

# 3 Respiratory Protection

4  
5 NIST S 7101.58

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## 10 1. PURPOSE

11 The purpose of the Respiratory Protection Program (RPP) is to prevent NIST employees from  
12 breathing airborne hazards when effective engineering controls are not feasible. In addition, the  
13 program identifies required training and practices for selecting, using, caring for, and storing  
14 respiratory protection.  
15

## 16 2. BACKGROUND

- 17 a. NIST must meet or exceed the requirements established by the Occupational Safety and  
18 Health Administration (OSHA) in [29 Code of Federal Regulations \(CFR\) 1910.134](#),  
19 Respiratory Protection. Implementation of this suborder through the requirements in Section  
20 6 and the roles and responsibilities in Section 9 exceeds those requirements.  
21  
22 b. This suborder supersedes NIST Health and Safety Instruction (HSI) 17, Respiratory  
23 Protection, October 1998.  
24  
25  
26

## 27 3. APPLICABILITY

28 The provisions of this suborder apply to all NIST employees whose exposure to potential  
29 airborne hazards could result in their being required to wear, or their voluntarily wearing,  
30 respiratory protection to carry out their assigned duties.  
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32

## 33 4. REFERENCES

- 34 a. [29 CFR 1910.134](#), Respiratory Protection.  
35  
36 b. [29 CFR 1910.1020](#), Access to Employee Exposure and Medical Records.  
37  
38 c. ANSI Z88.2, American National Standard for Respiratory Protection.

- 39 d. ANSI Z88.6, American National Standard for Respiratory Protection – Respirator Use  
40 Physical Qualifications for Personnel.  
41  
42 e. Compressed Gas Association (CGA) Commodity Specification for Air, CGA G7.1.  
43  
44 f. NFPA 1500, Standard on Fire Department Occupational Safety and Health Program.  
45  
46 g. NFPA 1852, Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained  
47 Breathing Apparatus (SCBA).  
48  
49 h. NFPA 1981, Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for  
50 Emergency Services.  
51  
52

## 53 **5. APPLICABLE NIST DIRECTIVES**

- 54 a. NIST S 7101.20: [Work and Worker Authorization Based on Hazard Reviews](#)  
55  
56 b. NIST S 7101.21: [Personal Protective Equipment](#)  
57  
58 c. NIST S 7101.23: [Safety Education and Training](#)  
59  
60 d. NIST S 7101.22: *Hazard Signage*  
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62

## 63 **6. REQUIREMENTS<sup>1</sup>**

64 When effective engineering controls are not feasible, or while they are being implemented,  
65 respirators must be used to (a) reduce exposures to airborne hazards to levels below applicable  
66 occupational exposure limits (OELs), and (b) protect against exposures to atmospheres that are  
67 “immediately dangerous to life or health” (IDLH)<sup>2</sup>. Specific respiratory-protection requirements  
68 include the occupational exposure limits adopted by NIST; hazard identification; hazard  
69 assessment; control methods, including respiratory protection selected by competent persons;  
70 respirator medical evaluations; respirator fit testing; respirator use; respirator maintenance and  
71 care; breathing air quality; entry and work in IDLH atmospheres; records (other than training  
72 records); training; and communication.  
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<sup>1</sup> The requirements in this section apply to employees who wear respiratory protection in the conduct of their assigned duties, and their management, i.e., they apply to the OUs.

<sup>2</sup> Instances of IDLH atmospheres outside of the Office of Facilities and Property Management and emergency situations would be highly unusual. Only highly-trained personnel may enter or prepare to enter atmospheres known or considered to be IDLH. For additional information, contact OSHE.

- 75 a. OELs and IDLH Atmospheres  
76  
77 (1) Employees shall not be exposed to airborne hazards within the personal breathing zone  
78 (PBZ) at levels that exceed the OELs adopted by NIST.  
79  
80 (2) The OELs adopted by NIST shall be the permissible exposure limits established by  
81 OSHA or the following exposure limits, when these limits are more stringent than those  
82 established by OSHA and achieving them is feasible:  
83  
84 (a) Threshold Limit Values established by the American Conference of Governmental  
85 Industrial Hygienists; or  
86  
87 (b) Exposure limits established by other authoritative entities, such as the National  
88 Institute of Occupational Safety and Health (NIOSH)  
89  
90 (3) Unprotected employees shall not be exposed to IDLH atmospheres.  
91  
92 b. Hazard Identification  
93  
94 (1) If a concern arises<sup>3</sup> regarding potential airborne hazards in an already ongoing activity, a  
95 consultation shall be scheduled with a competent person as soon as possible to determine  
96 if the airborne hazards could result in exposures that exceed an applicable OEL or could  
97 create an IDLH atmosphere.  
98  
99 (2) If the hazard review of a new activity identifies potential airborne hazards, a consultation  
100 shall be scheduled with a competent person to determine if the airborne hazards could  
101 result in exposures that exceed an OEL or could create an IDLH atmosphere.  
102  
103 (3) If the hazard review of a change in an existing activity identifies new airborne hazards or  
104 potential increases in previously identified airborne hazards, a consultation shall be  
105 scheduled with a competent person to determine if the airborne hazards could result in  
106 exposures that exceed an OEL or could create an IDLH atmosphere.  
107  
108 c. Hazard Assessment  
109  
110 (1) If the consultation with the competent person indicates that airborne hazards could result  
111 in exposures that exceed an OEL or could create an IDLH atmosphere, arrangements

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<sup>3</sup> Such a concern could be raised by any individual, e.g., a worker, a coworker, a supervisor, a Division Safety Representative, or a competent person.

112 shall be made for a competent person to assess the hazards using exposure monitoring,  
113 mathematical calculations, or other means.

- 114  
115 (2) If the competent person cannot identify or reasonably estimate the employee's potential  
116 exposure, the atmosphere shall be considered IDLH.

117  
118 d. Control Methods

- 119  
120 (1) When it has been determined by a competent person that, without controls, airborne  
121 hazards *would result* in potential exposures that exceed an OEL or constitute an  
122 atmosphere known or considered to be IDLH:

123  
124 (a) Feasible<sup>4</sup> engineering controls shall be implemented in an effort to reduce the level of  
125 airborne hazards in the PBZ to less than applicable OELs or to mitigate the  
126 atmosphere known or considered to be IDLH.

127  
128 (b) If the implementation of feasible engineering controls fails to achieve the desired  
129 objectives, as determined by a competent person, respiratory protection selected by a  
130 competent person shall be provided and used to reduce potential exposures to  
131 airborne hazards within the PBZ to less than applicable OELs or to prevent potential  
132 exposures to the atmosphere known or considered to be IDLH.<sup>5</sup>

133  
134 (c) Only respirators selected by the competent person shall be procured.

135  
136 (d) All respirators, cartridges, filters, and other components shall be provided at no cost  
137 to employees.

- 138  
139 (2) When it has been determined by a competent person that, without controls, airborne  
140 hazards *would not result* in exposures that exceed an OEL or constitute an IDLH  
141 atmosphere:

142  
143 (a) Feasible engineering controls should be implemented in an effort to reduce exposures  
144 to airborne hazards in the PBZ.

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<sup>4</sup> Feasible means that the OEL is both technologically and economically achievable. Technologically feasible means that there is a reasonable possibility that the agency will be able to meet the OEL in most of its operations by installing engineering controls and implementing work practice controls. Technologically feasible also includes being able to use analytical techniques to measure the airborne hazard at the OEL. For a Federal agency, economically feasible means that complying with the OEL will not require such resources as to threaten the agency's ability to fulfill its mission.

<sup>5</sup> Many precautions in addition to respiratory protection are necessary for employees other than first responders to enter atmospheres known or considered to be IDLH. For further information, contact OSHE.

- 145 (b) Respiratory protection may be worn voluntarily if it is determined, based on a  
146 consultation with a competent person, that:  
147  
148 i. Such protection will not in itself create a more serious safety or health hazard;  
149  
150 ii. The respiratory protection is selected by a competent person;  
151  
152 iii. Use of the respiratory protection is authorized by the employee's Official First-  
153 Level Supervisor; and  
154  
155 iv. Use of the respiratory protection complies with the requirements of this suborder.  
156

157 e. Respirator Medical Evaluations  
158

- 159 (1) All employees who are to wear respirators, except filtering facepieces worn voluntarily,  
160 shall arrange for the Health Unit<sup>6</sup> to complete a medical evaluation prior to fit testing.  
161  
162 (2) Additional medical evaluations are required under the following circumstances:  
163  
164 (a) Employees report medical signs or symptoms related to the ability to use a  
165 respirator;  
166  
167 (b) The Health Unit, the OSHE Respiratory Protection Program Manager, or the Official  
168 First-Level Supervisor recommends reevaluation;  
169  
170 (c) Information from the Respiratory Protection program, including observations made  
171 during fit testing and program evaluations, indicates a need; or  
172  
173 (d) A change occurs in workplace conditions, e.g., in physical work effort, protective  
174 clothing required, or temperature, that may substantially increase the physiological  
175 burden on an employee.  
176

177 f. Fit Testing  
178

- 179 (1) After receiving medical evaluations, employees who are to wear respirators with tight-  
180 fitting facepiece shall complete fit testing provided by a competent person:  
181  
182 (a) Prior to initial use of the respirator and at least annually thereafter;

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<sup>6</sup> "Provided by the Health Unit" means "provided by a physician or other licensed health-care professional working in the Health Unit".

183 (b) Pursuant to any change, authorized by a competent person, in respirator make, model,  
184 style, or size; and

185  
186 (c) Pursuant to a change in employee facial shape/structure (dentures, weight gain, facial  
187 hair, broken nose, glasses/goggles) that could prevent a good face seal or interfere  
188 with the respirator's ability to function properly.

189  
190 (2) If an employee needs prescription eyewear, regardless of the mask type, he or she must  
191 be provided with the appropriate eyewear and respirator type to accommodate that..

192  
193 g. Respirator Use

194  
195 (1) All respirators, cartridges, filters, and other procured components shall be used in  
196 accordance with manufacturers' specifications.

197  
198 (2) Labels on filters, cartridges, and canisters shall not be removed and must remain legible.

199  
200 (3) Cartridges or canisters shall be changed in accordance with the change schedule provided  
201 by the competent person or sooner if users feel ill or breakthrough occurs.

202  
203 (4) Tight-fitting respirators shall not be worn when conditions prevent a good face seal or  
204 interfere with the respirator's ability to function properly. Such conditions may include  
205 facial hair between the sealing surface of the facepiece and the face, or facial hair that  
206 interferes with valve function. Other conditions that may prevent a good face seal  
207 include, but are not limited to, scars, absence of teeth/dentures, unusual facial  
208 configurations, or wearing objects that project under the facepiece (e.g., corrective  
209 glasses or goggles).

210  
211 (5) Tight-fitting-respirator users shall be monitored<sup>7</sup> by their supervisors for face-to-  
212 facepiece seal conditions, and those with interfering conditions shall not be permitted to  
213 perform work that requires the use of a respirator.

214  
215 (6) Seal checks of tight-fitting respirators shall be performed by users prior to use in  
216 accordance with [29 CFR Part 1910.134, Appendix B-1](#), User Seal Check Procedures  
217 (Mandatory).<sup>8</sup>

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<sup>7</sup> That is, if a supervisor observes or becomes aware that an employee who wears a tight-fitting facepiece has a beard or other factor preventing a tight seal between the face and respirator, the supervisor shall not permit the employee to wear the respirator.

<sup>8</sup> User seal checks are not a substitute for fit tests.

- 219 (7) Respirators shall not be loosened or removed in work situations where their use is  
220 required.  
221
- 222 (8) Respirator users shall leave the respirator use area:  
223
- 224 (a) To wash their face and facepiece as necessary to prevent eye or skin irritation  
225 associated with respirator use;  
226
  - 227 (b) If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage  
228 of the facepiece;  
229
  - 230 (c) If they feel ill or disoriented; and  
231
  - 232 (d) To replace the respirator or filter, cartridge, or canister elements.  
233
- 234 h. Respirator Maintenance and Care  
235
- 236 (1) Cleaning  
237
- 238 (a) When practicable, respirators should be assigned to individual employees for their  
239 exclusive use. Permanently assigned respirators can be marked with an indelible  
240 marker or in a similar manner that does not affect performance.  
241
  - 242 (b) Exclusive-use respirators shall be cleaned and disinfected as often as necessary to  
243 maintain them in a sanitary condition.  
244
  - 245 (c) Shared-use respirators shall be cleaned and disinfected by the user after each use.  
246
  - 247 (d) Emergency-use respirators shall be cleaned and disinfected after each use.  
248
  - 249 (e) All respirators shall be cleaned prior to storage.  
250
  - 251 (f) Respirators shall be cleaned and disinfected in accordance with [29 CFR 1910.134](#),  
252 [Appendix B-2](#), Respirator Cleaning Procedures (Mandatory).  
253
- 254 (2) Storage  
255
- 256 (a) Respirators shall be stored in accordance with the manufacturers' specifications.  
257

- 258 (b) All respirators shall be stored to protect them from damage, contamination, dust,  
259 sunlight, extreme temperatures, excessive moisture, and damaging chemicals.  
260
- 261 (c) All respirators shall be stored to prevent deformation of the facepiece and exhalation  
262 valve, and as such should not be stored in such places as lockers or tool boxes unless  
263 they are in carrying cases or otherwise protected from damage.  
264
- 265 (d) Emergency-use respirators shall be stored in the work area in clearly marked,  
266 quickly accessible, protective containers, and in an adequate number in each area in  
267 which they may be needed.  
268

269 (3) Inspection

- 270
- 271 (a) All respirators used in routine situations shall be inspected before each use and during  
272 cleaning.  
273
- 274 (b) Respirator inspections shall include the following, as applicable to the respirator  
275 being used:  
276
- 277 i. A check of respirator function, tightness, and connections;  
278
- 279 ii. A check of the condition of the various parts, including, but not limited to, the  
280 facepiece; head straps; valves; connecting tube; and cartridges, canisters or filters;  
281 and  
282
- 283 iii. A check of elastomeric parts for pliability and signs of deterioration.  
284

285 (c) Emergency-Use Respirators

- 286
- 287 i. All emergency-use respirators shall be inspected at least monthly and in  
288 accordance with the manufacturers' recommendations.  
289
- 290 ii. All emergency-use respirators shall be checked for proper function before and  
291 after each use.  
292
- 293 iii. Emergency escape-only respirators shall be inspected before being carried into the  
294 workplace.  
295
- 296 iv. Emergency-use respirator inspections shall document the following information:  
297



- 298 (i) Date the inspection was performed;  
299  
300 (ii) Name of the person who performed it;  
301  
302 (iii) Findings;  
303  
304 (iv) Any required remedial action; and  
305  
306 (v) A serial number or other means of identifying the inspected respirator.  
307

308 v. Emergency-use respirator inspections shall be documented:

- 309 (i) On tags or labels that are attached to the respirators or kept within their  
310 storage compartments; or  
311  
312 (ii) In inspection reports stored in hard copy or electronic form.  
313

314 (d) SCBAs

315 i. In addition to the requirements in Section h(3)(a), (b), and (c)i-iii:  
316

- 317 (i) SCBAs shall be inspected monthly.  
318  
319 (ii) Air and oxygen cylinders shall be maintained in a fully charged state and  
320 shall be recharged when the pressure falls to 90% of the manufacturer's  
321 specified pressure level.  
322

- 323 (iii) Regulators and warning devices shall be inspected to determine that they  
324 function properly.  
325

- 326 (iv) Inspection tags shall be attached to SCBA storage units and tamper-evident  
327 seals should be affixed to the storage units to indicate whether they have  
328 been opened.  
329

330 ii. If SCBAs are maintained for emergency use, inspections shall be documented in  
331 accordance with the requirements in Sections h(3)(c)iv-v.  
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338 (4) Repairs

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- (a) Respirators that fail an inspection or are found to be defective shall be removed from service immediately, marked or tagged as out of service, and discarded or repaired.
- (b) Particulate filters shall be replaced when they become soiled or damaged or users detect increased breathing resistance.
- (c) Respirator repairs or adjustments are to be made only by appropriately trained persons and shall use only the respirator manufacturer's parts designed for that respirator.
  - i. Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or by a manufacturer-trained technician.
- (d) Repairs shall be made according to manufacturers' specifications for the type and extent of repairs to be made.

i. Respirator Maintenance and Care – Additional Requirements for SCBAs Used in Firefighting (*applicable to the NIST Fire Protection Group only*)

- (1) SCBAs used in firefighting must comply with the additional requirements of NFPA 1500, Fire Department Occupational Safety and Health Program Standard, including the following guidelines:
  - (a) NFPA 1852, Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA) Standard.
  - (b) NFPA 1852, Chapter 6, on the care, cleaning, and storage of SCBA equipment.
  - (c) NFPA 1852, Chapter 7, on inspecting and maintaining of SCBAs.
    - i. SCBAs assigned to on-duty NIST employees must be inspected at the beginning of each duty shift.
    - ii. SCBAs which are on duty assignment, but not currently assigned to an individual employee, must be inspected weekly.
    - iii. In all cases, SCBAs must be inspected, at a minimum, on a weekly basis.

378           iv. If the SCBA incorporates an integrated Personal Alert Safety System (PASS), it  
379           also must be inspected as part of the SCBA inspection at the beginning of each  
380           duty shift while assigned to an employee or weekly if the SCBA is not assigned to  
381           an individual duty employee.

382  
383           (d) NFPA 1981, Chapter 4, on flow testing of SCBAs.

384  
385           i. SCBAs shall be flow tested at least annually.

386  
387 j. Breathing Air Quality in SCBAs and Airline Respirators

388  
389           (1) Compressed breathing air procured by the OUs shall meet at least the requirements for  
390           Grade D breathing air described in ANSI/Compressed Gas Association Commodity  
391           Specification for Air, G-7.1-1989.

392  
393           (2) Cylinders supplying breathing air shall meet Department of Transportation requirements  
394           ([Requirement for DOT Specification Cylinders](#)) and have certificates of analysis that  
395           show they meet or exceed Grade D breathing-air requirements.

396  
397           (3) Compressors supplying breathing air shall be constructed and situated in a way that  
398           prevents entry of contaminated air into the air-supply system.

399  
400 k. Entry and Work in IDLH Atmospheres

401  
402           (1) For entry and work in atmospheres known or considered to be IDLH, the following  
403           procedures shall be followed:

404  
405           (a) A minimum of one employee shall be located outside the IDLH atmosphere.

406  
407           i. The use of two employees inside the work area and two employees outside the  
408           work area is recommended.

409  
410           (b) Visual, voice, or signal line communication shall be maintained between employees  
411           in the IDLH atmosphere and employees located outside the IDLH atmosphere.

412  
413           (c) Employees located outside the IDLH atmosphere shall be trained and equipped to  
414           provide effective emergency rescue.

415  
416           (d) A supervisor or designee shall be notified before employees outside the IDLH  
417           atmosphere enter to provide emergency rescue.

418 (e) In addition to having the respiratory protection selected by a competent person,  
419 employees trained to provide emergency rescue in IDLH atmospheres<sup>9</sup> shall be  
420 equipped with pressure-demand or positive-pressure SCBAs, or a positive-pressure  
421 supplied-air respirator with auxiliary SCBA, and have either the appropriate retrieval  
422 equipment for removing individuals from the IDLH atmosphere (such as a retrieval  
423 line or a chest or full-body harness), or an equivalent means of rescue when retrieval  
424 equipment is not available.

425  
426 (2) For interior structural firefighting, the following procedures shall be followed in addition  
427 to those in Section l(1) (*applicable to the NIST Fire Protection Group only*):

428  
429 (a) Firefighters shall only enter the IDLH atmosphere in pairs and shall remain in visual  
430 or voice contact with one another at all times.

431  
432 (b) At least two firefighters shall be located outside the IDLH atmosphere the entire time  
433 firefighters are within it.

434  
435 i. One of the two firefighters located outside the IDLH atmosphere may be assigned  
436 to an additional role, such as incident commander in charge of the emergency or  
437 safety officer, so long as the individual is able to perform assistance or rescue  
438 activities without jeopardizing the safety or health of any firefighter working at  
439 the incident.

440  
441 (c) Firefighters may perform emergency rescue activities before an entire team has  
442 assembled.

443  
444 1. Records (Other than Training Records)

445  
446 (1) Results of hazard assessments conducted by competent persons of potential airborne  
447 hazards or IDLH atmospheres shall be noted, referenced, or included as part of the  
448 activity-hazard-review documentation.

449  
450 (2) Records<sup>10</sup> of monthly inspections of emergency-use respirators, including emergency-use  
451 SCBAs, shall be maintained until replaced following a subsequent inspection.

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<sup>9</sup> To provide emergency rescue in IDLH atmospheres, individuals would require a high level of training in specialized emergency response. Such training is outside the scope of this suborder. For additional information, contact OSHE.

<sup>10</sup> The records referenced in Sections 6n(2)-(6) could take the form of tags, labels, or reports.

- 453 (3) Records of inspections of emergency escape-only respirators prior to their being carried  
454 into the workplace shall be maintained.
- 455 (4) Records of quarterly air-quality testing for air supplied via compressors shall be  
456 maintained until replaced following a subsequent air-quality test.
- 457
- 458 (5) Records of annual flow testing of all SCBAs shall be maintained until replaced following  
459 a subsequent flow test.
- 460
- 461 (6) Records of weekly inspections of SCBAs used in firefighting shall be maintained until  
462 replaced following a subsequent inspection.
- 463

464 m. Training

- 465
- 466 (1) Employees required to wear respirators, or who voluntarily wear respirators other than  
467 filtering facepieces, shall complete:
- 468
- 469 (a) Training provided by OSHE on the applicable elements of the RPP;
- 470
- 471 (b) Retraining provided by OSHE on the applicable elements of the RPP at least  
472 annually; and
- 473
- 474 (c) Retraining identified by the Official First-Level Supervisor whenever:
- 475
- 476 i. Changes in the workplace or in the type of respirator render training obsolete;
- 477
- 478 ii. Inadequacies in the employee's knowledge or use of the respirator indicate the  
479 need for retraining; or
- 480
- 481 iii. Any other situation arises in which retraining appears necessary to ensure safe  
482 respirator use.
- 483
- 484 (2) Employees who voluntarily wear filtering facepieces shall complete:
- 485
- 486 (a) Training provided by OSHE on the applicable elements of the RPP.
- 487
- 488 (3) Official First-Level Supervisors of employees required to wear respirators, or who  
489 voluntarily wear respirators other than filtering facepieces, shall complete training  
490 provided by OSHE on the elements of the RPP applicable to the employees they  
491 supervise.
- 492

493 (4) Training shall be documented and recorded in accordance with the requirements, roles,  
494 and responsibilities in the Safety Education and Training suborder.

495 n. Communication

496

497 (1) Hazard signage shall be posted at entrances to areas in which respiratory protection is  
498 required. Appendix A provides an example of hazard signage meeting these  
499 requirements.

500

501 (2) Electronic or hard copies of this suborder and of [29 CFR 1910.134](#) shall be made  
502 available to affected employees.

503

504

505 **7. DEFINITIONS**

506 a. Airborne Exposure – Exposure to a concentration of an airborne contaminant that would  
507 occur if the employee were not using respiratory protection.

508

509 b. Airborne Hazard – Breathing air contaminated with harmful dusts, fogs, fumes, mists, gases,  
510 smokes, sprays, or vapors.

511

512 c. Air-Purifying Respirator – A type of respirator with an air-purifying filter, canister or  
513 cartridge, which removes specific air contaminants by passing ambient air through the air-  
514 purifying element.

515

516 d. Atmosphere-Supplying Respirator – A respirator that supplies the user with breathing air  
517 from a source independent of the ambient atmosphere, and includes supplied-air respirators  
518 (SARs), and self-contained breathing apparatus (SCBA) units.

519

520 e. Canister or Cartridge – Container with a filter, sorbent, catalyst, or combination of these  
521 items that removes specific contaminants from the air passed through the container.

522

523 f. Competent Person – A CIH or CSP in the NIST Office of Safety, Health and Environment  
524 (OSHE) or another NIST Organizational Unit (OU), a consultant CIH or CSP, or an  
525 individual directed by a CIH or CSP, who is capable of anticipating, recognizing, controlling,  
526 and evaluating potential occupational hazards.

527

528 g. Certified Industrial Hygienist (CIH) – An individual who is board certified by the American  
529 Board of Industrial Hygiene and has met the minimum requirements for education  
530 experience, and through examination has demonstrated a minimum level of knowledge in  
531 occupational health subject areas such as respiratory protection.

532

- 533 h. Certified Safety Professional (CSP) – An individual who is board certified by the Board of  
534 Certified Safety Professionals and has met the professional challenge of demonstrating  
535 competency through education, experience, and examination.  
536
- 537 i. Dust Mask – See Filtering Facepiece.  
538
- 539 j. Escape-Only Respirator – A respirator intended to be used only for emergency exit.  
540
- 541 k. Filtering Facepiece – Also referred to as a dust mask, is a negative pressure particulate  
542 respirator with a particulate filter as an integral part of the facepiece or with the entire  
543 facepiece composed of the filtering media.  
544
- 545 l. Filter – A component used in respirators to remove solid or liquid aerosols from the inspired  
546 air.  
547
- 548 m. Fit Test – Protocol to quantitatively or qualitatively evaluate the fit of a tight-fitting respirator  
549 on an individual.  
550
- 551 n. Immediately Dangerous to Life or Health (IDLH) – An atmosphere that poses an immediate  
552 threat to life, would cause irreversible adverse health effects, or would impair an individual's  
553 ability to escape from a dangerous atmosphere. An atmosphere is considered IDLH when the  
554 airborne hazard cannot be identified, reasonably estimated, or the atmosphere is oxygen  
555 deficient (<19.5% oxygen by volume).  
556
- 557 o. Loose-Fitting Facepiece – A respiratory inlet covering designed to form a partial seal with  
558 the face.  
559
- 560 p. Occupational Exposure Limit (OEL) – An upper limit on the acceptable concentration of a  
561 hazardous substance in workplace air for a particular material or class of materials.  
562
- 563 q. Personal Breathing Zone (PBZ) – The zone encompassing the nose and mouth and a  
564 hemisphere forward of the shoulders with a radius of 6 to 9 inches (~ 1 foot sphere, with nose  
565 being at the center of the sphere).  
566
- 567 r. Potential Airborne Hazard – A hazard with the potential to become airborne within the PBZ  
568 or to create an IDLH atmosphere.  
569
- 570 s. Powered Air-Purifying Respirator (PAPR) – A positive-pressure air-purifying respirator that  
571 uses a blower to force the ambient air through air-purifying elements to the inlet covering.

- 572 t. Respiratory Inlet Covering – That portion of a respirator that forms the protective barrier  
573 between the user’s respiratory tract and an air-purifying device, or breathing air source, or  
574 both.  
575
- 576 u. Self-Contained Breathing Apparatus (SCBA) – An atmosphere-supplying respirator for  
577 which the breathing air source is designed to be carried by the user.  
578
- 579 v. Supplied-Air Respirator (SAR) or Airline Respirator – An atmosphere-supplying respirator  
580 for which the source of breathing air is not designed to be carried by the user.  
581
- 582 w. Tight-Fitting Facepiece – A respiratory inlet covering that forms a complete seal with the  
583 face.  
584  
585

## 586 **8. ACRONYMS**

- 587 a. CGA – Compressed Gas Association  
588
- 589 b. NFPA – National Fire Protection Association  
590
- 591 c. NIOSH – The National Institute for Occupational Safety and Health  
592
- 593 d. OSHA – Occupational Safety and Health Administration  
594
- 595 e. OSHE – Office of Safety, Health, and Environment  
596
- 597 f. OU – Organizational Unit  
598
- 599 g. PBZ – Personal Breathing Zone  
600
- 601 h. RPP – Respiratory Protection Program  
602  
603

## 604 **9. ROLES AND RESPONSIBILITIES**

- 605 a. Employees Engaged in Activities Involving Airborne Hazards that Could Result in  
606 Exposures that Exceed an OEL or Could Create an IDLH Atmosphere:  
607
- 608 (1) If a concern arises regarding potential airborne hazards in an already ongoing activity,  
609 schedule a consultation with a competent person as soon as possible to determine if the  
610 airborne hazards could result in exposures that exceed an OEL or could create an IDLH  
611 atmosphere;



- 612 (2) If the hazard review of a new activity identifies potential airborne hazards, schedule a  
613 consultation with a competent person to determine if the airborne hazards could result in  
614 exposures that exceed an OEL or could create an IDLH atmosphere;  
615
- 616 (3) If the hazard review of a change in an existing activity identifies new airborne hazards, or  
617 potential increases in previously identified airborne hazards, schedule a consultation with  
618 a competent person to determine if the airborne hazards could result in exposures that  
619 exceed an OEL or could create an IDLH atmosphere;  
620
- 621 (4) Inform Official First-Level Supervisors of any consultations scheduled with competent  
622 persons and of the results of those consultations;  
623
- 624 (5) If consultation with a competent person indicates that airborne hazards could result in  
625 exposures that exceed an OEL or could create an IDLH atmosphere, arrange for a  
626 competent person to assess the airborne hazards;  
627
- 628 (6) When it has been determined by a competent person that, without controls, airborne  
629 hazards *would result* in potential exposures that exceed an OEL or constitute an  
630 atmosphere known or considered to be IDLH, implement feasible engineering controls in  
631 an effort to reduce the level of airborne hazards in the PBZ to less than applicable OELs  
632 or to mitigate the atmosphere known or considered to be IDLH;  
633
- 634 (7) If feasible engineering controls fail to achieve the desired objectives, use respiratory  
635 protection selected by a competent person to reduce potential exposures to airborne  
636 hazards within the PBZ to less than applicable OELs or to prevent potential exposures to  
637 the atmosphere known or considered to be IDLH;<sup>11</sup> and  
638
- 639 (8) Ensure that the results of hazard assessments, i.e., the results of consultations, including  
640 the results of exposure monitoring, mathematical calculations, or other means used to  
641 assess the airborne hazards, are noted, referenced, or included as part of the activity-  
642 hazard-review documentation.  
643
- 644 b. Employees Required to Wear Respirators, or Who Voluntarily Wear Respirators Other than  
645 Filtering Facepieces (in addition to the responsibilities of above):  
646
- 647 (1) Obtain medical evaluations in accordance with the requirements in Section 6e;  
648
- 649 (2) Obtain fit tests in accordance with the requirements in Section 6f, if applicable;

---

<sup>11</sup> Many precautions in addition to respiratory protection are necessary for employees other than first responders to enter atmospheres known or considered to be IDLH. For additional information, contact OSHE.

650 (3) Use, maintain, and care for the respirators provided by their Official First-Level  
651 Supervisors in accordance with the requirements in Section 6g, 6h, and 6i, as applicable,  
652 and their training as specified in Section 6m;

653  
654 (4) Ensure that breathing air meets the requirements in Section 6j, if applicable;

655  
656 (5) Enter and conduct work in IDLH atmospheres in accordance with the procedures in  
657 Section 6k, if applicable;

658  
659 (6) Complete the training specified in Section 6m, as assigned by their Official First-Level  
660 Supervisors; and

661  
662 (7) Request additional training as duties change or as otherwise needed.

663  
664 c. Employees Who Voluntarily Wear Filtering Facepieces:

665  
666 (1) Complete the training specified in Section 6m, as assigned by their Official First-Level  
667 Supervisor.

668  
669 d. Official First-Level Supervisors of Any of the Above Employees:

670  
671 (1) Ensure that competent persons from outside of OSHE engaged by the OU to conduct  
672 hazard assessments, select respiratory protection, or provide fit testing understand the  
673 responsibilities delineated below for competent persons;

674  
675 (2) Provide the results of hazard assessments resulting in employees they supervise being  
676 required to wear respiratory protection, or resulting in their voluntarily wearing  
677 respiratory protection, to all such affected employees, the OSHE RPP Manager, and the  
678 Health Unit for inclusion in employee medical files;

679  
680 (3) Ensure that the results of hazard assessments are noted, referenced, or included as part of  
681 the activity-hazard-review documentation;

682  
683 (4) Make electronic or hard copies of this suborder and of [29 CFR 1910.134](#) available to  
684 employees they supervise who are required to, or voluntarily, wear respiratory  
685 protection;

686  
687 (5) Provide affected employees with the respiratory protection selected by a competent  
688 person, at no cost to affected employees;

689

- 690 (6) Authorize the voluntary use of respirators by employees they supervise;  
691  
692 (7) Ensure that records, other than training records, are maintained in accordance with the  
693 requirements in Section l;  
694  
695 (8) Assign training to the affected employees they supervise in accordance with the  
696 requirements in Section 6m and do so when:  
697  
698 (a) Employees enter on duty;  
699  
700 (b) Employees' duties change; and  
701  
702 (c) Special circumstances arise such as those indicated in Section 6m(1)(c).  
703  
704 (9) Ensure that training specified in Section 6m(1)(c) is documented and recorded in  
705 accordance with the requirements, roles, and responsibilities in the Safety Education and  
706 Training suborder;  
707  
708 (10) If employees they supervise are required to wear respirators, or are to voluntarily wear  
709 respirators other than filtering facepieces, complete the training specified in Section 6m  
710 for Official First-Level Supervisors; and  
711  
712 (11) Ensure that hazard signage meeting the requirements in Section 6n is posted at entrances  
713 to areas in which respiratory protection is required.  
714  
715 e. Chief Safety Officer:  
716  
717 (1) Assign an OSHE employee to serve as the OSHE Safety Program Manager for the RPP at  
718 both the Gaithersburg and Boulder sites.<sup>12</sup>  
719  
720 f. OSHE Respiratory Protection Program Manager:  
721  
722 (1) Administer the RPP in accordance with the requirements of [29 CFR 1910.134](#);  
723  
724 (2) Ensure that electronic or hard copies of this suborder and of [29 CFR 1910.134](#) are made  
725 available to the Health Units;  
726

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<sup>12</sup> The OSHE Respiratory Protection Program Manager shall carry out the roles of "Program Administrator" identified in 29 CFR 1910.134.

- 727 (3) Retain all fit-testing records until the next required fit tests have been administered and  
728 received and make such records available to affected employees upon request;  
729
- 730 (4) Ensure that affected employees are notified when annual fit testing and training are due;  
731
- 732 (5) Ensure that training provided by OSHE on the RPP is available and meets the  
733 requirements of 29 CFR 1910.134(k), Training and Information;  
734
- 735 (6) Ensure that training provided by OSHE on the RPP is documented in NIST's electronic  
736 safety training application;  
737
- 738 (7) Ensure that non-web-based training provided by OSHE on the RPP and completed by  
739 affected employees is recorded in NIST's electronic safety training application;  
740
- 741 (8) Assist NIST staff in the development of signage that complies with the requirements of  
742 this suborder and the NIST Hazard Signage Program; and  
743
- 744 (9) Implement procedures to evaluate program effectiveness.  
745

746 g. Competent Persons:  
747

- 748 (1) Consult with employees to determine if airborne hazards could result in exposures that  
749 exceed an applicable OEL or could create an IDLH atmosphere;  
750
- 751 (2) When airborne hazards could result in exposures that exceed an applicable OEL or could  
752 create an IDLH atmosphere, conduct exposure monitoring or use mathematical  
753 calculations or other means to assess the hazard, document the results in writing, and  
754 provide those results to the employee who scheduled the assessment and his or her  
755 Official First-Level Supervisor within 15 working days after the receipt of the results or  
756 within the time frame specified in any applicable substance-specific OSHA standard;  
757
- 758 (3) When it has been determined that employees must wear respiratory protection:  
759
- 760 (a) Specify the necessary protection in accordance with 29 CFR 1910.134(d), Selection  
761 of Respirators;  
762
- 763 (b) Provide the Health Unit with the following information:  
764
- 765 i. The type and weight of the respirator to be used;  
766

- 767           ii. The duration and frequency of respirator use (including use for rescue and  
768           escape);  
769  
770           iii. The expected physical work effort;  
771  
772           iv. Additional protective clothing and equipment to be worn; and  
773  
774           v. Temperature and humidity extremes that may be encountered;  
775  
776       (4) Provide employees who have completed their medical examinations with fit testing in  
777       accordance with 29 CFR 1910(f), Fit Testing;  
778  
779           (a) Provide fit-testing records to the OSHE RPP Manager.  
780

781 h. Health Units:

- 782  
783       (1) Administer a respiratory-protection medical evaluation program in accordance with 29  
784       CFR 1910.134(e), Medical Evaluation, and 29 CFR 1910.1020, Access to Employee  
785       Exposure and Medical Records.  
786  
787

788 **10. AUTHORITIES**

789 There are no authorities specific to this suborder alone.  
790

791

792 **11. DIRECTIVE OWNER**

793 Chief Safety Officer.  
794

795

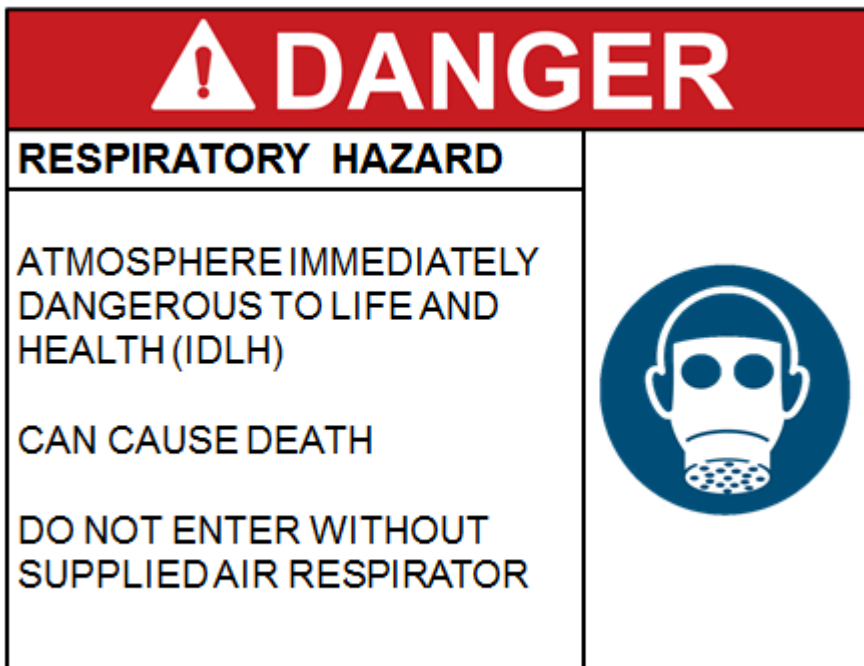
796 **12. APPENDICES**

797 a. Hazard Signage

798 b. Revision History

799

800 Appendix A. Hazard Signage  
801



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### Appendix B. Revision History

Revision	Date	Responsible Person	Description of Change
1	01/07/2021	April Camenisch	Updated suborder links. Added revision history appendix.

807