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3 CHEMICAL WASTE ACCUMULATION AND 4 DISPOSAL AT NIST-GAITHERSBURG

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7 NIST S 7301.06

8 Approval Date: 01/12/2021

9 Effective Date:¹04/01/2020

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12 1. PURPOSE

13 This suborder defines the requirements for accumulation and disposal of chemical waste at
14 the NIST-Gaithersburg site.²

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17 2. BACKGROUND

18 a. NIST generates a large quantity, and variety, of chemical wastes from laboratory and support
19 activities. Chemical wastes include unwanted, spent, or expired solvents; corrosives; toxics;
20 other hazardous liquids and solids; oils; coolants; and batteries. Some chemical wastes are
21 considered hazardous and some non-hazardous (as defined in 40 CFR 260), but all must be
22 managed appropriately from the initial generation to the final disposal.

23

24 b. At the NIST-Gaithersburg site, chemical wastes are regulated by:

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26 (1) U.S. Environmental Protection Agency (EPA) via the Code of Federal Regulations
27 (CFR), [40 CFR Parts 260 through 279](#); and

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29 (2) Maryland Department of the Environment (MDE) via the Code of Maryland Regulations
30 (COMAR), Title 26, Subtitle 13.

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¹ For revision history, see Appendix A.

² Due to differing regulatory requirements for the NIST-Boulder site, a parallel suborder (NIST S 7301.07) has been prepared to define the chemical waste accumulation/disposal requirements for the Boulder site. NIST employees at the Hollings Marine Laboratory, the Institute for Bioscience and Biotechnology Research, or other facilities that are not managed by NIST shall comply with the chemical waste disposal procedures implemented by the organization managing that facility.

32 c. The NIST-Gaithersburg site has been authorized to generate hazardous waste through the
33 issuance of a facility-specific U.S. EPA hazardous waste generator identification number:
34 MD5131531811. Based on U.S. EPA and MDE criteria, the NIST-Gaithersburg site is
35 designated as a “Large Quantity Generator” (LQG) of hazardous waste, and as such,
36 regulations specific to LQGs apply.
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39 **3. APPLICABILITY**

40 This suborder applies to all activities at the NIST-Gaithersburg site that generate chemical
41 wastes.³
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44 **4. REFERENCES**

- 45 a. [40 CFR Parts 260 through 265](#)
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47 b. [40 CFR Parts 266 through 279](#)
48
49 c. [COMAR Title 26, Subtitle 13](#)
50
51 d. [Department of Commerce – Energy and Environmental Management Manual, September](#)
52 [2012](#)
53
54 e. Hazardous Waste Management Plan for the NIST Gaithersburg site, August 2012
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56 f. Hazardous Waste Contingency Plan and Emergency Procedures for the NIST Gaithersburg
57 Site, July 2018.
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60 **5. APPLICABLE NIST OCCUPATIONAL SAFETY AND HEALTH SUBORDERS**

- 61 a. NIST S 7101.20: *Work and Worker Authorization Based on Hazard Reviews*
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63 b. NIST S 7101.23: *Safety Education and Training*
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65 c. NIST S 7101.60: *Chemical Management*
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67 d. NIST S 7101.50: *Biosafety*
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³ Biological waste disposal is also managed through the chemical waste pick request system. For specific information on the requirements for biological waste see [NIST S 7101.50: Biosafety](#).

- 69 e. NIST S 7301.01: *Environmental Management System*
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71 f. NIST S 7301.05: *Oil Storage and Handling Boulder*, [Oil Storage and Handling Gaithersburg](#)
72 (in development)
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74 g. NIST S 7101.51: *Bloodborne Pathogens*
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76 h. NIST S 7101.59: *Chemical Hazard Communication*
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78 i. NIST S 7101.54: *Dispersible Engineered Nanomaterials*
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80 j. NIST S 7101.61: *Compressed Gas Safety*
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83 **6. REQUIREMENTS**

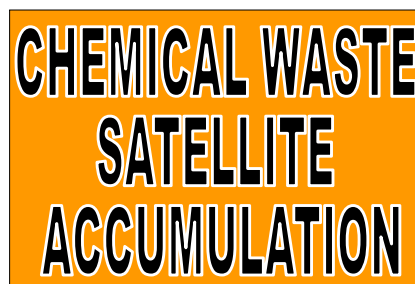
84 a. General

- 85
86 (1) NIST shall maintain full and consistent compliance with all regulatory requirements
87 (described in this suborder) regarding the generation, accumulation, and disposal of
88 chemical wastes.
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90 (2) No chemical waste shall be released to sanitary sewer drains or storm water drains
91 without review and approval by the NIST Gaithersburg Safety, Health, and Environment
92 Division, Environmental Management Group (EMG). Contact EMG at x5375, option 3
93 with any questions.
94
95 (3) No hazardous chemical waste shall intentionally be disposed by evaporation. In the
96 handling and transfer of hazardous chemicals some chemical vapor is expected to be
97 released. The vapors generated from chemical reactions should be released to a chemical
98 fume hood exhaust. However, evaporation shall not be an intended means of disposal for
99 hazardous chemicals.
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101 (4) NIST shall maintain the proper controls, equipment, and employee training to prevent or
102 mitigate chemical waste incidents.
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104 (5) NIST shall routinely assess chemical use to identify opportunities to minimize hazardous
105 waste production through reuse, recycling, inventory control, and, as feasible,
106 substitution of non-hazardous alternative chemicals. This shall initially be accomplished
107 in the hazard review process (NIST S 7101.20: *Work and Worker Authorization Based on*
108 *Hazard Reviews*).

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b. Chemical Waste Accumulation - Satellite Accumulation Area

- (1) All NIST work areas that routinely⁴ generate chemical wastes shall establish Satellite Accumulation Areas (SAA; see Section 7, Definitions).
- (2) An SAA does not need to be established for the pick-up of non-routine wastes.
- (3) Chemical waste generated in a work area (e.g., laboratory) should remain in that work area and be accumulated in an SAA until picked-up for disposal
- (4) All SAAs shall meet the following requirements:
 - (a) The location of the SAA shall be identified by signage in the work area (available free in the NIST Gaithersburg Storeroom).
 - (b) The SAA shall be included in an inventory of SAAs maintained by EMG (x5375, Option 3)⁵.
 - (c) The SAA shall be located (within the work area) to facilitate the safe storage of the chemical wastes (e.g., flammable wastes may need to be stored in a flammable cabinet; volatile wastes may need to be stored in a ventilated cabinet).
 - (d) Secondary containment shall be provided for waste containers stored at an SAA to control leaks or spills. The capacity of the secondary containment shall be sufficient to contain the quantity of the largest single container stored in the containment.
 - (e) Incompatible chemical wastes shall be kept segregated into separate containers and in separate secondary containment bins. Ideally, incompatible materials should be maintained in separate chemical cabinets. Chemical compatibility references are included in NIST S 7101.60: *Chemical Management*.
 - (f) An SAA manager shall be designated for each SAA. The SAA manager shall be an individual who generates chemical waste in the work area in which the SAA is located.



⁴ "Routine" generation of chemical waste is the consistent production of chemical waste such that it will need to be turned in for disposal at least once per year.

⁵ Report new SAAs to the EMG by calling (x5373, Option 3) or emailing with the following information: the SAA location (building and room number), name of SAA manager, OU and Group.

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c. Hazardous/Non-Hazardous Waste Determination

- (1) Chemical waste owners shall designate each chemical that is being disposed as either “Hazardous” or “Non-Hazardous” waste at the time and place where the chemical waste is generated.
- (2) Each waste container shall be labeled according to the requirements of Section 6.d.(5) below.
- (3) The determination of “Hazardous” or “Non-Hazardous” shall be made based on the following guidance:
 - (a) Most general laboratory chemicals (*e.g.*, solvents, acids, bases, reactives) are considered Hazardous Wastes when disposed.
 - (b) Any chemical waste that is ignitable, corrosive, reactive, or toxic as defined in [40 CFR 261.20](#) is considered Hazardous Waste.
 - (c) Any chemical included in U.S. EPA Hazardous Waste Lists ([40 CFR 261.30, F, K, P and U lists](#)) is considered a Hazardous Waste when disposed.
 - (d) Any product that is considered a hazardous chemical under the Chemical Hazard Communication Program should be considered a hazardous waste when disposed.
 - (e) The concentration of a hazardous chemical in solution can affect the hazardous/non-hazardous waste determination. However, for general disposal purposes, consider any concentration of a hazardous chemical to be a hazardous waste. Indicate the estimated concentration of each constituent on the waste label. Contact the EMG (x5373, Option 3) to discuss exceptions.
 - (f) For acids and bases, consider any solution with a pH of ≤ 2 or ≥ 12 to be hazardous. Only appropriate, non-hazardous, solutions with a pH ≥ 6 and ≤ 10 may be disposed in sink drains. The EMG must be contacted (x5375, option 3) prior to releasing any chemicals to a sink drain.
 - (g) Common non-hazardous chemical wastes include uncontaminated pump oils, motor oils, and glycols.

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d. Chemical Waste Containers

(1) Chemical wastes shall be placed in containers made of materials compatible with the wastes.

(2) Chemical waste containers shall be in good condition and have screw-on caps.

(3) Chemical waste containers typically must be sealed with a cap when not actively being filled.

However, if the chemical wastes in a container are reacting in a manner that will cause a sealed container to over pressurize (i.e., evolving heat or vapor), the waste container shall be left open and in a fume hood until the reaction is substantially complete (i.e., no longer evolving heat or vapor). Additionally, pressure relief caps are available that can seal the container and release some pressure from the container.

(4) Chemical waste containers shall not be over-filled.

(a) Free space (head space or ullage) of 10 percent shall be left when filling waste containers.

(5) One of the following labels (available free in the NIST Gaithersburg Storeroom), or equivalent, shall be affixed to each waste container.

NIST HAZARDOUS WASTE	
Waste Name:	
Waste Constituents <small>(chemical names (no acronyms or formulas))</small>	Volume <small>(%)</small>
Waste Hazards (check all that apply and describe other hazards)	
<input type="checkbox"/> Explosive	<input type="checkbox"/> Acute Toxin
<input type="checkbox"/> Flammable	<input type="checkbox"/> Carcinogen
<input type="checkbox"/> Pyrophoric	<input type="checkbox"/> Reproductive Toxin
<input type="checkbox"/> Oxidizer	<input type="checkbox"/> Corrosive
<input type="checkbox"/> Gas Under Pressure	<input type="checkbox"/> Irritant
	<input type="checkbox"/> Skin Sensitizer
Other:	
Waste Owner: <small>(name, phone #)</small>	
Waste Location: <small>(building, room)</small>	

NIST NON-HAZARDOUS WASTE	
Waste Name:	
Waste Constituents <small>(chemical names (no acronyms or formulas))</small>	Volume <small>(%)</small>
Additional Information:	
Waste Owner: <small>(name, phone #)</small>	
Waste Location: <small>(building, room)</small>	

NIST Environmental Management Group: 301-975-5375 (Opt. 3)

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The waste labels shall include:

- (a) An indication that the container holds hazardous or non-hazardous waste;
- (b) The waste name/identifier
- (c) A list of all constituents of the waste;
- (d) An estimate of the percent volume of each constituent;
- (e) For hazardous waste, a description of the hazards associated with the waste;
- (f) Contact information for the individual generating the waste; and
- (g) The waste accumulation location.

(5) Chemical Waste Labels shall be affixed to the waste container at the time that any waste is first added to the container.

(6) The volume of hazardous waste accumulated at an SAA shall be limited to a maximum of 55 gallons. If this maximum quantity is reached, the waste must be removed from the SAA immediately. Contact EMG (x5375, option 3) at least one week prior to reaching a maximum quantity.

(7) The volume of acutely hazardous waste (see Appendix B) accumulated at an SAA shall be limited to a maximum of 1 quart. If this maximum quantity is reached, the waste must be removed from the SAA immediately. Contact EMG (x5375, option 3) at least one week prior to reaching a maximum quantity.

(8) Reusable waste containers, such as “Safety Cans,” are acceptable for the accumulation of some chemical waste (e.g., general organic solvents). Contact EMG at x5375, Option 3 with questions.

(9) In addition to Chemical Waste Labels, reusable containers should have the work area location (building and room number) written in permanent marker on the container so the container can be returned after it has been emptied.

250 (10) Chemical storage requirements (e.g. maximum storage capacities for flammables)
251 specified in the NIST Flammable Liquids Safe Work Practices shall also apply to
252 chemical wastes.

253 e. Empty Chemical Containers⁶

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255 (1) Empty chemical containers shall be handled by the following options:

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257 (a) Empty containers that held laboratory chemicals shall be turned in as chemical waste;
258 the caps shall be left on the empty containers, and “Empty” shall be written across the
259 container labels using a heavy black marker; or

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261 (b) Empty chemical containers shall be reused to collect chemical wastes that are
262 compatible with the original contents of the container and the container material; the
263 containers shall be labeled as “Hazardous” or “Non-hazardous Waste”, per Section
264 6.d.(5) above.

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266 (c) Due to the residual hazards, containers that held acutely hazardous waste (Appendix
267 B) shall be labeled and turned in as “Hazardous Waste” or reused only to contain the
268 original chemical.

269

270 (d) Empty containers that held common commercial products (e.g. cleaners, polishes,
271 beverages) may be disposed with regular trash. If there is any concern about a
272 commercial container it may also be turned in as chemical waste.

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274 f. Removing Chemical Waste from NIST Gaithersburg Work Areas – Chemical Waste Pick-
275 Ups⁷

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277 (1) In Gaithersburg, **chemical waste pick-up requests** shall be submitted using an online
278 form on the NIST intranet at <https://nistsafety.nist.gov/CWP/PickupRequest/>.

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280 (2) Pick-up requests shall include:

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282 (a) The name of the chemical waste owner;

283

284 (b) The location of the chemical waste;

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⁶ A chemical container is considered empty when no chemical can be removed from the container by normal physical means (e.g. pouring, aspirating, or draining).

⁷ EMG routinely picks up chemical waste from NIST Gaithersburg work areas once per week.

- 286 (c) A description of the waste and any significant hazards associated with the waste or
287 container;
288
289 (d) The number of containers and total quantity of waste being disposed; and
290 (e) Entry procedures, if any, required for EMG to enter the work space and pick-up the
291 waste.
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293 (3) Chemical waste owners shall schedule waste pick-ups as-needed to minimize the risks of
294 accumulating chemical wastes for extended periods of time.⁸
295
296 (4) In general, chemical waste should not remain in storage at an SAA for more than one
297 year.
298
299 (5) If chemical waste needs to be removed immediately, EMG shall be contacted at x5375,
300 option 3.
301
302 (6) If an unlabeled container with unknown contents is found, EMG shall be contacted
303 directly (x5375, option 3) to assist with identifying and disposing of the container.
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305 g. Emergency Response
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- 307 (1) Any NIST employee or covered associate⁹ who discovers an emergency situation (*e.g.*,
308 significant spill or release, pressurized container) associated with chemicals or chemical
309 waste shall immediately report it to the NIST-Gaithersburg Fire Protection Group at
310 x2222.
311
312 (2) Emergency response procedures related to chemical and chemical waste incidents are
313 described further in NIST S 7101.60: *Chemical Management* and the NIST-Gaithersburg
314 Hazardous Waste Contingency Plan.
315

316 h. Pollution Prevention
317

- 318 (1) NIST employees and covered associates shall strive to minimize the chemical wastes
319 generated in the conduct of their work.
320

321 i. Training

⁸ The hazards of a chemical or chemical waste determine the safe storage time, *e.g.*, some peroxide forming chemicals may require disposal after only 3 months of storage.

⁹ Any associate other than a non-research-and-development contractor. For detailed definitions of “Associate”, “Covered Associate”, and “Non-R&D Contractor”, see [NIST O 7100.01, Occupational Safety and Health Management System](#).

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(1) Training shall be provided, documented, and recorded in accordance with the requirements of the NIST S 7101.23: *Safety Education and Training*.

(2) All NIST employees and covered associates who generate chemical waste shall complete the training provided by OSHE on chemical waste accumulation and disposal.

7. DEFINITIONS

- a. Hazardous Waste – A waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment. Strict regulatory criteria that define a hazardous waste are included in 40 CFR 261.
- b. Chemical Waste – A general term used for both hazardous (e.g. acids, solvents) and non-hazardous (e.g., oils, coolants) wastes.
- c. Satellite Accumulation Area – An area designated for the accumulation of hazardous waste that is located at, or near, the point of the waste generation, and is under the control of an individual responsible for the waste.
- d. Satellite Accumulation Area Manager – The OU-assigned individual responsible for maintaining a Satellite Accumulation Area (SAA). The SAA manager shall be an individual who generates chemical waste in the work area in which the SAA is located.

8. ACRONYMS

- a. CFR – Code of Federal Regulations
- b. COMAR – Code of Maryland Regulations
- c. DOC – Department of Commerce
- d. EMG – Environmental Management Group; Gaithersburg Safety, Health, and Environment Division; Office of Safety, Health, and Environment
- e. EPA – U.S. Environmental Protection Agency
- f. LQG – Large quantity generator of hazardous waste
- g. MDE – Maryland Department of the Environment

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h. SAA – Satellite Accumulation Area for chemical waste

9. RESPONSIBILITIES

Roles and responsibilities common to all NIST OSH suborders can be found in Section 8 of NIST O 7101.00: Occupational Safety and Health Management System. The roles and responsibilities specific to this suborder are as follows.

a. OU Directors are responsible for:

- (1) Establishing implementing policies and procedures, as needed, for the requirements of this suborder to be met;
- (2) Ensuring subordinate managers have the authority, resources, and training needed to implement OU-established policies and procedures; and
- (3) Using OU funds to pay any civil penalties identified in regulatory inspections and resulting from regulatory violations in their respective OUs.

b. Division Chiefs and Group Leaders (or Equivalent) are responsible for:

- (1) Implementing this suborder as it applies to activities involving their personnel and space in accordance with any applicable OU-established policies and procedures, and
- (2) Ensuring that all individuals that use an SAA are properly trained.

c. Satellite Accumulation Area Managers are responsible for:

- (1) Ensuring that chemical wastes in their SAA meet the requirements of this suborder.

d. NIST Employees and Covered Associates Who Generate Chemical Waste are responsible for:

- (1) Completing the training required by this program and their OUs/divisions and working in accordance with that training;
- (2) Handling chemical wastes produced in their work areas in accordance with their training and the requirements of this suborder;

- 402 (3) Knowing the hazards of the chemical waste in their work area; and
403
- 404 (4) Directing any questions regarding the hazards of a waste or proper handling of a chemical
405 waste during the generation and accumulation to EMG at x5375, Option 3.
- 406 e. EMG Leader is responsible for:
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- 408 (1) Maintaining a current Hazardous Waste Management Plan, including hazardous waste
409 disposal procedures, and a Hazardous Waste Contingency Plan for the NIST
410 Gaithersburg site;
- 411
- 412 (2) Ensuring that:
- 413
- 414 (a) EMG staff members maintain their training in Hazardous Waste Operations (29 CFR
415 1910), Hazardous Waste Management (40 CFR 265), and Hazardous Materials (49
416 CFR 172);
- 417
- 418 (b) Hazardous waste management support contracts are maintained and properly
419 managed;
- 420
- 421 (c) As chemical waste is picked up from NIST work areas, determinations are made of
422 required waste codes and packaging for each specific waste in accordance with 40
423 CFR 260 and COMAR 26.13;
- 424
- 425 (d) After being picked up, all chemical waste is transported directly to Building 312 for
426 processing, consolidation, and packaging;
- 427
- 428 (e) Chemical waste remains in temporary storage at Building 312 for no longer than 90
429 days; and
- 430
- 431 (f) All chemical waste is shipped from Building 312 to licensed hazardous waste
432 treatment, storage, or disposal facilities, or, as appropriate, recycling facilities.
- 433
- 434 (3) Maintaining an inventory of NIST Gaithersburg SAAs;
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- 436 (4) Acting as the NIST point of contact with regulatory agencies for chemical waste issues;
- 437
- 438 (5) Ensuring that training on this suborder is available and meets the needs of NIST;
- 439
- 440 (6) Providing consultation to NIST employees and covered associates in regard to chemical
441 waste issues;

- 442
443 (7) Conducting annual audits of this program to ensure regulatory compliance;
444
445 (8) Providing support to the Fire Protection Group in responding to chemical/chemical waste
446 incidents; and
447
448 (9) Purchasing and maintaining the appropriate spill response equipment and supplies for
449 chemicals/chemical wastes accumulated at the NIST Gaithersburg site
450
451 f. Fire Protection Group Leader, Emergency Services Office is responsible for:
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453 (1) Ensuring that Fire Protection Group staff members maintain their training in Hazardous
454 Waste Operations (29 CFR 1910) and as Hazardous Materials Technicians certified by
455 the Maryland Fire Services Personnel Qualifications Board;
456
457 (2) Ensuring that the Fire Protection Group is prepared for and effectively responds to
458 chemical incidents; and
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460 (3) Maintaining a sufficient inventory of emergency response equipment and supplies to
461 address all potential chemical incidents at the NIST-Gaithersburg site.
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464 **10. AUTHORITIES**

465 There are no authorities specific to this suborder alone.
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468 **11. DIRECTIVE OWNER**

469 Chief Safety Officer
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472 **12. APPENDICES**

473 A. Revision History

474 B. List of Acutely Hazardous Wastes
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Appendix A. Revision History

Revision No.	Approval Date	Responsible Person	Effective Date	Brief Description of Change; Rationale
0	12/21/16		12/21/16	None – Initial document
1	07/31/19	TBD	04/01/20	<ul style="list-style-type: none">• Clarification regarding disposal of hazardous waste through evaporation.• Updated procedures on hazardous waste determination (hazardous/non-hazardous) and labelling.• Minor edits updating the document.
2	1/12/2021	April Camenisch	1/12/21	<ul style="list-style-type: none">• Updated Suborder links.

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Appendix B. U.S. EPA Acutely Hazardous Wastes

U.S. EPA Hazardous Waste No.	Chemical Abstracts No.	Substance
P023	107-20-0	Acetaldehyde, chloro-
P002	591-08-2	Acetamide, N-(aminothioxomethyl)-
P057	640-19-7	Acetamide, 2-fluoro-
P058	62-74-8	Acetic acid, fluoro-, sodium salt
P002	591-08-2	1-Acetyl-2-thiourea
P003	107-02-8	Acrolein
P070	116-06-3	Aldicarb
P203	1646-88-4	Aldicarb sulfone.
P004	309-00-2	Aldrin
P005	107-18-6	Allyl alcohol
P006	20859-73-8	Aluminum phosphide (R,T)
P007	2763-96-4	5-(Aminomethyl)-3-isoxazolol
P008	504-24-5	4-Aminopyridine
P009	131-74-8	Ammonium picrate (R)
P119	7803-55-6	Ammonium vanadate
P099	506-61-6	Argentate(1-), bis(cyano-C)-, potassium
P010	7778-39-4	Arsenic acid H ₃ AsO ₄
P012	1327-53-3	Arsenic oxide As ₂ O ₃
P011	1303-28-2	Arsenic oxide As ₂ O ₅
P011	1303-28-2	Arsenic pentoxide
P012	1327-53-3	Arsenic trioxide
P038	692-42-2	Arsine, diethyl-
P036	696-28-6	Arsonous dichloride, phenyl-
P054	151-56-4	Aziridine
P067	75-55-8	Aziridine, 2-methyl-
P013	542-62-1	Barium cyanide
P024	106-47-8	Benzenamine, 4-chloro-
P077	100-01-6	Benzenamine, 4-nitro-
P028	100-44-7	Benzene, (chloromethyl)-
P042	51-43-4	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-
P046	122-09-8	Benzenethanamine, alpha,alpha-dimethyl-
P014	108-98-5	Benzenethiol

Appendix B. U.S. EPA Acutely Hazardous Wastes

P127	1563-66-2	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate.
P188	57-64-7	Benzoic acid, 2-hydroxy-, compd. with (3a <i>S</i> - <i>cis</i>)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3- <i>b</i>]indol-5-yl methylcarbamate ester (1:1).
P001	181-81-2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, & salts, when present at concentrations greater than 0.3%
P028	100-44-7	Benzyl chloride
P015	7440-41-7	Beryllium powder
P017	598-31-2	Bromoacetone
P018	357-57-3	Brucine
P045	39196-18-4	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[(methylamino)carbonyl] oxime
P021	592-01-8	Calcium cyanide
P021	592-01-8	Calcium cyanide Ca(CN) ₂
P189	55285-14-8	Carbamic acid, [(dibutylamino)- thio]methyl-, 2,3-dihydro-2,2-dimethyl- 7-benzofuranyl ester.
P191	644-64-4	Carbamic acid, dimethyl-, 1-[(dimethyl-amino)carbonyl]- 5-methyl-1H- pyrazol-3-yl ester.
P192	119-38-0	Carbamic acid, dimethyl-, 3-methyl-1- (1-methylethyl)-1H- pyrazol-5-yl ester.
P190	1129-41-5	Carbamic acid, methyl-, 3-methylphenyl ester.
P127	1563-66-2	Carbofuran.
P022	75-15-0	Carbon disulfide
P095	75-44-5	Carbonic dichloride
P189	55285-14-8	Carbosulfan.
P023	107-20-0	Chloroacetaldehyde
P024	106-47-8	p-Chloroaniline
P026	5344-82-1	1-(o-Chlorophenyl)thiourea
P027	542-76-7	3-Chloropropionitrile
P029	544-92-3	Copper cyanide
P029	544-92-3	Copper cyanide Cu(CN)
P202	64-00-6	m-Cumenyl methylcarbamate.
P030		Cyanides (soluble cyanide salts), not otherwise specified
P031	460-19-5	Cyanogen
P033	506-77-4	Cyanogen chloride
P033	506-77-4	Cyanogen chloride (CN)Cl
P034	131-89-5	2-Cyclohexyl-4,6-dinitrophenol
P016	542-88-1	Dichloromethyl ether

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P036	696-28-6	Dichlorophenylarsine
P037	60-57-1	Dieldrin
P038	692-42-2	Diethylarsine
P041	311-45-5	Diethyl-p-nitrophenyl phosphate
P040	297-97-2	O,O-Diethyl O-pyrazinyl phosphorothioate
P043	55-91-4	Diisopropylfluorophosphate (DFP)
P004	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa- chloro-1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-
P060	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa- chloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-
P037	60-57-1	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-
P051	¹ 72-20-8	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-, & metabolites
P044	60-51-5	Dimethoate
P046	122-09-8	alpha,alpha-Dimethylphenethylamine
P191	644-64-4	Dimetilan.
P047	¹ 534-52-1	4,6-Dinitro-o-cresol, & salts
P048	51-28-5	2,4-Dinitrophenol
P020	88-85-7	Dinoseb
P085	152-16-9	Diphosphoramidate, octamethyl-
P111	107-49-3	Diphosphoric acid, tetraethyl ester
P039	298-04-4	Disulfoton
P049	541-53-7	Dithiobiuret
P185	26419-73-8	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O- [(methylamino)-carbonyl]oxime.
P050	115-29-7	Endosulfan
P088	145-73-3	Endothall
P051	72-20-8	Endrin
P051	72-20-8	Endrin, & metabolites
P042	51-43-4	Epinephrine
P031	460-19-5	Ethanedinitrile
P194	23135-22-0	Ethanimidothioic acid, 2-(dimethylamino)-N-[[[(methylamino) carbonyl]oxy]-2-oxo-, methyl ester.

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P066	16752-77-5	Ethanimidothioic acid, N-[[[(methylamino)carbonyl]oxy]-, methyl ester
P101	107-12-0	Ethyl cyanide
P054	151-56-4	Ethyleneimine
P097	52-85-7	Famphur
P056	7782-41-4	Fluorine
P057	640-19-7	Fluoroacetamide
P058	62-74-8	Fluoroacetic acid, sodium salt
P198	23422-53-9	Formetanate hydrochloride.
P197	17702-57-7	Formparanate.
P065	628-86-4	Fulminic acid, mercury(2 +) salt (R,T)
P059	76-44-8	Heptachlor
P062	757-58-4	Hexaethyl tetraphosphate
P116	79-19-6	Hydrazinecarbothioamide
P068	60-34-4	Hydrazine, methyl-
P063	74-90-8	Hydrocyanic acid
P063	74-90-8	Hydrogen cyanide
P096	7803-51-2	Hydrogen phosphide
P060	465-73-6	Isodrin
P192	119-38-0	Isolan.
P202	64-00-6	3-Isopropylphenyl N-methylcarbamate.
P007	2763-96-4	3(2H)-Isoxazolone, 5-(aminomethyl)-
P196	15339-36-3	Manganese, bis(dimethylcarbomodithioato-S,S')-,
P196	15339-36-3	Manganese dimethyldithiocarbamate.
P092	62-38-4	Mercury, (acetato-O)phenyl-
P065	628-86-4	Mercury fulminate (R,T)
P082	62-75-9	Methanamine, N-methyl-N-nitroso-
P064	624-83-9	Methane, isocyanato-
P016	542-88-1	Methane, oxybis[chloro-
P112	509-14-8	Methane, tetranitro- (R)
P118	75-70-7	Methanethiol, trichloro-
P198	23422-53-9	Methanimidamide, N,N-dimethyl-N'-[3-[[[(methylamino)-carbonyl]oxy]phenyl]-, monohydrochloride.
P197	17702-57-7	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[[[(methylamino)carbonyl]oxy]phenyl]-

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P050	115-29-7	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide
P059	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
P199	2032-65-7	Methiocarb.
P066	16752-77-5	Methomyl
P068	60-34-4	Methyl hydrazine
P064	624-83-9	Methyl isocyanate
P069	75-86-5	2-Methylactonitrile
P071	298-00-0	Methyl parathion
P190	1129-41-5	Metolcarb.
P128	315-8-4	Mexacarbate.
P072	86-88-4	alpha-Naphthylthiourea
P073	13463-39-3	Nickel carbonyl
P073	13463-39-3	Nickel carbonyl Ni(CO) ₄ , (T-4)-
P074	557-19-7	Nickel cyanide
P074	557-19-7	Nickel cyanide Ni(CN) ₂
P075	¹ 54-11-5	Nicotine, & salts
P076	10102-43-9	Nitric oxide
P077	100-01-6	p-Nitroaniline
P078	10102-44-0	Nitrogen dioxide
P076	10102-43-9	Nitrogen oxide NO
P078	10102-44-0	Nitrogen oxide NO ₂
P081	55-63-0	Nitroglycerine (R)
P082	62-75-9	N-Nitrosodimethylamine
P084	4549-40-0	N-Nitrosomethylvinylamine
P085	152-16-9	Octamethylpyrophosphoramidate
P087	20816-12-0	Osmium oxide OsO ₄ , (T-4)-
P087	20816-12-0	Osmium tetroxide
P088	145-73-3	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
P194	23135-22-0	Oxamyl.
P089	56-38-2	Parathion
P034	131-89-5	Phenol, 2-cyclohexyl-4,6-dinitro-
P048	51-28-5	Phenol, 2,4-dinitro-
P047	¹ 534-52-1	Phenol, 2-methyl-4,6-dinitro-, & salts

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P020	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-
P009	131-74-8	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P128	315-18-4	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester).
P199	2032-65-7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate
P202	64-00-6	Phenol, 3-(1-methylethyl)-, methyl carbamate.
P201	2631-37-0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate.
P092	62-38-4	Phenylmercury acetate
P093	103-85-5	Phenylthiourea
P094	298-02-2	Phorate
P095	75-44-5	Phosgene
P096	7803-51-2	Phosphine
P041	311-45-5	Phosphoric acid, diethyl 4-nitrophenyl ester
P039	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester
P094	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester
P044	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
P043	55-91-4	Phosphorofluoridic acid, bis(1-methylethyl) ester
P089	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester
P040	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
P097	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester
P071	298-00-0	Phosphorothioic acid, O,O,-dimethyl O-(4-nitrophenyl) ester
P204	57-47-6	Physostigmine.
P188	57-64-7	Physostigmine salicylate.
P110	78-00-2	Plumbane, tetraethyl-
P098	151-50-8	Potassium cyanide
P098	151-50-8	Potassium cyanide K(CN)
P099	506-61-6	Potassium silver cyanide
P201	2631-37-0	Promecarb
P070	116-06-3	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime
P203	1646-88-4	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-[(methylamino)carbonyl] oxime.
P101	107-12-0	Propanenitrile
P027	542-76-7	Propanenitrile, 3-chloro-

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P069	75-86-5	Propanenitrile, 2-hydroxy-2-methyl-
P081	55-63-0	1,2,3-Propanetriol, trinitrate (R)
P017	598-31-2	2-Propanone, 1-bromo-
P102	107-19-7	Propargyl alcohol
P003	107-02-8	2-Propenal
P005	107-18-6	2-Propen-1-ol
P067	75-55-8	1,2-Propylenimine
P102	107-19-7	2-Propyn-1-ol
P008	504-24-5	4-Pyridinamine
P075	¹ 54-11-5	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts
P204	57-47-6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-.
P114	12039-52-0	Selenious acid, dithallium(1 +) salt
P103	630-10-4	Selenourea
P104	506-64-9	Silver cyanide
P104	506-64-9	Silver cyanide Ag(CN)
P105	26628-22-8	Sodium azide
P106	143-33-9	Sodium cyanide
P106	143-33-9	Sodium cyanide Na(CN)
P108	¹ 57-24-9	Strychnidin-10-one, & salts
P018	357-57-3	Strychnidin-10-one, 2,3-dimethoxy-
P108	¹ 57-24-9	Strychnine, & salts
P115	7446-18-6	Sulfuric acid, dithallium(1 +) salt
P109	3689-24-5	Tetraethyldithiopyrophosphate
P110	78-00-2	Tetraethyl lead
P111	107-49-3	Tetraethyl pyrophosphate
P112	509-14-8	Tetranitromethane (R)
P062	757-58-4	Tetraphosphoric acid, hexaethyl ester
P113	1314-32-5	Thallic oxide
P113	1314-32-5	Thallium oxide Tl ₂ O ₃
P114	12039-52-0	Thallium(I) selenite
P115	7446-18-6	Thallium(I) sulfate
P109	3689-24-5	Thiodiphosphoric acid, tetraethyl ester
P045	39196-18-4	Thiofanox

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P049	541-53-7	Thioimidodicarbonic diamide $[(H_2 N)C(S)]_2 NH$
P014	108-98-5	Thiophenol
P116	79-19-6	Thiosemicarbazide
P026	5344-82-1	Thiourea, (2-chlorophenyl)-
P072	86-88-4	Thiourea, 1-naphthalenyl-
P093	103-85-5	Thiourea, phenyl-
P185	26419-73-8	Tirpate.
P123	8001-35-2	Toxaphene
P118	75-70-7	Trichloromethanethiol
P119	7803-55-6	Vanadic acid, ammonium salt
P120	1314-62-1	Vanadium oxide $V_2 O_5$
P120	1314-62-1	Vanadium pentoxide
P084	4549-40-0	Vinylamine, N-methyl-N-nitroso-
P001	181-81-2	Warfarin, & salts, when present at concentrations greater than 0.3%
P205	137-30-4	Zinc, bis(dimethylcarbamo-dithioato-S,S')-,
P121	557-21-1	Zinc cyanide
P121	557-21-1	Zinc cyanide $Zn(CN)_2$
P122	1314-84-7	Zinc phosphide $Zn_3 P_2$, when present at concentrations greater than 10% (R,T)
P205	137-30-4	Ziram.

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