 1000 ml Bag
D5W 500 ml Bags
Debrox® Drops Earwax Removal 15 ml
Debrox® Drops Earwax Removal 15 ml
Dextrose 50% (50 ml Luer Lock Ansyr Syringe)
Diazepam (Valium) 2 ml (5mg/ml Carpuject)
Diazepam (Valium®) 10 ml (5mg/ml Multi-Dose Vial)

Diphenhydramine
Diphenhydramine 50 mg SYR 1 ml
Doxycycline Hydrochloride 100 mg Tabs (50/Bottle)
Doxycycline Hydrochloride 100 mg Tabs (500/Bottle)
Dramamine Generic Tab 100
Emesis Basin Plastic 8.5" Gray Eye Pads, Curity
Engerix-B Hepatitis B Vaccine 20 mcg/mL Pkg/5
Epinephrine 1 ml (1:1000) 1 mg/ml ampule
Epinephrine 1:10,000 (10 ml Luer Lock Syringe)
FastTrace 4 Electrode 1915-100 Foam Bandages 100ct
Flourets
Fluorescein Ophth Soln 5 ml
Furosemide 2ml (10 mg/ml Vial)
Gauze Bandage Stretch N/S 3" 12/Bag
Gauze Pad Sterile 2x2 100/BX
Gauze Sponge 3x3
Glove Latex P/F Med 100/BX Textured
Glove Latex Powder Med 100/BX
Gloves Latex Exam Powder Free Medium (100/BX)
Gloves Sterile Surgical
Glucose Gel
Gloves Latex Exam Powder Free Small (100/BX)
Guaifenesin
Guaifenesin DM
Guaifenex PSE 60
Hand Scrub Brushes with Nail Cleaner (30/box)
Hep A Havrix® Adult 1440ELU/1 ml S01-B (10 PK)
Hydrocortisone Creme 1%
Ibuprofen (Motrin®) 200 mg Tab IP 250x2/BX
IPPD: Aplisol PPD 5-TU 1 ml 10-Test
Lactated Ringers Sol 1000 ml bag
Lasix® (Furosemide) IV Parenteral 10 mg/10 mL
Lever Lock Cannula 303370
Lidocaine 2% (5 ml Luer Lock Syringe)
Lidocaine 1gm W/D-5-W 250 ml
Lifepak 12 Record Paper 2r1
Life-Patch ECG Electrodes (120 pk per case)
Lifeshield Male Adaptor
Light (Vision Tester): Lite-Source, Inc. (1-800-523-0860)
Lock Syringe BX25
Loperamide
Luer Lock Injection Site (200/BX)
Maalox®
Magnesium Sulfate 50% 20 ml (4mEg/ml 20 ml Vial)
Meclizine (MDV) 100 tabs
Medicine Cups 1 oz Plastic Grad Non-Sterile Pk/100

Medi-Wash Eye Irrigant Solution 4 oz
Morphine Sulfate 4 mg/ml 1 ml Carpuject LL
Mouthpieces P/B Flow Sensor f/REN-2 250/BX FSII
Mouthpieces P/B Flow Sensor f/REN-2 50/BX FSII
Narcan (Naloxone)
NTG 0.4 mg (Btl/l00)
NTG 1:150 Tab 25
OB/Gyn Applicators
Oxygen Tubing w/Crush-Resist Lumen w/Connectors 84"
Oxygen, Nasal Cannula
Oxygen, Nasal Cannula (Over-the-Ear Stand. Tip Stand. Tubing)
Pepto Bismol® Chew-tabs
Phenergan® (Promethazine) 10 ml (25mg/ml Injection)
Phenergan® (Promethazine) 1 ml (25mg/ml Ampule)
Phenergan® 25 mg IM 5x1 ml
(SO/Bottle) (SOO/Bottle) box 250 pkg/2
(SO/Box) & Diatek650) #IOOOIBX
Phenytoin Sodium (Dilantin-TM) 5 ml (50mg/ml Vial)
Pseudoephedrine (Pseudoval®) 30mg box 250 pkg/2
Pseudoephedrine 30 mg 100 each
Pyridoxine 100 mg 1 ml SDV (25/BX)
Quick Ice 5" x 7" ORM CT 3
Safety-Lok Vacutainer® Blood Col 23 G 283 (50/BX)
Sani-Cloth Plus Germ Wipe Large CT 160 Sharps Container 5-Quart (Red) #8509
Sharps Container 5-Quart (Red) w/Horizontal Drop
Silvadenc® Cream 1%
Skelaxin
Sodium Bicarb 8.4% 50 ml 50mEg Luer Lock Syringe
Sodium Chloride 0.9% 10 ml Vial (Bacteriostatic) BX 25
Sodium Chloride 0.9% 3 ml
Sodium Chloride 2B1324X 1000 mL
Sodium Chloride 9% 2B1322Q 250 mL
Solumedrol 125 mg
Specula Otoscope (Welch Allyn Universal) 4.25 mm (8501bag)
Suture: Black 4-0 Ethilon Nylon Reverse Cutting Suture
Syringe Only 3cc #9585 (100/BX)
Syringe) Multi-Dose Vial)
Syringes VanishPoint 21g x 1 inch #10351 (100/BX)
Syringes VanishPoint 23g x 1 inch #10311 (100/BX)
Syringes VanishPoint 23g x 1 inch #10311 (100/BX)
Table Paper 18" Smooth White CS 12
Tape Hypo-Silk 1" 10 yards 12/BX
Telfa Adhesive Pad 2x3 6017 Box/100
Telfa Non-Adherent Pads 3" x 4" (50/Box)
Tetanus/Diptheria Adult 7.5 ml=15 doses Vial
Tetanus/Diptheria Adult MDV SOI 7.5 ml=15 doses

Tetracaine
Thermometer Probe Covers (Sure Temp & Diatek 650)
Tongue Blade Adult 500/BX
Typhoid Oral Caps Vivotif 4/B X
Typhoid Vaccine Oral SOL 4 Each
Urinal, Male W/ Cover
Vaginal Speculum Med
Vasocon® Eye Drops
Vasopressin 20units/ml
Veni Gard IV Dressing 7054431 (100/BX)
Verapamil IV 4 ml (2.5 mg/ml Ansyr Syringe)
Vial Amber 40Dr CRC WI Caps CS 105

Attachment D – Acronyms & Definitions

Acronyms

ACGIH	American Conference of Government Industrial Hygienists
ACM	Asbestos-Containing Material
AFB	Air Force Base
AFFTC/EM	Air Force Flight Test Center/Environmental Management
AP	Accumulation Point
AST	Aboveground Storage Tank
AUL	Authorized Use List
BEI	Biological Exposure Indices
BOL	Bill of Lading
HDSC	Hazardous Distribution Support Center
CMS	Chemical Management System
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CRT	Cathode Ray Tube
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control
EO	Executive Order
FIFRA	Fungicide and Rodenticide Act
HAZCOM	Hazard Communication
HAZWOPER	Hazardous Waste Operator Emergency Responder
HDSC	Hazardous Distribution Support Center
HMMS	Hazardous Material Management System
HWCL	Hazardous Waste Control Law
HSC	California Health and Safety Code
IH	Industrial Hygienist
LDR	Land Disposal Restriction
LQG	Large Quantity Generator
LRWQCB	Lahontan Regional Water Quality Control Board
MSDS	Material Safety Data Sheet
NFPA	National Fire Protection Association
NSN	National Stock Number
OSHA	Occupational Safety and Health Administration

PCB	Polychlorinated Biphenyl
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
SPCCP	Spill Prevention Control and Countermeasures Plan
SQG	Small Quantity Generator
SR	Spill Response
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TRI	Toxic Release Inventory
TSDF	Treatment, Storage, and Disposal Facility
US EPA	US Environmental Protection Agency
UW	Universal Waste
WP	Waste Profile
VOCs	Volatile Organic Chemicals
ZM	Zone Manager

Definitions

Aboveground Storage Tank	An enclosed stationary device that is designed to store liquid materials. It is constructed primarily of materials that provide structural support and its volume (including integral piping) is less than 10 percent beneath the surface of the ground.
Accumulation Point	A 90-day hazardous waste storage area.
Asbestos	Substances comprised of or derived from actinolite, amosite, anthophyllite, chrysotile, crocidolite, or tremolite.
Asbestos-Containing Material	Any material or product that contains one percent or more asbestos.
Hazardous Distribution Support Center	Centralized locations (Buildings 4809, 4810, 4823, 4833, 4840, 4852) for hazardous material storage and issue, and hazardous waste collection.
Chemical Management System (CMS)	DFRC's system for managing hazardous materials and hazardous waste. The CMS is based on the centralized purchase, storage, and issue of hazardous materials with data managed through a web-based information management system. Hazardous waste is tracked from the point of generation to disposal.

	The intent of the CMS is to assure that trained persons with appropriate protective equipment are using the proper amount and type of chemicals in a safe manner and location.
Chemical Use Zone	An area where a hazardous material is licensed to an individual for use in a specific manner with prescribed training and personal protective equipment.
Discovered Waste	A waste that is not part of a normal waste steam, generated from a maintenance operation, or generated from an abatement operation for asbestos or lead-based paint
Environmentally Preferable Product or Service	A product or service that has a reduced adverse effect on human health and the environment when compared with similar products or services that serve the same purpose.
Hazardous Material	A substance that is capable of posing a risk to health, safety, property, or the environment. The term includes hazardous substances, hazardous wastes, high temperature materials, or other materials listed in the Hazardous Materials Tables in 49 CFR 172.101.
Hazardous Material Request	Authorization from Code SH that is required before purchasing a hazardous material.
Hazardous Waste	A hazardous material that can no longer be used for its original purpose.
Hazardous Waste Accumulation Point	A central location for hazardous waste to be collected and held for a maximum 90 days.
Hazardous Waste Contingency Plan	A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents at a US EPA permitted facility that could threaten human health or the environment.
Lead Based Paint	A paint that has any detectable amount of lead.
Life-Cycle Cost Analysis	The comprehensive examination of a product's environmental and economic effects throughout its lifetime, including new materials extraction, transportation, manufacturing, use, and disposal.
Material Safety Data Sheet	An information sheet provided by hazardous material manufacturers or distributors that summarizes product information such as ingredients, physical characteristics, hazards, safe storage, handling, and usage procedures, recommended personal protective equipment, and emergency

	response.
Personal Protective Equipment	Clothing or equipment used to isolate a worker from direct contact with a hazardous material.
Pollution	Any hazardous substance entering a waste stream or otherwise released into the environment.
Pollution Prevention	Source reduction and other practices that reduce or eliminate the creation of pollution through increased efficiency in the use of raw materials, water, or other natural resources.
Process Manager	The manager of a process that generates hazardous waste
Recycling	Recovering materials from a solid or liquid waste stream for use as raw materials in a manufacturing or other process.
Release	Any intentional or accidental spill or leak into the environment, including discarding opened or unopened containers, of a hazardous material.
Reportable Quantity	The quantity of a hazardous material that triggers regulatory agency reporting requirements when it is released.
Satellite Storage	An area where 55 gallons or less of waste may be accumulated for one year or less.
Toxic Release Inventory Report	An annual report sent to the US EPA that details the storage, use, or release of listed chemicals by a facility. Also known as “Form R” Inventory Reports.
Underground Storage Tank	An enclosed stationary device that is designed to store liquid materials whose volume (including integral piping) is more than 10 percent beneath the surface of the ground.
Uniform Hazardous Waste Manifest	A regulatory shipping document required when transporting hazardous waste for offsite treatment, storage, or disposal. It contains information regarding the contents of the waste, waste generator, transporter, and treatment, storage, or disposal facility.
Universal Waste	A California designation for non-Resource Conservation and Recovery Act wastes that require special handling.
US EPA Identification Number	The tracking number assigned by the US EPA to each hazardous waste generator, transporter, and treatment, storage, or disposal facility.
Waste Stream	The flow of a material through its usage, management as hazardous waste, to final disposition.

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