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ERTK
**Employee Right to Know
Program**

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Content adapted from:

Job Safety & Training
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43 **PURPOSE**

44 **T**his program manual is designed to implement the provisions of the Minnesota
45 Employee Right to Know Act of 1983. This manual presents the major
46 aspects of the standards. These standards require employers to evaluate
47 their workplaces for the existence of hazardous substances, harmful physical
48 agents, and infectious agents and to provide training and information to those
49 employees covered under this act who are routinely exposed to those substances and
50 agents.

51 **SCOPE OF THE EMPLOYEE RIGHT TO KNOW PROGRAM**

52 This Employee Right to Know Program has been developed in accordance to
53 applicable state and federal regulations. It has been approved as the City's own right
54 to know program by the appropriate administrative or governing authority identified
55 below. The use of the word "City" shall be construed to mean the municipal city and
56 such other departments of city government for which this program has been adopted.

57 This Employee Right to Know Program will be reviewed for relevant updates by the
58 Safety Committee every two years.

59 See Appendix A for Approval and Revision History

60

61

62 **Administrative Responsibilities**

63 The following person is responsible for administering the Employee Right to Know
64 Program at the City. This person has the primary responsibility to oversee the ERTK
65 program and ensure that it is organized, implemented and updated as required by the
66 Employee Right to Know Standard.

<p>Program Administrator for City Departments Covered in this program.</p> <p>Sharon Payne, City Clerk</p>
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67

68

69 To ensure an effective Employee Right to Know Program, the following supervisors
70 are responsible for carrying out the details of this program in their work areas.

Supervisor	Department
Tanner Jones	Maintenance
Rod Olson	Stacy Wine & Spirits
John Wicklander	Stacy Sports Grill
Sharon Payne	City Clerk

71

72

73 **Hazard Determination**

74 The City recognizes/inventories a list of hazardous substances, harmful physical
75 agents and infectious agents listed in subparts 5206.0400, 5206.0500 and 5206.0700
76 of the Employee Right to know rules. The City will exercise reasonable diligence in
77 evaluating the workplace for the presence of recognized hazardous substances,
78 harmful physical agents, and infectious agents and assure that employees are
79 provided with the rights stated in the standard. The City understands that the
80 hazardous substances list includes the majority of hazardous substances that will be
81 encountered in Minnesota and that it does not include all hazardous substances and
82 may not always be current. Therefore, the evaluations conducted by the specific
83 manufacturer of the substances used at the City will be accepted and employees
84 provided with the rights stated in the standard.

85

86 **HAZARDOUS SUBSTANCES**

87 The City has developed an inventory/list of all hazardous substances and the
88 operations where they are used. The intent is to inform employees about the
89 hazardous substances they may encounter in the workplace.

Commented [SP1]: Mark Ness Comment: Each Department Needs to do.

90 Work area supervisors or delegated employees will update the inventory/list whenever
91 a new hazardous substance is introduced into that work area. Supervisors will report
92 the name of the new hazardous substance and the operation where it will be used to
93 the following individual so that it can be added to the inventory/list before employees
94 in the work area use it.

Each Department Head

95
96 The inventory/list of hazardous substance used at the City/Utility is available for review
97 at the following location(s).

Building	Location
Stacy City Hall	Bulletin Board by the Restrooms
Stacy Sports Grill	Maintenance Room
Stacy Wine & Spirits	Breakroom
Maintenance Building	Upstairs Office
Treatment Plant	Office

98
99

100 **Hazardous Substance Container Labeling**

101 The following person is responsible for coordinating labeling activities among
102 supervisors and employees to make sure they are uniform and follow the rules of the
103 City.

Tanner Jones

104
105 The City understands that the manufacturer of a hazardous substance or mixture of
106 hazardous substances, or of equipment which generates a harmful physical agent is
107 obligated to provide the information necessary for the City to comply with Employee
108 Right to know requirements. Supervisors at the City will evaluate containers arriving
109 in their work area to ensure that the label, tag, or markings meet the following
110 requirements:

- 111 1) Identifies the hazardous substance.
- 112 2) Appropriate hazard warning(s).
- 113 3) Name and address of the chemical manufacturer, importer or other responsible
114 party.

115 Should a product be received that does not meet the above stated labeling
116 requirements, the supervisors will immediately label, tag, or mark any hazardous
117 substance container at the City so that it:

- 118 1) Identifies the hazardous substance and the identity corresponds with the name
119 used on the SDS and inventory list.
- 120 2) Indicates the appropriate hazard warning
- 121 3) Does not conflict with labels from the Department of Transportation.

122

123 Supervisors will also ensure:

- 124 1) The label, tag, or marking is legible, in English, and is prominently displayed.
- 125 2) The incoming containers of hazardous substance include the manufacturer's
126 name and address.
- 127 3) Chemical labels for OSHA specific standards comply with those regulations.
- 128 4) The labels on incoming containers of hazardous substances are not removed
129 or defaced unless the container is immediately marked, tagged or labeled with
130 required information.
- 131 5) Stationary processes that contain hazardous substances have the appropriate
132 label or alternative warning attached that conveys the required information.
- 133 6) Contracted employers working at the facility are notified of the labeling
134 procedure and understand the label (warning) system.
- 135 7) The City recognizes labeling that is in compliance with the following regulations
136 meet the requirements of the Employee Right to Know Program:
- 137 8) Pesticides labeled in accordance with the Federal Insecticide, Fungicide and
138 Rodenticide Act.
- 139 9) Any food, food additive, color additive, drug, or cosmetic including materials
140 intended for use as ingredients in products labeled in accordance with the
141 requirements of the Federal Food, Drug and Cosmetic Act.
- 142 10) Distilled spirits (beverages alcohols), wines, or malt beverages labeled in
143 accordance with the Federal Alcohol Administration Act.
- 144 11) Any consumer products as defined in the Consumer Product Safety Act and
145 labeled in accordance with the requirements of that act.
- 146 12) Any hazardous substance as defined in the Federal Hazardous Substance Act
147 and labeled in accordance with the requirements that act.

148

149 **In-House Label Explanation and Description**

150 Supervisors will ensure that all secondary containers in the workplace are labeled
151 according the following requirements:

- 152 1) Identifies the product and any hazardous substances.
- 153 2) Appropriate hazard warning(s).
- 154 3) The label, tag, or marking is legible, in English, and is prominently displayed.

155 The City uses the following label(s) for secondary containers

156

Commented [SP2]: Mark Ness Comment: ???

157 **Safety Data Sheets (SDS)**

158 The City will obtain and collect the safety data sheets (SDS) for all hazardous
159 substances purchased from manufacturers, importers and distributors of said
160 substances. A current hard copy or an electronic copy will be on file.

161 Where an in-house process generates hazardous substances, a “generic” SDS of the
162 hazardous substance will be obtained and placed in the City’s SDS file. The intent is
163 to provide a “safety data sheet” for all hazardous substances encountered by
164 employees in the workplace.

165 The following person is responsible for making sure the SDS file at the City is
166 maintained and updated as necessary (SDS will be located on the City’s website):

Department Heads

167 Supervisors will notify this person prior to the time that a new hazardous substance is
168 used in the workplace so that the appropriate SDS can be obtained.
169

170 The SDS file (hard or electronic) at the City is located at the following location(s):

Building	Location
Stacy City Hall	Bulletin Board by the Restroom
Stacy Sports Grill	Maintenance Room
Stacy Wine & Spirits	Break Room
Maintenance Shop	Maintenance Office
Water Treatment Plant	Maintenance Office

171
172 These files are available to all employees at the SDS file location or for more
173 information contact your immediate supervisor.

174

175 **HARMFUL PHYSICAL AGENTS**

176 The City recognizes the list of harmful physical agents listed/inventoried below. The
177 City will exercise reasonable diligence in evaluating the workplace for the presence of
178 recognized harmful physical agents at a level that may be expected to approximate or
179 exceed the permissible exposure limit or the applicable action level. The City
180 understands that the list/inventory of harmful physical agents includes the majority of
181 harmful physical agents that will be encountered in Minnesota (or other states). The
182 City will make a diligent effort to ensure that this list is updated as necessary. The City
183 will ensure that exposed employees are afforded their rights as established in the
184 Employee Right to Know rules.

185 **List of Harmful Physical Agents**

- 186 1) Heat
- 187 2) Noise
- 188 3) Ionizing Radiation
- 189 4) Nonionizing Radiation

190 **Harmful Physical Agent Labeling**

191 The City will ensure that equipment or work areas that specifically generate harmful
192 physical agents at a level that may be expected to approximate or exceed the
193 permissible exposure limit or applicable action will be labeled, marked or tagged.
194 Labeling will include:

- 195 1) The name of the physical agent.
- 196 2) The appropriate hazard warning.

197

198 **INFECTIOUS AGENTS**

199 The City recognizes the list of infectious agents listed in Minnesota rule 5260.0600.
200 The City will exercise reasonable diligence in evaluating the workplace for the
201 presence of recognized and other infectious agents. The City understands that the list
202 of infectious agents includes the majority of communicable infectious agents that will
203 be encountered in Minnesota. The City will make a diligent effort to ensure that the
204 most current list is provided in this program. The City will ensure employees whom
205 are routinely exposed are provided with the rights established in the Employee Right
206 to Know rules.

207 **BLOODBORNE PATHOGENS**

208 The City maintains a separate bloodborne pathogens program that complies with the
209 OSHA 1910.1030 regulations. This program covers all reasonably anticipated
210 infectious agent exposures at the City.

211

212 **EMPLOYEE TRAINING AND INFORMATION**

213 The City provides each employee with information and training about the hazardous
214 substances used in its operations and any exposure to harmful physical agents and/or
215 infectious agents at a level that may be expected to approximate or exceed the
216 permissible exposure limits. Additional employee training will be conducted whenever
217 a new hazardous substance is introduced and/or the work situation changes that may
218 increase the level of exposure to any harmful physical agent or infectious agent. New
219 or transferred employees will receive the appropriate training and information specific
220 to their work assignment, prior to beginning that assignment.

221 The following person is responsible for coordinating the employee information and
222 training programs at the City.

Michelle Hayes, Finance Director

223
224 The City will inform the employees of:

- 225 1) The requirements of the Minnesota Employee Right to Know law.
- 226 2) The operations where hazardous substances are used including the hazardous
227 substances that are contained in unlabeled pipes.
- 228 3) The operations where exposure to harmful physical agents and harmful
229 infectious agents may be expected.
- 230 4) The location of the written Employee Right to Know Program, the list/inventory
231 of hazardous substance, and the corresponding material safety data sheets for
232 those substances.
- 233 5) The labeling system employed at the City.

234

Commented [SP3]: Mark Ness Comment: yearly ???

- 235 The City will train employees routinely exposed to hazardous substances:
- 236 1) The name or names of the substance including any generic or chemical name,
237 trade name, and commonly used name.
- 238 2) The level, if any and if known, at which exposure to the substance has been
239 restricted according to standards. If no standard has been adopted, according
240 to guidelines established by competent professional groups, which have
241 conducted research to determine the hazardous properties of potentially
242 hazardous substances.
- 243 3) The primary routes of entry and the known acute and chronic effects of
244 exposure at hazardous levels.
- 245 4) The known symptoms of the effects.
- 246 5) Any potential for flammability, explosion, or reactivity of the substance.
- 247 6) Appropriate emergency treatment.
- 248 7) The known proper conditions for use of and exposure to the substance.
- 249 8) An explanation of the use and limitations of methods of control that will prevent
250 or reduce exposure appropriate engineering controls and work practices,
251 personal protective equipment and housekeeping.
- 252 9) An explanation of the basis for selection of personal protective equipment,
253 including information on the types, proper use, location, removal, handling,
254 decontamination, and disposal of personal protective equipment.
- 255 10) Procedures for cleanup of leaks and spills.
- 256 11) The name, phone number, and address of a manufacturer of the hazardous
257 substance.
- 258 12) The location of a written copy/electronic (SDS) of the above information
- 259

260 The City will train employees who may be routinely exposed to harmful physical
261 agents. This training will include:

262 1) The name or names of the physical agent including any commonly used
263 synonym.

264 2) The level, if any and if know, at which exposure to the physical agent has been
265 restricted according to adopted standards, or, if no standard has been adopted,
266 according to guidelines established by competent professional groups including
267 but not limited to the American Conference of Governmental Industrial
268 Hygienists, the Center for Disease Control, the Bureau of Radiological Health,
269 and the American National Standards Institute.

270 3) The known acute and chronic effects of exposure at hazardous levels.

271 4) The known symptoms of exposure at hazardous levels.

272 5) The appropriate emergency treatment.

273 6) The known proper conditions for safe use of and exposure to the physical
274 agent.

275 7) An explanation of the use and limitations of methods of control that will prevent
276 or reduce exposure appropriate engineering controls and work practices,
277 personal protective equipment and housekeeping.

278 8) An explanation of the basis for selection of personal protective equipment,
279 including information on the types, proper use, limitations and location of
280 personal protective equipment.

281 9) The name, phone number and address, if appropriate, of the manufacturer of
282 the equipment which generates the harmful physical agent.

283 10) A written copy of all of the above information which shall be readily accessible
284 in the area or areas in which the harmful physical agent is present and where
285 the employee may be exposed to the agent through use, handling or otherwise.

286

287 The City will train employees who may be routinely exposed to infectious agents. This
288 training will include:

- 289 1) A general explanation of the epidemiology and symptoms of infectious diseases
290 including the hazards to special at-risk employee groups.
- 291 2) An explanation of the appropriate methods for recognizing tasks and other
292 activities that may involve exposure to infectious agents including blood and
293 other infectious materials.
- 294 3) An explanation of the chain of infection, or infectious disease process, including
295 agents, reservoirs, modes of escape from reservoirs, modes of transmission,
296 modes of entry into host, and host susceptibility.
- 297 4) An explanation of the employer's exposure control program.
- 298 5) An explanation of the use and limitations of methods of control that will prevent
299 or reduce exposure including universal precautions, appropriate engineering
300 controls and work practices, personal protective equipment and housekeeping.
- 301 6) An explanation of the basis for selection of personal protective equipment,
302 including information on the types, proper use, location, removal, handling,
303 decontamination, and disposal of personal protective equipment.
- 304 7) An explanation of the proper procedures for cleanup of blood or body fluids.
- 305 8) An explanation of the recommended immunization practices, including, but not
306 limited to, the HBV vaccine, and the efficacy, safety, and benefits of being
307 vaccinated.
- 308 9) Procedures to follow if an exposure incident occurs, method of reporting the
309 incident, and information on the post-exposure evaluation and medical follow-
310 up that will be available.
- 311 10) Information on the appropriate actions to take and persons to contact in an
312 emergency involving blood or other potentially infectious materials.
- 313 11) An explanation of the signs, labels, tags, or color-coding used to denote
314 biohazards.
- 315 12) The location of the regulatory text of this standard and explanation of its
316 contents.
- 317 13) The location and contents of other pertinent information that explain the
318 symptoms and effects of each infectious agent that the employee may be
319 exposed to.

320 NOTE: The Bloodborne Pathogens Program addresses the aspects set forth in the
321 above stated information.

322 The City generally schedules employee right to know training in conjunction with
323 monthly safety meetings. Other sessions will be arranged as needed.

Commented [SP4]: Mark Ness Comment: Monthly meetings with employees?

324 Attendance records and a summary of the items covered in the monthly employee
325 training and information sessions are located at (and may also be found electronically
326 at):

Building	Location
City Hall	Clerk's Office

327
328

329 The following supervisors are responsible for: ensuring that employees for the
330 respective department receive training whenever a new hazardous substance is
331 introduced and/or the work situation changes that may increase the level of exposure
332 to any harmful physical agent or infectious agent; and new or transferred employees
333 receive the appropriate training and information specific to their work assignment, prior
334 to beginning that assignment.

Supervisor	Department
Tanner Jones	Maintenance
Rod Olson	Stacy Wine & Spirits
John Wicklander	Stacy Sports Grill
Sharon Payne	Clerk's Office

335

336

337 **SPECIAL CONSIDERATIONS**

338 **Non-Routine and Special Tasks**

339 The program administrator, in cooperation with the above listed supervisors, will review
340 known physical and health hazards with employees who must do non-routine and
341 special tasks. This instruction will generally occur at the time the work is scheduled.
342 However, in an emergency the review may occur immediately before the work begins.

343 If appropriate, the instruction will include:

- 344 1) Identification of the hazardous substance involved.
- 345 2) Methods of detecting the presence or release of the substances.
- 346 3) Specific physical and health hazards of the substance involved.
- 347 4) Measures the employee(s) can take to protect themselves from these hazards
348 such as appropriate work practices, emergency procedures, and proper
349 protective equipment.
- 350 5) An opportunity for employees to review the material safety data sheets for any
351 of the hazardous chemicals involved.

352

353 **CONTRACTORS**

354 Contractors will be notified of the hazardous substances, harmful physical agents and
355 infectious agents they may encounter at the City and the protective measures that can
356 be taken to avoid them.

357 The following supervisors will complete the "Contractor Notification" form and give it to
358 the contractor prior to the work beginning.

Supervisor	Department
Tanner Jones	Maintenance
Rod Olson	Stacy Wine & Spirits
John Wicklander	Stacy Sports Grill
Sharon Payne	Clerk's Office

359 Contractors are required to notify the City of any hazardous substance brought onto a
360 city work site and shall provide the city with a safety data sheet for each chemical. The
361 department supervisor is responsible for obtaining this information and conveying it to
362 any exposed City employee.
363

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366 **FORMS**

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368 **Contractor Notification Form**

369 **Purpose:**

370 The Minnesota Employee Right to Know law requires that the above named City/Utility notify
 371 on-site contractors of the hazardous substances, harmful physical agents and/or infectious
 372 agents they may encounter at this work place and the appropriate protective equipment
 373 necessary to avoid those hazards. This form is to be completed by the Department Supervisor
 374 and given to the contractor prior to starting the contracted work in an effort to meet the intent of
 375 that law.
 376

Identification:	
Contractor Name:	
Contractor Phone:	
Contractor Address:	
Project Name:	
Project Location:	
Department Supervisor:	

377
 378 The hazardous substances used by the City to which the contractors employee may be
 379 exposed are listed on the next page.
 380

381 The safety data sheets for these chemicals can be found at the following locations(s):

Building	Contact Person
City Hall	Sharon Payne
Maintenance	Tanner Jones
Stacy Sports Grill	John Wicklander
Stacy Wine & Spirits	Rod Olson

382
 383 Acknowledgement of Receipt of this form:

 Contractor Date

 City Representative Date

388

389 **Inventory List/Inventory of Hazardous Chemicals:**

Department _____

Contact Person _____

Chemical Identity Product Name	Operation Use of Product	MSDS Y/N	Extremely Hazardous Substance Y/N	Hazard Rating		
				H	F	R

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392 **APPENDIX A**

393 **Approval and Revision History**

Revision Date	Approval Date

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417 **APPENDIX B Safety Data Sheet Checklist**

418 Each SDS must contain the following information:
419

- 420 • Product or chemical identity used on the label.
- 421 • Manufacturer's name and address.
- 422 • Chemical and common names of each hazardous ingredient.
- 423 • Name, address and phone number for emergency information.
- 424 • Preparation or revision date.
- 425 • The hazardous chemical's physical and chemical characteristics (such as
426 vapor pressure and flashpoint).
- 427 • Physical hazards, including the potential for fire, explosion and reactivity.
- 428 • Known health hazards.
- 429 • OSHA permissible exposure limits (PEL), ACGIH Threshold Limit Value (TLV)
430 or other exposure limits.
- 431 • Emergency and first-aid procedures.
- 432 • Whether OSHA, NTP or IARC lists the ingredients as a carcinogen.
- 433 • Precautions for safe handling and use.
- 434 • Control measures such as engineering controls, work practices or personal
435 protective equipment.
- 436 • Primary routes of entry.
- 437 • Procedures for spills, leaks and clean-up.

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440

441 **APPENDIX C - Industrial sources of non-ionizing radiation***

Sources	Uses	Comments
Broadcast	AM Radio FM Radio VHF TV UHF TV	535-1605 kHz. 88-108 MHz 54-72, 76-88, 174-216 MHz 470-890 MHz
Cathode-ray tubes	Information processing systems such as CRT-based video display terminals; CRT-TV monitors	10-50 kHz
Communications	Fixed systems; troposphere scatter; satellite communication; microwave point-to-point (relay); high-frequency radio. Mobile systems; CB radios; walkie-talkies	0.8-15 GHz; generally well controlled 27-800 MHz; may produce high field strengths near antennae
Diathermy	Shortwave microwave	13.56 and 27.12 MHz; 915 and 2450MHz; may be continuous wave (CW) or pulsed wave (PW); consider duty cycle and leakage fields.
Dielectric heaters	Seal/emboss plastics; cure glues, resins, particle boards, and panels; bake sand cores; mold appliance covers and auto parts; heat paper products	1-100 MHz; mainly 27.12 MHz; may produce high E and/or H fields
Electronic Equipment	Switching regulator in copying machines, microcomputers, etc.	Usually shielded.
Electronic security systems	Intrusion alarms; theft detection; speed sensors; distance monitor; motion detection	Usually microwave frequencies
Electro-surgical devices	Cauterizing or coagulating tissues	May be CW or PW; solid state or spark-gap design
Hyperthermia	Same frequencies as diathermy	Applicators may be implantable
Induction heaters	Deep hardening; forging; welding; soft soldering; brazing; annealing; tempering metals and semiconductors; heat and draw optical fibers; epitaxial growth; plasma torching	250-500 kHz and ELF; may produce high E and/or H fields
Lasers	Etching/engraving, welding, optical and other medical surgery, communications research	Gas, crystalline liquid and semiconductor lasers
Microwave heaters (including microwave ovens)	Drying wood, paper, film, inks; thawing, cooking, baking, dehydrating, pasteurizing, and sterilizing foodstuffs; curing plastics; solvent desorption	915 and 2450 MHz
Plasma processors	Chemical milling; nitriding steel; polymerization; modifying polymer surfaces; depositing and hardening coatings and films; etching, cleaning, or stripping photoresist.	0.1-27.12 MHz; consider potential for exposure to plasma gases
Radar	Acquisition and tracking; air and auto traffic control; marine uses; surveillance	1-15 GHz; usually PW
Spectroscopic instruments	Excite emissions from lamps/phototubes used in quantitative analysis	2.45 GHz
Welding	Production of pipe, tube, and beam; spot welding	RF-stabilized; 0.4-100 MHz with harmonics

* Not all sources shown in this table are in the electromagnetic frequencies covered by ERTK.

445 **APPENDIX D - Stress evaluation – heat**

446
447 Heat stress may occur year round in areas with heat producing equipment such
448 as in foundries, kitchen, or laundries. In Minnesota, high temperatures and
449 humidity's are common during the summer with daily temperatures routinely
450 varying up to 30 degrees. This variation does not always allow people to
451 become acclimatized and stay acclimatized, thereby increasing the risk of heat
452 stress.

453
454 Heat stress results from a combination of internal heat production from doing
455 work and external heat exposure from the environment. Both aspects need to be
456 addressed properly to control heat stress.

457
458 Two commonly used instruments to obtain heat stress measurements are the
459 heat stress monitor and a sling psychrometer. The heat stress monitor measures
460 several temperatures simultaneously and accounts for radiant heat and air
461 movement. The sling psychrometer is a much cheaper and simpler device, but
462 does not take into account radiant heat, and air movement must be determined
463 separately.

464
465 The measurements obtained from either of these instruments are converted to
466 one value, the wet bulb globe temperature (WBGT), for determining compliance
467 with Minnesota Rules. WBGT is an index of heat stress indicating relative
468 comfort. It considers temperature, humidity and air movement. The calculated
469 value can be then compared to those found in Minnesota Rules 5205.0110,
470 subpart 2a. (see this Appendix).

471
472 Minnesota Rules 5205.0110, subpart 2a, is the Minnesota standard for heat
473 exposure. The standard is based on wet bulb globe temperature (WBGT) and
474 level of work activity. Typically, one will determine the WBGT by using a heat
475 stress monitor, or by using a sling psychrometer to obtain effective temperature,
476 then converting effective temperature to WBGT. If the heat stress limit is
477 approached or exceeded, Employee Right to Know requirements specified in
478 Minnesota Rules 5206.0700, subparts 1 and 3, "Training Program for Harmful
479 Physical Agents," and Minnesota Rules 5206.110, "Labeling harmful Physical
480 Agents; Label Content," also apply.

481

482

483 **APPENDIX E - Sources of information**

484
485 This program manual was prepared using information provided by the following
486 sources:

487
488 Minnesota Rules and Statutes Federal Regulations
489 5206.0100 – 5206.2000 29 CFR 1910.1200
490 182. 29 CFR 1910.95 – 1910.97
491 29 CFR 1910.1030

- 492 Iowa Association of Municipal Utilities
493 American Industrial Hygiene Association
494 American Conference of Governmental Industrial Hygienists (ACGIH)
495 National Institute for Occupational Safety and Health (NIOSH)
496 National Toxicology Program (NTP)
497 Minnesota Department of Health – Environmental Health Division
498 Centers for Disease Control and Prevention
499 Occupational Safety and Health Administration (OSHA)

500

501 **GLOSSARY**

502

503 **acidosis** – a condition of decreased alkalinity of the blood.

504 **ACGIH** – American Conference of Governmental Industrial Hygienists, Inc.

505 **action level** – the exposure level which triggers some but not all requirements in
506 certain OSHA standards.

507 **acute toxicity** – the adverse effects resulting from a single dose of or exposure to a
508 substance.

509 **alkali** – any compound having highly basic properties.

510 **anesthesia** – loss of sensation or feeling.

511 **asphyxia** – lack of oxygen than thus interference with oxygenation of the blood.

512 **asphyxiant** – a vapor or gas that can cause unconsciousness or death by suffocation.

513 **boiling point, BP** – the temperature at which the vapor pressure of a liquid is equal to
514 the surrounding atmospheric pressure.

515 **BZ** – breathing zone

516 **carcinogen** – a chemical that has been demonstrated to cause cancer in humans.

517 **CAS number** (chemical abstract service number) – an assigned number used to
518 identify a material; the numbers have no chemical significance.

519 **ceiling value, CV** – the concentration that should not be exceeded during any part of
520 the working exposure.

521 **CFM** (cubic feet per minute) – volume of air flow.

522 **chemical pneumonitis** – inflammation of the lungs due to chemical irritation.

523 **CNS** – central nervous system.

524 **CO** (carbon monoxide) – a colorless, odorless, highly poisonous gas, formed by the
525 incomplete combustion of carbon or carbonaceous material, including gasoline. A
526 chemical asphyxiant, it reduces the blood's ability to carry oxygen.

527

528 **CO2** (carbon dioxide) – a colorless, odorless, incombustible gas formed during
529 respiration, combustion, and organic decomposition and used in food refrigeration,
530 carbonated beverages, inert atmospheres, fire extinguishers, and aerosols. High
531 concentrations can create hazardous oxygen-deficient environments that can cause
532 asphyxiation.

533 **combustible** – OSHA defines combustible liquid as any liquid having a flash point at
534 or above 100F (38C), but below 200F (93.3).

535 **conjunctivitis** – inflammation of the conjunctiva, the delicate membrane that lines th
536 eyelids.

537 **corrosive** – a chemical that causes visible destruction of or irreversible alterations in
538 living tissue.

539 **cutaneous** – pertaining to the skin.

540 **dermal** – used on or applied to the skin.

541 **dermatitis** – inflammation of the skin.

542 **dyspnea** – a sense of difficulty in breathing; shortness of breath.

543 **edema** – an abnormal accumulation of clear, watery fluid in the tissues.

544 **evaporation rate** – the rate at which a particular material will vaporize from the liquid
545 or solid state to the gas state.

546 **f/cc** – fibers per cubic centimeter of air.

547 **flammable** – describes any solid, liquid or gas that will ignite easily and burn rapidly.
548 Has a flash point below 100F (38C).

549 **flash point** – the lowest temperature at which a flammable liquid gives off sufficient
550 vapors to form an ignitable mixture.

551 **FPM** (feet per minute) – velocity of air flow.

552 **grounding** – a safety practice to conduct an electrical charge to the ground.

553 **hazardous material** – a substance or mixture of substances having properties
554 capable of producing adverse health or safety effects.

555 **hematuria** – the presence of blood in the urine.

556 **HEPA** (high-efficiency particulate air purifying) – most efficient mechanical filter
557 commonly available.

558 **IARC** – International Agency for Research on Cancer.
559 **IDLH** – immediately dangerous to life and health.
560 **jaundice** – yellowish discoloration of tissues.
561 **LC 50** – the lethal concentration of a material in air that on the basis of laboratory tests
562 is expected to kill 50 percent of a group of test animals.
563 **LD 50** – the lowest published lethal dose that will kill 50 percent of a group of test
564 animals.
565 **LEL** (lower explosive limit) – refers to the lowest concentration of gas or vapor that will
566 burn or explode if an ignition source is present.
567 **LFM or lfm** (linear feet per minute) – velocity of air flow.
568 **mg/m³** – milligrams of material per cubic meter of air.
569 **mutagen** – a chemical or physical agent that induces genetic mutations.
570 **narcosis** – stupor or unconsciousness produced by a narcotic drug or chemical.
571 **NFPA** – National Fire Protection Association
572 **NIOSH** – National Institute for Occupational Safety and Health
573 **NTP** – National Toxicology Program
574 **odor threshold** – the lowest concentration of a material’s vapor in air that can be
575 detected by smell.
576 **particulate** – small, separate pieces of an airborne material.
577 **peak** – maximum instantaneous allowable exposure for hazardous substances.
578 **PEL** (permissible exposure limit) – an exposure limit established by OSHA.
579 **pH** – the value that represents the acidity or alkalinity of an aqueous solution [pH 7 =
580 neutral; pH 0 = strong acid; pH 14 = strong alkaline.]
581 **ppb** (parts per billion) – parts of material per billion parts of air.
582 **ppm** (parts per million) – parts of material per million parts of air.
583 **psychotropic** – acting on the mind.
584 **pulmonary edema** – fluid in the lungs.
585 **pyrophoric** – a material that will ignite spontaneously in air below 130F (54C).
586 **Reactivity** – a description of the tendency of a substance to undergo chemical reaction
587 either by itself or with other materials with the release of energy.

588 **reproduction health hazard** – any agent that has a harmful effect on the adult male
589 or female reproductive system of the developing fetus or child.

590 **SDS** – safety data sheet

591 **sensitization** – an immune-response reaction state in which further exposure elicits
592 an immune or allergic response.

593 **silicosis** – a condition of massive fibrosis of the lungs causing shortness of breath.

594 **skin** – notation used to indicate possible exposure to a chemical by absorption through
595 the skin.

596 **specific gravity** –

597 **STEL** – short term exposure limit.

598 **subcutaneous** – beneath the skin.

599 **target organ effects** – chemically caused effects upon specifically listed organs an
600 systems.

601 **teratogen** – an agent or substance that caused physical defects in developing embryo.

602 **TLV** (threshold limit value) – a term established by ACGIH to express the airborne
603 concentration of a material to which nearly all workers can be exposed day after day
604 without adverse effects.

605 **TWA** (time-weighted average) – the expression for average exposure which accounts
606 for fluctuating levels during a given time period.

607 **UEL** (upper explosive limit) – the highest concentration of a material in air that will
608 produce an explosion.

609 **unstable** – tending toward decomposition or other unwanted chemical change during
610 normal handling or storage.

611 **vapor density** – the weight of a vapor or gas compared to the equal volume of air.

612 **vapor pressure** –

613 **vertigo** – a feeling of revolving in space; dizziness, giddiness.

614 **viscosity** – measurement of the flow properties of a material.

615 **water reactive** – a chemical that releases a hazardous gas, often violently, upon
616 contact with water.