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APGR 200-60

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DEPARTMENT OF THE ARMY
U.S. ARMY ABERDEEN PROVING GROUND
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No. 200-60

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Environmental Quality
HAZARDOUS WASTE MANAGEMENT

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CHAPTER 1
GENERAL PROVISIONS

1-1. PURPOSE. This regulation specifies policies, assigns responsibilities, and establishes procedures for the management and disposal of hazardous and similarly handled Non-RCRA Subtitle C waste (aka Non-hazardous Industrial waste) generated at Aberdeen Proving Ground (APG).

1-2. SCOPE. This regulation applies to all personnel and to all commands, activities, tenants, and organizations located at APG that generate, handle, store, treat, dispose of, or otherwise manage hazardous or similarly handled industrial waste. Normally excluded from the industrial waste category are asbestos and used oil which are addressed under separate Federal, State and local guidance. Requirements stipulated herein meet and/or exceed Federal Environmental Protection Agency (EPA) and State of Maryland hazardous waste management regulations. Additional references are listed at appendix A.

1-3. POLICY. Aberdeen Proving Ground will comply with all applicable Federal, State, interstate, and local hazardous waste pollution control laws and regulations, both procedurally and substantively. Specific APG policies for the management of hazardous waste are as follows:

a. Compliance with applicable Federal, State, local and APG hazardous waste operating standards will be considered during the planning stages of any mission implemented on this installation.

b. Funding to dispose of hazardous/industrial waste generated by any operations will be programmed before generating operation begins.

c. All operations at APG that generate waste will determine the applicability of the disposal of their waste in accordance with (IAW) this regulation, all applicable state regulations and the Code of Federal Regulations (CFR).

d. All hazardous and similarly disposed of industrial wastes generated at APG will be tracked IAW the procedures of the Hazardous Waste Tracking System (HWTS). Wastes will be tracked from the moment of generation until complete destruction (i.e., "cradle-to-grave" management).

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e. To minimize land disposal, all avenues of recycling/reuse will be investigated and utilized. The APG preferred method of handling waste is recycling/reuse followed by incineration (RCRA permitted incinerator) as economically feasible.

f. Hazardous waste incinerators and/or other treatment, storage or disposal facilities that handle APG manifested waste will be periodically visited and evaluated to verify compliance with RCRA/COMAR and/or destination State treatment, storage and disposal standards.

g. Hazardous waste generated off-site will not normally be accepted at APG. The only current exception is chemical warfare material found in the State of Maryland. NOTE: This restriction is subject to change due to implementation of the Military Munition Rule and anticipated changes in our permit.

h. Aberdeen Proving Ground generated hazardous/industrial waste will be transported off-post IAW Department of Transportation (DOT), EPA and State requirements.

i. Hazardous and industrial wastes transported on-post will be in government owned or appropriate licensed contractor vehicles (Note - Transporting of hazardous waste in privately owned vehicles (POVs) is strictly prohibited). When in licensed contractor vehicles, the handling standards will be IAW with EPA, State, and DOT regulations. While in Government vehicles, the standards will be IAW the provisions of this regulation.

j. All unused/unopened surplus hazardous materials will be considered for reissue, reuse or recycling by being processed through the Defense Reutilization and Marketing Office (DRMO) or other Directorate of Safety, Health and Environment (DSHE), U.S. Army Garrison, Aberdeen Proving Ground (USAGAPG) approved means.

k. The volume and toxicity of hazardous material utilized on APG will be reduced wherever economically practicable.

l. Personnel changes affecting the management of the hazardous waste program will be identified immediately and

notification will be made to the appropriate personnel IAW chapter 3 of this regulation.

m. Training criteria will comply with Federal, State, local and APG requirements.

n. Emergency assistance will be provided to all activities on the installation based on guidance outlined in the Installation Spill Contingency Plan (ISCP).

o. Each operation or activity will establish a level of emergency response based on missions/operations, ISCP responsibilities or internal SOPs for their personnel and ensure adequate training to meet that level of competency.

p. Non-compatible wastes will not be commingled.

q. Activities operating in such a manner, as determined by DSHE, to cause or potentially cause harm to human health or the environment, will immediately cease operating until corrections have been completed, inspected and approved. Activities may also be directed to cease operations if they are in violation of applicable environmental regulations.

r. The contents of all drums and containers of hazardous materials or substances will be identified by a legible and permanent label or marking stating its common name and/or any physical or health hazards as applicable. Classified material operations may not be able to meet this requirement.

s. All oil-soaked materials (e.g., rags, absorbents) containing free liquids will be disposed through the HWTS.

t. Aerosol cans, fluorescent and other specialty tubes/bulbs and other unique waste streams will be managed according to waste specific policy memorandums.

u. All containers, larger than 26.5 gallons utilized for accumulating or storing hazardous/industrial waste, must meet DOT container standards.

CHAPTER 2
RESPONSIBILITIES

2-1. BACKGROUND. All personnel who generate, transport, treat or store hazardous and similarly handled industrial waste at APG will comply with Federal, State and APG hazardous waste management requirements. The EPA and the Maryland Department of the Environment (MDE) consider APG to be a single, waste generating activity. Aberdeen Proving Ground is ultimately responsible for all waste (hazardous and industrial) generated on post, regardless of the activity actually producing the waste. Internally, however, APG considers each activity on post to be an individual generator and assigns to them those responsibilities applicable to generators of hazardous waste according to standards promulgated in the RCRA as implemented in EPA regulations (ref 40 CFR) and further expanded in COMAR, Part 26. Consequently, individual activities will be accountable for the proper identification, classification, packaging, labeling, marking, storage, record keeping, on-post transportation and reporting of the hazardous/industrial waste they produce. The following are responsibilities of specific installation personnel.

2-2. ACTIVITY RESPONSIBILITIES.

a. The Deputy Installation Commander, APG, functioning as the Commander, U.S. Army Garrison, Aberdeen Proving Ground, will:

(1) Serve as the overall manager of APG's hazardous waste program and ensure compliance by all tenant and support activities with all applicable hazardous waste laws and regulations.

(2) Ensure supervisory officials take appropriate corrective, disciplinary, adverse or performance-based action against any employee who does not comply with the provisions of this regulation.

(3) Ensure APG RCRA/COMAR permitted units are operated IAW their permit(s) or permit application(s).

b. The Director, Safety, Health and Environment will:

- (1) Serve as the Commander's central point of contact (POC) for all hazardous waste management at APG.
- (2) Oversee the administration of hazardous waste management program.

(3) Represent environmental concerns, to include hazardous waste management, at the Senior Environmental Quality Control Committee (SEQCC).

(4) Ensure appropriate DSHE project officers act as the waste generator for Environmental Conservation and Restoration Division (ECD) program generated wastes, and initiate waste turn-in through the HWTS. The responsible ECD project officer will also coordinate through the Treatment, Storage and Disposal Facility (TSDF) to arrange transportation and disposal of the waste.

c. The Chief, Environmental Compliance Division (ECD) DSHE, as the Installation Environmental Quality Coordinator (IEQC) will:

(1) In coordination with Federal, State and local regulators and installation activities, develop overall management policies for hazardous waste including, but not limited to, hazardous waste accumulations, on-site inspections, on-site storage and turn-in.

(2) Implement a comprehensive hazardous waste management program to ensure compliance with applicable Federal, Maryland, local and APG regulations by all installation tenants and support activities.

(3) Through the Hazardous Waste Branch (HWB):

(a) Notify the appropriate Federal and State hazardous waste agencies detailing existing APG hazardous waste treatment or storage activities that require a permit. Submit permit applications as required by Federal and State authorities.

(b) Sample and analyze, upon request, waste that cannot be identified by the generator or requires additional characterization.

(c) Manage data in the installation HWTS, to provide an accurate inventory of all hazardous/manifested waste generated from point of generation to final treatment and/or disposal.

(d) Provide HWTS users with necessary system training.

(e) Provide for the removal of properly identified, containerized and labeled hazardous waste to APG's or a commercial permitted treatment, storage or disposal facility.

(f) Provide ongoing guidance to generating activities for the proper handling and disposal of hazardous waste.

(g) Coordinate with appropriate activities to reutilize uncontaminated, excess, hazardous materials.

(h) Inspect Satellite Accumulation Sites (SASs), Temporary Storage Sites (TSSs), and TSDFs to ensure hazardous waste is being handled and stored IAW COMAR and this regulation.

(i) Provide contract specifications for off-site transportation, treatment and disposal of hazardous waste IAW Federal and State regulations. Ensure all destination state requirements are met for shipments of waste.

(j) Implement a comprehensive training program for all personnel associated with the handling and/or management of hazardous waste IAW the provisions of COMAR 26.13.05.02G, Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120 (as appropriate), and this regulation. Maintain documentation of this training for inspection by EPA and the State of Maryland.

(k) Oversee and coordinate Installation Hazardous Waste Minimization (HAZMIN) efforts and actively participate in related Pollution Prevention (P2) activities.

(l) Update this regulation as significant changes occur in Federal, State, local or Army regulations.

(m) Serve as the emergency Installation Environmental Coordinator (IEC) for all hazardous waste spills or releases.

d. The Chief, Installation Safety Division, DSHE, will:

(1) Evaluate safety standards for hazardous waste handling, labeling and marking, storage, packaging, transportation, cleanup at uncontrolled disposal sites and emergency spill response.

(2) Coordinate safety inspection observations and recommendations with the ECD to establish, where possible, comprehensive singular compliance guidance.

(3) Establish OSHA safety and health training in conjunction with RCRA/COMAR hazardous waste/substance operational standards.

e. The Director, Civilian Personnel Advisory Center (CPAC) will:

(1) Provide guidance to commanders, staff officers, heads of activities, managers and supervisors to incorporate hazardous waste tasks into employee job description and performance standards.

(2) Provide guidance and support to HWB in the implementation of the APG hazardous waste training program.

(3) Provide support to commanders, staff officers, heads of activities and managers for internally sponsored hazardous waste training.

(4) Coordinate required, commercial hazardous waste training for tenant and support activities.

f. The Director, U.S. Army Materiel Command Acquisition Center will, upon receipt of a purchase request, establish contracts for the transportation, storage, treatment and disposal of hazardous waste (APGR 715-1, Purchase Procedures).

g. The Commander, Kirk U.S. Army Health Clinic will:

(1) Provide technical assistance, as requested, regarding potential health effects for known hazardous materials and wastes.

(2) Assist in preparing permits for hazardous waste treatment and/or storage facilities; reviewing permits for health-related implications; and in providing guidance on the operation of hazardous waste facilities.

(3) Recommend engineering control methods based on industrial hygiene surveys.

(4) Provide medical evaluation and assist in selecting appropriate PPE.

(5) Determine and implement the required medical surveillance for hazardous waste handlers.

(6) Advise the post and tenant commanders on the occupational health aspects of hazardous waste operations.

h. The Director, Information Management (DOIM), will provide maintenance, upgrading and programming support for the electronic HWTS.

i. The Technical Director, Edgewood Chemical and Biological Center (ECBC), will:

(1) Provide sufficient resources; to include: funds, personnel and equipment/material to support the application and maintenance processes for obtaining/producing all required RCRA/COMAR permit(s)/permit application(s) and related documents, records and/or reports.

(2) Sign (or designate a responsible person/persons to sign) as the Operator on RCRA/COMAR permit application(s) and related documents for ERDEC operations/units/facilities.

(3) Manage and operate all its RCRA/COMAR-permitted units as stipulated in the Installation RCRA/COMAR permit.

j. The Commander, U.S. Army Aberdeen Test Center (ATC), will:

(1) Provide sufficient resources; to include: funds, personnel and equipment/material to support the application and maintenance processes for obtaining/producing all required RCRA/COMAR permit(s)/permit application(s) and related documents, records and/or reports.

(2) Sign (or designate a responsible person/persons to sign) as the Operator on RCRA/COMAR permit application(s) and related documents for ATC operations/units/facilities.

(3) Operate and manage Open Burning/Open Detonation (OB/OD) activities for hazardous waste treatment IAW the RCRA Subpart X standards, RCRA/COMAR interim permitted unit standards and/or the Nov 1988 permit application (with modification(s)) as appropriate.

(4) Handle explosive hazardous waste IAW RCRA, CERCLA, COMAR and Army regulations.

k. The Commander, U.S. Army Technical Escort Unit (TEU), will:

(1) Provide sufficient resources; to include: funds, personnel and equipment/material to support the application and maintenance processes for obtaining/producing all required RCRA/COMAR permit(s)/permit application(s) and related documents, records and/or reports.

(2) Sign (or designate a responsible person/persons to sign) as the Operator on RCRA/COMAR permit application(s) and related documents for TEU operations/units/facilities.

(3) Operate and manage OB/OD activities for hazardous waste treatment IAW the RCRA Subpart X standards, RCRA/COMAR interim permitted unit standards and/or the November 1988 permit application (with modification(s)) as appropriate.

(4) Handle explosive/munition related, chemical warfare and/or Installation Restoration recovered waste items IAW RCRA, CERCLA, COMAR, DOD/DA regulations and related laws and requirements.

1. Commanders, staff officers and directors or heads of activities will:

(1) Ensure compliance within their area of responsibility with all applicable hazardous waste laws, regulations, and the policies, responsibilities and procedures set forth in this document.

(2) Ensure all personnel within their areas of responsibility are aware of the consequences for violations of the provisions of this regulation.

(3) Designate an Activity Environmental Coordinator (AEC) and at least one alternate responsible for performing environmental coordinator duties for hazardous waste management.

(4) Incorporate appropriate hazardous waste job tasks into personnel performance standards.

(5) Ensure all personnel with hazardous waste management responsibilities are properly identified and trained. Ensure newly assigned personnel do not work in unsupervised positions until they have completed their initial training.

m. Activity Environmental Coordinators (AECs) will:

(1) Serve as a members of the Working Level Environmental Quality Control Committee (WLEQCC) as described in APGR 200-1, and as the point of contact for coordination between the activity and the installation for hazardous waste management.

(2) Immediately notify the TSDF manager that a potential hazardous waste will be generated as the result of a new operation or process change.

(3) By 1 August of each year, provide the TSDF manager with a written update of the locations of all organizational hazardous waste Satellite Accumulation Sites (SASs) and 90-day Temporary Storage Sites (TSSs). Include

the names, job titles, office symbols, and telephone numbers for each designated SAS and TSS manager. Identify one manager and at least one alternate for each SAS and TSS.

(4) Ensure the development and implementation of Standard Operating Procedures (SOPs) for the management of hazardous waste for each generation site, SAS, TSS, permitted/interim status treatment sites (i.e., the Thermal Treatment Facility (TTF), Chemical Transfer Facility (CTF), OB/OD, N-Field) and the permitted storage sites (i.e., TSDF, CTF). The SOPs will include, but are not limited to, handling procedures, site specific contingency plan, emergency spill response, waste identification, reporting, labeling and containerization IAW this regulation. The SOPs can include or cover written and procedural guidance for both RCRA/COMAR and OSHA requirements.

(5) Identify to the ECD HWTS manager (Tel: 410-436-3399/ STEAP-SH-ER) the names of hazardous waste generators or designated data entry personnel authorized to input waste turn-in information into the HWTS.

(6) Coordinate and/or schedule all personnel at hazardous waste operations (i.e., generators/handlers, SAS manager/ alternate, TSS manager/alternate, first-line supervisors, compliance managers (AECs), TSDF personnel) for initial classroom instruction within 6 months of their employment or assignment to hazardous waste management duties. Coordinate and schedule all personnel for refresher training as required.

(7) Ensure personnel assigned to hazardous waste spill cleanup operations outside their operational area receive appropriate training as determined by their job responsibilities and the training requirements listed in 29 CFR 1910.120(q) before they are permitted to engage in activities that could expose them to hazardous substances and related safety and health hazards.

(8) Ensure that personnel working or associated with a hazardous waste or cleanup operations be trained to the level of emergency response required by the organization and written in the individual's job description. At a minimum, personnel will be trained similar to the OSHA first responder level (29 CFR 1910.120[q][6][i]) which includes, but is not limited to,

the ability to realize the need for additional resources and an understanding of the potential outcomes associated with an emergency created when hazardous substances are present.

(9) Ensure hazardous waste personnel training records are complete and current.

(10) Conduct and document quarterly inspections at SASs, TSSs, and permitted units to ensure compliance with Federal, State, local and APG regulations. These inspections may be conducted concurrently with DSHE inspections.

(11) Assign personnel the responsibility to transport hazardous waste from the SAS to the appropriate TSS IAW the handling and transportation standards in this document.

(12) Ensure the costs of hazardous waste management (e.g., HW labels, DOT labels, publications, etc.), required personnel training (OSHA/RCRA), hazardous waste collection, and hazardous material/waste spill control and cleanup (e.g., absorbent, drums, shovels, spill kits, etc.) are included in the annual operating budget for their activity.

(13) Ensure the cost requirements for hazardous waste management and disposal are identified to the Army in the Environmental Pollution Prevention, Control, and Abatement at DOD Facilities Report (RCS DD-P&L [SA] 1383) or other documents as appropriate.

n. TSS Managers will:

(1) Ensure, prior to acceptance into his/her facility, all items have been identified, classified, packaged, labeled and documented properly by the generator or SAS manager/alternate IAW this regulation.

(2) Ensure the electronic transfer of the hazardous material/waste from the SAS to the TSS in the HWTS computer.

(3) Properly manage waste while at the TSS, and maintain all records associated with the TSS. The TSS manager will communicate with the TSDF manager to ensure no waste exceeds its maximum storage period of 90 days.

(4) Obtain and maintain all necessary drums, spill kits, labels and other related supplies and equipment needed to manage the TSS IAW this regulation and their internal SOP(s).

o. Satellite Accumulation Site Managers (or waste generator as appropriate) will:

(1) Properly maintain their sites and ensure all hazardous wastes are identified, classified, packaged, labeled and properly documented for accumulation at the SAS and for acceptance at a TSS or TSDF.

(2) Obtain and maintain all necessary drums, spill kits, labels and other related supplies and equipment needed to manage the SAS IAW this regulation and their internal SOP(s).

CHAPTER 3 PROCEDURES

3-1. HAZARDOUS WASTE TRACKING SYSTEM (HWTS).

a. The HWTS is an on-line computer system developed to identify, document and track hazardous waste and material at APG. The HWTS is currently under the direction of the U.S. Army Test and Evaluation Command (TECOM). The HWTS utilizes a UNIX based host computer running in an Informix Relational Database Management System Format, which provides a series of menu driven applications for inquiring, updating and outputting reports from the database. To prevent access by unauthorized personnel, security is provided in the form of individual log-in identification codes and passwords. Those persons authorized to log into the system are only granted access to specific applications depending on their job task. The HWTS is accessible through telephone lines from an IBM compatible personal computer utilizing terminal emulation software and a modem or from a system terminal.

b. To assist in ensuring waste is moved within the required timeframe, the HWTS has the capability to send electronic message "reminders" to appropriate personnel. For waste stored at 90 day temporary storage sites, the following electronic messages will be sent out: Day 65 - to the AEC; Day 75 - to the TSDF manager; Day 82 - to the installation hazardous waste compliance office.

3-2. INDIVIDUAL GENERATORS AND SATELLITE ACCUMULATION SITES.

a. Site Establishment/Waste Accumulation:

(1) Any hazardous material deemed to be a RCRA hazardous waste which is no longer a part of the process that generated the waste, must be immediately placed in an SAS (i.e., same day), or turned in to a TSS or the TSDF. NOTE: Industrial wastes (e.g. non-hazardous photographic fixers, certain XXX decon solutions, etc.) warranting handling similar to hazardous wastes, may also be accumulated in an SAS, in TSSs, and stored in the TSDF.

(2) Hazardous waste generators will establish SASs at or reasonably near the point of generation, and under the control of the operator of the process generating the waste. All newly opened SASs and SAS closures will be approved by the activity's AEC and coordinated through the DSHE Hazardous Waste Management Branch.

(3) Spilled or unusable hazardous materials declared hazardous or industrial wastes may be placed at an SAS located in the immediate vicinity of the operation or process generating the wastes.

(4) Spilled or unusable hazardous materials declared hazardous wastes that are not located near an SAS must be taken the same day generated to a TSS or permitted TSDF. Same day turn-in actions should include logging the waste in the HWTS and obtaining, at a minimum, activity approval (AA) status. This stringent same day turn-in requirement does not specifically apply to non-hazardous industrial wastes, but activities are encouraged to expedite the turn in of these wastes as operationally feasible (i.e., within 1 or 2 working days).

(5) No more than 55 gallons total volume of hazardous waste or one quart of acutely hazardous waste may be accumulated at an SAS at any time. If the 55 gallon (or 1 quart) volume is reached, no further accumulation of wastes will occur at the SAS until the previously accumulated wastes have been transferred to a TSS or the TSDF. If the 55 gallon (or 1 quart) limit is ever exceeded, the generator must immediately (i.e., same day) turn in at least the excess over 55 gallons to a TSS or the TSDF. (NOTE: The intent of this requirement is to have the earliest dated waste container(s) removed first; "first in first out.") There are no specific restrictions on the maximum quantities of industrial wastes which may be accumulated near an SAS. Once again, activities are encouraged to minimize this quantity as SASs are only intended to handle small amounts of wastes generated at operational industrial processes.

(6) All SAS locations will be clearly marked with a sign, posted at the immediate site of accumulation, that reads "Satellite Accumulation Site." If the SAS is located in an area where access to the site by untrained/unescorted personnel is

probable, a second sign, posted at the entrance to the active portion of the site, will read "Caution-Unauthorized Personnel Keep Out" or "Danger-Unauthorized Personnel Keep Out" based on the hazard (29 CFR 1910.145(c)(1)+(2)).

b. Container Management:

(1) Containers used for accumulating/storing waste will be clearly identified with the appropriately annotated EAP labels. All markings and labels pertaining to previous container contents will be removed or permanently blanked out prior to using the container for waste accumulation.

NOTE: Standardized hazardous waste and Non-RCRA "C" waste (Subtitle "C" of RCRA covers only hazardous wastes, while Subtitle "D" covers the disposition of other solid wastes) labels are available, and can be ordered through the Publications Stockroom. The form numbers for hazardous waste labels are EAP 1008 (Hazardous Waste) for the 2 inch by 3½ inch label and EAP 1009 (Hazardous Waste) for the 4 inch by 6 inch label. For Non-RCRA "C" waste, the numbers are EAP 1006 (Regulated Non-RCRA C Waste) for the 2 inch by 3½ inch label and EAP 1007 (Regulated Non-RCRA C Waste) for the 4 inch by 6 inch label. At the start of accumulation for any container, an SAS start accumulation date, waste name and contents must be noted on the label. Waste tracking bar code labels should also be affixed to containers at the initiation of waste accumulation, but no later than actual turn in to a TSS or the TSDF. (These labels are provided to AECs from DSHE.)

(2) Hazardous and Industrial waste will be accumulated in an appropriately sized container to avoid excessive accumulation time. Waste containers, once filled and approved for transfer by the AEC and/or the IEC as appropriate, will be expeditiously moved to a TSS or the TSDF.

(3) Hazardous and non-hazardous industrial wastes may only accumulate in an SAS for a maximum period of 180 days. Within that time frame they must be transferred to a TSS or the TSDF. An exception to this rule will be waste streams generated in very small quantities. Non-acute hazardous waste and industrial wastes streams generated in less than 1 gallon total volume may be accumulated for up to 1 year at an SAS.

(4) Containers holding waste will be free of leaks, corrosion, and structural defects. If a container holding waste is not in good condition, or if it begins to leak, the SAS manager or alternate will ensure it is immediately transferred to another functional container in good condition or overpacked. This operation will be carried out IAW the site specific contingency plan or SOP.

(5) Containers holding waste will be made of or lined with materials which do not react with, and are otherwise compatible with the waste to be stored. Containers holding waste will be separated or protected from other waste containers holding incompatible waste or material by means of a dike, berm, wall, or other protective device. Incompatible wastes will not be commingled in a single container. Doing so could lead to dangerous conditions such as releasing toxic vapors, causing a fire, or an explosion. Containers that previously held a waste or material incompatible with newly generated wastes will not be utilized.

(6) Containers holding waste will always be closed during storage, except when it is necessary to add or remove waste. Waste containers may not be opened, handled, or stored in a manner which may rupture the container or cause it to leak. (NOTE: Adding or removal means actual movement of waste into or out of the container.)

(7) Containers holding waste that contain free liquids need to be placed in a spill pan, tray or other appropriate containment device capable of holding at least 10 percent of the aggregate volume of all the containers, or the volume of the largest container, whichever is greater.

c. Recordkeeping. Each SAS manager will maintain the following documentation on site.

(1) Copies of the AEC quarterly and DSHE annual inspections for the last year.

(2) All waste analyses and related documents used to characterize/profile site waste streams. Maintain these documents for 3 years from the date the wastes are transferred for disposal.

(3) A waste inventory log for all Hazardous and Non-RCRA C Wastes (Industrial Wastes) removed from the site in the last year. The log will include the following information:

(a) The container's inventory number (i.e., number with the HWTS Bar Code label). NOTE: The bar code can be placed on the container prior to the item being logged into the HWTS.

(b) The type of waste (i.e., description and/or chemical name).

(c) The date that waste is first placed into the container (SAS Start Accumulation Date). Note: The SAS start accumulation date should not be confused with the TSS start accumulation date (the date waste is first accumulated in and/or transferred to a 90 day temporary storage site), or the TSDF start accumulation date (the date an item is transferred into a permitted TSDF).

(d) The amount (ml, kg, etc.) and identification of waste added to a container, and date of the addition, NOTE: This can be done to be consistent with the HWTS; i.e., total weight of waste and container or just the weight/volume of the waste that is currently in the container.

(e) An annotation that the site was in compliance, and if not, the action taken to correct any discovered deficiency(s).

(f) The waste generator's identity (Name, activity address, duty phone number).

(g) The waste container's date of removal from the SAS (shipment date) and destination (i.e., TSS building number).

(4) Copies of training documents listed in paragraph 4-1b. Exception: Training documentation may be maintained centrally or at each SAS.

d. Waste Characterization.

(1) Wastes require characterization to assign appropriate EPA hazardous waste codes and/or determine their proper handling and disposal. Generators will identify their wastes through Material Safety Data Sheets (MSDS), label information, knowledge of the waste or waste generating process, or via laboratory analysis. The MSDSs provide sufficient information for the characterization of unused or partially used virgin products. Laboratory analysis is required for unknowns or other insufficiently categorized wastes. Once properly characterized, waste stream profiles are developed by the DSHE and need only be updated once annually for recurring, bulk waste streams (i.e., 2 - 55 gallon drums or more per year), or once every 3 years for non-bulk (< 2 - 55 gallon drums per year), recurring wastes. Non-recurring waste streams, or recurring waste streams altered by process changes require characterization and the creation of a new profile with each waste generation. For those personnel involved in waste sampling activities, sampling and analysis information/requirements are provided in chapter 6 of this regulation.

(2) Under most circumstances, containers with unknown materials should not be moved from the site of discovery until the contents can be identified by the owner/generator/discoverer or through analysis. If reasonable identification (not a guess) can be provided by the generator, then it should be turned in via the HWTS and moved to a TSS or one of the permitted storage sites as appropriate. The HWB will be immediately notified upon the discovery of unknowns so proper steps can be implemented to minimize the possibility of injury and/or regulatory violation. (NOTE: The HWB is the approving authority for moving unknown waste.)

(3) Individuals collecting samples will be appropriately trained in safety, health and environmental procedures and be provided with the proper PPE suitable for the type of material/ waste being sampled. Sampling will be performed in accordance with approved Garrison APG/Tenant procedures. More information can be found in chapter 6 of this regulation.

e. Waste/Material Tracking/Turn-In.

(1) Waste generators ready to turn in/transfer waste to a TSS or the TSDF will create an analysis sheet and turn-in document (TID) through the HWTS for all hazardous and similarly handled industrial wastes generated at APG. The specific steps to input a waste into the HWTS are outlined in the Generator's, TSS's and AEC's Users Manual provided at Installation sponsored hazardous waste training or from the HWB. One bar code label, provided by the TSDF manager to installation AECs, will be assigned to each waste item and affixed to the outside of the item or the item's container. Multiple identical items may be placed in a single container affixed with a single bar code and label representing the contents (NOTE: Comments should be placed in the TID or analysis sheet when this is done). Where individual items are only temporarily stored in a larger container for transportation, each small item will be assigned its own bar code label. The bar code number will be referenced as the "Waste Container Inventory Number" when entering the item into the computer. From that point until ultimate disposal off-post, the waste item will be identified and tracked by the bar code inventory number. In order for the waste to be properly managed, the generator must accurately complete the information required on the computer analysis sheet and TID.

(2) Before a waste item is electronically transferred and physically moved from an SAS to a TSS, the AEC should review and approve (i.e., activity approved or AA status) all turn-in data for accuracy. Waste destined for the TSDF or building 5110 (Aberdeen area consolidated 90-Day site) should have an installation approved (IA) status prior to acceptance into these facilities. The item's bar code number will be used to transfer information about the waste from the generators database to the TSS database. This may be accomplished by using a bar code reader and down-loading the information into the HWTS inventory or manually entering it on the same day as the transfer. In this way, the HWTS will document the movement of the waste item from the SAS to the TSS. Similarly, when the item is removed to APG's TSDF, the TSDF personnel will electronically transfer this information into the TSDF inventory on the same day the item arrives at the TSDF. Since there are legal requirements limiting the storage of hazardous waste at TSS's to a maximum of 90 days, prompt documentation is imperative for an accurate record of the item's stay.

f. Contingency Planning.

(1) All SASs will have a site-specific contingency plan/ emergency procedure. (NOTE: This plan can be an SOP (IOP) or incorporated in the SOP (IOP) for the site.) The contingency plan and all revisions will be maintained at or near the site. The plan will, at a minimum, include the following:

(a) Description of actions to take in response to fires, explosions or releases of wastes.

(b) Listing of names, addresses and phone numbers (office and method of contacting during non-work hours) of all persons qualified to act as Emergency Coordinator. One will be named as primary, the others are listed in the order in which they will assume responsibility as alternates.

(c) Listing of all emergency supplies/equipment, their location(s), and capabilities.

(d) An evacuation plan where there is a possibility that evacuation could be necessary. The plan will describe signals used to begin the evacuation. Primary and alternate evacuation routes will be prominently posted at the site.

(2) Each SAS will have access to a copy of the ISCP and the SAS site specific contingency plan/SOP.

(3) "DIAL 911 FOR EMERGENCY RESPONSE" or the equivalent will be posted at each SAS. NOTE: Most SASs are located with access to installation phone service. Those locations that are not must post the appropriate cell phone number and/or means to contact emergency response personnel.

(4) Each SAS area will have ready access to the following, unless it can be demonstrated that none of the hazards posed by waste handled at the site could require the use of any of the items specified below:

(a) An internal communication or alarm system.

(b) A telephone or a hand-held two-way radio immediately available at the site.

(c) Portable fire extinguisher, fire control equipment for ignitable or reactive waste and any emergency equipment required by the internal SOP. (NOTE: Fire extinguisher/control equipment must be inspected at least monthly.)

(5) Adequate space will be maintained to allow for the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of an SAS.

g. Inspections.

(1) The SAS Manager or designated representative, will inspect the SAS each day an entry is made to the site waste inventory log (i.e., each day that waste is transferred in or out of the site).

(2) At a minimum, the AEC, or designated representative, will inspect each SAS in his/her activity once a quarter. As a best management practice, at least one inspection a year should be unannounced. The inspection content will be consistent and equivalent to the Federal, State, and local APG regulations that are already in place; however, tenant activities may impose upon their personnel additional procedures which are more stringent. NOTE: The AEC's inspections may be conducted concurrently with the DSHE inspection.

(3) An Installation representative (DSHE inspector) will inspect each SAS on APG at least once per year. The DSHE inspector will notify the tenant's AEC of the upcoming inspection (normally several days or more in advance, although DSHE may inspect sites with as little as 24 hours notice). The AEC will in turn notify the site manager, or alternate, of the upcoming inspection. The DSHE inspector performs the site inspection. The AEC may be present. At the conclusion of the inspection, the DSHE inspector will review the completed site inspection checklist sheet with the SAS Manager, or Alternate, identifying and explaining deficiencies noted and recommendations for corrective action. Before departing, the DSHE inspector will leave a copy of the completed inspection checklist sheet with the AEC or site Manager. In addition, the Chief of the HWB, ECD, DSHE, will receive a copy shortly thereafter. Within 10 working days of completing an SAS compliance inspection, the DSHE inspector

will write a formal inspection report for the activity/directorate. The SAS manager should address any finding immediately after the inspection and not wait for the formal inspection report before taking action.

(4) The MDE may conduct unannounced inspections of all SASs on APG. An Installation representative (DSHE person) will escort all State inspectors.

3-3. NINETY DAY TEMPORARY STORAGE SITES.

a. Site Establishment, Closure and Management.

(1) Activities will designate specific locations for the temporary storage of hazardous waste, otherwise known as TSS. Site locations and facility design must be inspected and approved by HWB, ECD, DSHE personnel prior to utilization. NOTE: There are additional requirements for 90-Day hazardous waste tank establishment and management. These requirements make hazardous waste tank operations much more difficult to maintain in compliance. Tenants and activities will make every effort to minimize the number of hazardous waste tank operations they manage. All new tank systems will be brought specifically to the Installation HWB's attention in its concept/design phase.

(2) As they are opened and closed, all TSSs will have pre-operational and post-closure inspections, respectively. No waste or waste residue may remain behind upon closure of a TSS. These inspections will be conducted by HWB, ECD, DSHE personnel and/or their designated representatives.

(3) All TSS locations, with corresponding names and telephone numbers for the Managers and Alternate(s), will be given to the Chief, HWB, ECD, DSHE by the AEC initially and as changes are made.

(4) Any TSS may accumulate and/or store hazardous waste without a permit provided the waste item is removed directly to the permitted APG TSDF or off-post TSDF within 90 days of its start accumulation/storage date at the TSS. NOTE: A TSS is a **less than 90 day** accumulation/storage site.

(5) Any TSS storing ignitable or reactive waste will have signs prominently posted inside and out with the legend "No Smoking," or the equivalent. Containers storing ignitable or reactive waste will be located at least 15 meters (50 feet) from the installation boundary line, and will be separated and protected from sources of ignition or reaction, including but not limited to open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks, spontaneous ignition, and radiant heat.

(6) If a TSS is used for accumulating ignitable or reactive waste, there will be a properly maintained fire extinguisher available on site. Inspection of fire extinguisher will be made monthly. The inspector will enter the date of the inspection, condition of the extinguisher (e.g., OK), and his or her initials in the appropriate location on the attached tag.

(7) To control the unknowing and unauthorized entry of people, all entryways leading into the active portion of a TSS will be properly secured through the use of gates, doors, or other entrances that will remain locked, except when necessary to handle waste, conduct inspections, or respond to emergencies. Each TSS approachable outside wall and every entrance to the active portion of the site will have signs prominently posted and legible from a distance of at least 25 feet with the legends, "Danger-Unauthorized Personnel Keep Out" and "Temporary Hazardous Waste Storage Site."

(8) A TSS will be designed, constructed, maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil or surface water which may threaten human health or the environment.

(9) A TSS will have a containment system that is capable of collecting and holding accidental or unplanned releases and precipitation. The containment system will have a base underlying the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated rainfall until the collected material is detected and removed. The containment system will be designed for efficient drainage so that standing liquid does not remain on the base longer than one hour after a leakage or precipitation event unless the

containers are elevated, or in some other manner are protected from contact with accumulated liquids. The containment system will have sufficient capacity to contain 10 percent of the total volume of containers or the volume of the largest container, whichever is greater. A TSS will have run-on prevention. At a minimum, a TSS will have a roof that eliminates or at least minimizes the amount of exposure to precipitation. A TSS will be free of spilled or leaked waste and accumulated precipitation to prevent overflow of the containment system.

b. Container Management.

(1) Before accepting waste into a TSS, a TSS manager will inspect the container to ensure the container is in good condition and compatible with the waste stored in it. Containers holding waste will be free of leaks, corrosion and structural defects.

(2) Containers used for accumulating/storing waste will be clearly identified with the appropriately annotated EAP labels. All markings and labels pertaining to previous container contents will be removed or permanently blanked out prior to using the container for waste accumulation. NOTE: Standardized hazardous waste and Non-RCRA "C" waste (Subtitle "C" of RCRA covers only hazardous wastes, while Subtitle "D" covers the disposition of other solid wastes) labels are available, and can be ordered through the Publications Stockroom. The form numbers for hazardous waste labels are EAP 1008 for the 2 inch by 3½ inch label and EAP 1009 for the 4 inch by 6 inch label. For Non-RCRA "C" waste, the numbers are EAP 1006 for the 2 inch by 3½ inch label and EAP 1007 for the 4 inch by 6 inch label. Where labels or markings cannot be applied directly to a container due to its small size or unsuitable surface, a tag containing all of the following pertinent information will be attached securely. The following information must appear on the label/tag:

(a) The words "HAZARDOUS WASTE" or "NON-RCRA C" as appropriate (NOTE: This information is already pre-printed on the required labels).

(b) Name/description of waste and contents.

(c) The EPA and/or COMAR numbers for the waste stream.

- (d) A start storage date in the TSS.

NOTE: Exemption - Lab Pack containers are not required to have EAP labels if they have been properly packaged and labelled by our hazardous waste contractor for shipment. The contractor labels must have the above information included for this exemption to apply.

(3) In order to meet/ensure compliance with volatile organic air emissions standards, hazardous waste containers with a capacity greater than 26.5 gallons must:

- (a) Be DOT approved/meet DOT approval criteria; or

(b) Contain waste(s) that when entering the container was less than 500 ppm by weight average volatile organic compounds (VOC) as determined by sampling and analysis (requires four samples using EPA air quality analysis method 25D found in 40 CFR 60, Appendix A), or through generator knowledge based on organic material balances, documentation that the generating process did not utilize volatile organics, etc. NOTE: Specific requirements for this can be found in 40 CFR 265.1087.

NOTE: Air emission requirement for tank/tank systems are much more restrictive/complicated. Special effort should be made to minimize the number of operations subject to these requirements. Specific air emission requirements can be found in Subpart CC, 40 CFR 265.1080-1091.

(4) Containers holding hazardous waste will be free of leaks, corrosion and structural defects. If a container holding hazardous waste is not in good condition, or if it begins to leak, the waste will be immediately transferred from this container to a container that is in good condition, or overpacked in a larger outer container. This operation will be carried out IAW the site specific contingency plan/SOP.

(5) Containers holding hazardous waste will be made of or lined with materials which do not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the containers to contain the waste is not impaired. Containers holding hazardous waste will be separated or protected from other waste containers holding incompatible waste or material by means

of a dike, berm, wall, or other protective devices. Incompatible wastes will not be commingled in a single container. Doing so could lead to dangerous conditions such as releasing toxic vapors, causing a fire, or an explosion. Containers that previously held a waste or material incompatible with newly generated wastes will not be utilized unless they are properly rinsed. (NOTE: Rinsate from container cleaning operations must be properly collected and managed.)

(6) Containers holding hazardous waste will always be closed during storage, except when it is necessary to add or remove waste. The containers may not be opened, handled or stored in a manner which may rupture the container or cause it to leak. (NOTE: "Adding" or "removal" means the actual pouring or pumping into or out of a waste container.)

c. Recordkeeping. Each TSS Manager will maintain the following documents on site for at least 3 years (NOTE: Records may have to be kept longer during regulatory investigations related to site operations):

(1) An inventory log of waste container contents. The inventory log will include the following information:

(a) The container's inventory number (i.e., Bar Code);

(b) The type of waste (i.e., description or chemical name);

(c) The date the waste container was stored or moved into the TSS and/or the date the waste was initially put into a container (i.e., TSS start accumulation date);

(d) The amount of waste in the container (ml, kg, etc); and (NOTE: This can be done to be consistent with the HWTS; i.e., total weight of waste and container or just the weight/volume of the waste that is in the container). A given site's inventory log should be consistent; and

(e) The waste container's date of removal from the TSS (shipment date).

(2) An individual container inventory log will be maintained on containers that are used for accumulating waste at a TSS. The following information will be maintained on this log:

- (a) The waste generator's identity.
- (b) The type of waste (i.e., description or chemical name).
- (c) The date and amount of waste added to the container.

(3) All waste analyses and related documents used to characterize/profile waste streams.

(4) Weekly TSS manager inspections, AEC and DSHE quarterly inspections and State/EPA inspections.

(5) All required training documentation will be maintained at the TSS. These requirements are listed at paragraph 4-1b.

d. Waste Characterization:

(1) All TSS Managers, or Alternates, who generate waste at a TSS will determine if the waste is hazardous as defined by Federal and State regulations using analysis data, generator knowledge, MSDS information and documented process descriptions, etc.

(2) Under most circumstances, containers with unknown materials should not be moved from the site of discovery until the contents can be identified by the owner/generator or through analysis. If reasonable identification (not a guess) can be provided by the generator then it should be turned in via the HWTS and moved to a TSS or TSDF. The HWB will be immediately notified upon the discovery of unknowns so proper steps can be implemented to minimize the possibility of injury and/or regulatory violation. (NOTE: The HWB is the approving authority for moving unknown waste.)

(3) Individuals collecting samples will be appropriately trained in safety, health and environmental procedures and be provided with the proper PPE suitable for the type of material/ waste being sampled. Sampling will be performed in accordance with approved (Garrison APG/Tenant) procedures. More information can be found in chapter 6 of this regulation.

e. Waste Tracking.

(1) All waste generated at a TSS, (e.g., contaminated site-maintenance materials, contaminated PPE, etc.) will be immediately logged into the HWTS as stored at the TSS, by the TSS manager.

(2) No waste item should be transferred to a TSS until the AEC reviews and approves all turn-in data for accuracy. This requirement does not include waste that is generated and/or initially turned-in through the HWTS at the TSS.

(3) The TSS Manager should ensure the electronic transfer (via the HWTS) of a waste item from an SAS to a TSS on the same day the item is physically transferred to the TSS.

(4) Any item stored at a TSS and logged in the HWTS must be removed from the TSS no later than 90 days after it was initially stored at the TSS. Prior to removal of an item, the IEC (TSDF Manager or designated representative) must electronically approve the movement through the HWTS.

f. Contingency Planning.

(1) All TSSs will have a site-specific contingency plan/ emergency procedures. (NOTE: This requirement may be incorporated in the site specific SOP/IOP.) This plan and all revisions will be maintained on site. The plan will at a minimum include the following:

(a) Description of actions to take in response to fires, explosions or releases of hazardous waste;

(b) Description of arrangements agreed to by police and fire departments, hospitals, contractors, and emergency response teams (NOTE: Compliance with this requirement can be met by stating APG has internal support from the APG fire department/HAZMAT team, Kirk U.S. Army Health Clinic, military police and DSHE hazardous waste contractors);

(c) List of names, addresses, and phone numbers (office and method of contacting during non-duty hours) of all persons qualified to act as Emergency Coordinator. One will be named as primary, the others are listed in the order in which they will assume responsibility as alternates. This list will be kept up to date and prominently posted on the outside of the site (NOTE: The outside posting may refer to the staff duty officer, emergency operation center, etc., which actually maintains a current list of emergency POCs.);

(d) List of all emergency equipment at the site. This list will be kept up to date and give the location and physical description of each item, and a brief outline of its capabilities; and

(e) An evacuation plan where there is a possibility that evacuation could be necessary. The plan will describe signals used to begin the evacuation. Primary and alternate evacuation routes will be diagrammed on a "Planigraph" that is prominently posted at the site.

(2) Each TSS will have a copy of the Installation Spill and Contingency Plan (ISCP). The TSS site specific contingency plan/emergency procedure will be consistent with the ISCP and be available on site.

(3) The TSS Manager for each TSS location will advise installation emergency response personnel of site hazardous waste operations so that responders may survey the site and properly pre-plan response actions.

(4) At all times, there will be at least one employee either at the TSS or on call (i.e., available to respond to an emergency by reaching the facility within 1 hour after being contacted) with the responsibility for providing information to the On-Scene Incident Commander.

(5) On each door of the TSS, the following minimal information will be clearly posted: "DIAL 911 FOR EMERGENCY RESPONSE," and the TSS Manager's/alternate's duty and non-duty telephone numbers and addresses or means of contacting. NOTE: Most TSSs are located with access to installation phone service. Those locations, that are not on the installation phone, must have the appropriate cell phone number(s) posted and/or means to contact emergency response personnel.

(6) At a minimum, a TSS will have the following, unless it can be demonstrated that none of the hazards posed by waste handled at the site could require any of the kinds of equipment specified below:

(a) An internal communication or alarm system;

(b) A telephone or a hand-held two-way radio immediately available at the site;

(c) Portable fire extinguisher, fire control equipment for ignitable and reactive waste and any other equipment required by the internal SOP (NOTE: Fire extinguisher/control equipment must be inspected at least monthly.);

(d) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems. The listed equipment required above will be tested, or inspected, and maintained on site.

(7) Whenever hazardous waste is handled at a TSS, all personnel involved in the operation will have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee. The two person rule ("buddy system") will be followed whenever hazardous waste is moved to or from a TSS, and when hazardous waste is handled at a TSS. Personnel handling hazardous waste will wear the appropriate PPE.

(8) Aisle space of no less than 24 inches in width will be maintained to allow for the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of a TSS.

g. Inspections.

(1) The TSS Manager or designated representative, will inspect the TSS at least once a week (NOTE: EPA guidance defines once a week as at least once every seven days). The findings will be recorded on an inspection checklist sheet. All completed inspection checklists will be kept on site in an inspection log book for at least 3 years from the date of inspection. The inspection log will include the following information:

- (a) The date/time of the inspection;
- (b) The printed name of the inspector;
- (c) Any evidence of leaks or spills observed;
- (d) Any deterioration of the containers observed;
- (e) Any deterioration of the containment system observed;
- (f) Any errors in the operation of the TSS observed;
- (g) Any malfunctions involving the TSS observed;
- (h) The date and nature of any repairs or other corrective action taken; and
- (i) A check of all monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (e.g., dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.

(2) At a minimum, the AEC, or designated representative, will inspect each TSS in his/her activity once a quarter. As a best management practice at least once a year the inspection should be unannounced. The inspection schedule's content will be consistent and equivalent to the Federal, State, and local APG regulations that are already in place, however, tenant activities may impose upon their personnel additional procedures which are more stringent. (NOTE: The AEC's inspections may be conducted concurrently with the DSHE inspection.)

(3) An Installation representative (DSHE inspector) will inspect each TSS on APG at a minimum of once a quarter. The DSHE inspector will notify the tenant's AEC of the upcoming inspection. This inspection will be of a limited notice, usually 24-48 hours. The AEC will notify the site manager, or alternate, of the upcoming inspection. The DSHE inspector performs the site inspection. The AEC may be present. At the conclusion of the inspection, the DSHE inspector will review the completed site inspection checklist sheet with the TSS Manager, or Alternate, identifying and explaining deficiencies noted by the inspector. Recommendations for corrective action needed to bring the site back into compliance will be made by the DSHE inspector. Before departing, the DSHE inspector will leave a copy of the completed inspection checklist sheet with the Site Manager, or alternate. In addition, the Chief of the HWB, ECD, DSHE, will receive a copy shortly thereafter. Within 1 week of completing a TSS compliance inspection, the DSHE inspector will write a formal inspection report for the activity/directorate. The TSS manager should address any finding immediately after the inspection and not await the formal inspection report.

(4) The MDE may conduct unannounced inspections of all TSSs on APG. An Installation representative (DSHE personnel) will act as an escort for all State inspections.

3-4. PERMITTED FACILITIES, FACILITIES UNDERGOING THE PERMITTING PROCESS. Even though the Installation Commander/DSHE is the only permit holder (signs as owner on the permit application) for all Hazardous Waste permitted activities and facilities, each tenant activity with a permitted facility or facility undergoing the permitting process will comply with all laws, regulations, and requirements in the Permit(s)/Permit Application(s), CFR, COMAR, DOD regulations and local requirements. The tenant or activity managing the permitted unit/facility has all the responsibilities as the operator of that unit/facility.

a. Treatment, Storage, or Disposal Facility.

(1) Operational Requirements.

(a) The HWB, ECD, DSHE operates an on-post TSDF for the purpose of extended storage of hazardous waste. The TSDF will be under the control of an appointed TSDF Manager, who will properly manage the TSDF, which includes accepting or rejecting waste into the facility, managing the HWTS, and the day-to-day directing and coordinating of waste disposal activities pertaining to hazardous waste. The TSDF Manager is under the supervision of the Chief, HWB.

(b) The TSDF Manager will ensure that all pertinent laws and regulations are complied with at the TSDF and its associated operations. Specifically that the TSDF is managed/operated IAW all required permit conditions.

(c) The TSDF Manager will also be responsible for all manifested waste and/or material that is transported off-post and between Aberdeen area and Edgewood area to include all record-keeping requirements, manifest and completion of land-ban forms, ensuring all appropriate paperwork is with the shipment of waste, ensuring all containers are properly labeled, ensuring the transporter(s) is properly licensed/insured, and ensuring the transport vehicle is properly licensed, placarded, etc. Therefore, only the TSDF Manager or his/her designated representative(s) are authorized to sign manifests and/or authorize shipments of hazardous waste.

(d) The TSDF manager will ensure that when pickups are made from tenant and/or activity locations, the local POC is informed of where the waste is being taken to (i.e., APG's TSDF or an off-post TSDF). No item will be accepted into the TSDF unless:

1. The waste has been placed in the HWTS and is barcoded accordingly.
2. The waste is properly identified and labeled.
3. The waste is compatible with the container.
4. The container is in good condition.

(e) Whenever hazardous waste is being poured, packaged, or otherwise handled at the TSDF, all personnel involved in the operation will have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another person. The two person minimal rule will apply whenever handling any hazardous waste and/or entering any of the actual hazardous waste storage areas at the TSDF. Personnel handling hazardous waste and/or entering a storage area will wear appropriate PPE.

(f) Individuals collecting samples will be trained in hazardous waste operations (i.e., 29 CFR 1910.120) and be provided with the proper PPE suitable for the type of material/waste being sampled. Sampling will be performed in accordance with approved (Garrison APG/Tenant) procedures. More information can be found in chapter 6 of this regulation.

(2) Contingency Planning and Emergency Planning.

(a) The TSDF will have a site-specific contingency plan meeting all requirements in COMAR 26.13.05.04 and designed to minimize hazards to human health or to the environment from fires, explosions or any sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil or surface water. All operators and visitors to this facility will be appropriately trained on/made aware of this plan and/or hazards at this facility. This training will be properly recorded. This plan must be consistent with the installation spill contingency plan and this plan must be incorporated into all permit applications for this facility.

(b) At all times, there will be at least one individual either at the TSDF or on call (i.e., available to respond to an emergency by reaching the facility within 1 hour after being contacted) with the responsibility for providing information to the on-scene emergency commander. These individuals names, addresses and telephone numbers will be posted on all exterior gates to the TSDF and given to the installation Emergency Operations Center (EOC). (NOTE: Personal information need not be posted at the site if this information is provided to a Staff Duty Office (SDO) or EOC and this fact is posted at the site.)

(c) The TSDF Manager will assure post emergency response personnel are familiar with the layout of the TSDF, properties of the hazardous waste handled there and associated hazards, places where facility personnel would normally be working, entrance to and paths inside the facility, rally points for personnel during emergency evacuation of the TSDF, and possible evacuation routes.

(3) Inspections.

(a) The manager of the TSDF will ensure that inspections are conducted IAW the Installation Hazardous Waste/Substance Permit, A-190.

(b) A DSHE representative (inspector) will make a permit compliance inspection of the TSDF at least once a quarter. The inspection findings will be recorded on an inspection checklist. The inspector will outbrief the TSDF Manager, or designated representative, at the completion of the inspection. A written inspection report will be provided to the TSDF Manager within 2 weeks of the inspection.

b. Thermal Treatment Facility (TTF).

(1) Operational Requirements.

(a) The ERDEC operates an on-post thermal treatment facility for the thermal treatment of decontaminated Chemical Warfare Material (CWM) (i.e., 3X items).

(b) The manager of the TTF will ensure all pertinent laws and regulations are complied with at the facility. Specifically that the TTF is managed/operated IAW all required permit conditions.

(c) Individuals collecting samples will be trained in hazardous waste operations (i.e., 29 CFR 1910.120) and be provided with the proper PPE suitable for the type of material/waste being sampled. Sampling will be performed in accordance with approved Garrison APG/Tenant procedures. More information can be found in chapter 6 of this regulation.

(2) Contingency Planning and Emergency Planning.

(a) The TTF will have a site-specific contingency plan meeting all requirements in COMAR 26.13.05.04 and designed to minimize hazards to human health or to the environment from fires, explosions, or any sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. All operators and visitors to this facility will be appropriately trained on/made aware of this plan and/or hazards at this facility. This training will be properly recorded. This plan must be consistent with the installation spill contingency plan and this plan must be incorporated into a permit application for this facility.

(b) At all times, there will be at least one individual either at the TTF or on call (i.e., available to respond to an emergency by reaching the facility within 1 hour after being contacted) with the responsibility for providing information to the on-scene emergency coordinator. These individuals' names, addresses, and telephone numbers will be posted on all exterior gates to the facility and given to the installation Emergency Operations Center (EOC). (NOTE: Personal information need not be posted at the site if this information is provided to a Staff Duty Office (SDO) or EOC and this fact is posted at the site.)

(c) The manager of the TTF will assure that post emergency response personnel (fire department, military police, medical facilities, HAZMAT teams) are familiar with the layout of this facility, properties of the waste/material handled there and associated hazards, entrance to and paths inside the facility, rally points for personnel during emergency evacuation of the facility, and possible evacuation routes.

(d) Special effort will be made by the manager of the TTF to assure all personnel who work in and around this facility are taken into consideration in contingency plans and that they are made aware of emergency response procedures. (NOTE: This requirement is for an area around the TTF that would be affected by a catastrophic incident at this facility).

(3) Inspections.

(a) The manager of the TTF will ensure inspections are conducted IAW the Installation Hazardous Waste/Substance Permit, A-190.

(b) A DSHE representative (inspector) will make a permit compliance inspection of the TTF at least once a quarter. The inspection findings will be recorded on an inspection checklist. The inspector will outbrief the TTF Manager, or designated representative, at the completion of the inspection. A written inspection report will be provided to the TTF Manager within 2 weeks of the inspection. An ERDEC environmental compliance person must participate in these quarterly compliance inspections.

c. Chemical Transfer Facility (CTF).

(1) Operational Requirements.

(a) The ERDEC operates an on-post storage and treatment facility for chemical warfare materials (CWM).

(b) The manager of the CTF will ensure that all pertinent laws, regulations and governing permits are complied with at the CTF and its associated operations. Specifically that the CTF is managed/operated IAW A-190 permit conditions.

(c) Individuals collecting samples will be trained in hazardous waste operations (i.e., 29 CFR 1910.120) and be provided with the proper PPE suitable for the type of material/waste being sampled. Sampling will be performed in accordance with approved Garrison APG/Tenant procedures. More information can be found in chapter 6 of this regulation.

(2) Contingency Planning and Emergency Planning.

(a) The CTF will have a site-specific contingency plan meeting all requirements in COMAR 26.13.05.04 and designed to minimize hazards to human health or to the environment from fires, explosions, or any sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. All operators and visitors to this facility will be appropriately trained on/made aware of

this plan and/or the hazards at this facility. This training will be properly recorded. This plan must be consistent with the installation spill contingency plan and this plan must be incorporated into all permit applications for this facility.

(b) At all times, there will be at least one individual either at the CTF or on call (i.e., available to respond to an emergency by reaching the facility within 1 hour after being contacted) with the responsibility for providing information to the on-scene emergency commander. These individuals' names, addresses, and telephone numbers will be posted on all exterior gates and/or doors, as appropriate, to the CTF and given to the installation EOC. (NOTE: Personal information need not be posted at the site if this information is provided to a Staff Duty office (SDO) or EOC and this fact is posted at the site.)

(c) The manager of the CTF will assure post emergency response personnel (fire department, military police, medical personnel, HAZMAT teams) are familiar with the layout of the CTF, properties of the waste/material handled there and associated hazards, entrance to and paths inside the facility, rally points for personnel during emergency evacuation of the CTF, and possible evacuation routes.

(d) Special effort will be made by the manager of the CTF to assure all personnel who work in and around the CTF are taken into consideration in contingency plans and that they are made aware of emergency response procedures. (NOTE: This requirement is for an incident that goes beyond the CTF boundary.)

(3) Inspections.

(a) The manager of the CTF will ensure inspections are conducted IAW the Installation Hazardous Waste/Substance Permit, A-190.

(b) A DSHE representative (inspector) will make a permit compliance inspection of the CTF at least once a quarter. The inspection findings will be recorded on an inspection checklist. The inspector will outbrief the CTF Manager, or designated representative, at the completion of

the inspection. A written inspection report will be provided to the CTF Manager within 2 weeks of the inspection. An ERDEC environmental compliance person must participate in these quarterly compliance inspections.

d. N-Field Storage Facility

(1) Operational Requirements:

(a) The ERDEC operates an on-post storage facility for suspect and known chemical warfare munitions/materials. This storage may include other munition items based on mission requirements.

(b) The manager of N-Field Storage Facility will ensure all pertinent laws, regulations and governing permits are complied with at the N-Field Storage Facility and its associated operations. Specifically that the N-Field Storage Facility is managed/operated IAW A-190 permit conditions.

(c) Individuals collecting samples will be trained in hazardous waste operations (i.e., 29 CFR 1910.120) and be provided with the proper PPE suitable for the type of material/waste being sampled. Sampling will be performed in accordance with approved Garrison APG/Tenant procedures. More information can be found in chapter 6 of this regulation.

(2) Contingency Planning and Emergency Planning.

(a) The N-Field Storage Facility will have a site-specific contingency plan meeting all requirements in COMAR 26.13.05.04 and designed to minimize hazards to human health or to the environment from fires, explosions, or any sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. All operators and visitors to this facility will be appropriately trained on/made aware of this plan and/or the hazards at this facility. This training will be properly recorded. This plan must be consistent with the installation spill contingency plan and this plan must be incorporated into all permit applications for this facility.

(b) At all times, there will be at least one individual either at the N-Field Storage Facility or on call (i.e., available to respond to an emergency by reaching the facility within 1 hour after being contacted) with the responsibility for providing information to the on-scene emergency commander. These individuals names, addresses, and telephone numbers will be posted on all exterior gates to the facility and given to the installation EOC. (NOTE: Personal information need not be posted at the site if this information is provided to a Staff Duty Officer (SDO) or EOC and this fact is posted at the site.)

(c) The manager of the N-Field Storage Facility will assure that post emergency response personnel (fire department, military police, medical personnel, HAZMAT teams) are familiar with the layout of the facility, properties of the waste/material handled there and associated hazards, entrance to and paths inside the facility, rally points for personnel during emergency evacuation of the facility, and possible evacuation routes.

(d) Special effort will be made by the manager of the N-Field Storage Facility to assure that all personnel who work in and around the facility are taken into consideration in contingency plans and that they are made aware of emergency response procedures. (NOTE: This requirement is for an area around the N-Field Storage Facility that would be affected by a catastrophic incident at the facility.)

(3) Inspections.

(a) The manager of the N-Field Storage Facility will ensure inspections are conduct IAW the Installation Hazardous Waste/Substance Permit, A-190.

(b) A DSHE representative (inspector) will make a permit compliance inspection of the N-Field Storage Facility, at least once a quarter. The inspection findings will be recorded on an inspection checklist. The inspector will outbrief the N-Field Storage Facility Manager, or designated representative, at the completion of the inspection. A written inspection report will be provided to the N-Field Storage Facility Manager within 2 weeks of the inspection. An ERDEC environmental compliance person must participate in these quarterly compliance inspections.

e. Open Burning and Open Detonation (OB/OD) at Old Bombing Field.

(1) Operational Requirements.

(a) The ATC operates on-post treatment sites for the OB/OD of military propellants and munitions.

(b) The manager of OB/OD sites will ensure all pertinent laws and regulations are complied with at this facility and its associated operations. Special attention will be given to the following rules and/or regulations: APG's Part B Permit application (with modifications); COMAR 26.13.05.02D., General Waste Analysis; COMAR 26.13.05.05.D., Operating Record; COMAR 26.13.05.02.G., Personnel Training; COMAR 26.13.05.02.F., General Inspection Requirements; COMAR 26.13.5.02.E., Security.

(c) Individuals collecting samples will be trained in hazardous waste operations (i.e., 29 CFR 1910.120) and be provided with the proper PPE suitable for the type of material/waste being sampled. Sampling will be performed in accordance with approved Garrison APG/Tenant procedures. More information can be found in Chapter 6 of this regulation.

(2) Contingency Planning and Emergency Planning.

(a) The OB/OD sites will have a site-specific contingency plan meeting all requirements in COMAR 26.13.05.04 and designed to minimize hazards to human health or to the environment from fires, explosions, or any sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. All operators and visitors to this facility will be appropriately trained on/made aware of this plan and/or the hazards at this facility. This training will be properly recorded. This plan must be consistent with the installation spill contingency plan and this plan must be incorporated into all permit applications for this facility.

(b) At all times, there will be at least one individual either at the OB/OD sites or on call (i.e., available to respond to an emergency by reaching the facility within 1 hour after being contacted) with the responsibility for providing information to the on-scene

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emergency commander. These individuals' names, addresses, and telephone numbers will be posted on all exterior gates to the OB/OD sites and given to the installation EOC.

(NOTE: Personal information need not be posted at the site if this information is provided to a Staff Duty Office (SDO) or EOC and this fact is posted at the site.)

(c) The manager of the OB/OD sites will assure that post emergency response personnel (fire department, military police, medical personnel, HAZMAT teams) are familiar with the layout of the facility, properties of the waste/material handled there and associated hazards, entrance to and paths inside the facility, rally points for personnel during emergency evacuation of the facility, and possible evacuation routes.

(d) Special effort will be made by the manager of the OB/OD sites to assure all personnel who work in and around the facility are taken into consideration in contingency plans and that they are made aware of emergency response procedures. (NOTE: This requirement is for an area around the sites that would be affected by a catastrophic incident at the facility.)

(3) Inspections.

(a) The OB/OD Facility Manager, or designated representative, will inspect the OB/OD facility IAW RCRA/COMAR interim status requirements to include: every operational day looking for malfunctions, deterioration of the containers and the containment system, compliance with all storage regulations, and checking for operator errors and discharges which may be causing, or may lead to, a release of hazardous waste constituents into the environment or that may lead to a threat to human health. The OB/OD Facility Manager, or designated representative, will record all completed inspections in an inspection log or summary, and maintain this log at the OB/OD Facility for at least 3 years from the date of inspection. The inspection log will include the following information:

1. The date/time of the inspection;
2. The name of the inspector;
3. Any evidence of leaks or spills;

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(STEAP-SH-EW)

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4. Any deterioration of the containers;
5. Any deterioration of the containment system;
6. Any errors in the operation of the OB/OD Facility;
7. Any equipment malfunctions involving the OB/OD Facility;
8. The date and nature of any repairs or other corrective action taken; and
9. A check of all monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (e.g., dikes) that are important to preventing, detecting, or responding to environmental or human health hazards.

(b) A DSHE representative (inspector) will make a permit compliance inspection of the OB/OD Facility at least once a quarter. The inspection findings will be recorded on an inspection checklist. The inspector will outbrief the OB/OD Facility Manager, or designated representative, at the completion of the inspection. A written inspection report will be provided to the OB/OD Facility Manager within 2 weeks of the inspection. An ATC environmental compliance person must participate in these quarterly compliance inspections.

f. Open Detonation (OD) at J Field.

(1) Operational Requirements.

(a) The TEU operates an on-post treatment site for the OD of waste ordnance related items at J Field. They also support CERCLA/Installation restoration clean-up projects and respond to emergency situations involving explosives, chemical warfare material and/or hazardous substances.

(b) The Commander, TEU and the manager of OD site will ensure all pertinent laws and regulations are complied with at this facility and its associated operations; i.e. CERCLA/ installation restoration support, emergency response operation(s). Special attention will be given to the following rules and/or regulations: APG's Part B

Permit application (with modifications);; COMAR 26.13.05.02D., General Waste Analysis; COMAR 26.13.05.05.D., Operating Record; COMAR 26.13.05.02.G., Personnel Training; COMAR 26.13.05.02.F., General Inspection Requirements; COMAR 26.13.5.02.E., Security.

(c) Individuals collecting samples will be trained in hazardous waste operations (i.e., 29 CFR 1910.120) and be provided with the proper PPE suitable for the type of material/waste being sampled. Sampling will be performed in accordance with approved Garrison APG/Tenant procedures. More information can be found in chapter 6 of this regulation.

(2) Contingency Planning and Emergency Planning:

(a) The OD site will have a site-specific contingency plan meeting all requirements in COMAR 26.13.05.04 and designed to minimize hazards to human health or to the environment from fires, explosions, or any sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. All operators and visitors to this facility will be appropriately trained on/made aware of this plan and/or the hazards at this facility. This training will be properly recorded. This plan must be consistent with the installation spill contingency plan and this plan must be incorporated into all permit applications for this facility.

(b) At all times, there will be at least one individual either at the OD site or on call (i.e., available to respond to an emergency by reaching the facility within 1 hour after being contacted) with the responsibility for providing information to the on-scene emergency commander. These individuals' names, addresses, and telephone numbers will be posted on all exterior gates to the OD site and given to the installation EOC. (NOTE: Personal information need not be posted at the site if this information is provided to a Staff Duty Officer (SDO) or EOC and this fact is posted at the site.)

(c) The manager/alternate of the OD site will assure post emergency response personnel (fire department, military police, medical personnel, HAZMAT teams) are familiar with the layout of the facility, properties of the waste/material handled there and associated hazards, entrance to and paths inside the facility, rally points for personnel during emergency evacuation of the facility, and possible evacuation routes.

(d) Special effort will be made by the manager of the OD site to assure all personnel who work in and around the facility are taken into consideration in contingency plans and that they are made aware of emergency response procedures. (NOTE: This requirement is for an area around the sites that would be affected by a catastrophic incident at the facility.)

(3) Inspections.

(a) The OD Facility Manager, or designated representative, will inspect the OD facility IAW RCRA/COMAR interim status requirements to include every operational day looking for malfunctions, deterioration of the containers and the containment system, compliance with all storage regulations, and checking for operator errors and discharges which may be causing, or may lead to, a release of hazardous waste constituents into the environment or that may lead to a threat to human health. The OD Facility Manager, or designated representative, will record all completed inspections in an inspection log or summary, and maintain this log at the OD Facility for at least 3 years from the date of inspection. The inspection log will include the following information:

1. The date/time of the inspection;
2. The name of the inspector;
3. Any evidence of leaks or spills;
4. Any deterioration of the containers;
5. Any deterioration of the containment system;
6. Any errors in the operation of the OD Facility;

7. Any malfunctions involving OD Facility equipment;

8. The date and nature of any repairs or other corrective action taken; and

9. A check of all monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (e.g., dikes) that are important to preventing, detecting, or responding to environmental or human health hazards.

(b) A DSHE representative (inspector) will make a permit compliance inspection of the OD Facility at least once a quarter. The inspection findings will be recorded on an inspection checklist. The inspector will outbrief the OD Facility Manager, or designated representative(s), at the completion of the inspection. A written inspection report will be provided to the OD Facility Manager within two weeks of the inspection. A TEU environmental compliance person must participate in these quarterly compliance inspections.

CHAPTER 4
TRAINING

4-1. GENERAL REQUIREMENTS.

a. Trainer Qualifications. The training program will be directed by a person trained in hazardous waste management procedures. Trainers will be qualified to instruct the subject matter being presented. Trainers will have satisfactorily completed a training program for teaching the subjects they are expected to teach, or have the academic credentials and instructional experience necessary for teaching the subjects. Trainers will demonstrate competent instructional skills and knowledge of the applicable subject matter. Tenants choosing to provide any of the DSHE sponsored training will apply for trainer approval with DSHE. Trainer certification for DSHE sponsored courses will be based on one or more of the following criteria:

(1) Technical and instructional certifications from recognized trade organizations such as a Certified Environmental Trainer (CET) in hazardous waste management from the National Environmental Training Association (NETA).

(2) Formal academic achievement such as a teaching degree from an accredited college or university.

(3) Documented experience in subject matter and instruction.

(4) Successful completion of pre-approved "Train-the-Trainer" course and completion of course to be taught. Trainer qualifications will be annually reviewed and approved by DSHE.

NOTE: Tenants wanting to substitute outside sources of training for the DSHE sponsored HW courses will demonstrate to DSHE that the outside courses meet the established criteria by submitting the course terminal and enabling objectives, the method of evaluation, and the results of evaluation for review and approval, or by administering the DSHE test evaluation to the participants and certifying those who meet the minimum passing standard.

b. Documentation:

(1) All personnel successfully completing hazardous waste handling/management related training will have their training properly documented. The training (e.g., formal classroom instruction such as courses, informal training such as seminars and workshops, or objective based on-the-job training) will be documented via bonafide certificates of completion signed by the training instructor. The course instructor will certify personnel successfully completing the DSHE sponsored training with a printed certificate of achievement. All certificates will have marked on them the Federal, State and/or APG regulation that the training satisfies. NOTE: When needed or required a DD Form 1556 will be filled out and provided to the civilian personnel office (CPO). Currently most of this training is not documented with the CPO.

(2) Each activity on APG whose personnel are required by this regulation to have hazardous waste training will maintain the appropriate documents and records that demonstrate the required hazardous waste training or job experience has been given to, and successfully completed by, facility personnel. The documents and records will contain the following minimum information (NOTE: Individuals who are only generators and/or SAS managers/alternates are exempt from subparagraphs (a)-(c).):

(a) The job title and name of the employee filling each position at each organization facility related to hazardous waste management.

(b) A written job description for each position listed above to include the requisite skill, education, or other qualifications and duties of employees assigned to that position.

(c) A written description of the type and amount of both introductory and continuing training that will be given each person filling a position listed above.

(d) Records that document that the required hazardous waste training or job experience has been given to, and successfully completed by, facility personnel.

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(3) Training records will be maintained in each work center and will accompany personnel whenever transferred throughout the installation. When personnel are transferred to another DOD facility, duplicate records will be retained by the organization and the original records and documents will accompany the person to the new assignment.

c. Hazardous Waste Workers.

(1) New workers will, at a minimum, have completed their initial hazardous material/waste training within 6 months of assignment of duties. Until receiving the required training, new personnel will only handle/manage hazardous material/waste under the direction of a fully trained individual.

(2) All personnel who handle hazardous materials, or who generate, store, transport, treat, or in any way handle hazardous waste, who respond to emergencies involving hazardous materials or hazardous waste, or who just work in the same area where hazardous materials or hazardous waste are stored or used, are required to be trained in proper procedures that assure their health and safety, the health and safety of other personnel, and the protection of the environment. At a minimum, these personnel will receive HAZCOM training (29 CFR 1910.1200) addressing the physical and health hazards of hazardous chemicals in their workplace. Training will include the following:

(a) Information covering the training requirements as provided in this regulation.

(b) Location of any operations in their work area where hazardous chemicals are present.

(c) Location and availability of the written hazard communication program including the required list(s) of hazardous chemicals and required MSDSs.

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(d) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.).

(e) Physical and health hazards of the chemicals in the work area.

(f) Measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures and PPE to be used.

(g) Details of the hazard communication program developed by the employer, including an explanation of the labeling system and the MSDS, and how employees can obtain and use appropriate hazard information. (NOTE: Effective HAZCOM training is normally accomplished by the immediate supervisor of personnel potentially affected by the physical and chemical hazards in their work area.)

4-2. SPECIFIC REQUIREMENTS. The APG Hazardous Waste Training Program Guide contains a description of hazardous waste activity classifications and installation sponsored hazardous waste training.

a. Generators, SAS Managers and First-Line Supervisors.

(1) Personnel working at facilities that generate hazardous waste will successfully complete an initial program of classroom instruction and/or on-the-job training that teaches them to perform their duties in a way that ensures the facilities compliance with the requirements of this regulation. Each year thereafter personnel will attend annual refresher training to maintain competency and ensure continued compliance. At the completion of the training the generator/handler should be able to:

(a) Identify regulated hazardous waste.

(b) Log/enter waste into the HWTS and site log book.

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- (c) Properly label and mark containers.
- (d) Place known waste in appropriate container.
- (e) Place waste container in appropriate storage area.
- (f) Recognize presence of hazardous material or waste release.
- (g) Report chemical spills/release.
- (h) List the observations that should be made on a regular basis to ensure compliance and best management practice.
- (i) Identify methods for documenting site deficiencies and corrective actions.
- (j) Report discovery of unknown waste.

(2) Personnel working at an SAS as a Manager or Alternate will successfully complete an initial and annual refresher instruction that teaches them to perform their duties in a way that ensures compliance with the requirements of this regulation. The SAS Manager or Alternate will successfully complete the same training as the generator/handler and additional training that will ensure they are able to do the following:

- (a) Properly inspect waste upon receipt at SAS and log acceptance into site inventory log.
- (b) Review waste analysis sheet.
- (c) Repackage or relabel waste, or return rejected waste to generator.
- (d) Arrange containers for compatible storage.
- (e) Determine appropriate size and type of container for SAS.

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(f) Write, develop, review and/or implement emergency procedures for SAS.

(g) Resolve non-compliance issues identified by inspection.

(h) Escort AEC and DSHE inspectors.

(i) Submit data/update personnel training records.

(3) The first-line supervisor of personnel working at an SAS or other hazardous waste operations will successfully complete initial and annual refresher training that teaches them to perform their duties in a way that ensures compliance with the requirements of this regulation. First-line supervisors will complete the training of the generator/handler and additional training that covers the following subjects:

(a) HAZCOM standard.

(b) Safety procedures for hazardous waste operations.

(c) Standing Operating Procedures for hazardous waste operations.

(d) Emergency procedures for hazardous waste operations.

(e) Arranging for on-post transport of hazardous waste.

(f) Submitting/updating personnel training records.

(g) Selecting and arranging for personnel to attend training courses.

(4) Personnel responding to a spill or release at an SAS will successfully complete initial and annual refresher training that teaches them to perform their duties in a way that ensures compliance with the site specific SOP/emergency procedures.

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(a) Personnel not tasked by SOPs/emergency procedures to confine or cleanup spills will, as a minimum, receive emergency response training similar to the requirements of OSHA standard 29 CFR 1910.120(q)(6)(i), First Responder Awareness Level. This training includes:

1. An understanding of hazardous substances, and the risks/possible outcomes associated with them in an incident;

2. The ability to recognize the presence of and identify hazardous substances in an emergency.

3. A clear understanding of the awareness level responder's limited role in the installation and organizational response hierarchy.

4. How to make appropriate and adequate spill/contingency notifications, the ability to determine when additional resources are needed, and how to establish initial site security.

(b) If personnel in the area are responsible to confine or contain the spill or release, as stated in the SOP/emergency procedures, training will be similar to the requirements of OSHA standard 29 CFR 1910.120(q)(6)(ii), First Responder Operation Level or 29 CFR 1910.120(q)(6)(iii), Hazardous Materials Technician (see Table 1).

b. TSS Training: Personnel working at a TSS as a Manager or Alternate will successfully complete a program of classroom instruction and/or on-the-job training that teaches them to perform their duties in a way that ensures compliance with the requirements of this regulation. Initial training will include at least 24 hours OSHA (safety related) training similar to the requirements of OSHA standard 29 CFR 1910.120(p) and 16 hours of RCRA/COMAR/HWTS training. The initial OSHA (safety related) training will include emergency response training similar to the requirements of OSHA standard 29 CFR 1910.120(q)(6)(ii), First Responder Level Operations (Confinement). Managers and alternates will attend annual refresher training of sufficient duration to maintain OSHA/RCRA/COMAR/HWTS competency levels (NOTE: The OSHA (safety related) refresher minimal training

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requirement is 8 hours for TSS personnel). Upon completion of training, the TSS manager and alternate will have the knowledge base of the HW handler and additional information that will ensure they are able to do the following:

- (1) Properly inspect waste upon receipt at TSS, reconcile HWTS data against received waste, and log acceptance into HWTS and site inventory log.
- (2) Review waste analysis sheet.
- (3) Repackage or relabel waste or return rejected waste to generator.
- (4) Arrange containers for compatible storage and aisle space.
- (5) Arrange and transfer waste from SAS to TSS.
- (6) Arrange for transfer of waste to TSDF.
- (7) Transfer custody of waste to DSHE contracted waste hauler.
- (8) Write/develop SOP/IOP for TSS.
- (9) Write/develop emergency procedures for TSS.
- (10) Resolve non-compliance issues identified by inspection.
- (11) Escort Federal, State, DSHE and AEC inspectors.
- (12) Submit data/update personnel training records.

c. Permitted Treatment, Storage or Disposal Facilities. All TSDF (i.e., Permitted Storage Facilities, TTF, CTF, OB/OD Operations) managers will ensure all personnel that work at and/or visit TSDF locations are properly trained IAW their assigned duties and job descriptions. Training will be

Table 1. Emergency Response Training Requirements

Level	Training Requirements	Initial	Refresher
<p><u>First Responder Operations</u></p> <p>Personnel required to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent explosion.</p>	<p>Personnel trained at this level will objectively demonstrate competency in the following areas (in addition to those listed in Section 5.j.[5](b)) and will so certify:</p> <ul style="list-style-type: none"> (a) knowledge of the basic hazard and risk assessment techniques, (b) know how to select and use personal protective equipment (PPE), (c) an understanding of basic hazardous materials terms, (d) know how to perform basic control, containment and/or confinement operations within the capabilities of the resources and PPE available within their unit, (e) Know how to implement basic decontamination procedures, and (f) an understanding of the relevant standard operating procedures (SOPs) and termination procedures. 	<p>At least 8 hours or sufficient experience</p>	<p>Annual of sufficient content and duration to maintain competency, or will demonstrate competency yearly</p>
<p><u>Hazardous Materials Technician</u></p> <p>Personnel who respond for the purpose of stopping the release. They assume a more aggressive role in that they approach the point of release in order to plug, patch or otherwise stop the release.</p>	<p>Personnel trained at this level will objectively demonstrate competency in the following areas (in addition to those listed above as a first responder and will so certify:</p> <ul style="list-style-type: none"> (a) know how to implement the employer's emergency response plan, (b) know the classification, identification and verification of known and unknown materials by using field survey instruments and equipment, (c) be able to function within as assigned role to the Incident Command System, (d) know how to select and use proper specialized chemical personal protective equipment, (e) understand hazard and risk assessment techniques, (f) be able to perform advance control, containment, and/or confinement operations within the capabilities of the resources and PPE available, (g) understand and implement decontamination procedures, (h) understand termination procedures, and (I) understand basic chemical and toxicology terminology and behavior. 	<p>At least 24 hours</p>	<p>Annual of sufficient content and duration to maintain competency, or will demonstrate competency yearly</p>
<p><u>Hazardous Materials Specialists</u></p> <p>Personnel who respond with an provide support to hazardous materials technicians, but require a more direct or specific knowledge of the various substances they may be called upon to contain. They may also act as the site liaison with Federal, State, and local government authorities.</p>	<p>Personnel trained at this level will objectively demonstrate competency in the following areas (in addition to those listed above as a hazardous material technician) and will so certify:</p> <ul style="list-style-type: none"> (a) know how to implement the employer's emergency response plan, (b) know the classification, identification and verification of know and unknown materials by using field survey instruments and equipment, (c) know the State emergency response plan, (d) be able to select and use proper specialized chemical personal protection equipment, (e) understand in-depth hazard and risk assessment techniques, (f) be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and PPE available, (g) be able to determine and implement decontamination procedures, (h) have the ability to develop a safety and control plan, and (I) understand chemical, radiological and toxicological terminology and behavior 	<p>At least 24 hours</p>	<p>Annual of sufficient content and duration to maintain competency, or will demonstrate competency yearly</p>
<p><u>On Scene Incident Commander</u></p> <p>Personnel who will assume control of the Incident Scene.</p>	<p>Personnel trained at this level will objectively demonstrate competency in the following areas (in addition to those listed in Section 5.j.[5](b)) and will so certify:</p> <ul style="list-style-type: none"> (a) know an implement the employer's incident command system, (b) know how to implement the employer's emergency response plan, (c) know and understand the hazards and risks associated with employees working in chemical protective clothing, (d) know how to implement the local emergency plan, (e) know of the State emergency response plan and the Federal Regional Response Team, and (f) know and understand the importance of decontamination procedures. 	<p>At least 24 hours</p>	<p>Annual of sufficient content and duration to maintain competency, or will demonstrate competency yearly</p>

conducted IAW permit conditions and their training plan. Untrained personnel will only work at these sites under the supervision of a fully trained person. The initial training will be successfully completed within 6 months of assignment, followed by annual refresher training.

d. Activity Environmental Coordinators (AECs). Personnel working as technical program managers will successfully complete a program of classroom instruction and/or on-the-job training that teaches them to perform their duties in a way that ensures compliance with the requirements of this regulation. The training will address the following topics:

- (1) Transfer of waste from SAS to TSS, and from TSS to TSDF.
- (2) Inspection of internal facilities using appropriate checklist(s), and appropriate corrective actions to remedy deficiencies as applicable.
- (3) Evaluation of requirements for operational and contingency equipment/supplies.
- (4) Description of procedures for obtaining waste sampling and analysis support.
- (5) Review of generator waste data analysis sheets, turn-in documents, and related analytical and/or process information.
- (6) Determination of appropriate type of container for hazardous waste accumulation/storage.
- (7) Reporting of hazardous materials spill/releases to authorities and/or HAZMAT team.
- (8) Restricting a hazardous waste release area from unauthorized access.
- (9) Determination of risks to persons, property, environment in the event of a hazardous waste release.
- (10) Developing/revising, approving and implementing activity emergency response/contingency plan.

(11) Writing/developing an SOP for hazardous waste operations.

(12) Developing and reviewing hazardous waste facility inspection criteria and forms.

(13) Resolving compliance issues identified at periodic environmental inspections.

(14) Developing and preparing Hazardous Waste Minimization information input for the installation annual report.

(15) Submitting data/updating personnel training records.

(16) Developing/conducting training on hazardous waste awareness/topics.

(17) Conducting Pollution Prevention Opportunity Assessments to identify alternate materials and processes that eliminate or minimize the generation of hazardous wastes.

e. Installation Environmental Coordinator (IEC). Personnel assigned the duties as the IEC should be a TSDF employee. They will be trained at a minimum at the AEC level. They will also have shown to have a working proficiency in general chemistry, Department of Transportation hazardous material requirements, hazardous waste packaging/transportation requirements, and a good working knowledge of the HWTS.

CHAPTER 5
TRANSPORTATION

5-1. HAZARDOUS WASTE TRANSPORTED BY TENANT/ACTIVITY PERSONNEL.

a. General Requirements. Tenant/Activity personnel will only transport hazardous and industrial waste on-post and in government vehicles. The only exemption to this policy is for the TEU/EOD emergency transportation of explosive items. Transportation procedures must be included in an operational or activity SOP/IOP.

b. Background and Installation Policy. There is a major difference in commercial drivers license (CDL) requirements as stated in DOD 4500.38-R, Management, Acquisition and Use of Motor Vehicles and AR 600-55, The Army Driver and Operator Standardization Program (Selection, Training, Testing and Licensing). This installation, to facilitate accomplishing our tenants' and activities' diverse missions, distributed a policy memorandum, dated 31 Jul 96, referencing DOD 4500.38-R (since it is the latest guidance) thereby exempting our government personnel from having to obtain a CDL to transport hazardous waste when only transporting hazardous waste within the confines of the installation. Please note this installation policy complies with EPA and DOT guidance/requirements for on-site movement of hazardous waste. Please additionally note, most of our hazardous waste transportation operations would not require a driver to have a CDL based on requirements of AR 600-55. The one area of concern is the requirement in AR 600-55 that government drivers have a CDL, if transporting hazardous material that requires the vehicle to be placarded, IAW 49 CFR, part 272. Proper prior planning of hazardous waste transportation would eliminate this area of concern most, if not all, of the time.

c. Transporter Qualifications.

(1) Civilian and military personnel driving government vehicles within the boundaries of APG (i.e., solely within the Aberdeen Area or solely within the Edgewood Area and not on off-post roads) in the course of their duties are exempt from most DOT requirements for transporting hazardous material (or wastes) based on the fact they are not in commerce. Contractor personnel, working in engineering or technical support roles in such a way that they are indistinguishable from Government employees, will be treated as Government civilian personnel for the purpose of this regulation providing they: Only transport

hazardous waste (solely within the Aberdeen Area or solely within the Edgwood Area and not on off-post roads) in government vehicles; only transport hazardous waste from their generation point/SAS to a TSS or permitted storage site; only transport waste as part of their waste management duties (not as their primary job function); only transport waste that is managed/disposed of through the installation hazardous waste management program. All transporters must, however, comply with APG driver training/ licensing requirements. (NOTE: Contractor personnel who do not fit the above description must comply with all appropriate hazardous material/waste transporter requirements.)

(2) Activity/tenant personnel who are involved in the transportation of hazardous waste (i.e., move waste from a generation point/SAS to a TSS, etc.), will complete a program of training to include: Hazard communication; hazardous waste handling, labeling, and packaging; loading; and compatible storage. Personnel only transporting their own waste will be trained at a minimum in emergency spill response similar to the OSHA emergency response/HAZWOPER first responder awareness level (29 CFR 1910.120(q)(6)(i)). Personnel involved in transporting waste (milk runs) for other generators will be trained in emergency spill response similar to the OSHA emergency response/HAZWOPER first responder operations level (29 CFR 1910.120(q)(6)(ii)). NOTE: Personnel involved in transporting highly hazardous waste (explosives, dangerous when wet, highly reactive, extremely toxic) will have additional training and take additional precautions as required by the specific hazards of their waste stream.

d. Vehicle Requirements.

(1) Employees will only transport hazardous and industrial wastes in properly serviced government vehicles.

(2) Vehicles will be appropriately sized and constructed to handle the type and amount of waste, ensure the safety and health of the transporters and the protection of the environment.

(3) The use of open-sided and/or "low-boy" trailers is prohibited.

e. Packaging. Small containers of waste will be packaged to meet DOT requirements or overpacked to minimize the possibility of spillage. Five gallon and larger DOT containers do not need to be overpacked. All waste will be properly packaged, stored and secured in vehicles to prevent spillage of waste caused by sharp turns, sudden stops, or minor accidents.

f. Paperwork. Drivers will have a complete list of the waste they are transporting. The list will include the waste description (i.e., chemical name, nomenclature, etc.), weight/volume and DOT hazard class. An option to this is to have a print-out of each waste's turn-in and analysis sheet. This information is necessary to meet emergency response requirements.

g. Loading and Unloading.

(1) Personnel will utilize proper material handling equipment (MHE) for loading/unloading waste.

(2) Coordinate, in advance, unloading support needed from destination site personnel.

(3) Arrange and secure loads for safe transportation.

(4) All vehicle engines will be shut off and parking brakes set during loading and unloading.

(5) All waste loading will meet DOT hazardous material compatibility requirements.

h. Routing. Transporters will use the most direct route that minimizes the potential for exposure to personnel and contamination to the environment. Wastes, once picked up or collected, will be taken directly to the destination site.

i. Contingency/emergency procedures.

(1) These procedures must be included in the activity SOP/IOP and site specific plans as appropriate.

(2) In the event of a release of hazardous waste during transportation, the transporter will immediately take appropriate action to protect human health and the environment (i.e., dial 911 to notify local authorities, isolate the area, and confine or contain the released waste if it is safe to do so and the transporter is properly trained and equipped).

(3) Transporters will carry with them a means to communicate in the event of a emergency (i.e., radio or telephone).

(4) The transporting organization's contingency/emergency procedures (SOP/IOP) will include post spill cleanup arrangements.

5-2. WASTE PACKAGED AND TRANSPORTED BY THE INSTALLATION
HAZARDOUS WASTE CONTRACTOR.

a. A DSHE representative will inspect contractor vehicles, packaging and related transportation activities during all contract pick-ups of hazardous wastes from APG facilities. Further, the DSHE representative will ensure that all hazardous waste is accompanied by required documentation, and will sign as the generator on all manifests.

b. The hazardous waste transporter will be responsible for assuring that all waste transported on or off post is properly packaged, labeled, marked and transported according to Federal and State DOT regulations.

c. In the event of a waste release during off-site transportation, the transporter will immediately take appropriate action to protect human health and the environment (for example, notify local authorities, isolate the area, confine and contain the release), and will notify the MDE and local authorities as applicable within 1 hour of the incident; or if not immediately discovered, within 1 hour of discovery of the incident. If the incident occurs on-post, the post emergency response system will be activated (dial 911) and all off-post notifications will be made by installation personnel.

CHAPTER 6
Sampling and Analysis of Hazardous Waste

6-1. PURPOSE. To specify local procedures for the sampling and analysis of hazardous waste. Samples are analyzed to determine potential hazards that may exist to human health and the environment and to characterize wastes. It is essential that samples are collected in a manner that consistently yields reliable scientific results while ensuring the safety of the sampling team.

6-2. SCOPE.

a. These sampling and analysis procedures apply to DSHE Environmental Management Division personnel, tenant/activity Hazardous Waste Management personnel and hazardous waste/ environmental contractor personnel.

b. Chemical agents, radioactive, and etiological wastes are excluded from the scope of these procedures.

6-3. POLICY. All personnel, sampling potentially hazardous waste, are subject to and will comply with all applicable Federal, Maryland, DOD/Army and local hazardous waste and safety regulations.

6-4. NECESSARY EQUIPMENT.

a. Personal protective equipment (as required).

b. Clean and preserved sample bottles/containers of adequate volume and compatible with waste being sampled.

c. Sample identification labels/tags.

d. Chain-of-custody forms.

e. Clean and appropriate collection equipment (i.e., drum thief, COLIWASA, bombs, bailers, pumps, tubing, augers, triers, scoops, etc.).

f. Monitoring equipment (as required).

g. Spill kit.

6-5. PREREQUISITES.

a. Personnel conducting sampling will be trained and medically certified (as appropriate) to perform hazardous waste operations. Training will include: Hazard communication; hazardous waste handling, labeling, and packaging; compatible storage; familiarity with sampling concepts found in SW-846; and emergency spill response (this training will be at a minimum at the OSHA Hazardous Materials First Responder Technician level).

b. Sample volumes, quality assurance/quality control (QA/QC), chain-of-custody documents and other requirements will be verified with the laboratory, DSHE-ECD, or other appropriate personnel knowledgeable of the process being sampled.

6-6. PRECAUTIONS AND LIMITATIONS.

a. Drums/containers should be sampled in place to minimize handling.

b. Caution should be exercised to avoid cross-contamination of samples. For example, dispose of "throw-away" sampling tubes or appropriately clean or decontaminate equipment between samples.

c. Do not open drums that are not shown to be physically sound during pre-sampling inspections.

6-7. PERFORMANCE STEPS.

a. Establish a staging area in a safe location upwind, if possible, from the sampling location and verify required equipment is available before sampling.

b. Don required protective equipment.

c. Enter sampling site and approach the containers from the upwind side.

d. Monitor the atmosphere, as necessary, in the vicinity of the containers.

e. Inspect containers to be sampled.

f. Open drum/container by slowly removing bung cap on drum head, if possible (or other type cap, lid, etc., as appropriate).

g. If the container has no cap-like devices, the cap-like devices cannot be removed, or the container is suspected to be dangerously reactive (i.e., peroxide crystals formed near cap, etc.), contact the DSHE-TSDF and request the assistance of a specialized contractor to enter the container with a remote sampling technique.

h. Retest the atmosphere in the vicinity of the container.

i. If necessary, test drum contents for acid or bases.

j. Determine next sampling procedure based on content of container.

(1) Single phase liquids - proceed to subparagraph k.

(2) Multi-phase liquids/sludge - proceed to subparagraph l.

(3) Solids and sludges - proceed to subparagraph m.

k. Conduct Single Phase Liquid Sampling

(1) Remove cover from sample container.

(2) Insert sampling tube almost to the bottom of the container. The sampling tube should be long enough to extend at least one foot above the container being sampled.

(3) Allow the waste in the container being sampled to reach its natural level in the sampling tube.

(4) Cap the top of the sampling tube with a tapered stopper or cover firmly with a protected finger, ensuring the liquid does not come into contact with the stopper or the finger.

(5) Carefully remove the covered tube from the container and insert the uncapped end into the sample container. DO NOT spill liquid on the outside of the sample container.

(6) Release the stopper or finger and allow the glass tube to drain completely. Fill the sample container to the appropriate volume.

(7) Ensure the sampling tube is properly stored or disposed of.

(8) Cap the sample container and attach a sample I.D. tag to the sample container.

(9) Proceed to paragraph 6-8.

l. Conduct Multi-phase Liquid/sludge Sampling.

(1) If the container has large thicknesses of each layer, sample individual layers using a modified version of the single phase liquid sampling method. Proceed to paragraph 6-8.

(2) If the container has small thicknesses of each layer, sample container using the single phase liquid sampling method. Request the laboratory separate phases. (Note - One must ensure that sufficient sample volume is collected of each phase for analysis purposes). Proceed to paragraph 6-8.

m. Conduct Solid and Sludge Sampling.

(1) Remove cover from the sample container.

(2) Insert metal thief to the bottom of the container. The sampling tube/thief should be long enough to extend at least 1 foot above the container being sampled.

(3) Gently twist the thief into the solid material using the palms of the hands in a circular motion.

(4) Cap the top of the sampling tube/thief with a tapered stopper or cover firmly with a protected finger.

(5) Carefully remove the covered tube from the container and insert the uncapped end into the sample container.

(6) Release the stopper or finger from the top of the thief and allow the tube to drain completely into the

sample container. Sample several areas of the container to ensure a representative sample.

(7) Cap the sample container tightly and attach a sample identification tag to the sample container.

- n. Replace the container bung or lid.
- o. Plug any holes made in the drum or container.
- p. Exit the sampling area.
- q. Decontaminate equipment as required.
- r. Doff personal protective equipment.
- s. Complete chain-of-custody forms for samples collected.
- t. Package and transport samples to laboratory.
(NOTE: Many sample types need to be kept cool (4 degrees celsius) and there are time constraints on movement of samples).
- u. All steps of sampling and analysis should be properly recorded in a written log.

6-8. REQUEST FOR SAMPLING AND ANALYSIS SUPPORT.

a. Purpose. To specify the procedure for obtaining sampling and analysis support. Hazardous waste generators may request assistance from the DSHE-TSDF in sampling and analyzing waste streams. Analysis results are required on occasion to support waste profiling.

b. Performance Steps.

(1) Upon request for sampling/analysis support, the DSHE-TSDF will issue a Field Sampling Request/Sample Analysis Request Form.

(2) Upon return of the form(s), a time will be coordinated between the TSDF and the generator for sampling.

CHAPTER 7
HAZARDOUS WASTE MINIMIZATION (HAZMIN)

7-1. REGULATORY BACKGROUND. The 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA and implementing Federal and State regulations stipulated that hazardous waste generators create waste minimization programs to most effectively manage their hazardous waste streams. In response, DOD and DA implemented a HAZMIN program to reduce generated hazardous waste by 50 percent between 1985 and 1992. The program achieved its goal. In 1990, the U.S. Congress passed the Pollution Prevention (P2) Act which placed even greater emphasis on minimization. The Act identified source reduction as the preferred means of effectively eliminating and/or minimizing the generation of hazardous wastes. In 1993, President Clinton signed Executive Order (E.O.) 12856 which mandated P2 in Federal agencies including DOD. Army implementing policy--consistent with goals spelled out in the E.O.--calls for the reduction of 1992 levels of generated hazardous wastes by 50 percent at the end of 1999. Finally, APG storage and treatment permits from the Maryland Department of Environment now include language requiring waste minimization and source reduction efforts and documentation attesting thereto.

7-2. SCOPE. Unlike P2, HAZMIN encompasses not only source reduction to prevent waste generations, but also environmentally sound recycling of those wastes that cannot be prevented. Environmentally sound recycling is defined as the reuse of a waste as a raw material or the reclamation of a material for reuse. Recycling techniques that are disposal-like in nature are not HAZMIN. Examples include waste stream media transfer (e.g., evaporation to the atmosphere of volatile liquids in order to recover non-volatile constituents) or burning for energy recovery.

7-3. PROGRAM ELEMENTS. In May 1993, the EPA published guidance (58 FR 31114; May 28, 1993) that identified the following as elements indicative of a bonafide waste minimization program under RCRA. All of these elements, to the greatest extent economically and technically feasible, will be appropriately incorporated into APG's hazardous waste management activities.

a. Top management support. This includes written policy statements, goals, the designation of P2/HAZMIN coordinator(s), employee training, program publicity, incentives for accomplishments, and all similar actions that demonstrate an organization's commitment to waste minimization.

b. Characterization of waste generation and waste costs. Generators should develop and use a waste accounting system that tracks all costs associated with hazardous waste management. These include not only direct disposal costs, but also programmatic costs like organizational waste management and regulatory oversight.

c. Periodic waste minimization assessments. Minimization assessments are invaluable, continuous efforts focused on identifying source reduction opportunities such as process changes, and investigating the bonafide recycling of generated wastes. They allow an organization to evaluate the economic and technical feasibility of acting on identified opportunities. Assessments may be simple ongoing evaluations of individual waste streams using waste tracking systems and in-shop expertise, or they may involve the use of specialized, outside teams that formally and systematically evaluate numerous target processes at one time.

d. Cost allocation system. Hazardous waste generating activities will be billed for the full cost of external waste handling and disposal services associated with their wastes. Adequate cost visibility provides an organization with economic incentives for waste minimization.

e. Technology transfer. New HAZMIN technologies, success stories and case studies should be communicated through the P2 sub-committee to allow others to learn from pioneering efforts.

f. Program implementation and evaluation. Upon the completion of minimization assessments, activities should follow through on implementing economically and technically feasible source reduction and recycling efforts.

7-4. PROGRAM MANAGEMENT/RESPONSIBILITIES. The APG P2 Plan--designed to be a more dynamic and all-encompassing document than this regulation--contains a great deal of information related to the installation's P2 (HAZMIN)

program implementation, management, goals, strategies, training and evaluation, as well as incentive programs and the conduct of minimization or opportunity assessments. Included here are general responsibilities focused on HAZMIN management and execution related to RCRA operations. NOTE: The current APG P2 Plan may be obtained by contacting the Environmental Compliance Division, P2 office, 410-278-4529/9834.

a. The Installation Commander will:

(1) Assume overall HAZMIN program responsibility as signatory authority for the APG annual hazardous waste report.

(2) Ensure P2 and HAZMIN program development, implementation and administration through the Environmental Quality Control Committee (EQCC) and Hazardous/Solid Waste and Pollution Prevention/ Emergency Planning and Community Right-to-Know [Superfund Amendments and Reauthorization Act of 1986 (SARA Title III)] (EPCRA) Subcommittees.

b. The Director, Safety, Health and Environment (DSHE) will:

(1) Serve as the Commander's central point of contact for HAZMIN issues.

(2) Oversee the administration of the APG HAZMIN program.

(3) Through the Chief, Environmental Compliance Division (ECD):

(a) Ensure the implementation and maintenance of a comprehensive management system (e.g., hazardous material pharmacy (HAZMART)) for the control, monitoring and inventory of purchased hazardous materials.

(b) Periodically evaluate installation waste streams for the possible implementation of HAZMIN options.

(c) Ensure waste generating activities accurately characterize all hazardous waste streams.

(d) Develop and maintain mechanisms at Installation hazardous waste treatment and storage

facilities to accurately track individual incoming and outgoing waste streams for required hazardous waste annual report waste minimization data.

(e) As economically and technically feasible, include the Government's preference for environmentally sound recycling of generated waste streams in waste disposal contracts.

(f) Pass on appropriate DSHE costs for hazardous waste storage, treatment and disposal services to waste generating activities.

(g) Compile annual installation HAZMIN data from tenants and automated tracking systems for submission to higher headquarters and State regulatory authorities as appropriate.

(h) Provide Installation activities with as needed technical and regulatory guidance on HAZMIN issues.

(i) Include P2 and HAZMIN as an integral part of all DSHE hazardous waste management training.

c. The P2/EPCRA and Solid/Hazardous Waste Subcommittees will:

(1) Assist the DSHE in the development, implementation, expansion and management of an active HAZMIN program.

(2) Provide a forum for the coordination of HAZMIN activities throughout the Installation.

(3) Determine appropriate program matrix and report program progress and activities to the EQCC.

(4) Advocate hazardous waste elimination through source reduction followed by environmentally sound recycling.

d. Tenant activities will:

(1) Prepare and submit to the DSHE Hazardous Waste Branch an annual HAZMIN report not later than 31 January each year.

(2) Designate a representative(s), who may be the AEC, to participate in the waste minimization activities of the P2/EPCRA and Solid/Hazardous Waste Subcommittees.

(3) Ensure source reduction and environmentally sound recycling are considered and implemented as feasible at all hazardous waste generating operations.

(4) Employ hazardous material procurement controls and usage constraints. Utilize HAZMART and DRMO reissue, reuse and/or resale avenues prior to considering the disposal of excess or expired shelf-life hazardous materials as hazardous wastes.

(5) Track hazardous materials from initial activity purchase through final consumption or waste turn-in.

(6) Develop and maintain appropriate matrices to document the economic benefits of implemented HAZMIN actions and their efficacy in reducing the volume (quantity) or toxicity of specific waste streams.

(7) Continuously solicit the expertise of internal staff in developing and implementing waste minimization methodologies.

APPENDIX A

REFERENCES

Public Law 94-580, Resource Conservation and Recovery Act of 1976, as amended through 1984.

Public Law 96-510, Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended.

Public Law 94-580, Pollution Prevention Act, 1990.

Executive Order 12088, Federal Compliance with Pollution Control Standards, October 13, 1978

Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, August 3, 1993

Title 40 CFR, Parts 260-281, Hazardous Waste Management.

Title 40 CFR, Parts 300-302, National Oil and Hazardous Substances Pollution Contingency Plan.

Title 40 CFR, Part 761, Polychlorinated Biphenyls (PCB) Management and Disposal.

Title 49 CFR, Transportation, Parts 106-178.

Code of Maryland Regulation (COMAR), Title 26, Subtitle 13, Disposal of Controlled Hazardous Substances.

DOD Instruction 4160.21-M, Defense Disposal Management.

DOD Instruction 4145.19-R-1, Storage and Material Handling.

AR 50-6, Nuclear and Chemical Weapons and Material Chemical Surety Program.

AR 75-15, Responsibilities and Procedures for Explosive Ordnance Disposal.

AR 190-59, Chemical Agent Security Program.

AR 200-1, Environmental Protection and Enhancement, AMC, TECOM.

AR 200-2, Environmental Effects of Army Actions.

AMCR 385-100, Safety Manual.

DA PAM 50-6, Chemical Accident or Incident Response and Assistance (CAIRA) Operations.

AMCR 740-17, Inventory and Accountability.

APGR 200-1, Environmental Quality Control (EQC) at APG.

APGR 385-4, The APG Safety and Occupational Health Program.

USAAPGSAR 715-1, Purchase Procedures.

APGR 725-3, Requesting, Receiving, Turn-In and Delivery of Supplies and Equipment.

APG Disaster Control Plan.

State of Maryland Department of the Environment Controlled Hazardous Substances Facility Permit Number A-290 for Aberdeen Proving Ground.

RCRA Part B Permit Application for OB/OD Detonation Areas.

CRDEC 50-1, Nuclear and Chemical Weapons and Material, Accountability of Research and Development Chemical Surety Material.

U.S. EPA 600/2-88/025, Manual for Waste Minimization Opportunity Assessment, April 1988.

U.S. EPA 540/P81/001, A Compendium of Superfund Field Operations Methods, 1987.

U.S. EPA 600/2-86/013, Drum Handling Practices at Hazardous Waste Sites, 1986.

U.S. EPA 530-Z-93-007; FRL-4658-5; 58 FR 31114; Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program

APPENDIX B

CRITERIA FOR IDENTIFYING SOLID AND HAZARDOUS WASTES
(EXCERPT FROM CODE OF MARYLAND REGULATIONS)

§26.13.02.02 Definitions of Solid Waste.

A. Solid Waste and Discarded Material.

(1) A solid waste is any discarded material that is not excluded by Regulation .04-1 of this chapter or that is not excluded by a variance granted under COMAR 26.13.01.04 D and E.

(2) A discarded material is any material which is:

(a) Abandoned, as explained in § B;

(b) Recycled, as explained in § C; or

(c) Considered inherently waste-like, as explained in § D.

B. Materials are solid waste if they are abandoned. For purposes of this subtitle, "abandoned" means:

(1) Disposed of;

(2) Burned or incinerated; or

(3) Accumulated, stored, or treated (but not recycled) before or instead of being abandoned by being disposed of, burned, or incinerated.

C. Materials are solid wastes if they are recycled, or accumulated, stored, or treated before recycling, as follows:

(1) Used in a Manner Constituting Disposal.

(a) Materials noted with an asterisk in § G of this regulation, Column 1 of Table 1 are solid wastes when they are:

(i) Applied to or placed on the land in a manner that constitutes disposal; or

(ii) Used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to the land (in which case the product itself remains a solid waste).

(b) Commercial chemical products listed in Regulation .19 are not solid wastes if they are applied to the land and that is their ordinary manner of use.

(2) Materials Burned for Energy Recovery.

(a) Except as provided in § C(1)(b), materials noted with an asterisk in § G, column 2 are solid wastes when they are:

(i) Burned to recover energy;

(ii) Used to produce a fuel;

(iii) Contained in fuels, in which case the fuel itself remains a solid waste.

(b) Commercial chemical products listed in Regulation .19 are not solid wastes if they are themselves fuels.

(3) Materials Reclaimed. Materials noted with an asterisk in § G, column 3 of Table 1 are solid wastes when reclaimed.

(4) Materials Accumulated Speculatively. Materials noted with an asterisk in § G, column 4 of Table 1 are solid wastes when accumulated speculatively.

D. Inherently Waste-Like Materials.

(1) The following materials are solid wastes when they are recycled in any manner: Hazardous Waste Nos. F020, F021, unless otherwise used as an ingredient to make a product at the site of generation, and F022, F023, F026, and F028.

(2) The Secretary will use the following criteria to add wastes to the list in § D(1):

(a) The materials are ordinarily disposed of, burned, or incinerated;

(b) The materials contain toxic constituents listed in Regulation .24 of this chapter and these constituents are not ordinarily found in raw materials or products for which the

materials substitute, or are found in raw materials or products in smaller concentrations, and are not used or reused during the recycling process; or

(c) The materials may pose a substantial hazard to human health and the environment when recycled.

E. Materials That Are Not Solid Waste When Recycled.

(1) Materials are not solid wastes when they can be shown to be recycled by being:

(a) Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;

(b) Used or reused as effective substitutes for commercial products; or

(c) Returned to the original process from which they are generated, without first being reclaimed. The material will be returned as a substitute for raw material feedstock, and the process will use raw materials as principal feedstocks, in order for this paragraph to apply.

(2) The following materials are solid wastes, even if the recycling involves use, reuse, or return to the original process, described in § E(1), above:

(a) Materials used in a manner constituting disposal, or used to produce products that are applied to the land;

(b) Materials burned for energy recovery, used to produce a fuel, or contained in fuels;

(c) Materials accumulated speculatively; or

(d) Materials listed in § D(1).

F. Documentation of Claims That Materials Are Not Solid Wastes or Are Exempt from Regulation. Respondents in actions to enforce regulations implementing Environment Article, Title 7, Annotated Code of Maryland, who raise a claim that a certain material is not a solid waste, or is conditionally exempt from regulation, will demonstrate that there is a known market or disposition for the material, and that they meet the terms of the exclusion or exemption. In doing so, they will provide appropriate documentation such as contracts showing that a second person uses

the material as an ingredient in a production process to demonstrate that the material is not a waste, or is exempt from regulation. In addition, owners or operators of facilities claiming that they actually are recycling materials will show that they have the necessary equipment to do so.

G. Table 1.

	Use Constituting Disposal	Energy Recovery/ Fuel Reclaim	Speculative Accumulation
	(1)	(2) (3)	(4)
Spent Materials Sludges (listed in Regulations .16, .17, or .18 of this chapter)	(*)	(*) (*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*) --	(*)
By-products (listed in Regulations .16, .17, or .18 of this chapter)	(*)	(*) (*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*) --	(*)

Commercial chemical products listed in Regulation .19 of this chapter)	(*)	(*) --	--
Scrap metal	(*)	(*) (*)	(*)

NOTE -- The terms "spent materials", "sludges", "by-products", and "scrap metal" are defined in Regulation .01 of this chapter.

§ 26.13.02.03 Definition of Hazardous Waste.

A. A solid waste, as defined in Regulation .02 is a hazardous waste if:

(1) It is not excluded from regulation as a hazardous waste under Regulation .04-1 of this chapter; and

(2) It meets any of the following criteria:

(a) It exhibits any of the characteristics of hazardous waste identified in this chapter.

(b) It is listed in Regulations .15 - .19 and has not been excluded from the lists by COMAR 26.13.01.04 A and C.

(c) It is a mixture of a solid waste and a hazardous waste that is listed in this chapter solely because it exhibits one or more of the characteristics of hazardous waste identified in this chapter unless the:

(i) Resultant mixture no longer exhibits any characteristic of hazardous waste as identified in this chapter; or

(ii) Solid waste is excluded from regulation under Regulation .04-1 H of this chapter and the resultant mixture no longer exhibits any characteristic of hazardous waste identified in this chapter for which the hazardous waste in the mixture was listed in this chapter.

(d) It is a mixture of solid waste and one or more hazardous wastes listed in this chapter and has not been excluded from this paragraph under COMAR 26.13.01.04; however, the following

mixtures of solid wastes and hazardous wastes listed in this chapter are not hazardous wastes (except by application of § A(2)(a) and (b) of this regulation) if the generator can demonstrate that the mixture consists of wastewater, the discharge of which is subject to regulation under either § 402 or § 307 (b) of the Clean Water Act (including wastewater at facilities which have eliminated the discharge of wastewater) and:

(i) One or more of the following spent solvents listed in Regulation .16 -- carbon tetrachloride, tetrachloroethylene, trichloroethylene -- provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed one part per million;

(ii) One or more of the following spent solvents listed in Regulation .16 -- methylene chloride, 1,1,1-trichloroethane, chlorobenzene, o-dichlorobenzene, toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, spent chlorofluorocarbon solvents, cresols, cresylic acid and nitrobenzene, provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed 25 parts per million;

(iii) One of the following wastes listed in Regulation .17 -- heat exchanger bundle cleaning sludge from the petroleum refining industry (EPA Hazardous Waste No. K050);

(iv) A discarded commercial chemical product or chemical intermediate listed in Regulation .19 arising from de minimis losses of these materials from manufacturing operations in which these materials are used as raw materials or are produced in the manufacturing process. For purposes of this subparagraph, "de minimis" losses include those from normal material handling operations (for example, spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials); minor leaks of process equipment, storage tanks or containers; leaks from well maintained pump packings and seals; sample purgings; relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment; and rinsate from empty

containers or from containers that are rendered empty by that rinsing; or

(v) Wastewater resulting from laboratory operations containing toxic (T) wastes listed in this chapter provided that the annualized average flow of laboratory wastewater does not exceed 1 percent of the total wastewater flow into the headworks of the facility's wastewater treatment or pretreatment system or provided the wastes' combined annualized average concentration does not exceed one part per million in the headworks of the facility's wastewater treatment or pretreatment facility. Toxic (T) wastes used in laboratories that are demonstrated not to be discharged to wastewater are not to be included in this calculation.

A-1. Any mixture of a waste from the extraction, beneficiation, and processing of ores and minerals excluded under Regulation .04-1 H of this chapter and any other solid waste which exhibits a characteristic of hazardous waste under this chapter, is a hazardous waste only under the following circumstances:

(1) The mixture exhibits a characteristic that would not have been exhibited by the excluded waste alone if this mixture had not occurred; or

(2) The mixture continues to exhibit any of the characteristics exhibited by the nonexcluded wastes before mixture.

B. A solid waste which is not excluded from regulation under § A(1) becomes a hazardous waste when any of the following events occurs:

(1) In the case of a waste listed in Regulations .15 - .19, when the waste first meets the listing description set forth in Regulations .15 - .19;

(2) In the case of a mixture of solid waste and one or more listed hazardous wastes, when a hazardous waste listed in Regulations .15 - .19 is first added to the solid waste;

(3) In the case of any other waste (including a waste mixture), when the waste exhibits any of the characteristics identified in Regulations .10 - .14.

C. Unless and until it meets the criteria of § D:

(1) A hazardous waste will remain a hazardous waste.

(2) Except as otherwise provided in § C(3), any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust, or leachate but not including precipitation runoff, is a hazardous waste. However, materials that are reclaimed from solid waste and that are used beneficially are not hazardous wastes under this provision unless the reclaimed material is burned for energy recovery or used in a manner constituting disposal.

(3) Waste pickle liquor sludge generated by lime stabilization of spent pickle liquor from the iron and steel industry (SIC Codes 331 and 332) is not a hazardous waste even though it is generated from the treatment, storage, or disposal of a hazardous waste, unless it exhibits one or more of the characteristics of hazardous waste.

D. Any solid waste described in § C is not a hazardous waste if it meets the following criteria:

(1) In the case of any solid waste, it does not exhibit any of the characteristics of hazardous waste identified in Regulations .10 - .14;

(2) In the case of a waste which is a listed waste under Regulations .15 - .19, contains a waste(s) listed under Regulations .15 - .19 or is derived from a waste listed in Regulations .15 - .19, it also has been excluded from § C under COMAR 26.13.01.04 A(3) and C.

§ 26.13.02.04 Materials Which Are Not Solid Wastes [and therefore not hazardous wastes].

The following materials are not solid wastes for the purpose of this chapter:

A. Domestic sewage that passes through a sewer system to a publicly-owned treatment work for treatment. "Domestic sewage" means untreated sanitary wastes that pass through a sewer system.

B. Industrial wastewater discharges that are point source discharges permitted pursuant to § 402 of the Clean Water Act, as amended, or permitted pursuant to Environment Article, §§ 9-324 - 9-332.

C. Irrigation return flows.

D. Materials subjected to in-site mining techniques which are not removed from the ground as part of the extraction process.

E. Pulping liquors (for example, black liquor) that are reclaimed in a pulping liquor recovery furnace and then reused in the pulping process, unless it is accumulated speculatively as defined in Regulation .01 C(3) (h).

F. Spent sulfuric acid used to produce virgin sulfuric acid, unless it is accumulated speculatively as defined in Regulation .01 C(3) (h).

G. Secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process if:

(1) Only tank storage is involved, and the entire process through completion of reclamation is closed by being entirely connected with pipes or other comparable enclosed means of conveyance;

(2) Reclamation does not involve controlled flame combustion, such as occurs in boilers, industrial furnaces, or incinerators;

(3) The secondary materials are never accumulated in the tanks for over 12 months without being reclaimed; and

(4) The reclaimed material is neither used to produce a fuel, nor used to produce products that are used in a manner constituting disposal.

§ 26.13.02.04-1 Solid Wastes Which Are Not Hazardous Wastes.

A. The following solid wastes are not hazardous wastes:

(1) Household waste, as defined in § B of this regulation, including household waste that has been collected, transported, stored, treated, disposed of, recovered (for example, refuse-derived fuel), or reused;

(2) Solid wastes generated by any of the following and which are returned to the soils as fertilizers:

(a) The growing and harvesting of agricultural crops,

(b) The raising of animals, including animal manures;

(3) Mining overburden returned to the mine site;

(4) Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels;

(5) Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas, or geothermal energy;

(6) Contaminated soils and other solids recovered from spills or removed from old disposal sites containing PCB at concentrations of less than 50 ppm which will be disposed of at approved sites only if they do not qualify as a hazardous waste under any other section of this regulation;

(7) Solid waste from the extraction, beneficiation, and processing of ores and minerals (including coal), including phosphate rock and overburden from the mining of uranium ore, except that the Secretary on a case-by-case basis, may impose by Order, those requirements of COMAR 26.13, determined by the Secretary to be necessary to protect human health and the environment.

(8) Cement kiln dust waste;

(9) Solid waste which consists of discarded arsenical-treated wood or wood products that, as a result of the wood treating process, fail the test for the toxicity characteristic for Hazardous Waste Codes D004 - D017, and which is not a hazardous waste for any other reason if the waste is generated by person who use the arsenical-treated wood and wood products for the material's intended end use;

(10) Chromium waste which meets one of the following criteria:

(a) Wastes which fail the test for the toxicity characteristic because chromium is present, or are listed in Regulations .15 - .19 of this chapter due to the presence of chromium, which do not fail the test for the toxicity characteristic for any other constituent or are not listed due to the presence of any other constituent, and which do not fail the test for any other characteristic, if it is shown by a waste generator or by waste generators that:

(i) The chromium in the waste is exclusively (or nearly exclusively) trivalent chromium,

(ii) The waste is generated from an industrial process which uses trivalent chromium exclusively (or nearly exclusively) and the process does not generate hexavalent chromium, and

(iii) The waste is typically and frequently managed in nonoxidizing environments;

(b) Specific wastes which meet the standard in § A(10)(a) of this regulation so long as they do not fail the test for the toxicity characteristic and do not fail the test for any other characteristic, are:

(i) Chrome (blue) trimmings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, retan/wet finish, no beamhouse, through-the-blue, and shearling,

(ii) Chrome (blue) shavings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, retan/wet finish, no beamhouse, through-the-blue, and shearling,

(iii) Buffing dust generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, retain/wet finish, no beamhouse, through-the-blue,

(iv) Sewer screenings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, retan/wet finish, no beamhouse, through-the-blue, and shearling,

(v) Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, retan/wet finish, no beamhouse, through-the-blue, and shearling,

(vi) Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish, hair save/chrome tan/retan/wet finish, and through-the-blue,

(vii) Waste scrap leather from the leather tanning industry, the shoe manufacturing industry, and other leather product manufacturing industries,

(viii) Wastewater treatment sludges from the production of TiO₂ pigment using chromium-bearing ores by the chloride process;

(11) Used oil that fails the test for the toxicity characteristic or the characteristic of ignitability, that is burned for energy recovery or is transported or stored before being burned for energy recovery, and that is not a hazardous waste for any other reason;

(12) Petroleum-contaminated media and debris that fail the test for the toxicity characteristic of Regulation .14 of this chapter (Hazardous Waste Codes D018 through D043 only) and are subject to the corrective action regulations under 40 CFR 280;

(13) Used chlorofluorocarbon refrigerants from totally enclosed heat transfer equipment, including mobile air conditioning systems, mobile refrigeration, and commercial and industrial air conditioning and refrigeration systems that use chlorofluorocarbons as the heat transfer fluid in a refrigeration cycle, provided the refrigerant is reclaimed for further use;

(14) Non-terne-plated used oil filters from internal combustion engines, if:

(a) The filter has not been mixed with any waste that is listed in Regulation .15 - .19 of this chapter;

(b) The filter has been drained by initiating the draining with the oil near operating temperature and conducting the draining in an environment warmer than 60°F;

(c) One of the following alternatives has been used in conjunction with draining as described in § A(14)(b) of this regulation to remove oil from the filter:

(i) Puncturing the filter anti-drain back valve or the filter dome end, and draining.

(ii) Draining, followed by crushing the filter,

(iii) Dismantling the filter and draining, or

(iv) Using an alternative technique in conjunction with draining which will remove oil from the filter at least as well as the techniques described in § A(14)(c)(i) - (iii) of this regulation; and

(d) In complying with § A(14)(c) of this regulation, the filter has been allowed to drain under the influence of gravity for at least 12 hours.

B. Definitions.

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

(2) Used Oil.

(a) "Used oil" means any oil that has been refined from crude oil, used, and as a result of the use, contaminated by physical or chemical impurities.

(b) "Used oil" includes the following:

(i) Spent automotive lubricating oils, including car and truck engine oil, transmission fluid, brake fluid, and off-road engine oil;

(ii) Spent industrial oils, including compressor, turbine, and bearing oils, hydraulic oils, metalworking oils, gear oils, electrical oils, refrigerator oils, and railroad drainings; and

(iii) Spent industrial process oils.

C. A resource recovery facility managing municipal solid waste may not be considered to be treating, storing, disposing of, or otherwise managing hazardous wastes for the purposes of regulation under this subtitle, if the facility:

(1) Receives and burns only:

(a) Household waste from single and multiple dwellings, hotels, motels, and other residential sources, and

(b) Solid waste from commercial or industrial sources that does not contain hazardous waste; and

(2) Does not accept hazardous wastes and the owner or operator of the facility has established contractual requirements or other appropriate notification or inspection procedures to assure that hazardous wastes are not received or burned in the facility.

D. For the purpose of disposal of waste mixtures containing insignificant amounts of CHS which are not hazardous wastes as defined by COMAR 26.13.02.03 A(2), it is the obligation of the waste generator to show that the concentration of the CHS is such that the waste mixture can be disposed of in places other than a facility.

E. For the purposes of this regulation, beneficiation of ores and minerals is restricted to the following activities:

(1) Amalgamation;

(2) Briquetting;

- (3) Calcining to remove water or carbon dioxide, or both;
- (4) Crushing;
- (5) Crystallization;
- (6) Dissolution;
- (7) Drying;
- (8) Electrostatic separation;
- (9) Electrowinning;
- (10) Filtration;
- (11) Flotation;
- (12) Gravity concentration;
- (13) Grinding;
- (14) Heap, dump, vat, tank, and in situ leaching;
- (15) Ion exchange;
- (16) Magnetic separation;
- (17) Pelletizing;
- (18) Precipitation;
- (19) Roasting, autoclaving, or chlorination, or all of these, in preparation for leaching, except when the sequences of roasting, autoclaving, or chlorination, or all of these, and leaching produces a final or intermediate product that does not undergo further beneficiation or processing;
- (20) Sintering;
- (21) Sizing;
- (22) Solvent extraction;
- (23) Sorting; and

(24) Washing.

F. For the purposes of § A(7) of this regulation, solid waste from the processing of ores and minerals includes only the following wastes:

- (1) Slag from primary copper processing;
- (2) Slag from primary lead processing;
- (3) Red and brown muds from bauxite refining;
- (4) Phosphogypsum from phosphoric acid production;
- (5) Slag from elemental phosphorus production;
- (6) Gasifier ash from coal gasification;
- (7) Process wastewater from coal gasification;
- (8) Calcium sulfate wastewater treatment plant sludge from primary copper processing;
- (9) Slag tailings from primary copper processing;
- (10) Fluorogypsum from hydrofluoric acid production;
- (11) Process wastewater from hydrofluoric acid production;
- (12) Air pollution control dust or sludge, or both, from iron blast furnaces;
- (13) Iron blast furnace slag;
- (14) Treated residue from roasting/leaching of chrome ore;
- (15) Process wastewater from primary magnesium processing by the anhydrous process;
- (16) Process wastewater from phosphoric acid production;
- (17) Basic oxygen furnace and open hearth furnace air pollution control dust/sludge from carbon steel production;
- (18) Basic oxygen furnace and open hearth furnace slag from carbon steel production;

(19) Chloride process waste solids from titanium tetrachloride production; and

(20) Slag from primary zinc processing.

§ 26.13.02.04-2 Hazardous Wastes Which Are Exempt from Certain Regulations.

A hazardous waste which is generated in a product or raw material storage tank, a product or raw material transport vehicle or vessel, or in an associated non-waste-treatment manufacturing unit, is not subject to regulations until it exits the unit in which it was generated, unless the unit is a surface impoundment, or unless the hazardous waste remains in the unit more than 90 days after the unit ceases to be operated for manufacturing, or for storage or transportation of products or raw material.

§ 26.13.02.04-3 Samples.

A. Except as provided in § B of this regulation, a sample of solid waste or a sample of water, soil, or air, the quantity of which is to be determined by the Department, which is collected for the sole purpose of testing to determine its characteristics or composition, is not subject to any requirement of this part of COMAR 26.13.03 - .07 or to the notification requirements of § 3010 of the Resource Conservation and Recovery Act, when the sample is being:

- (1) Transported to a laboratory for the purpose of testing;
- (2) Transported back to the sample collector after testing;
- (3) Stored by the sample collector before transport to a laboratory for testing;
- (4) Stored in a laboratory before testing;
- (5) Stored in a laboratory after testing but before it is returned to the sample collector; or
- (6) Stored temporarily in the laboratory after testing for a specific purpose (for example, until conclusion of a court case or enforcement action if further testing of the sample may be necessary).

B. In order to qualify for the exemption in § A(1) and (2) of this regulation, a sample collector shipping samples to a laboratory and a laboratory returning samples to a sample collector will:

(1) Comply with U.S. Department of Transportation (DOT), U.S. Postal Service (USPS), or any other applicable shipping requirements; or

(2) Comply with the following requirements if the sample collector determines that DOT, USPS, or other shipping requirements do not apply to the shipment of the sample:

(i) Package the sample so that it does not leak, spill, or vaporize from its packaging; and

(ii) Assure that the following information accompanies the samples:

(aa) The sample collector's name, mailing address, and telephone number,

(bb) The laboratory's name, mailing address, and telephone number,

(cc) The quantity of the sample,

(dd) The date of shipment, and

(ee) A description of the sample.

C. This exemption does not apply if the laboratory determines that the waste is hazardous but the laboratory is no longer meeting any of the conditions stated in § A of this regulation.

§ 26.13.02.04-4 Treatability Study Samples.

A. Except as provided in § B of this regulation, persons who generate or collect samples for the purpose of conducting treatability studies as defined in COMAR 26.13.01.03 B are not subject to any requirement of COMAR 26.13.02 - .04 or to the notification requirements of Section 3010 of RCRA, nor are those samples included in the quantity determinations of Regulation .05 of this chapter and COMAR 26.13.03.05 E(2) when one of the following conditions is met:

- (1) The sample is being collected and prepared for transportation by the generator or sample collector;
- (2) The sample is being accumulated or stored by the generator or sample collector prior to transportation to a laboratory or testing facility; or
- (3) The sample is being transported to the laboratory or testing facility for the purpose of conducting a treatability study.

B. The exemption in § A of this regulation is applicable to samples of hazardous waste being collected and shipped for the purpose of conducting treatability studies, provided that all of the following conditions are met:

- (1) The generator or sample collector does not use, in treatability studies, more than 1,000 kilograms of any nonacute hazardous waste, 1 kilogram of acute hazardous waste, or 250 kilograms of soils, water, or debris contaminated with acute hazardous waste for each process being evaluated for each generated waste stream;
- (2) The mass of each sample shipment does not exceed 1,000 kilograms of nonacute hazardous waste, 1 kilogram of acute hazardous waste, or 250 kilograms of soils, water, or debris contaminated with acute hazardous waste;
- (3) The sample is packaged so that it does not leak, spill, or vaporize from its packaging during shipment;

(4) The transportation of each sample shipment complies with U.S. Department of Transportation (DOT), U.S. Postal Service (USPS), or any other applicable shipping requirements, or if the DOT, USPS, or other shipping requirements do not apply to the shipment of the sample, with the requirements of § B(5) of this regulation;

(5) If the DOT, USPS, or other shipping requirements do not apply to the shipment of the sample, all of the following information accompanies the sample:

(a) The name, mailing address, and telephone number of the originator of the sample,

(b) The name, address, and telephone number of the facility that will perform the treatability study,

(c) The quantity of the sample,

(d) The date of shipment, and

(e) A description of the sample, including its EPA or State hazardous waste number;

(6) The sample is shipped to a laboratory or testing facility which is exempt under Regulation .04-5 of this chapter or which has an appropriate CHS facility permit, RCRA permit, or interim status;

(7) The generator or sample collector maintains all of the following records for a period ending 3 years after completion of the treatability study:

(a) Copies of the shipping documents,

(b) A copy of the contract with the facility conducting the treatability study,

(c) Documentation showing the amount of waste shipped under this exemption,

(d) Documentation showing the name, address, and EPA identification number of the laboratory or testing facility that received the waste,

(e) Documentation showing the date the shipment was made, and

(f) Documentation showing whether or not unused samples and residues were returned to the generator; and

(8) The generator includes the information required under § B(7)(c) - (f) of this regulation with its annual report submitted under COMAR 26.13.03.06 B.

C. Allowance for Additional Quantities.

(1) The Secretary may grant requests on a case-by-case basis for quantity limits in excess of those specified in § B(1) of this regulation for up to an additional 500 kilograms of nonacute hazardous waste, 1 kilogram of acute hazardous waste, and 250 kilograms of soils, water, or debris contaminated with acute hazardous waste, to conduct further treatability study evaluation under one of the following circumstances:

(a) There has been an equipment or mechanical failure during the conduct of a treatability study;

(b) There is a need to verify the results of a previously conducted treatability study;

(c) There is a need to study and analyze alternative techniques within a previously evaluated treatment process; or

(d) There is a need to do further evaluation of an ongoing treatability study to determine final specifications for treatment.

(2) The additional quantities allowed are subject to all the provisions of §§ A and B of this regulation.

(3) In order to be granted an allowance for additional quantities, the generator or sample collector will apply to the Secretary and provide in writing all of the following information:

(a) The reason why the generator or sample collector requires an additional quantity of sample for the treatability study evaluation and the additional quantity needed;

(b) Documentation accounting for all samples of hazardous waste from the waste stream which have been sent for or undergone treatability studies, including the date each previous sample from the waste stream was shipped, the quantity of each previous shipment, the laboratory or testing facility to which it was shipped, what treatability study processes were conducted on each sample shipped, and the available results of each treatability study;

(c) A description of the technical modifications or changes in specifications which will be evaluated and the expected results;

(d) If the request for permission to exceed the quantity limits of § B(1) of this regulation is being made due to equipment or mechanical failure, information regarding the reason for the failure or breakdown, and also a description of the modifications to procedures or improvements to equipment that have been made to protect against further breakdowns; and

(e) Other information the Secretary considers necessary.

§ 26.13.02.04-5 Samples Undergoing Treatability Studies at Laboratories and Testing Facilities.

A. Samples undergoing treatability studies and the laboratories or testing facility conducting the treatability studies, to the extent those facilities are not otherwise subject to requirements under COMAR 26.13, are not subject to any requirements of COMAR 26.13.02 - .07, or to the notification requirements of Section 3010 of RCRA provided that all of the following conditions are met:

(1) Not less than 45 days before conducting treatability studies, the facility notifies the Secretary in writing that it intends to conduct treatability studies under this section;

(2) The laboratory or testing facility conducting the treatability study has an EPA identification number;

(3) No more than a total of 250 kilograms of "as received" hazardous waste is subjected to initiation of treatment in all treatability studies in any single day, when "as received" waste refers to the waste as received in the shipment from the generator or sample collector;

(4) The quantity of "as received" hazardous waste stored at the facility for the purpose of evaluation in treatability studies, exclusive of treatability study residues and treatment materials, including nonhazardous solid waste, added to "as received" hazardous waste, does not exceed 1,000 kilograms, the total of which can include 500 kilograms of soils, water, or debris contaminated with acute hazardous waste or 1 kilogram of acute hazardous waste;

(5) Not more than 90 days have elapsed since the treatability study for the sample was completed, or not more than 1 year has elapsed since the generator or sample collector shipped the sample to the laboratory or testing facility, whichever date first occurred;

(6) The treatability study does not involve the placement of hazardous waste on the land or open burning of hazardous waste;

(7) The facility maintains records for 3 years following completion of each study that show compliance with the treatment rate limits and the storage time and quantity limits, with all of the following specific items included for each treatability study conducted:

(a) The name, address, and EPA identification number of the generator or sample collector of each waste sample,

(b) The date the shipment was received,

(c) The quantity of waste accepted,

(d) The quantity of "as received" waste in storage each day,

(e) The date the treatment study was initiated and the amount of "as received" waste introduced to treatment each day,

(f) The date the treatability study was concluded, and

(g) The date any unused sample or residues generated from the treatability study were returned to the generator or sample collector or, if sent to a designated facility, the name of the facility and the EPA identification number;

(8) The facility keeps on-site a copy of the treatability study contract and all shipping papers associated with the transport of treatability study samples to and from the facility for a period ending 3 years from the completion date of each treatability study;

(9) The facility prepares and submits a report to the Secretary by March 15 of each year that estimates the number of studies and the amount of waste expected to be used in treatability studies during the current year, and includes all of the following information for the previous calendar year:

(a) The name, address, and EPA identification number of the facility conducting the treatability studies,

(b) The types, by process, of treatability studies conducted,

(c) The names and addresses of persons for whom studies have been conducted, including their EPA identification numbers,

(d) The total quantity of waste in storage each day,

(e) The quantity and types of waste subjected to treatability studies,

(f) When each treatability study was conducted, and

(g) The final disposition of residues and unused sample from each treatability study;

(10) The facility determines whether any unused sample or residues generated by the treatability study are hazardous waste under Regulation .03 of this chapter;

(11) The facility manages any unused samples or residues generated by the treatability study that are determined to be hazardous waste in accordance with the requirements of this chapter and COMAR 26.13.03 - 26.13.10 unless the residues and unused samples are returned to the sample originator under the exemption of Regulation .04-4 of this chapter;

(12) The facility notifies the Secretary by letter when the facility is no longer planning to conduct any treatability studies at the site; and

(13) The treatability study is not being used as a means to dispose of hazardous waste.

B. A mobile treatment unit may qualify as a testing facility subject to § A of this regulation. When a group of mobile treatment units are located at the same site, the limitations specified in § A of this regulation apply to the entire group of mobile treatment units collectively as if the group were one mobile treatment unit.

§ 26.13.02.06 Requirements for Recyclable Materials.

A. General.

(1) Hazardous wastes that are recycled are subject to the requirements for generators, transporters, and storage facilities of §§ B and C except for the materials listed in § A(2) and (3). Hazardous wastes that are recycled will be known as "recyclable materials". Recyclable materials, except as otherwise provided in § A(2) or (3), § C(1), or COMAR 26.13.10 are not Controlled Hazardous Substances (CHS) for purposes of COMAR 26.13.07.

(2) Exemption From Regulation.

(a) The following recyclable materials are not CHS for purposes of the regulations indicated:

(i) Recyclable materials that are reclaimed to recover economically significant amounts of gold, silver, platinum, palladium, irridium osmium, rhodium, ruthenium, or any combination of these are not CHS for purposes of COMAR 26.13.05.01 - .04, .05 A, D - H, and .06 - .18, and COMAR 26.13.07;

(ii) Spent lead-acid batteries that are recyclable materials are not CHS for purposes of COMAR 26.13.03, 26.13.04, 26.13.05.02 D, and 26.13.07, and, for persons who store but do not reclaim, are not CHS for purposes of COMAR 26.13.05.

(b) The following recyclable materials are not subject to the requirements of this section but are regulated under either COMAR 26.13.05.16 or COMAR 26.13.10 and all applicable provisions in COMAR 26.13.07.02 and .03:

(i) Recyclable materials used in a manner constituting disposal;

(ii) Hazardous wastes burned for energy recovery in boilers and industrial furnaces that are regulated under COMAR 26.13.05.15 and .16, and COMAR 26.13.07.05;

(iii) Recyclable materials from which precious metals are reclaimed; or

(iv) Spent lead-acid batteries that are being reclaimed under COMAR 26.13.10.

(3) Exclusions.

(a) The following recyclable materials are not CHS for purposes of the regulations indicated:

(i) Industrial ethyl alcohol that is reclaimed is not a CHS for purposes of COMAR 26.13.03 - .07;

(ii) Used batteries or used battery cells returned to a battery manufacturer for regeneration are not CHS for purposes of COMAR 26.13.03, and .05 - .07;

(iii) Scrap metal, for purposes of COMAR 26.13.03 - .07;

(iv) Fuels produced from the refining of oil-bearing hazardous wastes along with normal process streams at a petroleum refining facility if those wastes result from normal petroleum refining, production, and transportation practices, for purposes of COMAR 26.13.03 - .07;

(v) Oil reclaimed from hazardous waste resulting from normal petroleum refining, production, and transportation practices, when the oil is to be refined along with normal process streams at a petroleum refining facility, for purposes of COMAR 26.13.03 - .07.

(b) The following recyclable materials are not subject to regulation under COMAR 26.13.03 - .07 and are not subject to the regulations indicated or the notification requirements of Section 3010 of RCRA:

(i) Industrial ethyl alcohol that is reclaimed is not subject to COMAR 26.13.03 - .07;

(ii) Scrap metal is not subject to COMAR 26.13.03 - .07;

(iii) Used batteries or used battery cells returned to a battery manufacturer for regeneration are not subject to COMAR 26.13.03.01 - .03 and .05 - .07 and COMAR 26.13.05 - .07;

(iv) Used oil that exhibits one or more of the characteristics of hazardous waste but is recycled in some other manner than being burned for energy recovery.

B. Generators and transporters of recyclable materials are subject to the applicable requirements of COMAR 26.13.03 - .04 and the notification requirements under Section 3010 of RCRA, except as provided in § A(2) and (3) of this regulation.

C. Storage of Recyclable Materials.

(1) Owners or operators of facilities that store recyclable materials before they are recycled are regulated under all applicable provisions of COMAR 26.13.01 - .10 and the notification requirements under Section 3010 of RCRA, except as provided in § A(2) and (3) of this regulation.

(2) Owners or operators of facilities that recycle recyclable materials without storing them before they are recycled are subject to the following requirements, except as provided in § A(1), above:

(a) Notification requirements under Section 3010 of RCRA; and

(b) COMAR 26-13.05.05 B and C.

§ 26.13.02.07 Residues of Hazardous Waste in Empty Containers.**A. General.**

(1) Hazardous waste remaining in either an empty container or an inner liner removed from an empty container, as defined in § B, is not subject to regulation under this subtitle, unless it is determined by the Secretary that sufficient amounts of the hazardous waste remain to pose a potential threat to human health or the environment.

(2) Any hazardous waste in either a container that is not empty, or an inner liner removed from a container that is not empty, as defined in § B, is subject to regulation under this subtitle.

B. Definition of Empty.

(1) A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is compressed gas or that is identified in Regulations .16 - .19 as an acute hazardous waste is empty if:

(a) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, such as pouring, pumping, and aspirating;

(b) Not more than 2.5 centimeters (1 inch) of residue remain on the bottom of the container or inner liner;

(c) Not more than 3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 110 gallons in size; or

(d) Not more than 0.3 percent by weight of the total capacity of the container or inner liner remains in the container or inner liner if the container is greater than 110 gallons in size.

(2) A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric.

(3) A container or an inner liner removed from a container that has held an acute hazardous waste identified in Regulations .16 - .19 is empty if:

(a) The container or inner liner has been triple rinsed using a solvent capable of removing the hazardous waste;

(b) The container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or

(c) In the case of a container, the inner liner that prevented contact of the hazardous waste with the container has been removed.

§ 26.13.02.08 Criteria for Identifying the Characteristics of Hazardous Waste.

The Secretary will identify and define a characteristic of hazardous waste in Regulations .10 - .14 only upon determining that:

A. A solid waste that exhibits the characteristic may:

(1) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness, or

(2) Pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of or otherwise managed; and

B. The characteristic can be:

(1) Measured by an available standardized test method which is reasonably within the capability of generators of solid waste or private sector laboratories that are available to serve generators of solid waste, or

(2) Reasonably detected by generators of solid waste through their knowledge of their waste.

§ 26.13.02.09 Criteria for Listing Hazardous Waste.

A. The Secretary will list a solid waste as a hazardous waste only upon determining that the solid waste meets one of the following criteria:

(1) It exhibits any of the characteristics of hazardous waste identified in Regulations .10 - .14.

(2) It has been found to be fatal to humans in low doses or, in the absence of data on human toxicity, it has been shown in studies to have an oral LD50 toxicity (rat) of less than 50 milligrams per kilogram, an inhalation LC50 toxicity (rat) of less than 2 milligrams per liter, or a dermal LD50 toxicity (rabbit) of less than 200 milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness. Waste listed in accordance with these criteria will be designated Acute Hazardous Waste.

(3) It contains any of the toxic constituents listed in Regulation .24 of this chapter and, after considering the following factors, the Secretary concludes that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed:

(a) The nature of the toxicity presented by the constituent.

(b) The concentration of the constituent in the waste.

(c) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in § A(3)(g), below.

(d) The persistence of the constituent or any toxic degradation product of the constituent.

(e) The potential for the constituent or any toxic degradation product of the constituent to degrade into non-harmful constituents and the rate of degradation.

(f) The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems.

(g) The plausible types of improper management to which the waste could be subjected.

(h) The quantities of the waste generated at individual generation sites or on a regional or national basis.

(i) The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent.

(j) Actions taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituents.

(k) Such other factors as may be appropriate.

B. Substances will be listed in Regulation .24 only if they have been shown in scientific studies to have toxic, carcinogenic, mutagenic, or teratogenic effects on humans or other life forms. Wastes listed in accordance with these criteria will be designated Toxic Wastes.

C. The Secretary may list classes or types of solid waste as hazardous waste if he has reason to believe that individual wastes, within the class or type of waste, typically or frequently are hazardous under the definition of hazardous waste found in COMAR 26.13.02.

D. The Secretary will use the criteria for listing specified in this subsection to establish the exclusion limits referred to in Regulation .05 C.

§ 26.13.02.10 General Characteristics of Hazardous Waste.

A. A solid waste, as defined in Regulation .02, which is not excluded from regulation as a hazardous waste under Regulation .04-1 of this chapter is a hazardous waste if it exhibits any of the characteristics identified in this regulation and in Regulations .11 - .14 of this chapter.

B. A hazardous waste which is identified by a characteristic in Regulations .10 - .14, but is not listed as a hazardous waste in Regulations .15 - .19, is assigned the Hazardous Waste Number set forth in the respective characteristic. This number will be used in complying with the certain recordkeeping and reporting requirements under COMAR 26.13.03 - 26.13.06.

C. For purposes of Regulations .10 - .14, the Secretary will consider a sample obtained using any of the applicable sampling methods specified in Regulation .20 to be a representative sample within the meaning of COMAR 26.13.01.

§ 26.13.02.11 Characteristic of Ignitability.

A. A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

(1) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume, and has a flash point less than 60°C (140°F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79, or D-93-80, or a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78, or as determined by an equivalent test method approved by the Secretary under the procedures set forth in COMAR 26.13.01.04 A and B;

(2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard;

(3) It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Department under COMAR 26.13.01.04 A and B;

(4) It is an oxidizer as defined in 49 CFR 173.151.

B. A solid waste that exhibits the characteristic of ignitability, but is not listed as a hazardous waste in Regulations .15 - .19, has the Hazardous Waste Number of D001.

Agency note: ASTM Standards are available from ASTM, 1916 Race Street, Philadelphia, PA 19103.

§ 26.13.02.12 Characteristic of Corrosivity.

A. A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

(1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using either the test method specified in EPA Method 5.2 on "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", or an equivalent test method approved by the Secretary under the procedures set forth in COMAR 26.13.01.04 A and B;

(2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69* as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods"), or an equivalent test method approved by the Secretary under the procedures set forth in COMAR 26.13.01.04 A and B.

B. A solid waste that exhibits the characteristics of corrosivity, but is not listed as a hazardous waste in Regulations .15 - .19, has the EPA Hazardous Waste Number of D002.

§ 26.13.02.13 Characteristic of Reactivity.

A. A solid waste exhibits the characteristic of reactivity if a representative of the waste has any of the following properties:

(1) It is normally unstable and readily undergoes violent change without detonating;

(2) It reacts violently with water;

- (3) It forms potentially explosive mixtures with water;
- (4) When mixed with water, it generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment;
- (5) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment;
- (6) It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement;
- (7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure;
- (8) It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88.

B. A solid waste that exhibits the characteristic of reactivity, but is not listed as a hazardous waste in Regulations .15 - .19, has the EPA Hazardous Waste Number of D003.

§ 26.13.02.14 Toxicity Characteristic.

A. A solid waste exhibits the characteristic of toxicity, if, using the test methods described in Regulation .25 B of this chapter or equivalent methods approved by the Secretary under the procedures set forth in COMAR 26.13.01.04 A and B, the extract from a representative sample of the waste contains any of the contaminants listed in Table 1 at the concentration equal to or greater than the respective value given in that table. When the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in Regulation .25 B of this chapter, is considered to be the extract for the purpose of this section.

B. A solid waste that exhibits the characteristic of toxicity, but is not listed as a hazardous waste in Regulations .15 - .19 of this chapter, has the EPA hazardous waste number specified in Table 1 which corresponds to the toxic contaminant causing it to be hazardous.

Table 1 Maximum Concentration of Contaminants for the Toxicity Characteristic

EPA HW No. {1}	Contaminant	CAS No. {2}	Level (mg/l)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	200.0{4}
D024	m-Cresol	108-39-4	200.0{4}
D025	p-Cresol	106-44-5	200.0{4}
D026	Cresol		200.0{4}
D016	2,4-D	94-75-7	10.0
D027	1,4 Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13{3}
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	0.13{3}
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methylethylketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	100-86-1	5.0{3}
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0

D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0

D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl Chloride	75-01-4	0.2

{1} Hazardous waste number.

{2} Chemical Abstracts Service number.

{3} Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

{4} If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 milligrams per liter.

§ 26.13.02.15 Lists of Hazardous Wastes: General.

A. A solid waste is a hazardous waste if it is listed in Regulations .16 - .19 unless it has been excluded from this list under COMAR 26.13.01.04 A and B.

B. The Secretary will indicate his basis for listing the classes or types of wastes listed in Regulations .16 - .19 of this chapter by employing one or more of the following Hazard Codes:

- (1) Ignitable Waste (I);
- (2) Corrosive Waste (C);
- (3) Reactive Waste (R);
- (4) Toxicity Characteristic Waste (E);
- (5) Acute Hazardous Waste (H);
- (6) Toxic Waste (T).

C. Regulation .23 of this chapter identifies the constituent which caused the Secretary to list the waste as a Toxicity Characteristic Waste (E) or Toxic Waste (T) in Regulations .16 and .17 of this chapter.

D. Each hazardous waste listed in Regulations .16 - .19 is assigned a Hazardous Waste Number which precedes the name of the waste. This number will be used in complying with the notification requirements, certain recordkeeping, and reporting requirements under COMAR 26.13.03 - 26.13.05.

E. The following hazardous wastes also listed in Regulations .16 and .17 are subject to the exclusion limits for acute hazardous wastes established in Regulation .05:

- (1) F021, F022, F023, F026, and F027 of Regulation .16; and
- (2) K991 - K999 of Regulation .17.

§ 26.13.02.16 Hazardous Waste from Nonspecific Sources.

A. As qualified by § B of this regulation, the following solid wastes are listed as hazardous wastes from nonspecific sources unless they are excluded under COMAR 26.13.01.04 A and B and listed in Regulation .26 of this chapter:

Industry & EPA HW Code	Hazardous Waste	Haz Code
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Generic:

F001	The following spent halogenated solvents Used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures or blends used in degreasing and containing, before or after use, a total of 10 percent or more, by volume, of any of the above halogenated solvents or those solvents listed in F002, F004, and F005 or any combination of those solvents; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
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- F002 The following spent halogenated solvents: (T)
tetrachloroethylene, methylene chloride,
trichloroethylene, 1,1,1-trichloroethane,
1,1,2-trichloroethane, chlorobenzene,
1,1,2-trichloro-1,2,2-trifluoroethane,
orthodichlorobenzene, and trichlorofluoromethane;
all spent solvent mixtures or blends containing,
before or after use, a total of 10 percent or
more, by volume, of any of the above halogenated
solvents or those listed in F001, F004, or F005
or any combination of those solvents; and still
bottoms from the recovery of these spent solvents
and spent solvent mixtures.
- F003 The following spent nonhalogenated solvents: (I)*
xylene, acetone, ethyl acetate, ethyl benzene,
ethyl ether, methyl isobutyl ketone, n-butyl
alcohol, cyclohexanone, and methanol; all spent
solvent mixtures or blends containing, before or
after use, only the above spent non-halogenated
solvents; and all spent solvent mixtures or
blends containing, before or after use, any of
the above non-halogenated solvents, and a total
of 10 percent or more, by volume, of any of those
solvents listed in F001, F002, F004, and F005 or
any combination of those solvents; and still
bottoms from the recovery of these spent solvents
and spent solvent mixtures.
- F004 The following spent nonhalogenated solvents: (T)
cresols and cresylic acid, and nitrobenzene; all
spent solvent mixtures or blends containing,
before or after use, a total of 10 percent or
more (by volume) of any of the above
non-halogenated solvents or those solvents listed
in F001, F002, and F005 or any combination of
those solvents; and still bottoms from the
recovery of these spent solvents and spent
solvent mixtures.
- F005 The following spent nonhalogenated (I,T)
solvents: toluene, methyl ethyl ketone,
carbon disulfide, isobutanol, pyridine,
benzene, 2-ethoxyethanol, and
2-nitropropane; all spent solvent
mixtures/blends containing, before or after use,
a total of 10 percent or more, by volume, of any

of the above non-halogenated solvents or those solvents listed in F001, F002, or F004 or any combination of those solvents; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

- F006 Wastewater treatment sludges from (T)
electroplating operations except from the
following processes: (1) sulfuric acid
anodizing of aluminum; (2) tin
plating on carbon steel; (3) zinc plating
(segregated basis) on carbon steel; (4) aluminum
or zinc aluminum plating on carbon steel; (5)
cleaning/stripping associated with tin, zinc and
aluminum plating on carbon steel; and (6)
chemical etching and milling of aluminum.
- F007 Spent cyanide plating bath solutions (R,T)
from electroplating operation.
- F008 Plating bath residues from the bottom (R,T)
of plating baths from electroplating
operations where cyanides are used in the
process.
- F009 Spent stripping and cleaning bath (R,T)
solutions from electroplating operations
where cyanides are used in the process.
- F010 Quenching bath residue from oil bath (R,T)
from metal heat treating operations
where cyanides are used in the process.
- F011 Spent cyanide solutions from salt bath (R,T)
pot cleaning from metal heat treating operations.
- F012 Quenching wastewater treatment sludges (T)
from metal heat treating operations
where cyanides are used in the process.
- F014 Cyanidation wastewater treatment tailing (T)
pond sediment from mineral metals recovery
operations.

- F015 Spent cyanide bath solutions from (R,T)
mineral metals recovery operations.
- F019 . Wastewater treatment sludges from (T)
the chemical conversion coating of aluminum
- F020 Wastes except wastewater and spent carbon from
hydrogen chloride purification from the
production or manufacturing use as a reactant,
chemical intermediate, or component in a
formulating process of tri- or tetrachlorophenol,
or of intermediates used to produce their
pesticide derivatives. This listing does not
include wastes from the production of
hexachlorophene from highly purified
2,4,5-trichlorophenol. (T)
- F021 Wastes except wastewater and spent carbon from
hydrogen chloride purification from the
production or manufacturing use as a reactant,
chemical intermediate, or component in a
formulating process of pentachlorophenol, or of
intermediates used to produce its derivatives. (H)
- F022 Wastes except wastewater and spent carbon from
hydrogen chloride purification from the
manufacturing use as a reactant, chemical
intermediate, or component in a formulating
process of tetra-, penta-, or hexachlorobenzenes
under alkaline conditions. (H)
- F023 Wastes except wastewater and spent carbon from
hydrogen chloride purification from the
production of materials on equipment previously
used for the production or manufacturing use as a
reactant, chemical intermediate, or component in
a formulating process of tri- or
tetrachlorophenols. This listing does not
include wastes from equipment used only for the

production or use of hexachlorophene from highly purified 2,4,5-trichloro-phenol.

(H)

F024 Process wastes including but not limited to, distillation residues, heavy ends, tars, and reactor cleanout wastes from the production of chlorinated aliphatic hydrocarbons by free radical catalyzed processes.

(T)

These chlorinated hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in this regulation or Regulation .17 of this chapter.

F025 Condensed light ends, spent filters and filter aid, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.

(T)

F026 Wastes except wastewater and spent carbon from hydrogen chloride purification from the production of materials on equipment previously used for the manufacturing use as a reactant, chemical intermediate, or component in a formulating process of tetra-, penta-, or hexachlorobenzene under alkaline conditions.

(H)

F027 Discarded unused formulations containing tri-, tetra-, or pentachlorophenol, or discarded unused formulations containing compounds derived from these chlorophenols.

(H)

This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component.

- F028 Residues resulting from the incineration or Thermal treatment of soil contaminated with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, and
- F027. (T)
- F037 Petroleum refinery primary oil/water/solids separation sludge -- As qualified by § B of this regulation, any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. (T)
These sludges include, but are not limited to, those generated in oil/water/solids separators, tanks and impoundments, ditches and other conveyances, sumps, and storm water units receiving dry weather flow. Sludge generated in storm water units that do not receive dry weather flow, sludges generated from noncontact once through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in § B of this regulation, including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units, and K051 wastes are not included in this listing.
- F038 Petroleum refinery secondary (emulsified) water/solids separation sludge -- As qualified by § B of this regulation, any sludge or float, or both, generated from the physical or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. (T)

These wastes include, but are not limited to, all sludges and floats generated in induced air floatation (IAF) units, tanks and impoundments, and all other sludges generated in dissolved air flotation (DAF) units. Sludges generated in storm water units that do not receive dry weather flow, sludges generated from noncontact once through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in § B of this regulation, including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units, and F037, K048, and K051 wastes are not included in this listing.

*I,T, should be used to specify mixtures containing ignitable and toxic constituents.

B. Clarifications for Listing of Wastes from Nonspecific Sources.

(1) For the purpose of the F037 and F038 listings in § A of this regulation, "oil/water/solids" means oil, water, or solids, or all of these.

(2) Aggressive Biological Treatment.

(a) For the purposes of the F037 and F038 listings, "aggressive biological treatment units" means units which employ one of the following four treatment methods:

(i) Activated sludge;

(ii) Trickling filter;

(iii) Rotating biological contactor for the continuous accelerated biological oxidation of wastewaters; or

(iv) High rate aeration.

(b) For the purposes of § B(2)(a) of this regulation, "high rate aeration" means a system of surface impoundments or tanks, in which intense mechanical aeration is used to

completely mix the wastes and enhance biological activity, in which the units employ a minimum of 6 horsepower per 1,000,000 gallons of treatment volume, and in which either the:

- (i) Hydraulic retention time is not longer than 5 days; or
 - (ii) Hydraulic retention time is not longer than 30 days and the unit does not generate a sludge that is hazardous waste by the toxicity characteristic.
- (3) Generators and treatment, storage, and disposal facilities have the burden of proving that their sludges are exempt from listing as F037 and F038 wastes. If seeking to exempt a sludge from listing as F037 and F038 waste, a person will maintain, in an operating record or in other on-site records, documents, and data sufficient to prove that the:
- (a) Unit is an aggressive biological treatment unit as defined in § B(2) of this regulation; and
 - (b) Sludges for which an exemption from the definitions of F037 and F038, or both, is being sought were actually generated in the aggressive biological treatment unit.
- (4) For the purposes of the F037 listing, sludges are considered to be generated at the moment of deposition in the unit, when "deposition" means at least a temporary cessation of lateral particle movement.
- (5) For the F038 listing:
- (a) Sludges are considered to be generated at the moment of deposition in the unit, when "deposition" means at least a temporary cessation of lateral particle movement; and
 - (b) Floats are considered to be generated at the moment they are formed in the top of the unit.

§ 26.13.02.17 Hazardous Waste from Specific Sources.

Industry & EPA HW Number	Hazardous Waste	Haz Code
Wood Preservation:		
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol	(T)
Inorganic Pigments:		
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments	(T)
K003	Wastewater treatment sludge from the production Of molybdate orange pigments	(T)
K004	Wastewater treatment sludge from the production of zinc yellow pigments	(T)
K005	Wastewater treatment sludge from the production Of chrome green pigments	(T)
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated)	
K007	Wastewater treatment sludge from the production of iron blue pigments	(T)
K008	Oven residue from the production of chrome oxide green pigments	(T)
Organic Chemicals		
K009	Distillation bottoms from the production of acetaldehyde from ethylene	(T)

K010	Distillation side cuts from the production of acetaldehyde from ethylene	(T)
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile	(R,T)
K013	Bottom stream from the acetonitrile column in the	
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile	(T)
K015	Still bottoms from the distillation of benzyl chloride	(T)
K016	Heavy ends or distillation residues from the production of carbon tetrachloride	(T)
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin	(T)
K018	Heavy ends from fractionation in ethyl chloride production	(T)
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production	(T)
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production	(T)
K021	Aqueous spent antimony catalyst waste from fluoromethane production	(T)
K022	Distillation bottom tars from the production of phenol/acetone from cumene	(T)
K023	Distillation light ends from the production of phthalic anhydride from naphthalene	(T)
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene	(T)
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene	(T)
K026	Stripping still tails from the production of methyl ethyl pyridines	(T)

K027	Centrifuge and distillation residues from toluene diisocyanate production	(R,T)
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane	(T)
K029	Waste from the product stream stripper in the production of 1,1,1-trichloroethane	(T)
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene	(T)
K083	Distillation bottoms from aniline production	(T)
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes	(T)
K093	Distillation light ends from the production of phthalic anhydride from ortho-xylene	(T)
K094	Distillation bottoms from the production of phthalic anhydride from ortho-xylene	(T)
K095	Distillation bottoms from the production of 1,1,1-trichloroethane	(T)
K096	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane	(T)
K103	Process residues from aniline extraction from the production of aniline	(T)
K104	Combined wastewater streams generated from nitrobenzene/aniline production	(T)
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes	(T)
K107	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines	(C,T)
K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UMDH) from carboxylic acid hydrazides	(I,T)

K109	Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine (UMDH) from carboxylic acid hydrazides	(T)
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UMDH) from carboxylic acid hydrazides	(T)
K111	Product washwaters from the production of dinitrotoluene by nitration of toluene	(C,T)
K112	Reaction by-product water from the drying column in the production of toluenediamine by hydrogenation of dinitrotoluene	(T)
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine by hydrogenation of dinitrotoluene	(T)
K114	Vicinals from the purification of toluenediamine in the production of toluenediamine by hydrogenation of dinitrotoluene	(T)
K115	Heavy ends from the purification of toluenediamine in the production of toluenediamine by hydrogenation of dinitrotoluene	(T)
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate by phosgenation of toluenediamine	(T)
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide by bromination of ethene	(T)
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide by bromination of ethene	(T)
K122	Wastewater from steam regeneration of activated alumina catalyst used in the production of diphenylamine by the condensation of aniline	(T)
K133	Ammonia produced as the by-product in the production of diphenylamine by the condensation of aniline	(T)

- K134 Heavy and light ends from the distillation/
purification of diphenylamine produced by the
condensation of aniline (T)
- K136 Still bottoms from the purification of ethylene
dibromide in the production of ethylene dibromide
by bromination of ethene (T)

Pesticides

- K031 By-products salts generated in the production of
MSMA and cacodylic acid (T)
- K032 Wastewater treatment sludge from the production
of chlordane (T)
- K033 Wastewater and scrub water from the chlorination
of cyclopentadiene in the production of chlordane (T)
- K034 Filter solids from the filtration of hexachloro-
cyclopentadiene in the production of chlordane (T)
- K035 Wastewater treatment sludges generated in the
production of creosote (T)
- K036 Still bottoms from toluene reclamation
distillation in the production of disulfoton (T)
- K037 Wastewater treatment sludges from the production
of disulfoton (T)
- K038 Wastewater from the washing and stripping of
phorate production (T)
- K039 Filter cake from the filtration of diethyl-
phorodithioic acid in the production of phorate (T)
- K040 Wastewater treatment sludge from the production
of phorate (T)
- K041 Wastewater treatment sludge from the production
of toxaphene (T)
- K042 Heavy ends or distillation residues from the
distillation of tetrachlorobenzene in the
production of 2,4,5-T (T)

K043	2,6-Dichlorophenol waste from the production of 2,4-D	(T)
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane	(T)
K098	Untreated process wastewater from the production of toxaphene	(T)
K099	Untreated wastewater from the production of 2,4-D	(T)
K123	Process washwater, including supernates, filtrates, and wastewaters from the production of ethylenebisdithiocarbamic acid and its salts	(T)
K124	Reactor vent scrubber water from the production of ethylene-bisdithiocarbimic acid and its salts	(C,T)
K125	Filtration, evaporation and centrifugation solids from the production of ethylenebisdithiocarbimic acid and its salts	(T)
K126	Baghouse dust and floor sweepings in milling and packaging operations or formulation of ethylenebisdithiocarbimic acid and its salts	(T)
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide	(C,T)
K132	Spent adsorbent and wastewater separator solids from the production of methyl bromide	(T)
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Explosives		
K044	Wastewater treatment sludges from the manufacturing and processing of explosives	(R)
K045	Spent carbon from the treatment of wastewater containing explosives	(R)
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds	(T)
K047	Pink/red water from TNT operations	(R)

 Petroleum

Refining

K048 Dissolved air flotation (DAF) float from the petroleum refining industry (T)

K049 Slop oil emulsion from the petroleum refining industry (T)

K050 Heat exchanger bundle cleaning sludge from the petroleum refining industry (T)

K051 API separator sludge from the petroleum refining industry (T)

K052 Tank bottoms (leaded) from the petroleum refining industry (T)

 Iron &

Steel

K061 Emission control dust/sludge from the electric furnace production of steel (T)

K062 Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332) (C,T)

 Primary

Copper

K064 Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production (T)

 Primary

Lead

K065 Surface impoundment solids contained in and dredged from surface impoundments at primary level lead smelting facilities (T)

Primary	
Zinc	
K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production (T)
K067	Electrolytic anode slimes/sludges from primary zinc production (T)
K068	Cadmium plant leachate residue (iron oxide) from primary zinc production (T)

Secondary	
Lead	
K069	Emission control dust/sludge from secondary lead smelting (T)
K100	Waste leaching solution from acid leaching of emission

Inorganic	
Chemicals	
K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used (T)
K073	Chlorinated hydrocarbon wastes from the purification step of the diaphragm cell process using graphite anodes in chlorine production (T)
K106	Wastewater treatment sludge from the mercury cell process in chlorine production (T)

Organic	
Chemicals	
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine by hydrogenation of dinitrotoluene (T)
K133	Ammonia produced a by-product in the production of diphenylamine by the condensation of aniline (T)

 Ink
Formula-
tion

K086 Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead (T)

Veterinary

Pharma-
ceuticals

K084 Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organoarsenic compounds (T)

K101 Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organoarsenic compounds (T)

K102 Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organoarsenic compounds (T)

Coking

K060 Ammonia still lime sludge from coking operations (T)

K087 Decantor tank tar sludge from coking operations (T)

Primary

Aluminum

K088 Spent potliners from primary aluminum reduction (T)

Ferroalloys

K090 Emission control dust or sludge from ferrochromiumsilicon production (T)

K091 Emission control dust or sludge from ferrochromium production (T)

The following substances are acute hazardous waste (H) and are subject to the exclusion defined in Regulation .05 C:

Military

- K991 Waste ethyl dimethylamidocyanophosphate, also known by the common names GA and Tabun and the following alternate chemical names:
Ethyl N,N-dimethylphosphoramidocyanidate
Dimethylamidoethoxyphosphoryl cyanide (H)
- K992 Waste isopropyl methanefluorophosphonate, also known by the common names GB and Sarin and the following alternate chemical names:
Isopropyl methylphosphonofluoridate
Isopropyl ester of methylphosphonofluoridic acid (H)
- K993 Waste 3,3-dimethyl-n-butyl-2-ylmethylphosphonofluoridate, also known by the common names GD and Soman and the following alternate chemical names: Pinacolyl methylphosphonofluoridate
1,2,2-trimethyl, methylphosphonofluoridate
Pinacoloxymethylphosphoryl fluoridate (H)
- K994 Waste O-ethyl S-(2-diisopropyl-aminoethyl) methylphosphonothioate also known by the common name VX (H)
- K995 Waste chlorovinylarsine dichloride, also known by the common names L and Lewisite and the following alternate chemical names:
Dichloro (2-chlorovinyl) arsine,
2-chlorovinyl dichlorarsine (H)
- K996 Waste phenarsazine chloride, also known by the common name Adamsite (H)
- K997 Waste bis(2-chloroethyl) sulfide, also known by the common name sulfur mustard and HD (H)
- K998 Waste 2-2'-di(3-chloroethylthio)-diethyl ether, also known by the common name T and the following alternate chemical name: Bis-(2-chloroethylthioethyl) ether (H)

K999 Waste military chemical warfare agents (chemical surety agents) having any substances K991 through K998 as their active or principal ingredient or ingredients, or mixtures of K991 through K998 with any characteristic or listed hazardous waste (H)

§ 26.13.02.18 Hazardous Waste from Specific Sources (State).

State
Hazardous

Organic Chemical	MD 01	Filter cake and chemical sludge from API separators, generated during the production of phthalate esters
Military	MD 02	Residues from the treatment of wastes K991 through K999, except as listed in Regulation .26.

§ 26.13.02.19 Discarded Commercial Chemical Products, Off-Specification Species, Containers, and Spill Residues of These.

The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded as described in Regulation .02 A(2)(a) of this chapter, when they are mixed with waste oil or used oil or other material and applied to the land for dust suppression or road treatment, when they are otherwise applied to the land instead of their original intended use or when they are contained in products that are applied to the land instead of their original intended use, or when, instead of their original intended use, they are produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel:

A. Any commercial chemical product, or manufacturing chemical intermediate, having the generic name listed in § E, § F, § G, or § H of this regulation.

B. Any off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in § E, § F, § G, or § H of this regulation.

C. Any residue remaining in a container or inner liner removed from a container that has been used to hold any commercial chemical product or manufacturing chemical intermediate having the generic name listed in § E, F, G, or H of this regulation unless the container or inner liner is empty as defined in Regulation .07 B of this chapter.

D. Any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill, into or on any land or water, of any commercial chemical product or manufacturing chemical product or manufacturing chemical intermediate having the generic name listed in § E or § G or mixtures containing polychlorinated biphenyls (PCBs) at concentrations greater than 50 ppm. The hazardous waste number for these mixtures is MX 01.

E. The commercial chemical products, or manufacturing chemical intermediates, or off-specification commercial chemical products or manufacturing chemical intermediates referred to in §§ A - D of this regulation, are identified as acute hazardous wastes (H) and are subject to the small quantity exclusion defined in Regulation .05 C of this chapter. These wastes and their corresponding EPA Hazardous Waste Numbers are:

Hazardous Waste Number	Substance*
1080	Agrosan GN 5 see P092 Aldicarb see P070 Aldifen see P048 - P008 (Acetato) phenylmercury see P092 Acetone cyanohydrin see P069

P001 2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)- and salts
 when present at conc > 0.3 percent
 P002 1-Acetyl-2-thiourea
 P003 Acrolein
 Agarin see P007
 Agrosan GN 5 see P092
 Aldicarb see P069
 Aldifen see P048
 P004 Aldrin
 Alginyacin see P092
 P005 Allyl alcohol
 P006 Aluminum phosphide (R,T)
 ALVIT see P037
 Aminoethylene see P054
 P007 5-(Aminomethyl)-3-isoxazolol
 P008 4-Aminopyridine
 N-(Aminothioxomethyl)-acetamide see
 P002 Ammonium metavanadate see P119
 P009 Ammonium picrate (R)
 Ammonium vanadate see P119
 ANTIMUCIN WDR see P092
 ANTURAT see P073
 AQUATHOL see P088
 ARETIT see P020
 Argentate (1-), bis(cyano-C)-,
 potassium
 see P099
 P010 Arsenic acid
 P011 Arsenic pentoxide
 P012 Arsenic trioxide
 Athrombin see P001
 AVITROL see P008
 Aziridene see P054
 AZOFOS see P061
 Azophos see P061
 BANTU see P072
 P013 Barium cyanide
 BASENITE see P020
 BCME see P016
 P014 Benzenethiol
 Benzoepin see P050
 Benzyl chloride see P028
 P015 Beryllium dust
 P016 Bis(chloromethyl) ether
 BLADAN-M see P071

P017 Bromocetone
1-Bromo-2-propanone see P017

P018 Brucine
BUFEN see P092
Butaphene see P020

P020 2-sec-Butyl-4,6-dinitrophenol

P021 Calcium cyanide
CALDON see P020

P022 Carbon disulfide
Carbonic dichloride see P095
CERESAN see P092
CERESAN UNIVERSAL see P092
CHEMOX GENERAL see P020
CHEMOX P.E. see P020
CHEM-TOL see P090

P023 Chloroacetaldehyde

P024 p-Chloroaniline
4-Chlorobenzenamine see P024
(Chloromethyl) benzene see P028

P026 1-(o-Chlorophenyl)thiourea
3-Chloropropanenitrile see P027

P027 3-Chloropropionitrile

P028 alpha-Chlorotoluene

P029 Copper Cyanide
CRETOX see P108
Coumadin see P001
Coumafen see P001

P030 Cyanide salt mixtures not otherwise listed

P031 Cyanogen

P033 Cyanogen chloride
Cyclodan see P050

P034 2-Cyclohexyl-4,6-dinitrophenol
D-CON see U001
DETHMOR see P001
DETHNEL see P001
DFP see P043
Dichloromethyl ether see P016

P036 Dichlorophenylarsine
Dicyanogen see P031

P037 Dieldrin
DIELDREX see P037

P038 Diethylarsine

P039 O,O-Diethyl-S-(2-ethylthioethyl)
ester of phosphorothioic acid
Diethyl-p-nitrophenyl phosphate see
P040 O,O-Diethyl-O-(2-pyrazinyl)
phosphorothioate
P041 O,O-Diethyl phosphoric acid,
O-p-nitrophenyl ester
P042 3,4-Dihydroxy-alpha-(methylamino)
-methyl benzyl alcohol
P043 Di-iso-propylfluorophosphate
DIMETANE see P044
1,4:5,8-Dimethanonaphthalene,
1,2,3,4,10,10-hexachloro-
1,4,4a,5,8,8a-hexahydro-endo,endo
see P060
P044 Dimethoate
2,3-Dimethoxystrychnidin-10-one
see P018
alpha,alpha-Dimethylbenzeneethanamine
see P046
P045 3,3-Dimethyl-1-(methylthio)
-2-butanone-0-
(methylaminocarbonyl) oxime
P046 alpha,alpha-Dimethylphenethylamine
Dinitrocyclohexyphenol see P034
P047 4,6-Dinitro-o-cresol and salts
P048 2,4-Dinitrophenol
DINOSEB see P020
DINOSEBE see P020
Diphosphoric acid, tetraethyl ester
see P111
Disulfoton see P039
P049 2,4-Dithiobiuret
DNBP see P020
DOLCO MOUSE CEREAL see P108
DOW GENERAL see P020
DOW GENERAL WEED KILLER see P020
DOW SELECTIVE WEED KILLER see P020
DOWICIDE G see P090
DYANACIDE see P092
EASTERN STATES DUOCIDE see P001
ELGETOL see P020
P050 Endosufan
Endothall see P088
P051 Endrin and metabolites
Epinephrine see P042
Ethanedinitrile see P031

P054 Ethyl cyanide see P101
 Ethyleneimine
 Famphur see P097
 FASCO FASCRAT POWDER see P001
 FEMMA see P091
 P056 Fluorine
 P057 2-Fluoroacetamide
 P058 Fluoroacetic acid, sodium salt
 FOLODOL-80 see P071
 FOLODOL M see P071
 FOSFERNO M 50 see P071
 FRATOL see P058
 Fulminate of mercury see P065
 FUNGITOX OR see P092
 FUSSOF see P057
 GALLOTOX see P092
 GEARPHOS see P071
 GERUTOX see P020
 P059 Heptachlor
 1,4,5,6,7,8,8-Heptachloro
 -3a,4,7,7a-tetrahydro-4,7-
 methano-1H-indene see P059
 P060 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a
 -hexahydro-1,4:5,8-endo,
 endodimethanonaphthalene
 6,7,8,9,10,10-Hexachloro-1,5,5a,6,9,9a-hexahydro-6,
 9-methano-2,4,3-benzo-dioxathiepin
 3-oxide see P050
 1,4,5,6,7,7-Hexachloro-cyclic-5-norbornene-2,
 3-dimethanol sulfite see P050
 3,4,5,6,9,9-Hexachloro-1a,2,2a,3,6,6a,7,7a-
 octahydro-2,7:3,6-dimethanonaphth
 (2,3-b) oxirene (1alpha,2beta,
 2alpha, 3beta, 6beta, 6alpha,
 7beta, 7alpha) see P037
 3,4,5,6,9,9-Hexachloro-1a,2,2a,3,6,6a,7,7a-
 octahydro-2,7:3,6-dimethanonaphth
 (2,3-b) oxirene and metabolites
 (1alpha, 2beta, 2abeta, 3alpha, 6alpha,
 6abeta,7beta, 7alpha) see P051
 P062 Hexaethyl tetraphosphate
 HOSTAQUICK see P092
 HOSTAQUIK see P092
 Hydrazinecarbothioamide see P116
 Hydrazomethane see P068

P063 Hydrocyanic acid
Hydrogen cyanide see P063
Hydrogen phosphide see P096
(R)-4-(1-Hydroxy-2-(methylamino)ethyl)
1,2-Benzenediol see P042
2-Hydroxy-2-methylpropanenitrile
see P069
4-Hydroxy-3-(3-oxo-1-phenyl-butyl)
-2H-1-benzopyran-2-one and salts,
when present at concentrations
greater than 0.3 percent see P001
ILLOXOL see P037
INDOCI (Registered) see P025
Indomethacin see P025
INSECTOPHENE see P050
Isocyanatomethane see P064
P064 Isocyanic acid, methyl ester
Isodrin see P060
KILOSEB see P020
KOP-THIODAN see P050
KWIK-KIL see P108
KWIKSAN see P092
KUMADER see P001
KYPFARIN see P001
LEYTOSAN see P092
LIQUIPHENE see P092
MALIK see P050
MAREVAN see P001
MAR-FRIN see P001
MARTIN'D MAR-FRIN see P001
MAVERAN see P001
MEGATOX see P005
P065 Mercury fulminate (R), (T)
MERSOLITE see P092
METACID 50 see P071
METATOS see P071
METAPHOR see P071
METAPHOS see P071
METASOL 30 see P092
P066 Methomyl
N-[(Methylamino) carbonyl]oxy]-
ethanimidothioic acid, methyl ester
see P066

P067 2-Methylaziridine
2-Methyl-4,6-dinitrophenol and salts
see P047
METHYL-E 605 see P071

P068 Methyl hydrazine
Methyl isocyanate see P064

P069 2-Methylactonitrile

P070 2-Methyl-2-(methylthio) propional-
dehyde-o-(methylcarbonyl) oxime
METHYL NIRON see P042
N-Methyl-N-nitrosovinylamine see P084

P071 Methyl parathion
2-(1-Methylpropyl)-4,6-dinitrophenol
see P020
3-(1-Methyl-2-pyrrolidinyl)-pyridine
(S) and salts see P075
METRON see P071
MOLE DEATH see P108
MOUSE-NOTS see P108
MOUSE-RID see P108
MOUSE TOX see P108
MUSCIMOL see P007

P072 1-Naphthyl-2-thiourea

P073 Nickel carbonyl

P074 Nickel cyanide

P075 Nicotine and salts

P076 Nitric oxide

P077 p-Nitroaniline
4-Nitrobenzenamine see P077

P078 Nitrogen dioxide

P081 Nitroglycerine (R)

P082 N-Nitrosodimethylamine

P084 N-Nitrosomethylvinylamine
NYLMERATE see P092
OCTALOX see P037
Octamethyldiphosphoramidate see P085
Octamethyl pyrophosphoramidate
OCTAN see P092
OMPA see P085
OMPACIDE see P085
OMPAX see P085

P087 Osmium tetroxide

P088 7-Oxabicyclo (2.2.1) heptane-2,3-
dicarboxylic acid
Oxybis (chloro) methane see P016
PANIVARFIN see P001
PANORAM D-31 see P037

PANTHERINE see P007
 PANWARFIN see P001
 P089 Parathion
 PCP see P090
 PENNCAP-M see P071
 PENOXYL CARBON N see P048
 Pentachlorophenate see P090
 PENTA KILL see P090
 PENTASOL see P090
 PENWAR see P090
 PERMICIDE see P090
 PERMAGUARD see P090
 PERMATOX see P090
 PERMITE see P090
 PERTOX see P090
 PESTOX III see P085
 PHENMAD see P092
 PHENOTAN see P020
 Phenylarsonous dichloride see P036
 Phenyl mercaptan see P014
 P092 Phenylmercury acetate
 P093 N-Phenylthiourea
 PHILIPS 1861 see P008
 PHIX see P092
 P094 Phorate
 P095 Phosgene
 P096 Phosphine
 Phosphorodithioic acid, O,O-diethyl
 S-[2(ethylthio) ethyl] ester see
 P039 Phosphorodithioic acid, O,O-diethyl
 S[(ethylthio) methyl] ester see
 P094 Phosphorodithioic acid, O,O-diethyl
 O-(4(nitrophenyl) ester see P089
 Phosphorodithioic acid,
 O,O-diethyl O-pyrazinyl ester
 see P040
 Phosphorodithioic acid,
 O,O-dimethyl
 S-[2-(methylamino)-2-oxoethyl] ester
 see P044
 Phosphorofluoridic acid,
 bis(1-methylethyl) ester
 see P043
 P097 Phosphorothioic acid,
 O,O-dimethyl-O-ester
 Phosphorothioic acid,
 O,O-dimethyl-O-

(p-nitrophenyl) ester
 see P071
 P098 PIED PIPER MOUSE SEED see P108
 P099 Potassium cyanide
 Potassium silver cyanide
 PREMERGE see P020
 Propanenitrile see P101
 1,2,3-Propanetriol, trinitrate
 (R) see P081
 Propargyl alcohol see P102
 2-Propenal see P003
 2-Propen-1-ol - see P005
 P101 Propionitrile
 1,2-Propylenimine see P067
 P102 2-Propyn-1-ol
 PROTHROMADIN see P001
 4-Pyridinamine see P008
 QUICKSAM see P092
 QUINTOX see P037
 RAT AND MICE BAIT see P001
 RAT-AWAY see P001
 RAT-B-GON see P001
 RAT-O-CIDE #2 see P001
 RAT-GUARD see P001
 RAT-KILL see P001
 RAT-MIX see P001
 RATS-NO-MORE see P001
 RAT-OLA P001
 RATOREX see P001
 RATTUNAL see P001
 RAT-TROL see P001
 RO-DETH see P001
 RO-DEX see P108
 ROSEX see P001
 ROUGH & READY MOUSE MIX
 see P001
 SANASEED see P108
 SANTOBRITE see P090
 SANTOPHEN see P090
 SANTOPHEN 20 see P090
 SCHRADAN see P085
 P103 Selenourea
 P104 Silver cyanide
 SMITE see P105
 P105 Sodium azide
 Sodium coumadin see P001
 P106 Sodium cyanide

Sodium fluoroacetate see P056
SODIUM WARFARIN see P001
SOLFARIN see P001
SOLFOBLACK BB see P048
SOLFOBLACK SB see P048
SPARIC see P020
SPOR-KIL see P092
SPRAY-TROL BRAND RODEN-TROL
see P001
SPURGE see P020
Strychnidin-10-one and salts
see P108
P108 Strychnine and salts
SUBTEX see P020
Sulfuric acid, dithallium (1+)
salt see P115
SYSTAM see P085
TAG FUNGICIDE see P092
TEKWAISA see P071
TEMIC see P070
TEMIK see P070
TERM-I-TROL see P090
P109 Tetraethyldithiopyrophosphate
Tetraethylplumbane see P110
P110 Tetramethyl lead
P111 Tetraethylpyrophosphate
Tetraphosphoric acid, hexaethyl
ester see P062
P112 Tetranitromethane (R)
TETROSULPHUR BLACK PB see P048
TETROSULPHUR PBR see P048
P113 Thallic oxide
Thallium oxide see P113
P114 Thallium (I) selenite
P115 Thallium (I) sulfate
THIFOR see P092
THIMUL see P092
THIODAN see P050
Thiodiphosphoric acid,
tetraethyl ester
see P109
Thiofanox see P045
THIOFOR see P050
Thioimidodicarbonic diamide
see P049
THIOMUL see P050
THIONEX see P050

	THIOPHENIT see P071
	Thiophenol see P014
P116	Thiosemicarbazide
	Thiosulfan tionel see P050
	THOMPSON'S WOOD FIX see P090
	TIOVEL see P050
P118	Trichloromethanethiol
	2,4,6-Trinitrophenol, ammonium salt (R) see P009
	TWIN LIGHT RAT AWAY see P001
	USAF RH-8 see P069
	USAF EK-4890 see P002
P119	Vanadic acid, ammonium salt
P120	Vanadium pentoxide
	VOFATOX see P071
	WANADU see P120
	WARCOUMIN see P001
	WARFARIN SODIUM see P001
	WARFICIDE see P001
	WOFOTOX see P072
	YANOCK see P057
	YASOKNOCK see P058
	ZIARNIK see P092
P121	Zinc cyanide
P122	Zinc phosphide when present at concentrations greater than 10 percent (R,T)
	ZOOCOUMARIN see P001
P123	Toxaphene

The Department included those trade names of which it was aware. An omission of a trade name does not imply that the omitted material is not hazardous. The material is hazardous if it is listed under its generic name.

F. Additionally, the following wastes are identified as acute hazardous (H) and are subject to the small quantity exclusion defined in Regulation .05 C

Hazardous Waste Number	Substance*
M001	Polychlorinated Biphenyls (PCB) (above 500 ppm)

G. The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products, referred to in §§ A - D of this regulation, are identified as toxic wastes (T) unless otherwise designated and are subject to the small quantity exclusion defined in Regulation .05 A and C of this chapter. These wastes and their corresponding EPA Hazardous Waste Numbers are:

Hazardous Waste Number	Substance*
	AAF see U005
U001	Acetaldehyde (I)
U002	Acetone (I)
U003	Acetonitrile (I,T)
U004	Acetophenone
U005	2-Acetylaminofluorene
U006	Acetyl Chloride (C,R,T)
U007	Acrylamide
	Acetylene tetrachloride see U209
	Acetylene trichloride see U228
U008	Acrylic acid (I)
U009	Acrylonitrile
	AEROTHENE IT see U226
	3-Amino-5-(p-acetamidophenyl)-1H-1,2, 4-triazole, hydrate see U011
	6-Amino-8-[[(aminocarbonyl)oxy] methyl]-1,1a,2,8,8a,8b-hexahydro- 8a-methoxy-5-methyl- azirino(2,3':3,4) pyrrolo(1,2-a)indole-4,7-dione see U010
U010	6-Amino-1,1a,2,8,8a,8b-hexa-hydro- 8-(hydroxymethyl)8-methoxy-5- methylcarbamate azirino (2',3':3,4) pyrrolo (1,2-a)indole-4,7-dione (ester) 2-Amino-1-methylbenzene

see U328
 4-Amino-1-methylbenzene
 see U353
 U011 Amitrole
 U012 Aniline (I,T)
 Ar-methylbenzenediamine
 see U221
 U014 Auramine
 U015 Azaserine
 U016 Benz(c)acridine
 U017 Benzal chloride
 U018 Benz(a)anthracene
 Benzeneamine (I,T) see U012
 U019 Benzene (I,T)
 1,2-Benzenedicarboxylic acid, bis
 (2-ethylhexyl) ester see U-028
 1,2-Benzenedicarboxylic acid,
 dibutyl ester
 see U-069
 1,2-Benzenedicarboxylic acid,
 diethyl ester
 see U088
 1,2-Benzenedicarboxylic acid,
 dimethyl ester
 see U102
 1,2-Benzenedicarboxylic acid,
 dioctyl ester
 see U107
 1,3-Benzenediol see U201
 U020 Benzenesulfonyl chloride (C,R)
 U021 Benzidine
 1,2-Benzisothiazolin-3-one,1,1-dioxide see U202
 Benzo(a)anthracene see U018
 Benzo(rst)pentaphene see U064
 U022 Benzo(a)pyrene
 U023 Benzotrichloride (C,R,T)
 2,2'-Bioxirane see U085
 (1,1'-Biphenyl)-4,4'-diamine
 see U021
 Bis(acetato-O)tetrahydroxytri-lead see U146
 U024 Bis (2-chloroethoxy) methane
 4-[Bis(2-chloroethyl) amino]
 benzenebutanoic
 acid see U035
 4-[Bis(2-chloroethyl)
 amino]-L-phenylalanine
 see U150

5-[Bis(2-chloroethyl) amino]-2,4-(1H,3H)-
 pyrimidinedione see U237
 U025 Bis(2-chloroethyl) ether
 U026 N,N-Bis(2-chloroethyl)-2-naphthylamine
 N,N-Bis(2-chloroethyl) tetra-
 hydro-2H-1,3,2-oxazaphosphorin-2-
 amine, 2-oxide see U-058
 U027 Bis(2-chloroisopropyl) ether
 U028 Bis(2-ethylhexyl) phthalate
 Bis(1-methylethyl)-carbamoithioic acid,
 S-(2,3-dichloro-2-propenyl)
 Ester see U-062
 Bromoform see U225
 U029 Bromomethane
 U030 1-Bromo-4-phenoxybenzene see U030
 4-Bromophenyl phenyl ether
 2-Butanone (I,T) see U159
 2-Butanone, peroxide (R,T)
 see U160
 2-Butenal see U-053
 2-Butenoic acid,
 2-Methyl-,7-[[2,3-dihydroxy-
 2-(1-methoxyethyl)-3-methyl-1-
 -oxo-butoxy] methyl]-2,3,5,7a-tetra-
 hydro-1H-pyrrolizin-1-yl ester,
 [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]
 see U143
 U031 n-Butyl alcohol (I)
 Cacodylic acid see U136
 U032 Calcium chromate
 Carbamic acid, ethyl ester see
 U238
 Carboic acid see U188
 Carbon tetrachloride see U211
 Carbonic difluoride see U033
 4,4'-Carbonimidoylbis[N,N-dimethyl-
 benzenamine] see U014
 Carbonochloridic acid, methyl
 ester
 (I,T) see U156
 Carbon oxyfluoride (R,T)
 see U033
 U033 Carbonyl fluoride (R,T)
 U034 Chloral
 U035 Chlorambucil

U036 Chlordane
 Chlornaphazin see U026
 U037 Chlorobenzene
 U038 Chlorobenzilate
 4-Chloro-alpha-(4-chloro-phenyl)-alpha-hydroxybenzeneacetic acid,
 ethyl ester see U038
 U039 p-Chloro-m-cresol
 U041 1-Chloro-2,3-epoxypropane
 CHLOROETHENE NU see U226
 U042 Chloroethyl vinyl ether
 U043 Chloroethene
 U044 Chloroform
 U045 Chloromethane (I,T)
 Chloromethoxymethane see U046
 4-Chloro-2-methylbenzeneamine
 hydro- chloride see U049
 U046 Chloromethyl methyl ether
 (Chloromethyl)-oxirane see U041
 4-Chloro-3-methylphenol see U039
 U047 2-Chloronaphthalene
 U048 2-Chlorophenol
 U049 4-Chloro-o-toluidine
 hydrochloride
 Chromic acid, calcium salt
 see U032
 U050 Chrysene
 C.I. 23060 see U073
 U051 Creosote
 U052 Cresylic Acid
 U053 Crotonaldehyde
 U055 Cumene (I)
 Cyanogen bromide see U246
 Cyanomethane see U003
 2,5-Cyclohexadiene-1,4-dione
 see U197
 U056 Cyclohexane (I)
 U057 Cyclohexanone (I)
 U058 Cyclophosphamide
 U059 Daunomycin
 U060 DDD
 U061 DDT
 1,1a,3,3a,4,5,5,5a,5b,6-Decachloro-
 octahydro-1,3,4-metheno-2H-
 cyclobuta[cd]pentalen-2-one
 see U142

2-Deoxy-2-[[(methylnitrosoamino)-
 carbonyl]amino]-D-glucose
 see U206
 2-Deoxy-2-(3-methyl-3
 -nitrosoureido)-D-
 glucopyranose see U206
 U062 Diallate
 U063 Dibenz(a,h)anthracene
 Dibenzo(a,h)anthracene see U063
 U064 Dibenzo(a,i)pyrene
 U065 Dibromochloromethane
 U066 1,2-Dibromo-3-chloropropane
 U067 1,2-Dibromoethane
 U068 Dibromomethane
 2,3-Dibromo-1-propanol phosphate
 (3:1) see U235
 U069 Di-n-butyl phthalate
 U070 1,2-Dichlorobenzene
 U071 1,3-Dichlorobenzene
 U072 1,4-Dichlorobenzene
 U073 3,3'-Dichlorobenzidine
 U074 1,4-Dichloro-2-butene (I,T)
 3,3'-Dichloro-4,4'-diaminobiphenyl
 see U073
 U075 Dichlorodifluoromethane
 3-5-Dichloro-N-(1,1-dimethyl-2-propynyl)-
 benzamide see U192
 U076 1,1-Dichloroethane
 U077 1,2-Dichloroethane
 U078 1,1-Dichloroethylene
 U079 1,2-trans-Dichloroethylene
 Dichloroethyl ether see U025
 Dichloroisopropyl ether
 see U027
 U080 Dichloromethane
 Dichloromethoxy ethane see U024
 Dichloromethylbenzene see U017
 U081 2,4-Dichlorophenol
 U082 2,6-Dichlorophenol
 (2,4-Dichlorophenoxy)-acetic acid,
 salts and esters see U240
 U083 1,2-Dichloropropane
 U084 1,3-Dichloropropene
 U085 1,2:3,4-Diepoxybutane (I,T)
 1-4-Diethyleneoxide see U108
 4,4'-(1,2-Diethyl-1,2-ethenediyl)
 bisphenol, (E) - see U089

Diethylhexyl phthalate see U028
 U086 1,2-Diethylhydrazine
 U087 O,O-Diethyl-S-methyl ester of
 phosphorodithioic acid
 U088 Diethyl phthalate
 U089 Diethylstilbestrol
 1,2-Dihydro-3-methylbenz(j)aceanthrylene
 see U157
 2,3-Dihydro-6-methyl-2-thioxo-4(1H)-
 pyrimidinone see U164
 1,2-Dihydro-3,6-pyridazinedione
 see U148
 U090 Dihydrosafrole
 1,3-Diisocyanatomethylbenzene (R,T)
 see U223
 U091 3,3'-Dimethoxybenzidine
 11,17-Dimethoxy-18-[(3,4,5-trimethoxy-
 benzoyl) oxy]-yohimban-
 16-carboxylic acid,
 methyl ester, (3beta, 16beta,
 17alpha,18beta,20alpha) -
 see U200
 U092 Dimethylamine (I)
 U093 p-Dimethylaminoazobenzene
 Dimethylarsinic acid see U136
 U094 7,12-Dimethylbenz(a)anthracene
 Dimethylbenzene (I,T) see U239
 U095 3,3'-Dimethylbenzidine
 U096 alpha,alpha-Dimethylbenzylhydroperoxide (R)
 3,3'-[(3,3'-Dimethyl[1,1'-diphenyl]4,4'-diyl) bis
 (azo)
 bis [5-amino-4-hydroxy] 2,7-
 naphthalenedisulfonic acid,
 tetrasodium salt see U236
 U097 Dimethylcarbamoyl chloride
 U098 1,1-Dimethylhydrazine
 U099 1,2-Dimethylhydrazine
 U101 2,4-Dimethylphenol
 N,N-Dimethyl-4-(phenylazo)-benzenamine
 see U093
 U102 Dimethyl phthalate
 N,N-Dimethyl-N'-2-pyridinyl-N'-
 (2-thienylmethyl)-1,2-ethanediamine
 see U155
 U103 Dimethyl sulfate
 U105 2,4-Dinitrotoluene
 U106 2,6-Dinitrotoluene

U107 Di-n-octyl phthalate
U108 1,4-Dioxane
U109 1,2-Diphenylhydrazine
U110 Dipropylamine (I)
U111 Di-n-propylnitrosamine
EBDC see U114
Epichlorohydrin see U041
1,4-Epoxybutane see U213
Ethanal (I) see U001
1,2-Ethanediylobiscarbamodithioic
acid, salts and esters see U114
Ethanethioamide see U218
2-Ethoxyethanol see U359
N-(4-Ethoxyphenyl)-acetamide
see U187
U112 Ethyl acetate (I)
U113 Ethyl acrylate (I)
U114 Ethylenebisdithiocarbamate
acid, salts and esters
Ethylene dibromide see U067
Ethylene dichloride see U077
Ethylene glycol monoethyl ether
see U359
U115 Ethylene oxide (I,T)
U116 Ethylene thiourea
U117 Ethyl ether (I)
Ethylidene dichloride see U076
U118 Ethylmethacrylate
U119 Ethyl methanesulfonate
Ethyl nitrile see U003
N-Ethyl-N-nitrosoethanamine
see U174
N-Ethyl-N-nitrosoourea see U176
Firemaster T23P see U235
N-9H-Fluoren-2-yl-acetamide see U005
U120 Fluoroanthene
U121 Fluorotrichloromethane
U122 Formaldehyde
U123 Formic acid (C,T)
U124 Furan (I)
2-Furancarboxaldehyde (I)
see U125
2,5-Furandione see U147
U125 Furfural (I)
Furfuran (I) see U124
U126 Glycidylaldehyde
U127 Hexachlorobenzene

U128	Hexachlorobutadiene
U129	Hexachlorocyclohexane
U130	Hexachlorocyclopentadiene
U131	Hexachloroethane
U132	Hexachlorophene
	Hexahydrobenzene (I) see U056
U133	Hydrazine (R,T)
U134	Hydrofluoric acid (C,T)
U135	Hydrogen sulfide
	Hydroxybenzene see U188
U136	Hydroxydimethyl arsine oxide
	4-Hydroxy-3-(3-oxo-1-phenyl-butyl)- 2H-1-benzopyran-2-one and salts, when present at concentrations of 0.3 percent or less see U248
	2-Imidazolidinethione see U116
	4,4'-(Imidocarbonyl)bis(N,N-dimethyl) aniline see U014
	4,4'-(Imidocarbonyl)bis(N,N-dimethyl) aniline see U014
U137	Indeno(1,2,3-cd)pyrene
U138	Iodomethane
	1,3-Isobenzofurandione see U190
U140	Isobutyl alcohol (I,T)
U141	Isosafrole
U142	Kepone
U143	Lasiocarpine
U144	Lead acetate
U145	Lead phosphate
U146	Lead subacetate
	Lindane see U129
U147	Maleic anhydride
U148	Maleic hydrazide
U149	Malononitrile
	MEK Petroxide see U160
U150	Melphalan
U151	Mercury
U152	Methacrylonitrile (I,T)
	Methanesulfonic acid, ethyl ester see U119
U153	Methanethiol (I,T)
U154	Methanol (I)
U155	Methapyrilene
	Methyl alcohol see U154
	2-Methylbenzenamine see U328

- 4-Methylbenzenamine see U353
 2-Methylbenzenamine hydrochloride
 see U222
 Methylbenzene see U220
 Methyl bromide see U029
 1-Methylbutadiene (I) see U186
 Methyl chloride (I,T) see U045
 U156 Methyl chlorocarbonate (I,T)
 Methyl chloroform see U226
 U157 3-Methylcholanthrene
 Methyl chloroformate see U156
 1-Methyl-2,4-dinitrobenzene
 see U105
 2-Methyl-1,3-dinitrobenzene
 see U106
 U158 4,4'-Methylene-bis-(2-chloroaniline)
 1,1'-[Methylenebis(oxy)]bis
 [2-chloroethane] see U024
 2,2'-Methylenebis
 (3,4,6-trichlorophenol)
 see U132
 Methylene bromide see U068
 Methylene chloride see U080
 (1-Methylethyl)-benzene (I)
 see U055
 U159 Methyl ethyl ketone (MEK) (I,T)
 U160 Methyl ethyl ketone peroxide
 (R,T)
 Methyl iodide see U138
 U161 Methyl isobutyl ketone (I)
 U162 Methyl methacrylate (I,T)
 N-Methylmethanamine (I) see U092
 2-Methyl-5-nitrobenzenamine
 see U181
 U163 N-Methyl-N'-nitro-N-nitro-soguanidine
 Methylnitrosocarbamic acid, ethyl
 ester see U178
 N-Methyl-N-nitrosourea see U177
 4-Methylpentanol see U161
 4-Methyl-2-pentanone (I) see U161
 Methylphenol see U052
 1-Methyl-1-phenylethylhydroperoxide (R)
 see U096
 2-Methyl-1-propanol (I,T)
 see U140
 U163 2-Methyl-2-propenenitrile (I,T)
 see U152

2-Methyl-2-propenoic acid,
 ethyl ester
 see U118
 2-Methyl-2-propenoic acid,
 methyl ester
 (I,T) see U162
 U164 2-Methylpyridine see U191
 Methylthiouracil
 Mitomycin C see U010
 MNNG see U163
 U165 Naphthalene
 U166 1,4-Naphthoquinone
 U167 1-Naphthylamine
 U168 2-Naphthylamine
 U169 Nitrobenzene (I,T)
 Nitrobenzol see U169
 U170 4-Nitrophenol
 U171 2-Nitropropane (I,T)
 U172 N-Nitrosodi-n-butylamine
 U173 N-Nitrosodiethanolamine
 U174 N-Nitrosodiethylamine
 U176 N-Nitroso-n-ethylurea
 2,2'-(Nitrosoimino) bisethanol
 see U173
 U177 N-Nitroso-n-methylurea
 U178 N-Nitroso-n-methylurethane
 U179 N-Nitrosopiperdine
 N-Nitroso-N-propyl-1-propanamine
 see U111
 U180 N-Nitrosopyrrolidine
 U181 5-Nitro-o-toluidine
 1,2-Oxathiolane, 2,2-dioxide
 see U193
 Oxirane (I,T) see U115
 Oxiranecarboxyaldehyde see U126
 1,1'-Oxybis[2-chloroethane] see U025
 2,2'-Oxybis[2-chloropropane]
 see U027
 U182 1,1'-Oxybisethane (I) see U117
 Paraldehyde
 PCNB see U185
 U183 Pentachlorobenzene
 U184 Pentachloroethane
 U185 Pentachloronitrobenzene
 Pentachlorophenol see F027
 U186 1,3-Pentadiene (I)
 Perc see U210

U187 Perchlorethylene see U210
 U188 Phenacetin
 U189 Phenol
 U189 1-Phenylethanone see U004
 U190 Phosphorous sulfide (R)
 U191 Phthalic anhydride
 U192 2-Picoline
 U192 Pronamide
 U193 Propanedinitrile see U149
 U193 1,3-Propane sultone
 U194 2-Propanone (I) see U002
 U194 2-Propenamide see U007
 U194 2-Propenitrile see U009
 U194 2-Propenoic acid (I) see U008
 U194 2-Propenoic acid, ethyl ester (I)
 U194 see U113
 U194 5-(2-Propenyl)-1,3-benzodioxole
 U194 see U203
 U194 5-(1-Propenyl)-1,3-benzodioxole
 U194 see U141
 U194 n-Propylamine (I,T)
 U194 5-Propyl-1,3-benzodioxole see U090
 U194 Propylene dichloride see U083
 U194 N-Propyl-1-propanamine (I)
 U194 see U110
 U196 Pyridine
 U197 p-Benzoquinone
 U200 Reserpine
 U201 Resorcinol
 U202 Saccharin and salts
 U203 Safrole
 U204 Selenious acid
 U204 Selenium dioxide see U204
 U205 Selenium sulfide (R,T)
 U205 L-Serine, diazoacetate (ester)
 U205 see U015
 U206 Silvex (2,4,5-TP) see F027
 U206 Streptozotacin
 U206 Sulfuric acid, dimethyl ester
 U206 see U103
 U206 Sulfur phosphide (R) see U189
 U207 2,4,5-T see F027
 U207 1,2,4,5-Tetrachlorobenzene
 U208 1,1,1,2-Tetrachloroethane
 U209 1,1,2,2-Tetrachloroethane
 U210 Tetrachloroethene
 U210 Tetrachloroethylene see U210

U211 Tetrachloromethane
 2,3,4,6-Tetrachlorophenol see F027
 U213 Tetrahydrofuran (I)
 Tetramethylthioperoxy
 dicarbonicdiamide see U244
 U214 Thallium (I) acetate
 U215 Thallium (I) carbonate
 U216 Thallium (I) chloride
 U217 Thallium (I) nitrate
 U218 Thioacetamide
 Thiomethanol (I,T) see U153
 U219 Thiourea
 U220 Toluene
 U221 Toluenediamine
 o-Toluidine see U328
 p-Toluidine see U353
 U222 o-Toluidine hydrochloride
 U223 Toluene Diisocyanate (R,T)
 2,4,5-TP see F027
 1H-1,2,4,-Triazol-3-amine see U011
 U225 Tribromomethane
 Trichloroacetaldehyde see U034
 U226 1,1,1-Trichloroethane
 U227 1,1,2-Trichloroethane
 U228 Trichloroethene
 Trichloroethylene see U228
 1,1'-(2,2,2-Trichloroethylidene)
 bis[4-chlorobenzene]
 see U061
 1,1'-(2,2,2-Trichloroethylidene)bis
 [4-methoxybenzene]
 see U247
 Trichlorofluoromethane see U121
 Trichloromethane see U044
 (Trichloromethyl)-benzene
 see U023
 Trichloromonofluoromethane
 see U121
 2,4,5-Trichlorophenol see F027
 2,4,6-Trichlorophenol see F027
 2,4,5-Trichlorophenoxyacetic acid
 see F027
 2-(2,4,5-Trichlorophenoxy)-propanoic
 acid see F027
 alpha,alpha,alpha-Trichlorotoluene see U023
 TRI-CLENE see U228
 2,4,6-Trimethithyl-1,3,5-trioxane

	see U182
U234	Trinitrobenzene (R,T)
U235	Tris(2,3-dibromopropyl) phosphate
U236	Trypan blue
U237	Uracil mustard
U238	Ethyl Carbamate (urethan) Vinyl Chloride see U043 Vinylidene chloride see U078
U239	Xylene (I)
U240	2,4-Dichlorophenoxyacetic acid and associated salts and esters
U242	Pentachlorophenol
U243	Hexachloropropene
U244	Thiram
U245	1-(p-Chlorobenzoyl)-5-methoxy- 2-methylindole-3-acetic acid
U246	Cyanogen Bromide
U247	Methoxychlor
U248	Warfarin and salts, when present at concentrations of 0.3 percent or less
U249	Zinc phosphide, when present at concentrations of 10 percent or less
U328	o-Toluidine
U353	p-Toluidine
U359	2-Ethoxyethanol

* The Department included those trade names of which it was aware. An omission of a trade name does not imply that it is not hazardous. The material is hazardous if it is listed under its generic name.

H. Additionally, the following wastes are identified as Maryland Toxic (MT) and are subject to the same provisions as those identified in Regulation .19 G:

Hazardous Waste Number	Substance*
MT01	Polychlorinated Biphenyls (50 to 500 ppm)

APPENDIX C

ACRONYMS

aka	also known as
USAGAPG	U.S. Army Garrison, Aberdeen Proving Ground
CET	Certified Environmental Trainer
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
COMAR	Code of Maryland Regulations
CPO	Civilian Personnel Office
CTF	Chemical Transfer Facility
CWM	Chemical Warfare Material
DA	Department of the Army
DECON	Decontamination
DETOX	Detoxification
DOD	Department of Defense
DOIM	Directorate of Information Management
DOT	Department of Transportation
DRMO	Defense Reutilization and Marketing Office
DSHE	Directorate of Safety, Health and Environment
ECD	Environmental Compliance Division
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
HAZCOM	Hazard Communication
HAZMAT	Hazardous Material
HAZMIN	Hazardous Waste Minimization
HAZWOPER	Hazardous Waste Operations and Emergency Response
HW	Hazardous Waste
HWB	Hazardous Waste Branch
HWTS	Hazardous Waste Tracking System
IAW	In Accordance With
IEC	Installation Environmental Coordinator
IEQC	Installation Environmental Quality Coordinator
IEQCC	Installation Environmental Quality Control Committee
IOP	Internal Operating Procedure
IR	Installation Restoration
ISCP	Installation Spill and Contingency Plan
kg	Kilogram
ml	Milliliter
MSDS	Material Safety Data Sheet
NETA	National Environmental Training Association
OB/OD	Open Burning/Open Detonation
OSHA	Occupational Safety and Health Agency

P2	Pollution Prevention
PCB	Polychlorinated Biphenyl
POC	Point of Contact
RCRA	Resource Conservation and Recovery Act
SAS	Satellite Accumulation Site
SOP	Standard Operating Procedure
TECOM	U.S. Army Test and Evaluation Command
TEU	U.S. Army Technical Escort Unit
TSDF	Treatment, Storage or Disposal Facility
TSS	Temporary Storage Site
VOC	Volatile Organic Compound

ENVIRONMENTAL ACRONYMS, TERMS AND DEFINITIONS

AAIH - American Academy of Industrial Hygiene (organization)

AAPCO - Association of American Pesticide Control Officials (organization)

AAQS - Ambient Air Quality Standard

AAR/BOE - Association of American Railroads/Board of Explosives (organization)

AASHTO - American Association of State Highway Transportation Officials (organization)

ABIH - American Board of Industrial Hygiene

ABHP - American Board of Health Physics (organization)

ACAD - Air Contaminant Atmosphere Dilution

ACBM - Asbestos-Containing Building Material

ACGIH - American Conference of Governmental Industrial Hygienists. An organization of professionals in governmental agencies or educational institutions engaged in occupational safety and health programs. ACGIH develops and publishes recommended occupational exposure limits for chemical substances and physical agents (see TLV). (6500 Glenway Avenue, Bldg D-7, Cincinnati, OH 45211; [513]661-7881) Reference: December, 1990.

ACHP - Advisory Council on Historic Preservation

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Acid - A chemical compound that has a pH of less than 7. Some characteristics of acids are that they (1) react with metals to yield hydrogen; (2) react with a base to form a salt; (3) neutralize bases or alkaline media. All acids contain hydrogen and turn litmus paper red. Acids with a pH of less than about 3 are corrosive to human tissue and are to be handled with care. Most acids are inorganic, but some are organic. See also Base; pH.

ACIL - American Council of Independent Laboratories

ACL - Alternative Concentration Limit/Analytic Chemistry Laboratory

ACM - Asbestos Containing Material

ACP - Access Control Point

Acrid - Irritating and bitter. Harsh in taste or smell.

ACS - American Chemical Society (organization)

Action Level - The exposure level (concentration of the material in air) at which OSHA regulations to protect employees take effect (29 CFR 1910.1001-1047); e.g. workplace air analysis, employee training, medical monitoring, and record keeping. Exposure at or above the action level is termed occupational exposure. Exposure below this level can also be harmful.

Acute Exposure - A single, brief exposure to a toxic substance. Adverse biological effects are evident soon after the exposure.

Additive Effect - An effect of two or more chemical agents in the body where the effect is equal to the sum of the effects of the agents.

ADM - Action Description Memorandum

ADR - Alternate Dispute Resolution

ADS - Activity Data Sheets

AEA - Atomic Energy Act

AEC - Atomic Energy Commission/Activity Environmental Coordinator/u.s. Army Environmental Center

AFFF - Aqueous Film Forming Foam

AFOS - Automated Field Operations and Service

AHCM - Academy of Hazard Control Management (organization)

AHERA - Asbestos Hazard Emergency Response Act of 1986 (Title II of TSCA)

AI - Soil Absorption Isotherm

AIChE - American Institute of Chemical Engineers (organization)

AIF - Atomic Industrial Forum

AIHA - American Industrial Hygiene Association (organization)

AIPP - American Institute for Pollution Prevention (organization)

AIR - Accident Investigation Report

ALARA - As Low As Reasonably Achievable. Buzz word used to remind people to reduce their exposure to chemical hazards.

Aliphatic Compounds - Organic Compounds in which the carbon atoms are arranged in chains. Gasoline is an aliphatic compound. These types tend to be anesthetics.

ALI - Annual Limit on Intake

ALJ - Administrative Law Judge

ALS - Advanced-Life Support

Alkali - Broadly, any compound having highly basic properties. See base, caustic, also acid, pH.

AMA - American Medical Association/Anhydrous Ammonia

Ambient - Usual or surrounding conditions.

AMC - Army Materiel Command

AMS - Aerial Measuring System

Analgesia - Loss of sensitivity to pain.

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Anesthetic - A chemical that causes loss of sensation or drowsiness. Large doses of anesthetic chemicals can cause unconsciousness, coma, and death.

Anhydrous - Without water.

Anorexia - A prolonged and severe loss of appetite. Can be a physical or psychological disorder.

Anosmia - Loss of the sense of smell.

Anoxia - A lack of oxygen from inspired air (literally, "without oxygen"). See also Hypoxia.

ANSI - American National Standards Institute. This privately funded, voluntary organization identifies and coordinates the development of standards for the safe design and performance of equipment and safe practices or procedures for industry.

Antagonistic - An effect of two or more chemical agents in the body where the effect is canceled or less than the sum of the effects of the agents.

Antidote - A remedy to relieve, prevent, or counteract the effects of a poison. An antidote may eliminate, neutralize, or absorb a poison.

Anuria - Absence of or defective excretion of urine.

AO - Administrative Order

AOC - Area of Contamination

API - American Petroleum Institute. This organization develops and publishes recommended safe practices and standards for the petroleum industry.

Apnea, Apneic - Breathing temporarily stopped.

APG - Aberdeen Proving Ground

APG-AA - Aberdeen Proving Ground, Aberdeen Area

APG-EA - Aberdeen Proving Ground, Edgewood Area

APR - Air Purifying Respirator. See respirator.

AQCR - Air Quality Control Region

Aqueous, aq. - Describes a water-based solution or suspension. Frequently describes a gaseous compound dissolved in water.

AR - Army Regulation

ARAC - Atmospheric Release Advisory Capability

ARARs - Applicable or Relevant and Appropriate Requirements (NCP)

ARCS - Alternative Remedial Contracting Systems (CERCLA)

ARG - Accident Response Group

Argyria - Local or generalized grey-blue colored impregnation of the body (skin) tissue with silver.

ARL - Army Research Laboratory

ARMS - Area Radiation Monitor System

Aromatic Compounds - Organic compounds in which the carbon atoms arranged in rings. Benzene is a simple ring. These types tend to be carcinogens.

ARNG - Army National Guard

ARPA - Archaeological Resource Protection Act

ARRC - Acid Rain Reduction Credit

ART - Airborne Response Team

AS - Alpha Spectrometry

Asbestosis - Chronic lung disease caused by inhaling airborne asbestos fibers.

ASHRAE - The American Society of Heating, Refrigeration, and Air-Conditioning Engineers, Inc.

ASME - American Society of Mechanical Engineers (organization)

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Asphyxiant - A chemical vapor or gas which can cause death by suffocation. There are two types: (1) simple asphyxiants that displace oxygen, and cause an oxygen-deficient atmosphere, and (2) chemical asphyxiants that enter the body and interfere with the body's ability to absorb/use oxygen. Chemical asphyxiants are dangerous even with 21% oxygen in the atmosphere. Asphyxiants are especially hazardous when present in confined spaces.

ASSE - American Society of Safety Engineers (organization)

ASR - Air Supplying Respirator See respirator.

AST - Aboveground Storage Tank

Asthma - A disease characterized by recurrent attacks of dyspnea, wheezing, and perhaps coughing caused by spasmodic contraction of the bronchioles in the lungs.

ASTM - American Society for Testing and Materials. A voluntary membership organization whose members devise consensus standards for materials characterization and use. (1916 Race Street, Philadelphia, PA 19103; [215]299-5400) Reference: December 1990.

ASTSWMO - Association of State and Territorial Solid Waste Management Officials (organization)

Asymptomatic - No symptoms.

Ataxia - A loss of muscular coordination.

Atmosphere - (1) unit of pressure equal to 760 mm Hg, 14.7 psi. One atmosphere (atm) equals the air pressure at sea level; (2) the air in a defined area (as in a confined space).

ATS - Administrator's Tracking System (EPA)

ATSDR - Agency for Toxic Substances and Disease Registry (HHS)

Autoignition Temperature - The minimum temperature to which a substance (usually in an enclosure) must be heated without application of a flame or spark to cause that substance to ignite. Materials should not be heated to greater than 80% of this temperature.

AWP - Asbestos Work Permit

BA - Budget Authority

BACT - Best Available Control Technology

BADCT - Best Available Demonstrated Control Technology

Base - A chemical compound that has a pH of greater than 7. Some characteristics of bases are that they (1) react with acids to form salts and water; (2) neutralize acidic compounds; (3) they become more corrosive when mixed with water. Bases turn litmus paper blue. Bases with a pH of about 12 or more are corrosive to human tissue. They are also called alkali and caustic. See caustic, alkali. Also Acid; pH.

BAT - Best Available Technology

BATEA - Best Available Technology Economically Achievable

BBC - Balance Biological Communities

BCT - Best Conventional (Pollution Control) Technology

BDAT - Best Demonstrated Available Technology

BDT - Best Demonstrated Technology

BEI - Biological Exposure Indices (issued by ACGIH)

BEIR - Biological Effects of Ionizing Radiation

BEJ - Best Engineering Judgement

BG - Burial Ground

Biodegradable - An organic material's capacity for decomposition as a result of attack by microorganisms. Sewage treatment routines are based on this property. Phosphates and chlorinated hydrocarbons (DDT) do not easily biodegrade.

Biological Monitoring - Periodic examination of body substances, such as blood or urine, to determine the extent of hazardous material absorption as opposed to mere exposure.

BLEVE - Boiling Liquid Expanding Vapor Explosion

BLS - Basic-Life Support/U.S. Bureau of Labor Statistics (DOL)

BOD - Biological Oxygen Demand

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Body Burden - The total amount of a toxic material that a person has ingested or inhaled from all sources over time (e.g., lead can be inhaled from gasoline engine exhaust and ingested from drinking water channeled through lead-soldered pipes, lead glazes on dishes, or flakes from painted surfaces, as well as from a variety of industrial operations).

Boiling Point - The temperature at which the chemical substance boils, or changes state from a liquid or solid to a gas. Flammable materials with low Bps generally present special fire hazards (e.g., butane, BP - 31mF; gasoline, BP = 100mF). Sometimes a range of temperatures will be given.

BOM - U.S. Bureau of Mines (DOI)

BPAT - Best Practically Available Treatment

BPCT - Best Practical Control Technology

BPT - Best Practicable Control Technology (Currently Available)

Bradycardia - A slow heartbeat with pulse rate below 60 per min.

Bronchitis - Inflammation of the bronchial tubes in the lungs.

BTU - British Thermal Unit, a unit used to measure heat. The amount of heat necessary to raise the temperature of 1 lb. of water by 1mF (approximately 250 cal).

Buddy System - A system used in hazardous situations, including confined spaces, hazardous waste zones, and radiation zones, that a worker is in constant eye contact with another worker, either in or out of the zone.

Buffer - A substance that reduces the change in hydrogen ion concentration (pH) that otherwise would be produced by adding acids or bases to a solution.

BWL - Body Water Loss

CA - Corrective Action

CAA - Clean Air Act. Public Law PL 91-604, 40 CFR 50-80. It became effective December 31, 1970, and has been significantly amended several times. EPA enforces this law. It set guidelines for monitoring airborne pollution hazardous to public health or

natural resources, and air quality standards. Enforcement and issuance of discharge permits are carried out by the states and are called state implementation plans. References: December, 1990.

CAD - Containment Atmosphere Dilution

CAER - Community Awareness and Emergency Response (a CMA program). Developed to assist chemical plant managers in taking the initiative in cooperating with local communities to develop integrated plans for responding to releases of hazardous materials.

CAFO - Compliance Agreement, Final Order

CAG - Carcinogen Assessment Group (EPA)

CAIR - Comprehensive Assessment Information Rule (TSCA)

CAIRS - Computerized Accident/Incident Reporting System (SPMS)

Calorie - A standard unit of heat. A calorie is the amount of heat required to raise 1g of water 1mC. See also BTU, joule.

CAM - Continuous Air Monitor

CAMU - Corrective Action Management Unit

Cancer - The rapid growth of abnormal cells, often in the form of a tumor.

CAR - Corrective Action Request

CARA - Computer Assisted Risk Assessment

Carbon Dioxide - A heavy, colorless gas produced by burning of organic substances and as a byproduct of many chemical processes. CO₂ will not burn and is relatively nontoxic and unreactive. However, high concentrations, especially in confined places, can create hazardous oxygen-deficient environments that may cause simple asphyxiation. CO₂ is 1.5 times as heavy as air making it useful as a fire-extinguishing agent to block oxygen and smother a fire.

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Carbon monoxide - A colorless, odorless, flammable, and very toxic gas produced by burning organic compounds and as a byproduct of many chemical processes. It is a chemical asphyxiant; it reduces the blood's ability to carry oxygen. Hemoglobin absorbs CO two hundred times more readily than it does oxygen.

Carcinogen - A material that has either been found to cause cancer in humans or to cause cancer in animals and therefore is considered capable of causing cancer in humans. A material is considered to be a carcinogen if (1) it has been evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen or potential carcinogen; (2) it is listed as a carcinogen or potential carcinogen in the annual Report on Carcinogens, published by the National Toxicology Program (NTP) latest edition; (3) it is regulated by OSHA as a carcinogen; or (4) if one positive study has been published.

Carcinoma - A malignant tumor or cancer. Cancer is the second most common cause of death in the United States. The NTP reports that one to two-thirds of cancers are associated with our environment.

Cardiac - Term used to refer to the heart.

CAS - Chemical Abstracts Service

CAS Number - An assigned number used to identify a material. CAS stands for Chemical Abstracts Service, an organization that indexes information published in Chemical Abstracts by the American Chemical Society and provides index guides by which information about particular substances may be located in the abstracts. (Chemical Abstracts Service, Division of American Chemical Society, Box 3012, Columbus, OH 43210; [614]421-3600).

CASRN - CAS Registry Number

Catalyst - A substance that modifies a chemical reaction (makes it faster) without being consumed.

Caustic - A term used by industry to mean base. See base, alkali, see also acid, pH.

CBI - Confidential Business Information

CC - Close Cup

CCW - Constituent Concentration in the Waste

CCWE - Constituent Concentration in the Waste Extract

CD - Conceptual Design/Consent Decree

CDC - Center for Disease Control (HHS)

CDR - Conceptual Design Report

CDRH - Center for Devices and Radiological Health

CEARP - Comprehensive Environmental Assessment and Response Program

CEC - Cation Exchange Capacity

CEDR - Comprehensive Epidemiological Data Resource

CEIL - Ceiling Limit

Ceiling - The maximum allowable exposure limit for an airborne chemical, which is not to be exceeded even momentarily.

CEM - Continuous Emission Monitoring

CEPP - Chemical Emergency Preparedness Program (EPA)

CEQ - Council on Environmental Quality

CERC - Center for Energy Research Computation

CERCLA - The Comprehensive Environmental Response, Compensation, and Liability Act. The Superfund Law, Public Law PL 96-510, found at 40 CFR 300. It became effective December 11, 1980, and was later amended by SARA. The main thrust is the Superfund, which funds and carries out the EPA solid waste emergency and long-term removal remedial activities. This includes establishing the National Priorities List, investigating sites to be included on this list, determining the site's priority level on the list, and supervising the clean-up activities and other remedial activities. Report releases of hazardous materials to the National Response Center, (800)424-8802. CERCLA is a result of the serious problems that arose from the release of hazardous material at the Love Canal area near Niagara Falls, New York, in August 1978. See RCRA, SARA, NPL.

CERCLIS - CERCLA Information System (NPL)

CET - Certified Environmental Trainer

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CFA - Cognizant Federal Agency

CFAO - Cognizant Federal Agency Official

CFC - Chlorofluorocarbon

CFR - Code of Federal Regulations. A collection of the regulations established by law. (The OSHA standard for hazardous waste site workers is 29 CFR 1910.120. The OSHA worker right-to-know regulations is 29 CFR 1910.1200.)

CGA - Compressed Gas Association (organization)

CGI - Combustible Gas Indicator

CHEMS - Chemical Hazard Emergency Management System (SPMS)

CHESS - Council for Health and Environmental Safety of Soils

CH-TRU - Contact-Handled Transuranic

CHEMD - Chemical Directory Data Base

Chemical - Any substance that has mass or weight. It may be an element, a compound or a mixture of elements and compounds.

CHEMNET - A mutual aid network of chemical shippers and contractors (Chemical Manufacturers Association)

Chemical formula - Gives the number and kind of atoms that comprise a molecule of a material. The chemical formula of water is H₂O. Each molecule of water is made up of 2 atoms of hydrogen and 1 of oxygen.

Chemical monitoring instruments - Instruments, like the oxygen meter and draegar tubes, designed to detect concentrations of certain types of chemicals. One instrument will not detect all chemicals. See H-Nu, OVA, OVM.

Chemical pneumonitis - Inflammation of the lungs caused by accumulation of fluids due to chemical irritation.

Chemical protective clothing - Clothing designed to provide a barrier between the worker and a possible chemical hazard. There are four EPA recommended levels of protection - combined with respiratory protection.

Chemical reactivity - See reactivity.

CHEMTREC - Chemical Transportation Emergency Center. Established in Washington, DC, by the Chemical Manufacturers Association (CMA) to provide emergency information on materials involved in transportation accidents. Twenty-four-hour number: (800)424-9300. In Washington, DC, Alaska, and Hawaii call (202)483-7616.

CHIP - Chemical Hazard Information Profile

Chloracne - An acne like eruption cause by excessive contact with certain compounds.

CHLOREP - Chlorine Emergency Plan. A mutual aid group comprised of shippers and carriers of chlorine (Chlorine Institute).

CHMM - Certified Hazardous Materials Manager

CHP - Certified Health Physicist

CHRIS/HACS - Chemical Hazards Response Information System/Hazard Assessment Computer System (U.S. Coast Guard)

Chronic effect - Symptom of exposure to a hazardous material which develops slowly after many exposures or which recurs often.

CHSO - Corporate Health and Safety Officer

Ci - Curie

CI - Chlorine Institute (organization)

CGL - Comprehensive General Liability

CLP - Contract Laboratory Program

CLX - Chlorine

CM - Corrective Measures

CMA - Chemical Manufacturers Association (organization)

CMP - Chemicals, Metals, and Pesticides (Pits)

CMS - Corrective Measures Study (RCRA)

CNS - Central Nervous System

CO - See carbon monoxide

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CO₂ - See carbon dioxide

COCA - Consent Order and Compliance Agreement

COCO - Contractor Owned/Contractor Operated

COCO (E) - Contractor Owned/Contractor Operated (Equipment)

COD - Chemical Oxygen Demand

Cold stress - physical stress suffered by personnel when the body temperature drops below normal.

Type	Symptoms	First Aid
Hypothermia	Violent shivering	Wrap in blankets and give warm liquids
	Difficulty with speech	Do not give alcohol
	Mental confusion	Get to warm protected shelter
	Loss of ability for self help	Get to medical help ASAP
	Sub-normal body temperature	
Superficial Frostbite	Pain and Numbness	Protect affected parts and allow normal temperature to return
	Pale, glossy skin	
	Blisters may form	Place on warmer body parts of self or buddy to assist warm up Follow up with medical attention
Deep Frostbite	Frozen tissue and loss of feeling in the frozen parts	Keep victim warm and protect frozen parts.
		Do no attempt to thaw in the field Get to medical help ASAP

Colormetric Tubes - See draegar tubes.

COMAR - Code of Maryland Regulations

Combustible - A term used by the NFPA, DOT, and others to classify certain liquids that will burn on a basis of flash points. Both NFPA and DOT generally define combustible liquids as having a flash point of 100mF (38mC) or higher. Non-liquid materials such as wood and paper are classified as ordinary combustibles by the NFPA. OSHA defines combustible liquid within the Hazardous Communication Law as any liquid having a flash point at or above 100mF (38mC) but below 200mF (93.3mC). Also, any mixture having components with flash points of 200mF (93.3mC), or higher, the total volumes of which make up 99% or more of the total volume of the mixture. See also Flammable.

Common name - A designation for a material other than its chemical name, such as code name or code number or trade, brand, or generic name. Also the "product identifier" in Canadian law.

Compressed gas - Any material contained under pressure, i.e., dissolved gas or liquefied by compression or refrigeration.

Concentration - The relative amount of a given substance present when mixed with another substance(s). Concentration is often expressed as ppm, percent, or weight per unit volume (e.g., mg/m³).

Confined Spaces - A space that fits one or more of the following conditions:

1. Not designed to hold people (i.e., sewer or silo).
2. Poor natural ventilation (i.e., open pit more than 4' deep).
3. Not easy to enter or exit (i.e., tank).

Contamination Reduction Zone - One of the three work zones set up for or a hazardous waste clean-up site. This zone is a buffer between the exclusion zone, the zone that is contaminated, and the support zone, or the clean zone. The decontamination corridor is set up here. See also work zones, support zone, exclusion zone.

Contingency Plan - Planning, required by law, which addresses response to potential emergency situations.

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Corrosive - A chemical that causes visible destruction of or irreversible alterations in living tissue by chemical action at the site of contact, during a four hour test; a liquid that causes severe corrosion rate in steel. A waste that exhibits "a characteristic of corrosivity (40 CFR 261.22)," as defined by RCRA, may be regulated by EPA as a hazardous waste.

CPC - See Chemical Protective Clothing

CPR - Cardiopulmonary Resuscitation

CPRB - Coal Pile Runoff Basin

CPSA - Consumer Product Safety Act

CPSC - Consumer Products Safety Commission. A Federal agency responsible for regulating hazardous materials when they are used in consumer goods per the Hazardous Substances Act and Poison Prevention Packaging Act of 1970.

CRP - Community Relations Plan

CSWE - Central Services Works Engineering

CQA - Construction Quality Assurance

CQED - Consortium for Quality of Environmental Data

CR - Control Room/Community Relations

CRC - Contamination Reduction Corridor

CRCPD - Conference of Radiation Control Program Directors, Inc.

CRP - Community Relations Plan/Conservation Reserve Program

CSB - Chemical Screening (EPA)

CSMA - Chemical Specialty Manufacturers Association

CSP - Continuous Sample Plan/Certified Safety Professional

CTD - Cumulative Trauma Disorder

CTF - Chemical Transfer Facility

Cutaneous - Pertaining to the skin.

CVSA - Commercial Vehicle Safety Alliance

CWA - Clean Water Act, Public Law PL 92-500. Found at 40 CFR 100-140 and 400-470. Effective November 18, 1972 and amended significantly since then. The EPA and U.S Army Corps of Engineers enforce this law. CWA regulates the discharge of nontoxic and toxic pollutants into surface waters. Its ultimate goal is to eliminate all discharges into surface waters. Its interim goal is to make surface waters usable for fishing, swimming, etc. EPA sets guidelines and individual states issue permits (NPDES, National Pollutant Discharge Eliminate System permit) specifying the types of control equipment and discharges for each facility.

Cyanosis - A dark purplish coloration of the skin and the mucous membrane caused by deficient oxygenation of the blood.

CZM - Coastal Zone Management

D - Absorbed Dose

D&D - Decontamination

DAC - Derived Air Concentration

DAF - Dilution and Attenuation Facility.

Dangerously reactive material - A material that can react by itself (e.g., polymerization) or with air or water to produce a hazardous condition. Preventive measures can be taken if you know what conditions may cause the dangerous reaction.

DBA - Design Basis Accidents

DCA - 1,1-dicholoroethane

DCG - Derived Concentration Guide

DCM - Dangerous Cargo Manifest

DCO - Document Control Officer

Decomposition - The breakdown of a material by chemical reaction, decay, heat, or other process into a simpler compound.

Decon/Detox - Decontamination/Detoxification

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Decontamination - The process of removing or neutralizing chemical contamination from personnel, clothing and equipment. The process is dependent on the type of contamination: surface contamination or permeated (soak through) contamination, and the type of chemical to be removed.

Density - Ratio of mass to volume of a material, usually in grams per cubic centimeter. One cm³ of H₂O weighs 1g. See also Specific Gravity.

Dermal - Used on or applied to the skin.

Dermatitis - Inflammation of the skin.

DERP - Defense Environmental Restoration Program

DFDP - Defense Facility Decommissioning Program

DHHS - U.S. Department of Health and Human Services. The NIOSH is a part of the Public Health service of the DHHS.

DMR - Discharge Monitoring Reports

DO - Dissolved Oxygen

DOA - U.S. Department of Agriculture

DOC - U.S. Department of Commerce/Dissolved Oxygen Compound

DOD - U.S. Department of Defense

DOE - U.S. Department of Energy. This is a federal agency.

DOI - U.S. Department of the Interior

DOIM - Directorate of Information Management

DOJ - U.S. Department of Justice

DOL - U.S. Department of Labor (OSHA is a part of the DOL. This is a federal agency.)/Directorate of Logistics

DOMS - Director of Military Support (Army)

DOS - U.S. Department of State

Dose - The amount of a substance given to an animal in experimental testing or received by a person during exposure to a hazardous chemical.

DOT - U.S. Department of Transportation. Regulates transportation of materials to protect the public as well as fire, law, and other emergency-response personnel. DOT classifications specify appropriate warnings, such as Oxidizing Agent or Flammable Liquid, that must be used. (400 7th Street, SW, Washington, DC 20590)

DOT-E - Designation of Material Exempt from DOT regulations

DOT Hazard Class - DOT has the authority to define hazardous materials; to assign each of them to a specific hazard class; and to require that, when they are shipped, they must be identified with the appropriate hazard class label. See 49 CFR for further information on hazardous material labeling.

DP - Defense Programs

DPW - Directorate of Public Works

DRA - Deputy Regional Administrator (EPA)

Draegar Tubes - Colorimetric tubes used to identify chemicals. These tubes have a chemical-specific compound in it that will turn a different color in the presence of that chemical.

DRE - Destruction and Removal Efficiency

DRMO - Defense Reutilization and Marketing Office

DSHE - Directorate of Safety, Health and Environment

DSR - Division Security Representative

DST - Double Shell Tank

Dust - Solid particles suspended in air produced by some mechanical process such as crushing, grinding, abrading, or blasting. Most dusts are an inhalation, fire, and dust-explosion hazard.

DWMP - Defense Waste Management Plan

DWPF - Defense Waste Processing Facility

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Dysphasia - The loss of the ability to use or understand language due to injury or disease.

Dyspnea - Difficult or labored breathing.

E-MAD - Engine Maintenance and Disassembly

EA - Environmental Assessment/Edgewood Area

EAL - Emergency Action Levels

EBWR - Experimental Biling Water Reactor

ECAMP - Environmental Compliance Assessment and Management Program (USAF)

ECD - Environmental Compliance Division (DSHE)

EC50 - (Median) effective concentration. The concentration of a material in water, a single dose of which is expected to cause a biological effect on 50% of a group of test animals.

ECRS - Event Classification and Reporting System

ECT - Equivalent Chill Temperature

EDA - Emergency Declaration Area

EDD - Enforcement Decision Document

EDE - Effective Dose Equivalent

EE/CA - Engineering Evaluation/Cost Analysis

EEFIS - Environmental Effects/Fate Information System

EEL - Emergency Exposure Limit (National Academy of Sciences/National Research Council on Toxicology).

EEMT - Energy Emergency Management Team

EENET - Emergency Education Network (FEMA)

EHS - Extremely Hazardous Substance (SARA III). A list of chemicals identified by EPA on the basis of toxicity and listed under Title III of SARA Appendix C.

EHW - Extremely Hazardous Waste

EI - Environmental Impact (factor)

EIA - Environmental Impact Appraisal

EICC - Emergency Information and Coordination Center (FEMA)

EID - Environmental Information Document

EIL - Environmental Impairment Liability

EIS - Environmental Impact Statement/Study

EL - Excursion Limit

EM - Electromagnetic

EMA - Emergency Management Agency

EM SIG - Environmental Management Special Interest Group (TRADE)

Emergency Plan - A plan that tries to anticipate emergency situations and outline responsibilities of employees in the case of an emergency. See contingency plan.

EMI - Emergency Management Institute (Emmitsburg, MD)

EMR - Electromagnetic Radiation

EMS - Emergency Medical Services

EMSL - Environmental Measurements Support Laboratory/Environmental Monitoring Systems Laboratory

EO - Executive Order

EOP - Emergency Operations Plan

EP - Extraction Procedure Toxicity

EPA - U.S. Environmental Protection Agency. A Federal agency with environmental protection regulatory and enforcement authority. Administers the CAA, CWA, RCRA, TSCA, and other Federal environmental laws. (400 M Street, SW, Washington, DC, 20460; [202]382-2090)

EPACASR - EPA Chemical Activity Status Report

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EPCRA - Emergency Planning and Community Right-to-Know [Superfund Amendments and Reauthorization Act of 1986 (SARA Title III)]

EPD - Environmental Protection Department

Epidemiology - The study of disease in a general population. Determination of the incidence (rate of occurrence) and distribution of a particular disease (by age, sex, or occupation) may provide information about the causes of the disease.

EPRI - Electric Power Research Institute

EPTox - Extraction Procedure Toxicity

ER - Energy Research/Environmental Restoration/Emergency Response

ERAB - Energy Resource Advisory Board

ERD - Emergency Response Division (EPA)

Erythema - A reddening of the skin.

ERNS - Emergency Response Notification Systems

ERPG - Emergency Response Planning Guides (developed by AIHA)

ERRIS - Emergency and Remedial Response Information System

ERT - Emergency Response Team/Environmental Response Team

ES - Electromagnetic Surveys

ESA - Endangered Species Act

ESAAB - Energy System Acquisition Advisory Board

ESCBA - Escape Self-Contained Breathing Apparatus

ESD - Environmental Services Division (EPA)

ESI - Expanded Site Investigation

ESP - Electrostatic Precipitators

ETO - Ethylene Oxide

Evaporation rate - The rate at which a material will vaporize (volatilize, evaporate) from the liquid or solid state when compared to the rate of vaporization of a known material. The evaporation rate can be useful in evaluating the health and fire hazards of a material. The known material is usually normal butyl acetate (N-BuAc or n-BuAc), with a vaporization rate designated as 1.09. Vaporization rates of other solvents or materials are then classified as:

1. FAST evaporating if greater than 3.0, (e.g., methylethyl ketone (MEK), 3.8; acetone, 5.6; hexane, 8.3);
2. MEDIUM evaporating if 0.8 to 3.0, (e.g., 190-proof (95%) ethyl alcohol, 1.4; VM&P naphtha, 1.4; MIBK, 1.6);
3. SLOW evaporating if less than 0.8, (e.g., xylene, 0.6; isobutyl alcohol, 0.6; normal butyl alcohol, 0.4; water, 0.3; mineral spirits, 0.1).

Exclusion Zone - One of the work zones on a hazardous waste clean-up site. This zone has the contamination contained in this zone. Access is controlled through the contamination reduction zone. See work zones, contamination reduction zone, support zone.

Explosive - A chemical that can cause a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Explosive limits - The amount of chemical vapor in air (expressed as percent) which will explode if heat is added. Lower Explosive Limit, LEL, is the lowest ratio of vapor to air which will explode. If the vapor/air mixture is below the LEL, it is said to be too lean to ignite. Upper Explosive Limit, UEL, is the highest ratio of vapor to air which will explode. If the vapor/air mixture is above the UEL, it is said to be too rich to ignite. See flammable limits.

FAA - Federal Aviation Administration

FARES - Federal Activities Regional Evaluation System

FCO - Federal Coordinating Officer

FDA - U.S. Food and Drug Administration

FDCA - Food, Drug, and Cosmetic Act

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FEIS - Final Environmental Impact Statement

FEMA - Federal Emergency Management Agency

FEPCA - Federal Environmental Pollution Control Act

FERC - Federal Energy Regulatory Commission

FFA - Federal Facilities Agreement

FFCA - Federal Facilities Compliance Agreement

FFE - Federal Field Elements

FFIS - Federal Facilities Information System

FHS - Federal Hazardous Substance

FHWA - Federal Highway Administration

FID - Flame Ionization Detector

FID-GC - Gas Chromatography with Flame Ionization Detection

Field Team Leader - May be the same as Project Team Leader or may be a member of the work party. Responsible for field team operations and safety.

FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act (1972, 1988)

FINDS - Facility Index System

FIP - Final Implementation Plan

Fire Tetrahedron - The four components needed to start and sustain a fire; oxygen (either air or an oxidizer), heat, fuel, and chemical chain reaction.

Flammable - (1) Describes any solid, liquid, vapor, or gas that will ignite easily and burn rapidly. (2) A term used by the NFPA, DOT and others to classify certain materials that will burn on the basis of flash point. Generally, materials with a flash point of less than 100mF are considered to be flammable materials. See also Combustible.

Flammable limits - The minimum and maximum concentrations of a flammable gas or vapor between which ignition can occur. Concentrations below the lower flammable limit (LFL) are too lean to burn, which concentrations above the upper flammable limit (UFL) are too rich. All concentrations between LFL and UFL are in the flammable range, and special precautions are needed to prevent ignition or explosion. See also explosive limits.

Flash point - The lowest temperature at which a flammable liquid give off sufficient vapor to form an ignitable mixture with air near its surface or within a vessel. There are several types of tests to determine flash point. Usually, the tests are conducted in some kind of cup.

FMC - Federal Maritime Commission

FMEA - Failure, Modes and Effects Analysis

FMECA - Failure, Modes, Effects and Criticality Analysis

FMFIA - Federal Managers' Financial Integrity Act

FMSHRC - Federal Mine Safety and Health Review Commission

FONSI - Finding of No Significant Impact

Formula - The molecular composition of a chemical written in chemical symbols. Water is H₂O, hydrochloric acid is HCl.

FORSCOM - U.S. Army Forces Command (Ft. McPherson, GA)

FR - Federal Register

FRA - Federal Railroad Administration

FRP - Fiberglass Reinforced Polyester

Freezing point - The temperature at which a material changes its physical state from liquid to solid. This information is important because a frozen material may burst its container or the hazards could change.

FS - Feasibility Study

FSAR - Final Safety Analysis Report

FSIS - U.S. Safety and Inspection Service (DOA)

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FTA - Fault Tree Analysis

FUSRAP - Formerly Utilized Sites Remedial Action Program

FWPCA - Federal Water Pollution Control Act

FWS - U.S. Fish and Wildlife Service

F/M - Food to Microorganism Plan

g - Gram

g/kg - Grams per kilogram. A term used in experimental testing to indicate the dose of a test substance, in grams, which was given for each kilogram of body weight of the test animal.

Gastro - Term which refers to the stomach.

GC - Gas Chromatography

GEMS - Graphical Exposure Modeling System

Generic Substance - A substance identified by its specific chemical name and/or formula.

General Safety Hazards - Hazards that are considered common to any job. These include heat and cold stress, noise stress, equipment safety, slipping and tripping, and confined spaces. See the type of hazard for more information.

General Ventilation - Also known as general exhaust ventilation, this is a system of ventilation consisting of either natural or mechanically induced fresh air movements to mix with and dilute contaminants in the workroom air. This is not the recommended type of ventilation to control contaminants that are highly toxic; when there may be corrosion problems from the contaminant, when the worker is close to where the contaminant is being generated, and where fire or explosion hazards are generated close to sources of ignition (see local exhaust ventilation).

GHG - Greenhouse Gases

GMP - Good Management Practice

GOCO - Government Owned/Contractor Operated

GOGO - Government Owned/Government Operated

GOPO - Government Owned/Private Operated

GPC - Gas Proportional Counter

GPE - General Purpose Equipment

GPO - Government Printing Office

GPP - General Plant Project

GPR - Ground Penetrating Radar

GRCDA - Governmental Refuse Collection and Disposal Association
(organization)

Grounding - A means of providing a path of least electrical resistance to earth, i.e., ground wire, ground strap, ground rod.

GS - Gamma Spectrometry

GTF - Grout Treatment Facility

H - Dose Equivalent

HAP - Hierarchical Analytic Protocol

HASP - Health and Safety Plan

Hazard warning - The words, pictures, symbols or combination thereof which appear on a label and indicate the hazards of the chemical in the container.

Hazardous - Risky, dangerous, or exposure to danger, as with a hazardous substance.

Hazardous chemical - Any chemical that is a health hazard or physical hazard and is regulated under 29 CFR 1910.1200. This definition includes chemicals that are toxic, corrosive, irritating to the skin or eyes, flammable, explosive, organic peroxides, oxidizers, combustible liquids, compressed gases, pyrophoric, unstable, or water reactive.

Hazardous decomposition products - A new hazardous material that is made when chemicals are broken down, as in burning. For example, vinyl releases poisonous chlorine and hydrochloric acid vapors when burned.

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Hazardous material - Any substance or material in a quantity or form which may be harmful if accidentally released. Hazardous materials include: explosives, gases (compressed, liquefied, or dissolved), flammable and combustible liquids, flammable solids or substances, oxidizing substances, poisons and infectious substances, radioactive materials, and corrosives. See hazardous chemical.

Hazardous physical agent - An agent such as excessive noise, extreme temperature, lasers, confined spaces, etc., that presents a potential health hazard to exposed personnel.

Hazardous substances (superfund) - Substances designated as hazardous under CERCLA which incorporates substances listed under the Clean Water Act, the Clean Air Act, RCRA and TSCA section 7.

HAZCOM - Hazard Communications

HAZMAT - Hazardous Materials

HAZMIN - Hazardous Waste Minimization

HAZOP - Hazard and Operability Study

HAZWRAP - Hazardous Waste Remedial Action Plan

HCEL - House Committee on Education and Labor

HCL - Hydrochloric Acid

HCS - OSHA Hazard Communications Standard (Worker Right-to-Know)
(29 CFR 1910.1200)

HDPE - High Density Polyethylene

HE - High Explosive

Health hazards - Chemicals for which there is evidence from at least one scientific study that acute or chronic health effects may occur in exposed persons. These chemicals include carcinogens, toxic and highly toxic agents, reproductive toxins (mutagens and teratogens), irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

HEAR - Hospital Emergency Administration Radio

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Heat Stress - Physical stress suffered by personnel when the body temperature rises above normal.

Type	Symptoms	First Aid
Heat Syncope	Sweating	Remove to cool area and allow to rest until symptoms subside
	Light headed, possibly fainting	Give water
Heat Cramps	Sweating	Remove to cool area and give electrolyte solution
	Severe muscle cramps in extremities, abdomen or back	Massage cramped muscles
		Follow with medical help if needed
Heat Exhaustion	Severe sweating	Remove to cool area and give water
	Pale, flushed skin	Allow victim to rest until symptoms subside
	Moist clammy skin	Follow up with medical attention
	Headache and nausea	
Heat Stroke	Little or no sweating	Get victim to cool area and bring body temperature down by immersing in water or applying water to skin
	Skin very hot and dry (red color)	
	Pulse strong and rapid	Treat for shock and get Medical help ASAP
	Elevated body temperature	

Hemato - Pertaining to the blood. Also, hemo.

Hematopoietic system - The blood-forming organs of the body, including bone marrow and the spleen.

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HEPA - High Efficiency Particulate Air (air filter)

Hepatotoxin - A chemical which can cause liver damage (e.g., carbon tetrachloride).

HERD - Health and Environmental Review Division (EPA)

HHS - U.S. Department of Health and Human Services

HHW - High Heat Waste

HLW - High Level Waste

HLLW - High Level Liquid Waste

HMCRI - Hazardous Material Control Research Institute (organization)

HMI - Hazardous Material Incident (DOT reporting system)

HMIS - The Hazardous Materials Identification System, developed by NPCA to provide information on health hazards, reactivity, and flammability that are encountered in the workplace. A number is assigned a material indicating the degree of hazard, from 0 for the least up to 4 for the most severe. Letters are used to designate personal protective equipment. (Details available from Labelmaster, 5724 N Pulaski Rd, Chicago, IL 60646; [312]478-0900.) See also NPCA.

HMTA - Hazardous Material Transportation Act

HNu - Trace Gas Analyzer

HOC - Halogenated Organic Compound

HPDC - Household Products Disposal Council (Sponsored by Chemical Specialties)

HPLC - High Performance Liquid Chromatography

HPV - High Priority Violator

HR - Heat Rate

HRS - Hazard Ranking System (related - NPL)

HSD - Health and Safety Director

HSO - Health and Safety Officer

HSWA - Hazardous and Solid Waste Amendments (1984 RCRA Amendments)

Human carcinogen - Any chemical substance or substance associated with process for which there is sufficient evidence of carcinogenicity from studies of humans, that indicate a casual relationship between the agent and human cancer. This includes solid or liquid mixtures containing greater than 0.1% of a listed chemical substance.

HVAC - Heating, Ventilating and Air Conditioning

HWM - Hazardous Waste Management

HWMP - Hazardous Waste Management Plan

HWTC - Hazardous Waste Treatment Council (organization)

HWTS - Hazardous Waste Tracking System

Hydrocarbon - An organic compound that contains hydrogen as well as carbon. These chemicals are a subgroup of organic chemicals.

Hypoxia - Too low an oxygen level to sustain life. See also anoxia.

IAETL - International Association of Environmental Testing Laboratories

IAG - Interagency Agreement

IARC - International Agency for Research on Cancer. One of the three sources that OSHA refers to for data on whether a material is a carcinogen. (World Health Organization, Geneva, Switzerland; distributed in the USA from 49 Seridan Avenue, Albany, NY 12210 [518]436-9686)

IATA - International Air Transport Association (organization)

IC - Ion Chromatography

ICAO - International Civil Aviation Organization

ICRP - International Commission on Radiological Protection

ICS - Incident Command System

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IDB - Integrated Data Base

Identity - Any chemical or common name which is indicated on the Material Safety Data Sheet for the chemical.

IDLH - Immediately Dangerous to Life and Health. Atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would cause irreversible or delayed adverse health effects or would interfere with an individual's ability to escape from a dangerous atmosphere.

IEE - Institute of Electronic Engineers

IEQCC - Installation Environmental Quality Control Council

IEMS - Integrated Emergency Management System

Ignitable - A solid, liquid, or compressed gas that has a flash point of less than 140mF. Ignitable materials are also to be regulated by the Environmental Protection Agency as a hazardous waste.

Ignition temperature - The lowest temperature at which a combustible material will catch on fire in air and will continue to burn independently of the source of heat when heated.

IHE - Insensitive High Explosive

IHMA - International Hazardous Material Association
(organization)

IMDGC - International Maritime Dangerous Goods Codes

IME - Institute for Makers of Explosives (organization)

Immediate use - The hazardous chemical that is under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

IMO - International Maritime Organization

Implosion - To burst inward; typically caused by intense negative pressure inside a vessel or chamber with respect to external pressure.

Incompatible - Describes materials that could cause dangerous reactions and the release of energy from direct contact with one another.

Inflammable - Capable of being easily set on fire and continuing to burn, especially violently.

Ingestion - The taking in of a substance through the mouth for digestion.

Inhalation - The breathing in of a substance in the form of a gas, vapor, fume, mist, or dust.

Inhibitor - A material that is added to another to prevent or slow an unwanted reaction; e.g., polymerization.

Injection - Taking a material into the body by penetrating the skin with a needle or other sharp object (this would include high pressure fluids and gases).

Inorganic - A chemical compound that does not contain carbon (exceptions: there are a few inorganic compounds that have carbon, and a few organic compounds that do not have carbon). See organic.

INVR - Inventory Update Rule

IR - Infrared

IRIS - Integrated Risk Information System

IRM - Initial remedial Measure

IRP - Installation Restoration Program

Irritant - A material that is not a corrosive, that causes a reversible inflammatory effect on living tissue by chemical action at the site of contact as a function of concentration or duration of exposure.

ISCP - Installation Spill and Contingency Plan

ISHOW - Information System for Hazardous Organic in Water

IUPAC - International Union of Pure and Applied Chemistry

JHEC - Joint Hazards Evaluation Center

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JIC - Joint Information Center

JOCO - Jointly Owned/Contractor Operated

Joule - A unit of energy. Energy produced by a mass of 2kg. moving at a velocity of 1 m/s. Approximately 0.24 cal.

JSA - Job Safety Analysis

kg - 1,000 grams

l - Liter

LAER - Lowest Achievable Emission Rate

LAO - Lead Agency Official

Lassitude - A condition of listlessness or fatigue.

LC - Lethal Concentration. The concentration of a substance in air which will kill a test animal as a direct result of inhaling the substance.

LCF - Latent Cancer Fatalities

LCLO - Lethal concentration low, the lowest concentration in the air that on the basis of laboratory tests (respiratory route) is expected to kill one to two animals in the test population. See LC50.

LC50 - Lethal concentration 50, median lethal concentration. The concentration of a material in air that on the basis of laboratory tests (respiratory route) is expected to kill 50% of a group of test animals when administered as a single exposure (usually 1 hour). The LC50 is expressed as parts of material per million parts of air, by volume (ppm) for gases and vapors, as micrograms of material per liter of air, or milligrams of material per cubic meter of air (mg/m^3) for dusts and mists, as well as gases and vapors.

LD - Lethal Dose. The dose of substance which will kill test animal as a direct result of being given the substance, usually by ingestion.

LDLO - Lethal dose low, the lowest dose of a substance that on the basis of laboratory tests is expected to kill one to two animals in a test population. See LD50.

LD50 - Lethal dose 50. The dose of a substance that causes the death of 50% of an animal population from exposure to the substance by any route other than inhalation when given all in one dose. LD50 is usually expressed as milligrams or grams of material per kilogram of animal weight (mg/kg or g/kg, where 50g = 1 teaspoonful).

LDR - Land Disposal Restrictions

LEA - Local Education Agency (EPA-AHERA)

LEL - Lower Explosive Limit. See explosive limits.

LEPC - Local Emergency Planning Committee (SARA Title III, EPCRA). A committee appointed by the State Emergency Response Commission (SERC), as required by SARA Title III, to formulate a comprehensive emergency plan for its district.

LEPD - Local Emergency Planning District

LFA - Liquid Factor Ambient

LFL - Lower flammable limit. See flammable limits.

LOC - Level of Concern. The concentration of an EHS in the air above which there may be serious irreversible health effects or death as a result of a single exposure for a relatively short period of time.

Local effect - The effect of a toxin at the site of first contact. See systemic effect.

Local exhaust - A ventilation method for removing contaminated air at the point where the contaminants are generated.

LOE - Level of Effort

LRC - Learning Resources Center (National Emergency Training Center, Emmitsburg, MD)

LUST - Leaking Underground Storage Tank

LWA - Limited Work Authorization

m - Minute

m³ - Cubic meter

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MA - U.S. Maritime Administration (DOT)

MACT - Maximum Available Control Technology

MAD - Maintenance Assembly and Disassembly

MARS - Military Affiliate Radio System

MCC - Materials Characterization Center

MCL - Maximum Concentration Limit/Maximum Contaminant Level

MCLG - Maximum Contaminant Level Goal

MCO - Materials Characterization Organization

MD - Metal Detection

MDL - Method Detection Level

Mechanical exhaust - A machine, like a motor-driven fan, which removes contaminants from a workplace or enclosure.

MEI - Maximally Exposed Individual

Melting point - The temperature at which a solid changes to a liquid. This temperature will be the same as the freezing point (change from liquid to solid).

mg - Milligram (1/1000 of a gram).

mg/kg - Milligrams per kilogram. Dosage used on toxicology testing to indicate a dose administered per kg of body weight (50 mg = 1 teaspoonful).

mg/m³ - Milligrams per cubic meter of air.

Mist - Suspended liquid droplets in the air generated by condensation from the gaseous to the liquid state or by mechanically breaking up a liquid by splashing or atomizing.

Mixture - A heterogeneous association of materials that cannot be represented by a chemical formula and that does not undergo chemical change as a result of interaction amongst the mixed materials. The constituent materials may or may not be uniformly dispersed and can usually be separated by mechanical means (as opposed to a chemical reaction). Uniform liquid mixtures are

called solutions. "If a hazardous chemical is present in the mixture in reportable quantities (i.e., 0.1% for carcinogens and 1.0% for other health hazards), it must be reported unless the mixture has been tested as a whole" (OSHA CPL 23-02.38A).

ml - Milliliter. A metric unit of capacity equal to cubic centimeter or about 1/5 in³.

MLD - Median Lethal Dose

MLVSS - Mixed Liquor Volatile Suspended Solids

mmHg - Millimeters of mercury. A measure of pressure. See also atm.

MOLO - Manager of Landfill Operations

MOS - Model Output

MOU - Memorandum of Understanding

MPBB - Maximum Permissible Body Burden

MPC - Maximum Permissible Concentration

MPCA - Maximum Permissible Concentration Air

MPCW - Maximum Permissible Concentration Water

MPD - Maximum Permissible Dose

MPE - Maximum permissible Exposure

MPL - Maximum Permissible Level

MPRSA - Marine Protection Resource and Sanctuaries Act

MRB - Materials Review Board

MRICD - Medical Research Institute of Chemical Defense

MS - Mass Spectrograph

MSC - Materials Steering Committee

MSCA - Military Support to Civil Authorities

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MSDS - Material Safety Data Sheet. OSHA has established guidelines for the data that should be concisely provided on a data sheet to serve as the basis for written hazard-communication program. The thrust of the law is to have those who make, distribute, and use hazardous materials be responsible for effective communication. See the Hazard communication Rule, 29 CFR, part 1910.1200, as amended, Section 12, of the Canadian Hazardous Products Act.

MSHA - Mine Safety and Health Administration. A Federal agency within the U.S. Department of Labor that devises and promulgates mandatory safety and health in mines.

MSW - Municipal Solid Waste

MTB - Materials Transportation Bureau (DOT)

MTC - Methyl Chloride

MTD - Maximum Tolerated Dose (Level)

MTF - Memorandum-To-File

Mutagen - A material that induces genetic changes (mutations) in the DNA of chromosomes that can be passed on to children.

MWMF - Mixed Waste Management Facility

NAA - Non-Attainment Areas

NAAQS - National Ambient Air Quality Standards

NACA - National Agricultural Chemical Association

NACE - National Association of Corrosion Engineers

NAE - National Academy of Engineering (organization)

NAMF - National Association of Metal Finishers (organization)

NAPAP - National Acid Precipitation Assessment Project (EPA)

Narcosis - A state of stupor or unconsciousness caused by the influence of narcotics or other chemicals.

NAS - National Academy of Sciences

NASR - National Association of Solvent Recyclers (organization)

NASTIPO - National Association of State Title III Program Officials (organization)

Nausea - A tendency to vomit; a feeling of sickness at the stomach.

NAWAS - National Warning System

NBAR - Non-binding Preliminary Allocation of Responsibility

NBS - National Bureau of Standards

NCA - National Command Authority

NCAIC - Nuclear Chemical Accident Incident Control

NCC - National Coordinating Center

NCI - National Cancer Institute

NCP - National Oil and Hazardous Substance Pollution Contingency Plan (also known as National Contingency Plan - 1990 to implement CERCLA and 311 of CWA)

NCRIC - National Chemical Response and Information Center (CMA)

NCRP - National Council on Radiation Protection and Measurements

NCS - National Communications System

NCSL - National Conference of State Legislatures (organization)

NDD - Negotiated Decision Document

NE - Nuclear Energy

NECC - National Emergency Coordination Center

Necrosis - Localized death of tissue.

NEIC - National Enforcement Investigation Center (EPA)

NEMA - National Emergency Management Association

NEMT - National Emergency Management Team (FEMA)

NEPA - National Environmental Policy Act

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Nephrotoxin - A chemical whose primary toxic effect is on the kidneys.

NESHAPS - National Emission Standards for Hazardous Air Pollution Sources (Clean Air Act)

NETAC - National Environmental Technology Applications Corporation (University of Pittsburgh and EPA)

NETC - National Emergency Training Center

Neurotoxin - A chemical whose primary toxic effect is on the nervous system (brain, spinal cord, and nerves).

NFA - National Fire Academy (Emmitsburg, MD)

NFPA - National Fire Protection Association. An international voluntary membership organization to promote/improve fire protection and prevention and establish safeguards against loss of life and property by fire. Best known for the National Fire Codes, sixteen volumes of standards, recommended practices, and manuals developed (and periodically updated) by NFPA committees. NFPA 704M is the code for showing hazards of materials using the familiar diamond-shaped label with appropriate numbers or symbols (NFPA hazard rating). (Batterymarch Park, Quincy, MA 02269; (800)344-3555, [617]770-3000)

NHTSA - National Highway Traffic Safety Administration (DOT)

NIEHS - National Institute for Environmental Health Sciences

NIH - National Institutes of Health

NIMBY - "Not In My Back Yard"

NIOSH - National Institute of Occupational Safety and Health. The agency of the Public Health Service that tests and certifies respiratory and air-sampling devices. It recommends exposure limits for substances and assists OSHA in investigations and research.

NIOSH/TIC - NIOSH Technical Information Center (HHS)

NIPDWS - National Interim Primary Drinking Water Standards

NIST - National Institute of Standards and Technology (previously known National Bureau of Standards)

NMFS - National Marine Fisheries Service

NO - Nitrogen Oxides

NOAA - National Oceanic and Atmospheric Administration

NOC - Notice of Commencement

NOD - Notice of Deficiency

NOEL - No Observed Effect Level

NON - Notice of Noncompliance (RCRA)

NOS - Not Otherwise Specified

NOV - Notice of Violation

Nox - Nitrogen Oxide

NPDES - National Pollutant Discharge Elimination System

NPDWR - National Primary Drinking Water Regulations

NPL - National Priorities List. The list of abandoned waste sites that ranks the sites according to the hazards on the sites. The sites are ranked from worst to least, with the worst sites targeted for clean-up as soon as possible. See CERCLA, SARA.

NPPA - Nuclear Power Plant Authority

NPRM - Notice of Proposed Rulemaking

NPTN - National Pesticide Telecommunications Network

NQT - Not Quenched and Tempered

NRC - Nuclear Regulatory Commission/National Response Center/
National Research Council (National Academy of Science). A communications center for activities related to response actions, is located at Coast Guard Headquarters in Washington, DC (800-424-8803) or 202-426-2675). These numbers can be used 24 hours a day for reporting actual or potential pollution incidents.

NRDC - Natural Resources Defense Council (organization)

NRHP - National Register of Historic Places

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NRRPT - National Registry of Radiation Protection Technologists

NRT - National Response Team. Consisting of Representatives of 14 government agencies (DOD, DOI, DOT/RSPA, DOT/USCG, EPA, DOC, FEMA, DOS, USDA, DOJ, HHS, DOL, NRC, DOE) is the principal organization for implementing the NCP.

NRT-1 - Hazardous Materials Emergency Planning Guide, prepared by the National Response Team.

NSEP - National Security Emergency Preparedness

NSF - National Science Foundation/National Strike Force (USCG)

NSPS - New Source Performance Standards

NSWMA - National Solid Wastes Management Association (organization)

NTIS - National Technical Information Service

NTNCWS - Non-Transient Non-Community Water system

NTP - National Toxicology Program. Federal activity overseen by the Department of Health and Human Services with resources from National Institutes of Health, the Food and Drug Administration, and the Center for Disease Control. Its goals are to develop tests useful for public health regulations of toxic chemicals, to develop toxicological profiles of materials, to foster testing of materials, and to communicate the results for use by others. (NTP Information Office, MD B2-04, Box 12233, Research Triangle Park, NC 27709).

NTSB - National Transportation Safety Board

NWPA - Nuclear Waste Policy Act

NWRN - National Weather Warning Radio

NWS - National Weather Service

NWSTN - National Weather Service Telecommunications Network

O&M - Operation and Maintenance

OAPCA - Organic Antifouling Paint Control Act (1988)

OARM - Office of Administration and Resources Management (EPA)

OBA - Oxygen Breathing Apparatus

OB/OD - Open Burning/Open Detonation

OCC - Office of Chief Counsel

Occupational exposure limit - The allowable concentration of a specific toxic substance in workroom air to which nearly all persons can be exposed without adverse effects. Occupational exposure limits are set to protect workers who are exposed to toxic substances over a working lifetime.

OCIS - OSHA Computerized Information System

Odor threshold - The lowest concentration of a material's vapor (or a gas) in air that can be detected by odor. Frequently expressed as a percentage of a panel of test individuals.

OEA - Office of External Affairs (EPA)

OECM - Office of Enforcement and Compliance Monitoring (EPA)

OFA - Office of Federal Activities

OGC - Office of General Council (EPA)

OHEA - U.S. EPA Office of Health and Environment Assessment

OHMR - Office of Hazardous Material Regulation (DOT)

OHMT - Office of Hazardous Material Transportation (DOT)

OHMTADS - Oil and Hazardous Materials Technical Assistance Data System. A computerized database containing chemical, biological, and toxicological information about hazardous substances.

OHR - Office of Health Research (EPA)

OHSPC - Oil and Hazardous Substance Pollution Contingency (Plan)

OIC - Officer-in-Charge

OIRM - Office of Information and Resource Management (EPA)

OMB - Office of Management and Budget

OPP - Office of Pesticide Programs (EPA)

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OPPE - Office of Policy and Program Evaluation (EPA)

ORD - Office of Research and Development (EPA)

ORD/HWERL - Office of Research and Development/Hazardous Waste Environmental Research Laboratory (EPA)

Ordinary combustibles - Substances like wood, paper, etc.

Organic chemical - A chemical compound that contains the element carbon (exceptions: a few compounds that do not contain carbon are considered organic and a few compounds that do contain carbon are not organic). See inorganic.

Organic peroxide - A type of oxidizer which is very useful because of its reactive properties and that is considered by law (OSHA) to be a physical hazard.

ORM - Other Regulated Materials

ORP - Office of Radiation Protection (EPA)

OSC - On-scene Commander/On-scene Coordinator. The Federal official predesignated by EPA or USCG to coordinate and direct Federal response and removals under the NCP; or the DOD official designated to coordinate and direct the removal actions from releases of hazardous substances, pollutants, or contaminants from DOD vessels and facilities.

OSHA - The Occupational Safety and Health Administration. Part of the U.S. Department of Labor. The regulatory and enforcement agency for safety and health in most U.S. industrial sectors. (Documents are available from OSHA Technical Data Center Docket Office, Rm N-3670, 200 Constitution Ave., NW, Washington, DC 20210; [202]523-7894.)

OSH/TDC - Occupational Safety and Health Administration Technical Data Center (DOL)

OSHRC - Occupational Safety and Health Review Commission

OSTP - Office of Science and Technology Policy

OSWER - Office of Solid Wastes and Emergency Response (EPA)

OTA - Office of Technological Assessment

OTD - On-site Technical Director

OTS - Office of Toxic Substances (EPA)

OVA - Organic Vapor Analyzer. This is a chemical monitoring instrument that detects organic vapors present in the atmosphere. It does not detect every chemical, and some types will not indicate what kind of organic vapors are present, just that they are there.

OVM - Organic Vapor Meter. This is a chemical monitoring instrument that detects organic vapor in the atmosphere. See OVA.

OWP - Office of Weapons Production

Oxidizer - A substance that yields oxygen readily to stimulate the combustion (oxidation) of organic matter. Chlorate (ClO₃), permanganate (MnO₄), and nitrate (NO₃) compounds are examples of oxidizers. Note that they all contain oxygen (O).

Oxidizing agent - A chemical or substance that brings about an oxidation reaction. The agent may (1) provide the oxygen to the substance being oxidized (in which case the agent has to be oxygen or contain oxygen; or (2) it may receive electrons being transferred from the substance undergoing oxidation. (Chlorine is a good oxidizing agent for electron-transfer purposes, even though it contains no oxygen.) See also Reducing Agent.

Oxygen deficiency - An atmosphere having less than the amount of air required to sustain life; set by OSHA to be 10.5% at sea level. Normal air contains 21% oxygen at sea level.

PA - Preliminary Assessment

PAAT - Public Affairs Assist Team

PAC - Powdered Activated Carbon

PAG - Protective Action Guide or Guidelines

PAH - Polyaromatic Hydrocarbons

PAIR - Preliminary Assessment Information Rule

PAR - Protective Action Recommendation

PAREP - Population At Risk to Environmental Pollutants

PASI - Preliminary Assessment Site Investigation

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PBE - Public Employee

PC - Program Coordinator

PCB - Polychlorinated Biphenyls

PCDF - Polychlorinated Dibenzofurans

PDS - Personnel Decontamination Station

PEARL - Personnel Expertise and Resource Listing (SPMS)

PEL - Permissible Exposure Limit. Established by OSHA. This may be expressed as a time-weighted average (TWA) limit or a ceiling exposure limit that legally must never be exceeded instantaneously even if the TWA exposure limit is not violated. OSHA PELs have the force of law. Note that ACHIH TLVs and NIOSH RESs are recommended exposure limits that may or may not be enacted into law by OSHA.

PEP - Preventive Engineering Practices

PF - Protective Factor

PFLT - Paint Filter Liquids Test

Ph - Potential of Hydrogen - a measure of acidity and alkalinity

pH - The scale 0 to 14 that represents the acidic or basic qualities of an aqueous solution. The most concentrated acids have an excess of H⁺ ions and a pH of 1 to 3. The most concentrated bases have an excess of OH ions and a pH of 11 to 13. Chemicals with a pH in these ranges (less than 3 and greater than 12) are the most corrosive and will cause damage to living tissue. Some acids and bases are also very toxic. See acid, base.

PHRED - Public Health Risk Evaluation Data (a database)

PHS - U.S. Public Health Service

Physical hazard - A chemical which is a combustible liquid, compressed gas, explosive, flammable, organic peroxide, oxidizer, pyrophoric, unstable (reactive) or water-reactive.

PIAT - Public Information Assist Team

PID - Photoionization Detector

PIO - Public Information Office/Officer

PIRG - Public Interest Research Group

P.L. - Public Law

PM - 10-micron Particulate Matter

PMF - Probable Maximum Flood

PMN - Pre-manufacture Notification (TSCA)

PMT - Project Management Team

PNOC - Particulates Not Otherwise Classified (ACGIH)

POC - Point(s) of Contact

POD - Potential Ozone Depletors

POGO - Privately Owned/Government Operated

Poison, Class B - A DOT term for liquid, solid, paste, or semisolid substances other than class A poisons or irritating materials that are known or presumed on the basis of animal tests to be so toxic to man as to afford a hazard to health during transportation.

Polymerization - A chemical reaction in which one or more small molecules combine to form larger molecules. A hazardous polymerization is such a reaction that takes place at a rate that releases large amounts of energy that can cause fires or explosions or burst containers. Materials that can polymerize usually contain inhibitors that can delay the reaction.

Potentiator effect - An effect of two or more chemical agents in the body where one toxic chemical agent triggers a non-toxic chemical agent to be very toxic.

POTWs - Publicly Owned Treatment Works

PPB - Parts per billion

PPBS - Federal Planning, Programming, and Budgeting System

PPE - Personal protective equipment. An engineered barrier between a worker and the environment. Examples are respirators, gloves, and chemical splash goggles.

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PPM - Parts per Million

PPS - U.S. EPA Personnel Protection and Safety

PPT - Parts Per Trillion

PPP - Preparedness and Prevention Plan (RCRA)

PQL - Practical Quantification Limit

PRA - Probabilistic Risk Assessment

Project Team Leader - Reports to upper level management. Has authority to direct response operations. Assumes total control over site activities.

Proprietary substance - A substance identified by a trade name and not its chemical name; the specific chemical identity of a proprietary substance is a trade secret.

PRP - Potential Responsible Parties (related - NPL)

PSD - Prevention of Significant (Air Quality) Deterioration

PSI - Pounds per Square Inch

PSM - Process Safety Management

PSN - Public Sector Network

PSO - Program Senior Official/Program Secretarial Officers

PSTN - Pesticide Safety Team Network. Operated by the National Agricultural Chemicals Association to minimize environmental damage and injury arising from accidental pesticide spills or leaks. PSTN area coordinators in ten regions nationwide are available 24 hours a day to receive pesticide incident notifications from CHEMTREC.

PUF - Polyurethane Foam

Pulmonary - Term used to refer to the lungs.

PURPA - Public Utilities Regulatory Policies Act

PWSS - Public Water Supply System

Pyrophoric - Describes materials that ignite spontaneously in air below 130mF (54mC). Occasionally friction will ignite them.

Q - Quality Factor

QA - Quality Assurance

QAP - Quality Assurance Procedure

QC - Quality Control

QCP - Quality Control Plan

QR - Rate of release of EHS to air.

QS - Maximum quantity of chemical that could be released.

RA - Regional Administrator (EPA)/Remedial Action

RACES - Radio Amateur Civil Emergency Services

RACT - Reasonably Available Control Technology

RAM - Radioactive Material

RAMP - Remedial Action Master Plan

RAMT - Radiological Advisory Medical Team

RANS - Rapid Alert Notification System

RAP - Remedial Action Plan

RAS -Routine Analytical Services

RCA - Root Cause Analysis

RCRA - Resource Conservation and Recovery Act, PL 94-580. Found at 40 CFR 240-271. EPA enforces this law. It became effective November 21, 1976, and has been amended since. RCRA's major emphasis is the control of hazardous waste disposal in operating facilities by tracking the waste from the point it is made (cradle) to its final treatment, storage, or disposal (grave).

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It controls all solid-waste disposal and requires waste minimization and finding alternative energy sources. Also included in this regulation are provisions for remedial or corrective action in facilities that have improperly disposed hazardous waste. Reference: December, 1990. See also CERCLA, SARA.

RD - Remedial Design

RDF - Refuse Derived Fuel

RD/RA - Remedial Design/Remedial Action

Reaction - The interaction which occurs between two or more chemicals resulting in the formation of one or more different chemicals.

Reactivity - Describes a substance's tendency to undergo chemical reaction either by itself or with other materials with the release of energy. A solid waste that exhibits a characteristic of reactivity, as defined by RCRA, may be regulated (by the EPA as a hazardous waste and assigned the number D003).

Reducing agent - A chemical substance that easily gives up electrons to another substance in an oxidation-reduction reaction. One type of oxidation-reduction reaction is a fire.

Regulated carcinogen area - An area where exposure to known or suspect human carcinogens exceed or can reasonably be expected to exceed the action level.

REL - Recommended Exposure Limit

RER - Reentry Recommendation

Respirator - A device which is designed to protect the wearer for inhaling harmful contaminants. There are two main types: (1) air purifying and (2) air supplying.

Respiratory hazard - A particular concentration of an airborne contaminant that, when it enters the body by way of the respirator system or by breathing into the lungs, results in some bodily function impairment.

Respiratory protection equipment - See respirator.

RF - Radio Frequency

RFA - RCRA Facility Assessment

RFI - RCRA Facility Investigation

RFI/RI - RCRA Facility Investigation/Remedial Investigation

RFI/RI-PP - RCRA Facility Investigation/Remedial Investigation Program Plan

RFIPT - RCRA Facility Investigation Program Team

RFIG - RCRA Facility Investigation Program Guidance

RFR - Radio Frequency Radiation

RH - Remote Handled

RI - Remedial Investigation

RIA - Regulatory Impact Analysis

RI/FS - Risk Assessment and Feasibility Studies

Risk - A measure of the probability that damage to life, property, and/or the environment will occur if the hazard manifests itself; this measure includes the severity of anticipated consequences to people.

Risk Analysis - Assessment of the probable damage that may be caused to the community by a hazardous substance release.

RMCL - Recommended Maximum Concentration Limit

RMES - Reasonable Maximum Exposure Scenario

RMET - Raw Materials and Engineering Technology Department of WSRC

RMW - Radioactive Mixed Waste

ROD - Record of Decision (related CERCLA and NPL)

Route of entry - To do bodily damage, a material must come in contact with the body. The method of bodily contact is called the route of entry. The routes of entry are (1) absorption (eye or skin contact); (2) inhalation; (3) ingestion; (4) injection. Inhalation and absorption are the main routes of exposure in the occupational environment.

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RPM - Remedial Project Manager

RPM-TLV - Respirable Particulate Mass Threshold Limit Value
(issued by ACGIH)

RQs - Reportable Quantity. The quantity of a hazardous substance that triggers reporting under CERCLA; if a substance is released in a quantity that exceeds the RQ, the release must be reported to the National Response Center as well as the SERC and community emergency coordinator for areas likely to be affected by the release.

RRC - Regional Response Center

RRF - Regional Response Force

RRT - Regional Response Team (DOE) - Composed of Federal Agencies and a representative from each state in the federal region. During a response to a major hazardous materials incident involving transportation or a fixed facility, the OSC may request that the RRT be convened to provide advice or recommendations in specific issues requiring resolution.

RSD - Risk-Specific Dose

RSO - Radiological Safety Officer/Reported Significant Event

RSPA - Research and Special Programs Administration (DOT and EPA)

RTECS - Registry of Toxic Effects of Chemical Substances (NIOSH)

RTK - Right to Know

RWQCB - Regional Water Quality Control Board

S&E - Screening and Evaluation

S&M - Surveillance and Maintenance

SAB - Science Advisory Board

SADT - Self Accelerating Decomposition Temperature Test

SAR - Safety Analysis Report/Review

SARA - Superfund Amendment and Reauthorization Act. Set in place to support and extend CERCLA. This regulation provides for emergency planning on waste sites, community right-to-know provisions, and training requirements for waste site workers. See CERCLA, RCRA.

SCAP - Superfund Comprehensive Accomplishment Plan

SCBA - Self-Contained Breathing Apparatus

SCLHR - Senate Committee on Labor and Human Resources

SCO - State Coordinating Officer

SCP - NIOSH and OSHA Standards Completion Program

SDI - Strategic Defense Initiative

SDWA - Safe Drinking Water Act (enacted as amendment to the Public Health Service Act)

SEN - Secretary of Energy Notice

Sensitizer - A material that on first exposure causes little or no reaction in humans or test animals, but which on repeated exposure may cause an allergic reaction. Skin sensitization is the most common form.

SENSOR - Sentinel Event Notification System for Occupational Risks

SERC - State Emergency Response Commission (SARA Title III). Commission appointed by each state governor according to the requirements of Title III of SARA; duties of the commission include designating emergency planning districts, appointing local emergency planning committees, supervising and coordinating the activities of planning committees, reviewing emergency plans, receiving chemical release notifications, and establishing procedures for receiving and processing requests from the public for information.

SFA - Sulfuric Acid

SFMP - Surplus Facilities Management Plan

SFPE - Society of Fire Prevention Engineers

SGWC - Site Ground Water Coordinator

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SHD - Sodium Hydroxide

SHERP - Safety, Health and Emergency Response Plan

Short Term Exposure Limit (STEL) - Represented as STEL or TLV-STEL, this is the maximum concentration to which workers can be exposed for a short period of time (15 minutes) for only four times throughout the day with at least 1 hour between exposures (see time weighted average).

SHPO - State Historic Preservation Officer

SI - Site Investigation

SIP - State Implementation Plan

SITE - Superfund Innovative Technology Evaluation

Site Characterization - The process used to determine the hazards at a hazardous waste site. This process includes three phases; off-site characterization - includes old records searches; on-site characterization - includes sampling to identify hazards; on-going monitoring - includes environmental and personnel monitoring for hazard exposure.

Site Control - The process of setting up work zones around a hazardous waste site to control contamination spread and access to the exclusion zone for both worker safety and public health and safety. See exclusion zone, contamination reduction zone, and support zone.

Site Safety Plan - A written document that outlines the hazards associated with a specific job, and what engineering and administrative controls will be in place to protect the workers. See SHERP.

Site Safety Officer - Advises the Project Team Leader on all aspects of health and safety on the site. Recommends work stoppage if any operation threatens worker or public health or safety.

Site Security Officer - Reports to Site Safety Officer. Manages site security.

SITREP - Situation Report

Skin - This designation sometimes appears alongside TLV or PEL. It refers to the possibility of absorption of the particular chemical through the skin and eyes. Thus, protection of large surface areas of skin should be considered to prevent skin absorption so that the threshold limit value is not invalidated.

SM - Standard methods for the Examination of Water and Wastewater

SMCRA - Surface Mine Control and Reclamation Act

SMO - Sample Management Office

SMOA - Superfund Memorandum of Agreement

SMSA - Standard Metropolitan Statistical Area

SNARL - Suggested No Adverse Response Level

SNC - Significant Noncompiler

SNUR - Significant New Use Rule/Regulations

SOCMA - Synthetic Organic Chemical Manufacturers Association (organization)

SOCMI - Synthetic Organic Chemical Industry

SOER - Significant Operating Experience Reports (INPO)

Solubility - The amount of a substance that will dissolve in a given amount of solvent.

Solubility in water - A term expressing the percentage of material (by weight) that will dissolve in water at ambient temperature. Solubility information is useful in determining cleanup methods for spills and fire-extinguishing methods for a material. Solubility is expressed as negligible, less than 0.1%; slight, 0.1 to 1.0%; moderate, 1 to 10%; appreciable, more than 10%; complete, soluble in all proportions. Best units of measure are g/l.

Solvent - A material that can dissolve (reduce to molecular form) other materials to form a uniform mixture. Water is one type of solvent.

SOP - Standard Operating Procedure

SOW - Statement of Work

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SPCC - Spill Prevention, Control and Countermeasures Plan (CWA)

Specific chemical identity - The chemical name, Chemical Abstracts Service registry number, or any other information that reveals the precise chemical designation of the substance.

Specific gravity - An expression of the density of a material. Solids and liquids are compared to water (water = 1), solids and liquids with a specific gravity of less than 1 are less dense and will float on water, greater than 1, more dense than water, and will sink in water. Gases and vapors (also called vapor density) are compared to normal air (air = 1), gases and vapor with a number of less than 1 are less dense than air and will rise in air, greater than 1, more dense than air, and will sink to the floor.

SSI - Site Screening Investigation

Stability - An expression of the ability of a material to remain unchanged. For MSDA purposes a material is stable if it remains in the same form under expected and reasonable conditions of storage or use. Conditions such as temperature above 150mF or shock from being dropped that may cause instability (dangerous change) are stated on the MSDS. See also Unstable.

States of Matter - The physical state: solid, liquid, gas, that a chemical compound will exist at room temperature (20mC or 68mF) and normal air pressure.

SWMU - Solid Waste Management Unit

Synergistic - An effect of two or more toxins in the body that have much worse effect than just adding the effects together.

Synonym - Alternative name by which a material may be known.

Systemic Effect - The effect of a toxin that the body absorbs. These effects are away from the site of first contact. See local effect.

TAG - Technical Assistance Grants

Target organ effects - Chemically caused effects from exposure to a material on specifically listed organs and systems such as the liver, kidneys, nervous system, lungs, skin, and eyes.

TBCs - Other information to be considered.

TC - Toxicity Characteristics

TCA - 1.1.1 = Trichloroethane/Total Constituent Analysis

TCDD - Tetrachlorobenzo-p-dioxin

TCE - Trichloroethylene

TCL - Target Clean-up Levels

TCLP - Toxicity Characteristic Leaching Procedure

TDD - Technical Directive Document

TDI - Toluene Dilsocyanate

TDIS - Technical Data Indexing System

TDS - Total Dissolved Solids

TEAM - Total Exposure Assessment Methodology

TECOM ❖ U.S. Army Test and Evaluation Command

TECP - Totally Encapsulated Chemical Protection (suit)

TEGD - RCRA Groundwater Monitoring Technical Enforcement Guidance Document

Temperature - Several temperature scales are used in the U.S. Two common scales are Centigrade or Celsius, which defines 0m as the melting point of ice and 100m as the boiling point of water, and Fahrenheit, which defines 32m as the melting point of ice and 212m as the boiling point of water. To convert from one to the other: $F=9/5(C+32)$ or $C=5/9(F-32)$.

Teratogen - An agent or substance that may cause physical defects in the developing embryo or fetus when a pregnant female is exposed to that substance.

TEU - U.S. Army Technical Escort Unit

Thermal - Term used to refer to heat.

Threshold - The point at which the effect from some source begins to be produced or the point below which there is no effect.

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Time Weighted Average - The average concentration of a contaminant in the air that is averaged over a given time period, usually 8 hours. This term is used with both PEL (as PEL-TWA or OSHA-TWA) and TLV (as TLV-TWA or ACGIH-TWA).

TIP - Total Ionizables Present (Photo Ionization Detector)

Title III - Emergency Planning and Community Right-to-Know Act of 1986 (Part of SARA).

TL - Threshold Limit

TLD - Thermoluminescent Dosimeters (Badges)

TLV - Threshold Limit Value. A term used to describe exposure levels and used by ACGIH to express the airborne concentration of a material to which nearly all workers can be exposed day after day without adverse effects. Workers means healthy individuals. The young, old, ill, or naturally susceptible will have lower tolerances and need to take additional precautions. ACGIH expressed TLVs in three ways: TLV-TWA, the allowable time-weighted average concentration for a normal 8-hour workday or 40-hour week, TLV-STEL, the short-term exposure limit or maximum concentration for a continuous exposure period of 15 minutes (with a maximum of four such periods per day, with at least 60 minutes between exposure periods, and provided that the daily TLV-TWA is not exceeded); ceiling (c) the concentration that should not be exceeded at any time.

TLV-C - Threshold Limit Value - Ceiling

TLV-TWA - Threshold Limit Value - Time Weighted Average

TOC - Total Organic Carbon

TOX - Total Organic Halogens

Torr - A unit of pressure equal to 1 mmHg (millimeter of Mercury).

Toxic - Describes the ability of a material to injure biological tissue.

Toxicity - All of the adverse biological effects resulting from exposure to a harmful substance.

Toxic substance - Any chemical or material that (1) has evidence of an acute or chronic health hazard; and (2) is listed in the NIOSH Registry of Toxic Effects of Chemical Substances (RTECS), provided that the substance causes harm at any dose level; causes cancer or reproductive effects in animals at any dose level; has a median lethal dose (LD50) of less than 500 mg per kg of body weight when administered orally to rats; has a median LD50 of less than 100 mg per kg of body weight when administered by continuous contact to the bare skin of albino rabbits; or has median lethal concentration (LC50) in air or less than 2000 ppm by volume of gas or vapor, or less than 20 mg per 1 of mist, fume, or dust when administered to albino rats.

TPM-TLV - Thoracic Particulate Mass Threshold Limit Values
(issued by ACGIH)

TPQ - Threshold Planning Quantity. A quantity designated for each chemical on the list of extremely hazardous substances that triggers notification by facilities of the state emergency response commission (SERC) that such facilities are subject to emergency planning under SARA Title III.

TRA - Test Reactor Area

TRADE - Training Resources and Data Exchange

Trade name - A name given to a product by the manufacturer or supplier. It is usually not the chemical name, and the same or similar products can be marketed under different trade names by different companies.

Trade secret - Confidential information (formula, process, device, or compilation of data) that manufacturers may choose to withhold from an MSDS. State laws vary on this practice; some states require a trade secret registration number to be assigned to a material. There are procedures to obtain limited trade secret disclosure in emergency situations.

TRG - Technical Review Group

TSA - Technical Safety Appraisal

TSC - Technical Support Center

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TSCA - Toxic Substances Control Act. Public Law PL 94-469. Found in 40 CFR 700-799. EPA has jurisdiction. Effective January 1, 1977. Controls the exposure to and use of raw industrial chemicals not subject other laws. Chemicals are to be evaluated prior to use and can be controlled based on risk. The act provides for a listing of al chemicals that are to be evaluated prior to manufacture or use in the U.S. (Call the EPA, Industry Assistance Office [202]554-1404.) Refernce: December, 1990.

TSCATS - Toxic Substances Control Act Test Submissions (an indexing system)

TSD - Treatment, Storage, Disposal facility. This is used in conjunction with RCRA regulations.

TSDF - Treatment, Storage, and Disposal Facility

TSP - Total Suspended Particulates

TSS - Total Suspended Solids/Temporary Storage Site

TTO - Total Toxic Organic

TTR - Tonapah Test Range

TWA - Time Weighted Average

TWA-C - Time Weighted Average - Ceiling Limit

TWPL - Total Weighted Pollutant Load

UCR - Unit Carcinogenic Risk

UEL - Upper Explosive Limit. See explosive limits.

UFL - Upper Flammable Limit. See flammable limits.

UIC - Underground Injection Control

UL - Underwriters Laboratory

UN/NA - United Nations/North America

Unstable - Tending toward decomposition or other unwanted chemical change during normal handling or storage. An unstable chemical in its pure state, or as commonly produced or transported, will vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure, or temperature. See also Stability.

UPAC - International Union of Pure and Applied Chemistry

US - Unit Supervisor

USACE - U.S. Army Corps of Engineers

U.S.C. - United States Code

USCG - U.S. Coast Guard

USCS - Unified Soil Classification System

USDA - U.S. Department of Agriculture

USDW - Underground Source of Drinking Water

USFWS - U.S. Fish and wildlife Service

USGS - U.S. Geological Survey

USNRC - U.S. Nuclear Regulatory Commission

UST - Underground Storage Tank

UV - Ultraviolet Light

Vapor - The gaseous state of a material suspended in air that would be a liquid or solid under ordinary conditions.

Vapor density - A term used to describe the specific gravity of gases and vapors. See specific gravity.

Vapor Pressure (VP) - The pressure exerted by a saturated vapor above its own liquid in a closed container. When quality control tests are performed on products, the test temperature is usually 100mF and the vapor pressure is expressed as pounds per square inch (psig or psia). But vapor pressures reported on MSDSs are in mmHg (millimeters of mercury) at 68mF, unless stated otherwise. Three facts are important to remember: (1) vapor pressure of a substance at 100mF will always be higher than the vapor pressure of the substance at 68mF; (2) vapor pressures

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reported on MSDS in mmHg are usually very low pressures; 760 mmHg is equivalent to 14.7 pounds per square inch; (3) the lower the boiling point of a substance, the higher its vapor pressure. Vapor pressures are useful (with evaporation rates) in learning how quickly a material becomes airborne within the workplace and thus how quickly a worker can be exposed to it.

Vaporization rate - Same as evaporation rate.

VDT - Visual Display Terminal

Ventilation - Term used to describe the method by which inside air is circulated. See also general exhaust, local exhaust, and mechanical exhaust.

VEO - Visible Emissions Observation

VHAP - Volatile Hazardous Air Pollutant

Viscosity - Measurement of the flow properties of a material expressed as its resistance to flow. Unit of measurement and temperature are included.

VOC - Volatile Organic Compounds

Volatile - A term used for liquids that evaporate at room temperature. Very volatile liquids, like gasoline, form vapor (evaporate) quickly.

Volatility - Measure of a material's tendency to vaporize or evaporate at ambient routine conditions.

VRO - Variable Resistance Orifice

VSD - Virtually Safe Dose

VZ - Vulnerable Zone. An area over which the airborne concentration of a chemical involved in an accidental release could reach the level of concern (LOC).

WA - Work Assignment

Water-reactive - Describes a material that reacts with water to release a gas that is either flammable or presents a health hazard.

WBGT - Wet Bulb Globe Temperature (Index)

WCAL - Weather Center Analysis Laboratory

WEEL - Workplace Environmental Exposure Level (developed by AIHA)

WERF - Waste Experimental Reduction Facility

WESF - Waste Encapsulation and Storage Facility

WFO - Work For Others

WIN - Waste Information Network

WIND - Weather Information and Display System

Work area - A room or defined space in a workplace where hazardous chemicals are produced or used and where employees are present.

Work zones - The three work zones set up for a hazardous waste site. See exclusion zone, contamination reduction zone, and support zone.

WPCF - Water Pollution Control Federation (organization)

WQS - Water Quality Standards

WRDA - Water Resources Development Act

WRITE - Waste Reduction Innovative Technology Evaluation (EPA)

WTE - Waste to Energy

ZHE - Zero Headspace Extraction Vessel

Z list - OSHA list of hazardous chemicals (29 CFR 1910 Subpart Z, Worker Right to Know)