

1 **DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT**

2 **Solid and Hazardous Waste Commission/Hazardous Materials and**
3 **Waste Management Division**

4 **6 CCR 1007-2**

5 **PART 1 - REGULATIONS PERTAINING TO SOLID WASTE SITES AND FACILITIES**

6
7
8 **Deletion and Replacement of Existing Section 14 Composting Regulations with**
9 **New Section 14 Composting Regulations; and the Associated Additions and**
10 **Revision to Section 1.2 Definitions**

11
12
13 **1) Section 1.2 is being amended by adding the following definitions in**
14 **alphabetical order to read as follows:**

15
16 **1.2 Definitions**

17
18 *****

19
20 **“Animal Waste”** means compostable materials generated by the customary and generally accepted
21 activities, practices, and procedures that farmers and ranchers engage in during the production of poultry
22 and livestock including manures and animal mortalities. Animal Waste also includes non-agricultural and
23 non-human animal excreta. Animal waste does not include food processing residuals such as paunch.

24
25 *****

26
27 **“Backyard Composting”** means composting on a residential property utilizing Type 1 and 2 feedstocks
28 but with no more than 100 cubic yards in process at one time.

29
30 *****

31
32 **“Commercial Composting Facility”** means any solid waste composting facility that accepts a fee for
33 solid waste composting, or any solid waste composting facility that composts solid waste to create a
34 compost or soil amendment and distributes the finished compost or soil amendment offsite for a fee.

35
36 *****

37
38 **“Compostable Products”** means containers, films or foodservice ware such as bowls, plates, cups,
39 cutlery, composed of materials such as vegetable matter, paper, cardboard, and plastics that meet ASTM
40 D6400, D6868. These products are labeled in accordance with the USCC Labeling Guidelines.

41
42 *****

43
44 **“Food Processing Residuals”** means compostable materials generated as a by-product of the industrial
45 food processing sector that are non-toxic, non-hazardous, and contain no sanitary wastewater. The term
46 does not include fats, oil, grease and Dissolved Air Flotation (DAF) skimmings.

47
48 *****

49
50 **“Food Processing Vegetative Waste”** means material generated in trimming, reject sorting, cleaning,
51 pressing, cooking, and filtering operations from the processing of fruits and vegetables and the like in
52 food processing and packaging operations or similar industries that process food products. Food
53 processing vegetative wastes include, but are not limited to, tomato skins and seeds, pepper cores,
54 potato peels, cabbage, onion skins, celery pieces, cranberry hulls, cranberry tailings, rice hulls, carrot
55 stems, and coffee grounds.

56
57 *****

58
59 **“Food Residuals”** means pre- and post-consumer food discards from households and the
60 commercial/institutional sector including but not limited to vegetables, fruits, grains, dairy products, meats,
61 and compostable foodservice ware/packaging that may be commingled.

62
63 *****

64
65 **“Mixed Solid Waste”** means a mixture of compostable and non-compostable discards and may contain
66 household and other municipal solid wastes.

67
68 *****

69
70 **“Source Separated Organics”** means compostable material that has been separated from non-
71 compostable material at the point of generation, including but not limited to yard waste, food residuals,
72 vegetative waste, woody materials, and compostable products.

73
74 *****

75
76 **“Vegetative Waste”** means compostable materials generated by the production, harvesting and
77 processing of agricultural or horticultural plants. These residues include but are not limited to stalks,
78 stems, leaves, seed pods, husks, bagasse, and roots. Vegetative waste also includes woody materials
79 and yard waste. Vegetative waste does not include food processing residuals, oil, grease or dairy
80 wastes.

81
82 *****

83
84 **Woody materials”** means residuals and of cutting trees, including but not limited to tree stumps,
85 sawdust, pallets, and dimensional lumber that has not been treated chemically or with adhesives and
86 coatings such as paint, glue, or any other visible contaminant.

87
88 *****

89
90 **2) Section 1.2 is being amended by revising the following definitions to read as**
91 **follows:**

92
93 **1.2 Definitions**

94
95 *****

96
97 **“Agricultural wastes”** means all solid wastes resulting from the raising of crops or animals on land
98 zoned agricultural by local requirements, including animal manures, that are returned to the soils as
99 fertilizer, ~~or~~ soil conditioners or compost or are composted to return to the soils. In addition, agricultural
100 waste means all carcasses and carcass by-products resulting from any mass livestock mortality that is the
101 result of an all-hazards event or depopulation ordered by the state veterinarian or other appropriately
102 designated authority.

103 *****

104
105 **“Green Waste”** means any plant material that is either separated at the point of generation, or separated
106 at a centralized facility. Green waste includes, but is not limited to, yard waste trimmings, vegetative plant
107 wastes from the vegetable food processing industry, untreated wood wastes, paper products and pre-
108 consumer vegetative food waste.

109 *****

110
111 **“Other Compatible Materials”** means the minimum quantity of materials necessary to achieve and
112 maintain an appropriate porosity, moisture level or carbon to nitrogen (C:N) ratio for proper composting.
113 Such materials are limited to Type 1 feedstocks, manure and green wastes as defined in Section 1 and
114 Subsection 44.1.4 14.1.2 of these Regulations, or other materials approved by the Department and
115 governing authority body.

116 *****

117
118 **“Yard Waste”** means waste generated from yard maintenance, including garden waste, grass clippings,
119 leaves and branches. Yard waste can also include vegetative materials resulting from the use of
120 commercial products, including but not limited to discarded flowers, potted flowers, or grave blankets that
121 do not include plastic, metal, polystyrene foam, or other nonbiodegradable material.

122 *****

123
124
125
126
127 **3) Section 1.2 is being amended by deleting the definition of “Animal material” as**
128 **follows:**

129
130 **1.2 Definitions**

131 *****

132
133 ~~**“Animal material”** means any material derived from animal products that are for consumption by~~
134 ~~humans or animals. The generators of these products include, but are not limited to, agriculture, food~~
135 ~~manufacturing and processing industries, restaurants, hospitals and food distributors. Animal material~~
136 ~~does not include manure.~~

137
138
139 **4) The existing Section 14 Composting Regulations are being deleted in their**
140 **entirety and replaced with new Section 14 Composting Regulations to read as**
141 **follows:**

142 **SECTION 14**

143 **COMPOSTING**

- 144
- 145 14.1 General Provisions
- 146
- 147 14.2 Class I Composting Facilities
- 148
- 149 14.3 Class II Composting Facilities
- 150
- 151 14.4 Class III Composting Facilities
- 152
- 153 14.5 Composting Pilot Projects
- 154
- 155 14.6 Sampling of Finished Compost and Soil Amendments

156 **SECTION 14.1- GENERAL PROVISIONS**

157
158 **14.1.1 Scope and Applicability**

159
160 This section 14 applies to all persons, local governing authorities, and municipalities who compost solid
161 waste. Compliance with this Section 14 does not relieve any facility owner or operator from his/her
162 obligation to comply with any other applicable federal, state or local statutes, regulations, requirements or
163 ordinances.

164
165 Sections 1 and 2 of these Solid Waste Regulations are applicable to all solid waste composting facilities,
166 unless specifically otherwise noted herein. For ease of use, this Section 14 includes those Section 2
167 requirements that usually apply to the operation of composting facilities; however, there may be unique
168 features at a particular facility that trigger additional site-specific Section 2 requirements not referenced in
169 this Section 14.

170
171 Facilities subject to this Section 14 must obtain a certificate of designation (CD) unless otherwise exempt
172 per Section 30-20-102, C.R.S., or these Regulations. The CD will include, at a minimum, the engineering,
173 design and operations plan (EDOP) for the facility required by this Section 14. Facilities that require a CD
174 must follow the CD application process in Section 30-20-103, C.R.S., and these Regulations. See section
175 1.6 of these Solid Waste Regulations. Facilities subject to this Section 14, but exempt from the
176 requirement to obtain a CD, must provide an EDOP to the Department for review and approval prior to
177 implementation or maintain a Composting Plan onsite. Nothing in this section shall preclude any review
178 action that may be required by the local governing authority under appropriate local ordinance or rule.
179 See sections 1.3.9 and 1.4.1 of these Solid Waste Regulations.

180
181 Section 30-20-100.5(1)(a), C.R.S. provides that proper disposal of solid wastes is a matter of mixed
182 statewide and local concern. Because a facility may also need to comply with applicable local
183 requirements in addition to this Section 14, facilities should check with the local governing authority for
184 their submittal, notification, and approval requirements. The phrase “Department and local governing
185 authority approval, as appropriate,” as used in this Section 14 acknowledges that the Solid
186 Waste Act and Regulations establish dual jurisdiction over solid waste. Facilities should review Title 30,
187 Article 20, Part 1, C.R.S., and the Solid Waste Regulations to determine which authorities apply.
188 Compliance with this Section 14 shall not relieve the facility owner or operator from the obligation to
189 comply with the facility’s CD and any other applicable federal, state or local statute, regulation,
190 requirement or ordinance.

191
192 **14.1.2 Compost Feedstock Types**

193
194 The categories described below are not intended to be all-inclusive, but rather are set forth to assist
195 owners and operators in determining the appropriate classification of a proposed or existing composting
196 facility. The Department recognizes that case-by-case determinations may be necessary concerning
197 selection of an appropriate category for a particular feedstock. Accordingly, the Department may require
198 that analytical and/or process information be supplied by the owner or operator to assist in making such
199 determinations.

200
201 **Type 1:** Vegetative waste, and other materials determined by the Department to pose a low risk to human
202 health and the environment.

203
204 **Type 2:** Animal waste, manure, source-separated organics, food residuals and food processing
205 vegetative waste.

206
207 **Type 3:** Biosolids, mixed solid waste, processed solid waste and sludges and food processing residuals
208 not covered in Type 2, fats, oils, greases, dairy manufacturing wastes, dissolved air flotation (DAF)
209 skimmings, paunch and any other compostable material not covered in Type 1 or Type 2.

210

211 **Prohibited Wastes:** Composting facilities may not accept asbestos or asbestos containing materials,
212 infectious waste, hazardous waste, Polychlorinated biphenyl waste or lead-acid batteries.
213

214
215 **14.1.3 General Exemptions**
216

217 This Section 14 does not apply to the following:

- 218 (A) Backyard composting as defined by these Solid Waste Regulations;
- 219 (B) Owner/operators of composting facilities where only agricultural wastes are composted such that;
220
221 (1) The compost is produced at a manufacturing facility registered by the Colorado Department of
222 Agriculture (CDA), pursuant to § 35-12-101 et seq., C.R.S.; and
223
224 (2) Finished compost distributed off-site shall meet the specifications for compost established by
225 the CDA.
226
227 (C) The composting of biosolids at a wastewater treatment plant provided that the facility has
228 received a permit in accordance with the Department's Biosolids Regulations No. 64, 5 CCR 1002-64,
229 promulgated pursuant to Section 25-8-205(1)(e), C.R.S.
230
231

232
233 **14.1.4 Conditional Exemptions**
234

- 235 (A) Conditionally Exempt Small Quantity Composting Operations: Any composting facility with (1) up
236 to 100 cubic yards of Type 1 feedstock onsite or in process, or (2) any composting facility with up to
237 100 cubic yards of Type 1 feedstock and up to 5 cubic yards of Type 2 feedstock onsite or in process,
238 or (3) any composting facility with up to 100 cubic yards of Type 1 and up to 10 cubic yards Type 2
239 feedstock on site or in process when composted in vessel, that complies with the following conditions
240 is exempt from the balance of this Section 14:
241
242 (1) Such facilities must maintain records of feedstock types and quantities for Department
243 inspection;
244
245 (2) Facilities operating commercially must register with the Department as a Conditionally Exempt
246 Small Quantity Composting Facility;
247
248 (3) Facilities operating commercially must submit an annual report to the Department by March
249 1st each calendar year for the previous calendar year. The report must provide all information
250 required by the Department to properly complete the legislative requirement of collecting waste
251 diversion data including:
252
253 i. Types of materials recovered for composting; and
254
255 ii. Amount in tons or cubic yards of material recovered for composting.
256
257 (4) Facilities operating commercially must submit a final closure report to the Department no later
258 than ninety (90) days after ceasing composting operations.
259
260 (5) Facilities operating commercially must sample and test finished compost in accordance with
261 the minimum requirements of Section 14.6 of these Solid Waste Regulations.
262
263 (B) Conditionally Exempt Agricultural Composting Operations that compost only agricultural waste
264 generated on-site and imported wood chips, tree branches, sawdust, leaves or untreated lumber that
265 comply with the following are exempt from the balance of this Section 14:

- 266
267 (1) Importation of wood chips, tree branches, sawdust, leaves or untreated lumber occurs only in
268 quantities necessary for effective composting of the agricultural waste generated on-site;
269
270 (2) Storage of imported wood chips, tree branches, sawdust, leaves or untreated lumber is limited
271 to nine (9) months and the owner/operator of the facility maintains records to demonstrate
272 adherence to this time limit;
273
274 (3) The composting facility is operated in such a manner that noise, dust, and odors do not
275 constitute a nuisance or health hazard and does not cause or contribute to surface or
276 groundwater pollution;
277
278 (4) The owner/operator of the facility registers with the Colorado Department of Agriculture,
279 pursuant to § 35-12-101, et seq., C.R.S.;
280
281 (5) The owner/operator of the facility complies with all Colorado Department of Agriculture
282 requirements and specifications; and
283
284 (6) The finished compost is only used on agricultural zoned property, as defined by the local
285 requirements.
286

287 **14.1.5 Compliance Schedule**

288
289 (A) Class II and Class III composting facilities that do not have an EDOP approved after the
290 November 18, 2008 revisions of this Section 14, Solid Waste Composting Regulations, must submit
291 to the Department and the local governing authority, for review and approval, a revised EDOP within
292 eighteen (18) months of the effective date of this Section 14.
293

294 (B) Within six (6) months of the effective date of this Section 14, facilities that cannot meet the
295 compliance schedule specified in 14.1.5(A) must make a demonstration to the Department showing
296 why this compliance schedule cannot be met, and must request an alternate schedule for coming into
297 compliance with this Section 14. Such extension shall be subject to Department approval, but the
298 deadline for coming into compliance may be extended no longer than eighteen (18) months after the
299 effective date of this Section 14.
300

301 (C) Within twelve (12) months of the effective date of this Section 14, any Class I composting facility
302 must have onsite a completed Composting Plan that complies with Section 14.2.
303
304

305 **SECTION 14.2 – CLASS I COMPOSTING FACILITIES**

306 **14.2.1 Scope and Applicability**

307
308
309 Section 14.2 applies to any persons, local governing authorities, and municipalities who owns or operates
310 a Class I composting facility. A Class I composting facility is a facility that:

311
312 (A) Composts only Type 1 feedstocks, and who has less than 50,000 cubic yards of feedstocks and
313 in-process material onsite at any one time (finished compost does not count toward this total); or
314

315 (B) Composts only source separated organics and/or food residuals generated onsite together with
316 other compatible materials as defined in Section 1 of these regulations, with the following limits:
317

- 318 1. A total volume of no greater than 5,000 cubic yards of source separated organics onsite at
319 any one time (finished qualified product does not count toward this total); and
320

321 2. A composting area of two (2) acres in size or less; or

322

323 (C) Composts at the site of generation or on agriculturally zoned property owned by the generator
324 using only agricultural waste generated onsite together with other compatible materials as defined in
325 Section 1 of these regulations and does not meet one of the general exemptions or conditional
326 exemptions in Sections 14.1.3 or 14.1.4.

327

328

329 **14.2.2 Class I Composting Facility Pre-Operations Requirements**

330

331 (A) **Registration:** Prior to commencing composting or feedstock storage, the owner/operator of a
332 Class I composting facility must submit for Department review and approval a registration as a Class I
333 composting facility. Neither composting nor feedstock storage may commence without a current
334 approved Class I composting facility registration. The registration must provide the following
335 information:

336

337 (1) Name of the composting facility, the physical address and legal description, location with
338 respect to the nearest town, and mailing address, if different from physical address;

339

340 (2) Names, addresses, and telephone numbers of the owner and the operator, and at least one
341 person having the authority to take action in the event of an emergency;

342

343 (3) Maximum facility capacity and description and volume estimate of the types of materials to be
344 composted;

345

346 (4) Documentation demonstrating that the local governing authority has approved the composting
347 operation, including all conditions of approval;

348

349 (5) Closure plan demonstrating compliance with Section 14.2.6;

350

351 (B) **Financial Assurance:** Prior to commencing composting or feedstock storage, the owner/operator
352 Class I composting facility must establish financial assurance in accordance with Section 1.8 of these
353 Regulations.

354

355 (C) **Composting Plan:** Prior to commencing composting or feedstock storage, the owner or operator
356 of a Class I composting facility must develop a written Composting Plan for the facility. The
357 Composting Plan must include a description of the site, including site maps and plans drawn to a
358 commonly recognized engineering scale illustrating the facility's surveyed property boundaries,
359 location of processing and storage areas, adjoining properties, roads, fencing, existing and proposed
360 structures, contact water containment and control structures. The Composting Plan must document
361 how the facility meets the requirements of Sections 14.2.3, 14.2.4, 14.2.5, 14.2.6, 14.2.7 and 14.6 of
362 this regulation. The Composting Plan must be maintained at the facility and available for review upon
363 request by the Department or local governing authority during business hours.

364

365 (D) **Certificate of Designation:** Class I composting facilities are not required to obtain a Certificate of
366 Designation from the local governing authority.

367

368

369 **14.2.3 Class I Composting Facility Design Requirements**

370

371 (A) **Surface Water Control:** The Composting Plan for Class I composting facility must describe how
372 the surface water control system features of the facility will be designed, constructed and maintained:

373

374 (1) Prevent negative impacts to surface water and groundwater;

375

- 376 (2) Control surface water, including:
377
378 (a) stormwater run on and run off control features with a slope of one (1) to six (6) percent, or
379 meeting other design criteria as approved by the department;
380
381 (b) features to contain and manage contact water;
382
383 (c) features to prevent contact water from negatively impacting groundwater, as determined
384 by a Colorado licensed professional engineer or a professional geologist;
385
386 (d) features to prevent ponding of stormwater and contact water within the composting
387 process area;
388
389 (e) features to prevent ponding of stormwater and contact water within the composting
390 process area;
391
392 (f) contact water/stormwater containment structures with a minimum of 2 feet of freeboard
393 measured from the lowest elevation at any given time.
394

395 **(B) Surface Water Control for Class I Composting Facilities Composting Manure, Animal**
396 **Mortalities and/or Source Separated Organics:** In addition to the surface water management
397 requirements in 14.2.3(A), the owner/operator of a Class I composting facility composting manure,
398 animal mortalities and/or source separated organics must design, construct and maintain stormwater
399 and contact water controls that meet the following requirements:

- 400 (1) Prevent flow onto the facility during peak discharge from a 25-year, 24- hour storm event;
401
402 (2) Control and collect the on-site run-off water volume resulting from a 25- year, 24-hour storm
403 event;
404
405 (3) All stormwater/contact water containment structures must be constructed of a minimum of
406 eighteen (18) inches of compacted soil or in-situ earthen material or other low permeability
407 materials (e.g., geomembrane) to achieve a hydraulic conductivity of less than or equal to 1×10^{-6}
408 cm/sec; and
409

410
411 (C) Engineered features or operational plans already approved by the Department would not need to
412 be re-submitted if equivalence is demonstrated (e.g., stormwater control features that meet the
413 requirements in the Confined Animal Feeding Operations Control Regulation, 5 CCR 1002-81).
414

415 (D) All engineered features must be reviewed and sealed by a Colorado licensed professional
416 engineer or reviewed and signed by a professional geologist, as appropriate.
417

418 419 **14.2.4 Class I Composting Facility Operational Requirements**

420
421 The owner/operator of a Class I composting facility must operate the facility in accordance with their
422 Department-approved registration, with their Composting Plan, and with the following operational
423 requirements:

424
425 (A) The owner/operator of a Class I composting facility must comply with the operational
426 requirements provided in Sections 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.7, 2.1.8, 2.1.9, 2.1.11, 2.1.15,
427 2.1.17, and 2.1.18 of these Solid Waste Regulations;
428

429 (B) **Financial Assurance:** The owner/operator of a Class I composting facility must maintain financial
430 assurance in accordance with Section 1.8 of these Regulations.

431
432 (C) **Material Acceptance:** The owner/operator of a Class I composting facility may only accept Type
433 1 feedstocks, or other compatible materials if the composting facility is operating under the provisions
434 of Section 14.2.1(B) or Section 14.2.1(C) and as specified in the approved registration.
435

436 (D) **Surface Water Control:** The owner/operator of a Class I composting facility must control surface
437 water entering the site, must prevent contact water from leaving the site, and must manage contact
438 water to ensure groundwater protection. Stormwater leaving the site must be managed through best
439 management practices approved by the Water Quality Control Division's National Pollution Discharge
440 Elimination System Program or stormwater may be managed within the contact water management
441 system. Following a storm event that causes the available capacity of an impoundment to be less
442 than the volume required to store runoff from the designed storm event, the impoundment must be
443 dewatered to a level that restores the required capacity within thirty (30) calendar days. Alternative
444 stormwater and contact water management methods and designs must be approved by the
445 Department. Freeboard must be maintained at a minimum of two (2) feet at all times.
446

447 (E) **Access Control:** The owner/operator of a Class I composting facility must control access to
448 prevent illegal dumping, prevent unauthorized access and provide for site security both during and
449 after business hours. Effective artificial barriers or natural barriers may be used in lieu of fencing.
450

451 (F) **Nuisance Conditions:** The owner/operator of a Class I composting facility must control on-site
452 and prevent off-site nuisance conditions such as noise, dust, mud, odors, vectors and windblown
453 debris.
454

455 (G) **Signage:** The owner/operator of a Class I composting facility shall erect and maintain signage
456 that identifies the facility name, emergency contact information, and the materials that will and will not
457 be accepted, and that ensures adequate traffic control.
458

459 (H) **Contingency Plan:** The owner/operator of a Class I composting facility must develop, maintain
460 for current site conditions, and keep available at all times, a contingency plan which outlines the
461 corrective or remedial procedures to be taken in the event of:
462

- 463 (1) The delivery of unapproved feedstock, bulking material, liquid waste or other waste materials;
- 464 (2) Contamination of surface water or groundwater; and
- 465 (3) The occurrence of nuisance conditions either on-site or off-site.

466 (I) **Fire Protection:** The owner/operator of a Class I composting facility must properly implement its
467 approved fire protection plan as required by local fire codes, and such plan must be kept current with
468 site conditions and compliant with local fire codes.
469

470 (J) **Odor Control:** The owner/operator of a Class I composting facility must develop and implement
471 an odor management plan as necessary to control on-site and prevent off-site nuisance conditions,
472 including the following:
473

- 474 (1) Develop operational procedures to minimize on-site odors and prevent off-site odors (e.g.,
475 incorporating feedstocks with bulking material as soon as practical).
 - 476 (2) Develop operational procedures to mitigate odors when they occur either on-site or off-site
477 (e.g., use of biofilters).
 - 478 (3) Develop strategies for mitigating off-site odors (e.g., communication with neighbors,
479 responding to complaints within 24 hours).
- 480
481
482
483
484
485

486 (K) **Personnel Training:** Class I composting facilities must operate under the control of properly
487 trained individuals. Personnel must be trained to recognize prohibited materials, take action when
488 nuisance conditions occur, and implement emergency procedures when necessary.
489

490 (L) **Compost processing time and temperatures:** The owner/operator of a Class I composting
491 facility must ensure that the composting process is sufficient to reduce pathogens and vector
492 attraction. Processes to reduce pathogens and vector attraction must include, but are not limited to:
493

494 (1) **Windrow composting:** the compost material must be maintained at a temperature of 55
495 degrees Celsius (131 degrees Fahrenheit) or higher for fifteen (15) days or longer. The fifteen
496 days do not need to be consecutive. During the period when the compost is maintained at 55
497 degrees Celsius or higher, there must be a minimum of five (5) turnings of the windrow.
498

499 (2) **In-vessel composting:** Compost material must be maintained at a temperature of 55 degrees
500 Celsius (131 degrees Fahrenheit) or higher for three (3) consecutive days.
501

502 (3) **Aerated static pile composting process:** All in-process compost must be covered with
503 sufficient insulating material, and the pile must be maintained at a temperature of 55 degrees
504 Celsius (131 degrees Fahrenheit) or higher for a pathogen reduction period of three (3)
505 consecutive days.
506

507 (4) **Alternative methods of compliance:** To meet requirements of this section, alternative
508 processing methods may be approved by the Department based on a demonstration that these
509 methods achieve an equivalent pathogen reduction. Vermicomposting is an example of an
510 alternative method of compliance.
511

512 (M) **Compost sampling and testing:** The owner/operator of a Class I composting facility must
513 sample and test finished compost in accordance with the minimum requirements of Section 14.6 of
514 these Solid Waste Regulations.
515

516 (N) **Feedstock processing areas:** The owner/operator of a Class I composting facility must maintain
517 an all-weather feedstock processing areas of sufficient slope to direct stormwater and contact water
518 to appropriate collection and storage features and prevents significant ponding of water. The
519 feedstock processing areas must be of sufficient construction and firmness so that composting
520 equipment can manage the process without significant damage or failure following inclement weather.
521

522

523 **14.2.5 Class I Composting Facility Record Keeping and Reporting Requirements**

524

525 (A)The owner/operator of a Class I composting facility must complete the Composting Facility Annual
526 Reporting Form and submit to the Department by March 1st of each year for the previous calendar
527 year. The annual report must provide all information required by the Department including:
528

529

(1) The types of materials received for composting;

530

(2) Amount in tons or cubic yards of each material received for composting;

531

(3) Amount of unprocessed feedstock and feedstock in process onsite at the beginning of the
532 previous calendar year;

533

(4) Amount of unprocessed feedstock and feedstock in process onsite at the end of the previous
534 calendar year; and

535

(5) Amount of compost distributed the previous calendar year.
536
537
538
539
540

541 (B) The owner/operator of a Class I composting facility must maintain, at a minimum, the following
542 records;

- 543
- 544 (1) Windrow/ pile aeration data;
- 545
- 546 (2) Financial assurance documentation;
- 547
- 548 (3) Operational monitoring data including time and temperature readings;
- 549
- 550 (4) Facility personnel training records;
- 551
- 552 (5) Compost analytical data; and
- 553
- 554 (6) Feedstock analytical data.
- 555
- 556

557 **14.2.6 Class I Composting Facility Closure Requirements**

- 558
- 559 (A) Upon closure of a Class I composting facility, the owner/operator of the facility must provide a
560 written notice to the Department no later than ninety (90) days after the facility stops accepting solid
561 waste;
- 562
- 563 (B) Within one hundred and eighty (180) days of notifying the Department of closure, the
564 owner/operator of a Class I composting facility must remove all waste from the site and dispose of at
565 an appropriate solid waste disposal site; and
- 566
- 567 (C) Facilities must submit a final report to the Department within ninety (90) calendar days of
568 completing closure.
- 569
- 570

571 **14.2.7 Class I Composting Facility Post Closure Care and Maintenance**

- 572
- 573 (A) Following closure of the Class I composting facility the owner/operator must conduct post-closure
574 care, which must consist of at least the following:
- 575
- 576 (1) Continued monitoring and maintenance as defined in the post-closure plan;
- 577
- 578 (2) Inspection and maintenance of any cover material or vegetation; and
- 579
- 580 (3) An annual report submitted to the Department and local governing authority detailing post-
581 closure care activities during the prior year.
- 582
- 583 (B) The post-closure care and maintenance period must be for a minimum of three (3) years. The
584 length of the post-closure care period may be:
- 585
- 586 (1) Decreased by the Department after consultation with the local governing authority if the owner
587 or operator demonstrates that the reduced period is sufficient to protect human health and the
588 environment; or
- 589
- 590 (2) Increased by the Department after consultation with the local governing authority if it is
591 determined that the lengthened period is necessary to protect human health and the environment.
- 592
- 593 (C) Following completion of the post-closure care period the owner or operator must submit a
594 certification signed by an independent professional for approval by the Department and the local

595 governing authority, verifying that post-closure care has been completed in accordance with the post-
596 closure plan and has been placed in the operating record.

597
598

599 **SECTION 14.3 – CLASS II COMPOSTING FACILITIES**

600
601
602

601 **14.3.1 Scope and Applicability**

603 Section 14.3 applies to any persons, local governing authorities and municipalities who owns or operates
604 a Class II composting facility. A Class II composting facility is a facility that composts Type 1 feedstocks
605 and manure and has less than 50,000 cubic yards of feedstocks and in-process material onsite at any
606 one time (finished compost does not count toward this total).

607
608

608 **14.3.2 Class II Composting Facility Pre-Operations Requirements**

609
610

611 (A) **Review and Approval of Engineering Design and Operations Plan:** Prior to commencing
612 composting or feedstock storage, the owner or operator of a Class II composting facility must have an
613 Engineering Design and Operations Plan (EDOP) for the facility approved by the Department and the
614 local governing authority. The EDOP must document how the facility meets the requirements of
615 Sections 14.3.3, 14.3.4, 14.3.5, 14.3.6, 14.3.7, 14.3.8 and 14.6 of this regulation. The EDOP must be
616 maintained at the facility and available for review upon request by the Department or local governing
617 authority during business hours.

618
619

619 (B) **Financial Assurance:** Prior to commencing composting or feedstock storage, the owner/operator
620 Class II composting facility must establish financial assurance in accordance with Section 1.8 of these
621 Regulations.

622
623

622 (C) **Certificate of Designation:** Class II composting facilities are not required to obtain a Certificate
623 of Designation from the local governing authority.

624
625

626 **14.3.3 Class II Composting Facility Engineering Design and Operations Plan: General**

627
628

628 (A) All portions of the facility design and site investigation must be reviewed and sealed by a
629 Colorado licensed professional engineer or reviewed and signed by a professional geologist, as
630 appropriate.

631
632

632 (B) A Class II composting facility must be designed, constructed, operated, closed and maintained in
633 post closure in accordance with its approved EDOP.

634
635

635 (C) Each EDOP for a Class II composting facility must include, at a minimum:

636
637

637 (1) Names, addresses, and telephone numbers of the owner and operator, and at least one
638 person having the authority to take action in the event of an emergency;

639
640

640 (2) Name of the composting facility, the physical address and legal description, location with
641 respect to the nearest town, and mailing address, if different from physical address;

642
643

643 (3) Site maps and plans drawn to a common recognized engineering scale illustrating the facility's
644 surveyed property boundaries, location of processing and storage areas, adjoining properties,
645 roads, fencing, existing and proposed structures, contact water containment and control
646 structures.

647
648

648 (4) A description of the Type 1 feedstocks and manure to be processed and composted.

649

- 650 (5) An evaluation of potential impacts to existing surface water and groundwater quality, including
651 but not limited to:
652
653 (a) A description of site geological and hydrogeological conditions based on an onsite
654 geotechnical investigation;
655
656 (b) Floodplain information including evidence that the proposed site is not located within a
657 100-year floodplain;
658
659 (c) Public water supply information including the location of all water supply wells, springs,
660 and surface water intakes within one-half mile of the proposed facility boundary;
661
662 (d) Identification of all lakes, rivers, streams, springs, or bogs, on-site or within one-half mile
663 of the proposed facility boundary;
664
665 (e) Depth to the uppermost aquifer;
666
667 (f) The hydrologic properties of the uppermost aquifer;
668
669 (g) The existing quality of groundwater beneath the proposed facility if groundwater
670 monitoring is required for the facility;
671
672 (h) The types and regional thickness of unconsolidated soils materials;
673
674 (i) The types and regional thickness of consolidated bedrock materials; and
675
676 (j) Geologic hazards such as slope stability, faulting, folding, rockfall, landslides, subsidence
677 or erosion potential.
678
679

680 **14.3.4 Class II Composting Facility Design and Operations Plan: Design**

- 681 (A) **General:** The EDOP for a Class II composting facility must document how the facility will be
682 designed in a manner that:
683
684 (1) Prevents negative impacts to surface water and groundwater;
685
686 (2) Clearly defines the feedstock receiving, processing and storage areas;
687
688 (3) Specifies the maximum throughput capacity;
689
690 (B) **Feedstock Processing Areas:** The EDOP for a Class II composting facility must describe how
691 the areas where all mixing, tipping and composting occur will be designed and constructed to:
692
693 (1) Ensure groundwater protection;
694
695 (2) Have a slope of one (1) to six (6) percent, or meets alternative slope design criteria as
696 approved by the department;
697
698 (3) Withstand varying temperatures; and
699
700 (4) Allow for heavy equipment operation other vehicular access, without damage or failure that
701 creates ponding or infiltration of surface water greater than the designed permeability rate; and in
702 some cases:
703
704

705 (5) The Department may require a low permeability workpad area to manage contact water
706 generated from composting operations. Site-specific conditions, operational practices, feedstock,
707 bulking material and liquid wastes will be evaluated to determine the necessity for a low
708 permeability workpad and low permeability liquid mixing pad/basin.
709

710 (C) **Surface Water Containment:** The EDOP for a Class II composting facility must describe how the
711 surface water control system features of the facility will be designed, constructed and maintained:
712

713 To control stormwater run on and run off during peak discharge from a 25-year, 24-hour storm event;
714

715 (1) Such that contact water/stormwater containment structures are designed and maintained with
716 a minimum of 2 feet of freeboard measured from the lowest elevation at any given time;
717

718 (2) Such that all stormwater/contact water containment structures must be constructed of a
719 minimum of eighteen (18) inches of compacted soil or in-situ earthen material or other low
720 permeability materials to achieve a hydraulic conductivity of less than or equal to 1×10^{-6} cm/sec.
721 Alternative liner designs that perform in an equivalent manner may be approved by the
722 Department based on a demonstration of the alternative liner design's equivalent performance,
723 the waste type and site specific technical information;
724

725 (3) Such that stormwater/contact water containment structure liners are protected to prevent
726 damage from weather and equipment;
727

728 (D) **Quality Assurance and Quality Control Plan:** The EDOP for a Class II composting facility must
729 include a quality assurance and quality control plan for all engineered structures at the facility.
730

731 (1) The owner/operator of a Class II composting facility must implement their approved quality
732 assurance and quality control plan in constructing all engineered structures at the facility.
733

734 (2) The owner/operator of a Class II composting facility must submit a construction certification
735 report to the Department for review and approval, at a minimum, sixty (60) calendar days prior to
736 acceptance of feedstock, liquid waste or bulking material.
737

738 (3) The owner/ operator of a Class II composting facility must provide copies of the construction
739 record drawings for engineered features at the site and a report documenting facility construction,
740 including the results of observations and testing carried out as part of the construction quality
741 assurance plan, to the Department and local governing authority.
742

743 (4) Class II composting facilities must not commence operation until the Department has
744 determined that the construction was completed in accordance with the approved engineering
745 report/plans and specifications and has approved the construction documentation in writing.
746

747 748 **14.3.5 Class II Composting Facility Design and Operations Plan: Operations**

749
750 Class II composting facilities must comply with their Department-approved EDOP. The EDOP must
751 include the following operation requirements:
752

753 (A) **General:** The EDOP for a Class II composting facility must describe how the facility will comply
754 with the operational requirements provided in Sections 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.7, 2.1.8,
755 2.1.9, 2.1.11, 2.1.15, 2.1.17, and 2.1.18 of these Solid Waste Regulations;
756

757 (B) **Financial Assurance:** The EDOP for a Class II composting facility must include current financial
758 assurance estimates in accordance with Section 1.8 of these Solid Waste Regulations. A Class II

759 composting facility must maintain adequate financial assurance in accordance with its EDOP and with
760 Section 1.8 of these Solid Waste Regulations.

761
762 (C) **Material Acceptance:** The EDOP for a Class II composting facility must describe the Type 1
763 feedstocks and manure that the facility accepts. A Class II Composting facility must not accept a
764 feedstock other than those specified in its EDOP or as approved by the department.

765
766 (D) **Surface Water Control:** The EDOP for a Class II composting facility must describe how the
767 facility will prevent stormwater and contact water from leaving the site. The EDOP must describe how
768 the impoundment will be dewatered to a level that restores the required capacity within thirty (30)
769 calendar days following a storm event that causes the available capacity of an impoundment to be
770 less than the volume required to store runoff from the designed storm event. Freeboard must be
771 maintained at a minimum of two (2) feet at all times.

772
773 (E) **Access Control:** The owner/operator of a Class II composting facility must control access to
774 prevent illegal dumping, prevent unauthorized access and provide for site security both during and
775 after business hours. Effective artificial barriers or natural barriers may be used in lieu of fencing.
776 The EDOP for a Class II composting facility must describe how the facility will comply with this
777 requirement.

778
779 (F) **Signage:** The owner/operator of a Class II composting facility shall erect and maintain signage
780 that identifies the facility name, emergency contact information, and the materials that will and will not
781 be accepted, and that ensures adequate traffic control.

782
783 (G) **Nuisance Conditions:** A Class II composting facility must control on-site and prevent off-site
784 nuisance conditions such as noise, dust, mud, odors, vectors and windblown debris. The EDOP for a
785 Class II composting facility must describe how the facility will comply with this requirement.

786
787 (H) **Contingency Plan:** The EDOP for a Class II composting facility must include a contingency plan
788 which outlines the corrective or remedial procedures to be taken in the event of:

- 789
790 (1) The delivery of unapproved feedstock, bulking material, liquid waste or other waste materials;
791
792 (2) Contamination of surface water or groundwater; and
793
794 (3) The occurrence of nuisance conditions either on-site or off-site.

795
796 (I) **Fire Protection Plan:** A Class II composting facility must comply with local fire codes or, where no
797 local fire code exists or where the local fire code does not provide equivalent or greater level of fire
798 protection, with the fire code currently adopted by the Colorado Division of Fire Prevention and
799 Control in the Department of Public Safety. The EDOP for a Class II composting facility must include
800 a current fire protection plan that describes how the facility will comply with this requirement.

801
802 (J) **Odor Management Plan:** The EDOP for a Class II composting facility must include an odor
803 management plan that describes how the facility will control on-site and prevent off-site nuisance
804 conditions, including the following:

- 805
806 (1) Operational procedures to minimize on-site odors and prevent off-site odors (e.g.,
807 incorporating feedstocks with bulking material as soon as practical).
808
809 (2) Operational procedures to mitigate odors when they occur either on-site or off-site (e.g., use
810 of biofilters).
811
812 (3) Strategies for mitigating off-site odors (e.g., communication with neighbors, responding to
813 complaints within 24 hours).

814
815 (K) **Personnel Training:** A Class II composting facility must operate under the control of properly
816 trained individuals. Personnel must be trained to recognize prohibited materials, take action when
817 nuisance conditions occur, and implement emergency procedures when necessary. The EDOP for a
818 Class II composting facility must describe how the facility will comply with these requirements.

819
820 (L) **Compost processing time and temperatures:** The owner/operator of a composting facility must
821 ensure that the composting process is sufficient to reduce pathogens and vector attraction. The
822 processing methods, including processing times and temperatures must be described in the facility's
823 EDOP per Section 14.6 (testing section). Processes to reduce pathogens and vector attraction must
824 include, but are not limited to:

825
826 (1) **Windrow composting:** the compost material must be maintained at a temperature of 55
827 degrees Celsius (131 degrees Fahrenheit) or higher for fifteen (15) days or longer. The fifteen
828 days do not need to be consecutive. During the period when the compost is maintained at 55
829 degrees Celsius or higher, there must be a minimum of five (5) turnings of the windrow.

830
831 (2) **In-vessel composting:** Compost material must be maintained at a temperature of 55 degrees
832 Celsius (131 degrees Fahrenheit) or higher for three (3) consecutive days.

833
834 (3) **Aerated static pile composting process:** All in-process compost must be covered with
835 sufficient insulating material, and the pile must be maintained at a temperature of 55 degrees
836 Celsius (131 degrees Fahrenheit) or higher for a pathogen reduction period of three (3)
837 consecutive days.

838
839 (4) **Alternative methods of compliance:** To meet requirements of this section, alternative
840 processing methods may be approved by the Department based on a demonstration that these
841 methods achieve an equivalent pathogen reduction. Vermicomposting is an example of an
842 alternative method of compliance.

843
844 (M) **Groundwater Monitoring Plan:** The EDOP for a Class II composting facility must include a
845 Groundwater Monitoring Plan pursuant Section 2.2 of these Solid Waste Regulations. Monitoring
846 parameters will be established based on the hydrogeologic data related to the site, the type of waste
847 stream(s) accepted at the facility and the waste characterization analyses performed on incoming
848 wastes. A Class II composting facility may receive a specific waiver from groundwater monitoring
849 from the Department and local governing authority pursuant to Section 1.5 and Appendix B of these
850 Solid Waste Regulations.

851
852 (N) **Compost sampling and testing:** The EDOP for A Class II composting facility must describe how
853 the facility will sample and test finished compost in accordance with the minimum requirements of
854 Section 14.6 of these Solid Waste Regulations.

855
856 (O) **Feedstock Processing Areas:** The owner/operator of a Class II composting facility must
857 maintain all weather feedstock processing areas of sufficient slope to direct stormwater and contact
858 water to appropriate collection and storage features and prevents significant ponding of water. The
859 feedstock processing areas must be of sufficient construction and firmness so that composting
860 equipment can manage the process without significant damage or failure following inclement weather.

861
862
863 **14.3.6 Class II Composting Facility Design and Operations Plan: Record Keeping and Reporting**

864
865 (A) The EDOP for a Class II composting facility must include a record keeping and reporting section
866 that describes the records the facility will maintain for department review, including, at a minimum, the
867 following:

868

- 869 (1) Windrow/ pile aeration data;
870
871 (2) Financial assurance documentation;
872
873 (3) Operational monitoring data including time and temperature readings;
874
875 (4) Engineering Design and Operations Plan;
876
877 (5) Facility personnel records;
878
879 (6) Compost analytical data;
880
881 (7) Feedstock analytical data;
882
883 (8) Liquid waste analytical data;
884
885 (9) The types of materials received for composting;
886
887 (10) Amount in tons or cubic yards of each material received for composting;
888
889 (11) Amount of unprocessed feedstock and feedstock in process onsite at the beginning of the
890 previous calendar year;
891
892 (12) Amount of unprocessed feedstock and feedstock in process onsite at the end of the previous
893 calendar year; and
894
895 (13) Amount of compost distributed the previous calendar year.
896

897 (B) A Class II composting facility must complete the Composting Facility Annual Reporting Form and
898 submit to the Department by March 1st of each year for the previous calendar year. The annual report
899 must provide all information required by the Department, including but not limited to the information
900 describe in section 14.3.6(A).
901

902 **14.3.7 Class II Composting Facility Engineering Design and Operations Plan: Closure** 903

904 (A)The EDOP for a Class II composting facility must include a closure plan which contains at a
905 minimum a complete and accurate description and schedule of all steps necessary to achieve closure
906 of the composting facility. Such steps must include the following criteria:
907

908 (1) The removal of all stored raw feedstock, bulking material, and liquid waste to a permitted solid
909 waste facility or a facility where the wastes may be beneficially reused with approval from the
910 Department and local governing authority;
911

912 (2) The removal of all other wastes on-site, including those wastes generated by closure
913 activities, to a permitted solid waste facility;
914

915 (3) The removal of all workpad area unless, specifically approved by the Department and local
916 governing authority to remain on-site;
917

918 (4) The removal of all stormwater control and collection structures, unless specifically approved
919 by the Department and local governing authority to remain on-site;
920

921 (5) The removal of all tanks, structures and equipment unless specifically approved by the
922 Department and local governing authority to remain onsite;
923

- 924
925 (6) Site restoration including regrading and revegetation; and
926
927 (7) The removal of partially composted feedstocks and bulking material to a permitted solid waste
928 facility or another compost facility with approval from the Department and local governing
929 authority.
930
931 (8) Closure activities must not exceed ninety (90) days in length. Extension of the closure period
932 may be granted by the Department and the local governing authority if the owner or operator
933 demonstrates that closure will, of necessity, take longer than ninety (90) days and all measures
934 necessary to prevent threats to human health and the environment will be taken.
935
936 (B) If at any time a composting facility ceases operation, including the discontinued receipt,
937 processing and sale of materials for more than one hundred eighty (180) days, the owner or operator
938 must notify the Department and local governing authority and unless otherwise approved by the
939 Department and the local governing authority, the owner or operator must begin implementation of its
940 Closure Plan. Within fourteen (14) calendar days of commencing implementation of the Closure Plan,
941 the facility must provide written notification to the Department and the local governing authority.
942
943 (C) Within thirty (30) calendar days of completing closure activities the owner/operator of the facility
944 must provide written notification to the Department and local governing authority to document that all
945 the requirements and conditions of the closure plan have been achieved.
946
947

948 **14.3.8 Class II Composting Facility Engineering Design and Operations Plan: Post Closure Care**
949 **and Maintenance**
950

- 951 (A) Following closure of the Class II composting facility the owner or operator must conduct post-
952 closure care, which must consist of at least the following:
953
954 (1) Continued monitoring, sampling and testing of soil, groundwater or surface water as defined in
955 the post-closure plan;
956
957 (2) Inspection and maintenance of any cover material or vegetation; and
958
959 (3) An annual report submitted to the Department and local governing authority detailing post-
960 closure care activities during the prior year.
961
962 (B) The post-closure care and maintenance period must be for a minimum of five (5) years. The
963 length of the post-closure care period may be:
964
965 (1) Decreased by the Department after consultation with the local governing authority if the owner
966 or operator demonstrates that the reduced period is sufficient to protect human health and the
967 environment; or
968
969 (2) Increased by the Department after consultation with the local governing authority if it is
970 determined that the lengthened period is necessary to protect human health and the environment.
971
972 (C) Following completion of the post-closure care period the owner or operator must submit a
973 certification signed by an independent Colorado licensed professional engineer for approval by the
974 Department and the local governing authority, verifying that post-closure care has been completed in
975 accordance with the post-closure plan and has been placed in the operating record.

976 **14.4 – CLASS III COMPOSTING FACILITIES**

977
978 **14.4.1 Scope and Applicability**
979

980 Section 14.4 applies to any persons, local governing authorities, and municipalities composting Type 1,
981 Type 2 and Type 3 feedstocks or other materials approved by the Department.
982

983
984 **14.4.2 Class III Composting Facility Pre-Operations Requirements**
985

986 (A) **Review and Approval of Engineering Design and Operations Plan:** Prior to commencing
987 composting or feedstock storage, the owner or operator of a Class III composting facility must have
988 an Engineering Design and Operations Plan (EDOP) for the facility approved by the Department and
989 the local governing authority. The EDOP must document how the facility meets the requirements of
990 Sections 14.4.3, 14.4.4, 14.4.5, 14.4.6, 14.4.7, 14.4.8 and 14.6 of this regulation. The EDOP must be
991 maintained at the facility and available for review upon request by the Department or local governing
992 authority during business hours.
993

994 (B) **Financial Assurance:** Prior to commencing composting or feedstock storage, the owner/operator
995 Class III composting facility must establish financial assurance in accordance with Section 1.8 of
996 these Regulations.
997

998 (C) **Certificate of Designation:** Class III composting facilities must obtain a Certificate of Designation
999 from the local governing authority.
1000

1001
1002 **14.4.3 Class III Composting Facility Engineering Design and Operations Plan: General**
1003

1004 (A) All portions of the facility design and site investigation must be reviewed and sealed by a
1005 Colorado licensed professional engineer or reviewed and signed by a professional geologist, as
1006 appropriate.
1007

1008 (B) A Class III composting facility must be designed, constructed, operated, closed and maintained in
1009 post closure in accordance with its approved EDOP.
1010

1011 (C) Each EDOP must include, at a minimum:
1012

1013 (1) Names, addresses, and telephone numbers of the owner and operator, and at least one
1014 person having the authority to take action in the event of an emergency;
1015

1016 (2) Name of the composting facility, the physical address and legal description, location with
1017 respect to the nearest town, and mailing address, if different from physical address;
1018

1019 (3) Site maps and plans drawn to a common recognized engineering scale illustrating the facility's
1020 surveyed property boundaries, location of processing and storage areas, adjoining properties,
1021 roads, fencing, existing and proposed structures, contact water containment and control
1022 structures.
1023

1024 (4) A description of the feedstocks to be processed and composted.
1025

1026 (5) An evaluation of potential impacts to existing surface water and groundwater quality, including
1027 but not limited to:
1028

1029 (a) A description of site geological and hydrogeological conditions based on an onsite
1030 geotechnical investigation;

- 1031
1032 (b) Floodplain information including evidence that the proposed site is not located within a
1033 100-year floodplain;
1034
1035 (c) Public water supply information including the location of all water supply wells, springs,
1036 and surface water intakes within one-half mile of the proposed facility boundary;
1037
1038 (d) Identification of all lakes, rivers, streams, springs, or bogs, on-site or within one-half mile
1039 of the proposed facility boundary;
1040
1041 (e) Depth to the uppermost aquifer;
1042
1043 (f) The hydrologic properties of the uppermost aquifer;
1044
1045 (g) The existing quality of groundwater beneath the proposed facility if groundwater
1046 monitoring is required for the facility;
1047
1048 (h) The types and regional thickness of unconsolidated soils materials;
1049
1050 (i) The types and regional thickness of consolidated bedrock materials; and
1051
1052 (j) Geologic hazards such as slope stability, faulting, folding, rockfall, landslides, subsidence
1053 or erosion potential.
1054
1055

1056 **14.4.4 Class III Composting Facility Design and Operations Plan: Design**

1057
1058 (A) **General:** The EDOP for a Class III composting facility must document how the facility will be
1059 designed in a manner that:

- 1060 (1) Prevents negative impacts to surface water and groundwater;
1061
1062 (2) Clearly defines the feedstock receiving, processing and storage areas;
1063
1064 (3) Specifies the maximum throughput capacity;
1065
1066

1067 (B) **Feedstock Processing Areas:** The EDOP for a Class III composting facility must describe how
1068 the areas where all mixing, tipping and composting occur will be designed and constructed to:

- 1069 (1) Ensure groundwater protection;
1070
1071 (2) Have a slope of one (1) to six (6) percent, or meets alternative slope design criteria as
1072 approved by the department;
1073
1074 (3) Withstand varying temperatures; and
1075
1076 (4) Allow for heavy equipment operation other vehicular access, without damage or failure that
1077 creates ponding or infiltration of surface water greater than the designed permeability rate; and in
1078 some cases:
1079
1080 (5) The Department may require a low permeability workpad area to manage contact water
1081 generated from composting operations. Site-specific conditions, operational practices, feedstock,
1082 bulking material and liquid wastes will be evaluated to determine the necessity for a low
1083 permeability workpad and low permeability liquid mixing pad/basin.
1084
1085

1086 (C) **Surface Water Containment:** The EDOP for a Class III composting facility must describe how
1087 the surface water control system features of the facility will be designed, constructed and maintained:
1088

1089 (1) To control stormwater run on and run off during peak discharge from a 25-year, 24-hour storm
1090 event;

1091
1092 (2) Such that contact water/stormwater containment structures are designed and maintained with
1093 a minimum of 2 feet of freeboard measured from the lowest elevation at any given time;

1094
1095 (3) Such that all stormwater/contact water containment structures must be constructed of a
1096 minimum of eighteen (18) inches of compacted soil or in-situ earthen material or other low
1097 permeability materials to achieve a hydraulic conductivity of less than or equal to 1×10^{-6} cm/sec.
1098 Alternative liner designs that perform in an equivalent manner may be approved by the
1099 Department based on a demonstration of the alternative liner design's equivalent performance,
1100 the waste type and site specific technical information;

1101
1102 (4) Such that stormwater/contact water containment structure liners are protected to prevent
1103 damage from weather and equipment;

1104
1105 (D) **Quality Assurance and Quality Control Plan:** The EDOP for a Class III composting facility
1106 must include a quality assurance and quality control plan for all engineered structures at the facility.
1107

1108 (1) The Owner/Operator of a Class III composting facility must implement their approved quality
1109 assurance and quality control plan in constructing all engineered structures at the facility.
1110

1111 (2) The Owner/Operator of a Class III composting facility must submit a construction certification
1112 report to the Department for review and approval, at a minimum, sixty (60) calendar days prior to
1113 acceptance of feedstock, liquid waste or bulking material.
1114

1115 (3) The owner or operator of a Class III composting facility must provide copies of the
1116 construction record drawings for engineered features at the site and a report documenting facility
1117 construction, including the results of observations and testing carried out as part of the
1118 construction quality assurance plan, to the Department and local governing authority.
1119

1120 (4) Class III composting facilities must not commence operation until the Department has
1121 determined that the construction was completed in accordance with the approved engineering
1122 report/plans and specifications and has approved the construction documentation in writing.
1123

1124

1125 **14.4.5 Class III Composting Facility Design and Operations Plan: Operations**

1126

1127 Class III composting facilities must comply with their Department-approved EDOP. The EDOP must
1128 include the following operation requirements:

1129

1130 (A) **General:** The EDOP for a Class III composting facility must describe how the facility will comply
1131 with the operational requirements provided in Sections 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.7, 2.1.8,
1132 2.1.9, 2.1.11, 2.1.15, 2.1.17, and 2.1.18 of these Solid Waste Regulations:
1133

1134 (B) **Financial Assurance:** The EDOP for a Class III composting facility must include current financial
1135 assurance estimates in accordance with Section 1.8 of these Solid Waste Regulations. A Class III
1136 composting facility must maintain adequate financial assurance in accordance with its EDOP and with
1137 Section 1.8 of these Solid Waste Regulations.
1138

1139 (C) **Material Acceptance:** The EDOP for a Class III composting facility must describe the feedstocks
1140 that the facility accepts. A Class III Composting facility must not accept a feedstock other than those

1141 specified in its EDOP or as approved by the department. The EDOP for a facility that accepts
1142 sludges, liquid waste or materials not identified in Section 14.1.2 of the Solid Waste Regulations must
1143 include a waste characterization plan that meets the procedural requirements of Section 2.1.2(C)(2),
1144 (3), and (4) of these Solid Waste Regulations to ensure protection of human health and the
1145 environment.

1146
1147 (D) **Surface Water Control:** The EDOP for a Class III composting facility must describe how the
1148 facility will prevent stormwater and contact water from leaving the site. The EDOP must describe how
1149 the impoundment will be dewatered to a level that restores the required capacity within thirty (30)
1150 calendar days following a storm event that causes the available capacity of an impoundment to be
1151 less than the volume required to store runoff from the designed storm event. Freeboard must be
1152 maintained at a minimum of two (2) feet at all times.

1153
1154 (E) **Access Control:** A Class III composting facility must control access to prevent illegal dumping,
1155 prevent unauthorized access and provide for site security both during and after business hours.
1156 Effective artificial barriers or natural barriers may be used in lieu of fencing. The EDOP for a Class III
1157 composting facility must describe how the facility will comply with this requirement.

1158
1159 (F) **Signage:** The owner/operator of a Class III composting facility shall erect and maintain signage
1160 that identifies the facility name, emergency contact information, and the materials that will and will not
1161 be accepted, and that ensures adequate traffic control.

1162
1163 (G) **Nuisance Conditions:** A Class III composting facility must control on-site and prevent off-site
1164 nuisance conditions such as noise, dust, mud, odors, vectors and windblown debris. The EDOP for a
1165 Class III composting facility must describe how the facility will comply with this requirement.

1166
1167 (H) **Contingency Plan:** The EDOP for a Class III composting facility must include a contingency plan
1168 which outlines the corrective or remedial procedures to be taken in the event of:

- 1169
1170 (1) The delivery of unapproved feedstock, bulking material, liquid waste or other waste materials;
1171
1172 (2) Contamination of surface water or groundwater; and
1173
1174 (3) The occurrence of nuisance conditions either on-site or off-site.

1175
1176 (I) **Fire Protection Plan:** The owner/operator of a Class III composting facility must comply with local
1177 fire codes or, where no local fire code exists or where the local fire code does not provide equivalent
1178 or greater level of fire protection, with the fire code currently adopted by the Colorado Division of Fire
1179 Prevention and Control in the Department of Public Safety. The EDOP for a Class III composting
1180 facility must include a current fire protection plan that describes how the facility will comply with this
1181 requirement.

1182
1183 (J) **Odor Management Plan:** The EDOP for a Class III composting facility must include an odor
1184 management plan that describes how the facility will control on-site and prevent off-site nuisance
1185 conditions, including the following:

- 1186
1187 (1) Operational procedures to minimize on-site odors and prevent off-site odors (e.g.,
1188 incorporating feedstocks with bulking material as soon as practical).
1189
1190 (2) Operational procedures to mitigate odors when they occur either on-site or off-site (e.g., use
1191 of biofilters).
1192
1193 (3) Strategies for mitigating off-site odors (e.g., communication with neighbors, responding to
1194 complaints within 24 hours).
1195

1196 (K) **Personnel Training:** A Class III composting facility must operate under the control of properly
1197 trained individuals. Personnel must be trained to recognize prohibited materials, take action when
1198 nuisance conditions occur, and implement emergency procedures when necessary. The EDOP for a
1199 Class III composting facility must describe how the facility will comply with these requirements.
1200

1201 (L) **Compost processing time and temperatures:** The owner/operator of a composting facility must
1202 ensure that the composting process is sufficient to reduce pathogens and vector attraction. The
1203 processing methods, including processing times and temperatures must be described in the facility's
1204 EDOP per Section 14.6 (testing section). Processes to reduce pathogens and vector attraction must
1205 include, but are not limited to:
1206

1207 (1) **Windrow composting:** the compost material must be maintained at a temperature of 55
1208 degrees Celsius (131 degrees Fahrenheit) or higher for fifteen (15) days or longer. The fifteen
1209 days do not need to be consecutive. During the period when the compost is maintained at 55
1210 degrees Celsius or higher, there must be a minimum of five (5) turnings of the windrow.
1211

1212 (2) **In-vessel composting:** Compost material must be maintained at a temperature of 55 degrees
1213 Celsius (131 degrees Fahrenheit) or higher for three (3) consecutive days.
1214

1215 (3) **Aerated static pile composting process:** All in-process compost must be covered with
1216 sufficient insulating material, and the pile must be maintained at a temperature of 55 degrees
1217 Celsius (131 degrees Fahrenheit) or higher for a pathogen reduction period of three (3)
1218 consecutive days.
1219

1220 (4) **Alternative methods of compliance:** To meet requirements of this section, alternative
1221 processing methods may be approved by the Department based on a demonstration that these
1222 methods achieve an equivalent pathogen reduction. Vermicomposting is an example of an
1223 alternative method of compliance.
1224

1225 (M) **Groundwater Monitoring Plan:** The EDOP for a Class III composting facility must include a
1226 Groundwater Monitoring Plan pursuant Section 2.2 of these Solid Waste Regulations. Monitoring
1227 parameters will be established based on the hydrogeologic data related to the site, the type of waste
1228 stream(s) accepted at the facility and the waste characterization analyses performed on incoming
1229 wastes. A Class III composting facility may receive a specific waiver from groundwater monitoring
1230 from the Department and local governing authority pursuant to Section 1.5 and Appendix B of these
1231 Solid Waste Regulations.
1232

1233 (N) **Compost sampling and testing:** The EDOP for A Class III composting facility must describe
1234 how the facility will sample and test finished compost in accordance with the minimum requirements
1235 of Section 14.6 of these Solid Waste Regulations.
1236

1237 (O) **Feedstock Processing Areas:** The owner/operator of a Class III composting facility must
1238 maintain all weather feedstock processing areas of sufficient slope to direct stormwater and contact
1239 water to appropriate collection and storage features and prevents significant ponding of water. The
1240 feedstock processing areas must be of sufficient construction and firmness so that composting
1241 equipment can manage the process without significant damage or failure following inclement weather.

1242 **14.4.6 Class III Composting Facility Design and Operations Plan: Record Keeping and Reporting**
1243

1244 (A) The EDOP for a Class III composting facility must include a record keeping and reporting section
1245 that describes the records the facility will maintain for department review, including, at a minimum, the
1246 following:

- 1247
- 1248 (1) Windrow/ pile aeration data;
 - 1249
 - 1250 (2) Financial assurance documentation;
 - 1251
 - 1252 (3) Operational monitoring data including time and temperature readings;
 - 1253
 - 1254 (4) Engineering Design and Operations Plan;
 - 1255
 - 1256 (5) Facility personnel records;
 - 1257
 - 1258 (6) Compost analytical data;
 - 1259
 - 1260 (7) Feedstock analytical data;
 - 1261
 - 1262 (8) Liquid waste analytical data;
 - 1263
 - 1264 (9) The types of materials received for composting;
 - 1265
 - 1266 (10) Amount in tons or cubic yards of each material received for composting;
 - 1267
 - 1268 (11) Amount of unprocessed feedstock and feedstock in process onsite at the beginning of the
1269 previous calendar year;
 - 1270
 - 1271 (12) Amount of unprocessed feedstock and feedstock in process onsite at the end of the previous
1272 calendar year; and
 - 1273
 - 1274 (13) Amount of compost distributed the previous calendar year.

1275

1276 (B) A Class III composting facility must complete the Composting Facility Annual Reporting Form and
1277 submit to the Department by March 1st of each year for the previous calendar year. The annual report
1278 must provide all information required by the Department, including but not limited to the information
1279 describe in section 14.4.6(A).
1280

1281 **14.4.7 Class III Composting Facility Design and Operations Plan: Closure**
1282

1283

1284 (A) The EDOP for a Class III composting facility must include a closure plan which contains at a
1285 minimum a complete and accurate description and schedule of all steps necessary to achieve closure
1286 of the composting facility. Such steps must include the following criteria:

- 1287
- 1288 (1) The removal of all stored raw feedstock, bulking material, and liquid waste to a permitted solid
1289 waste facility or a facility where the wastes may be beneficially reused with approval from the
1290 Department and local governing authority;
 - 1291
 - 1292 (2) The removal of all other wastes on-site, including those wastes generated by closure
1293 activities, to a permitted solid waste facility;
 - 1294
 - 1295 (3) The removal of all workpad area unless, specifically approved by the Department and local
1296 governing authority to remain on-site;

- 1297
1298 (4) The removal of all stormwater control and collection structures, unless specifically approved
1299 by the Department and local governing authority to remain on-site;
1300
1301 (5) The removal of all tanks, structures and equipment unless specifically approved by the
1302 Department and local governing authority to remain on-site;
1303
1304 (6) Site restoration including regrading and revegetation; and
1305
1306 (7) The removal of partially composted feedstocks and bulking material to a permitted solid waste
1307 facility or another compost facility with approval from the Department and local governing
1308 authority.
1309
1310 (8) Closure activities must not exceed ninety (90) days in length. Extension of the closure period
1311 may be granted by the Department and the local governing authority if the owner or operator
1312 demonstrates that closure will, of necessity, take longer than ninety (90) days and all measures
1313 necessary to prevent threats to human health and the environment will be taken.

1314
1315 (B) If at any time a composting facility ceases operation, including the discontinued receipt,
1316 processing and sale of materials for more than one hundred eighty (180) days, the owner or operator
1317 must notify the Department and local governing authority and unless otherwise approved by the
1318 Department and the local governing authority, the owner or operator must begin implementation of its
1319 Closure Plan. Within fourteen (14) calendar days of commencing implementation of the Closure Plan,
1320 the facility must provide written notification to the Department and the local governing authority.

1321 (C) Within thirty (30) calendar days of completing closure activities the owner/operator of the facility
1322 must provide written notification to the Department and local governing authority to document that all
1323 the requirements and conditions of the closure plan have been achieved.
1324

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1326
1327 **14.4.8 Class III Composting Facility Design and Operations Plan: Post Closure Care and**
1328 **Maintenance**

1329
1330 (A) Following closure of the Class III composting facility the owner or operator must conduct post-
1331 closure care, which must consist of at least the following:

- 1332
1333 (1) Continued monitoring, sampling and testing of soil, groundwater or surface water as defined in
1334 the post-closure plan;
1335
1336 (2) Inspection and maintenance of any cover material or vegetation; and
1337
1338 (3) An annual report submitted to the Department and local governing authority detailing post-
1339 closure care activities during the prior year.

1340
1341 (B) The post-closure care and maintenance period must be for a minimum of five (5) years. The
1342 length of the post-closure care period may be:

1343 (1) Decreased by the Department after consultation with the local governing authority if the owner
1344 or operator demonstrates that the reduced period is sufficient to protect human health and the
1345 environment; or
1346

1347 (2) Increased by the Department after consultation with the local governing authority if it is
1348 determined that the lengthened period is necessary to protect human health and the environment.
1349
1350

1351 (C) Following completion of the post-closure care period the owner or operator must submit a
1352 certification signed by an independent Colorado licensed professional engineer for approval by the
1353 Department and the local governing authority, verifying that post-closure care has been completed in
1354 accordance with the post-closure plan and has been placed in the operating record.
1355

1356
1357 **14.5 – COMPOSTING PILOT PROJECTS**
1358

1359 (A) The Department will consider composting pilot projects on a case-by-case basis. Composting
1360 pilot projects must be performed for the following purposes:
1361

- 1362 (1) Academic research;
- 1363 (2) Compost market analysis;
- 1364 (3) Determining composting method viability; or
- 1365 (4) Other as approved by the Department.

1366
1367
1368 (B) Composting pilot project must demonstrate that they meet the design and operations
1369 requirements for the corresponding facility classification based on feedstock type collected.
1370

1371 (C) Composting pilot project must not exceed two (2) years in length without written approval from the
1372 Department.
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1376
1377 **14.6 – SAMPLING OF FINISHED COMPOST AND SOILS AMENDMENTS**
1378

1379 (A) **Compost Standards:** The owner or operator of any class of compost facility (unless exempt
1380 under Section 14.1.3) must ensure that compost to be sold or distributed for off-site use meets the
1381 standards set forth in Table 1 of this Section 14, and with Section 14.6 below. Compliance with these
1382 standards must not relieve any owner or operator from their obligation to comply with any other
1383 applicable agency standards, such as those of the Colorado Department of Agriculture.
1384

1385 (B) Compost facilities processing mixed solid waste must remove non-compostable waste prior to
1386 product distribution.
1387

1388 (C) Facilities composting to create soil amendments may submit a request for alternative testing
1389 requirements to the Division and local governing authority for review and approval. Alternative testing
1390 demonstrations must include an agronomic evaluation with examples of application rates for specific
1391 crop types and a demonstration that the beneficial use of the soil amendment will not have a greater
1392 impact to public health and the environment than similar products on the market used for similar
1393 purposes.
1394

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1399

TABLE 1
Maximum Constituent Concentration For Compost
Sold Or Distributed For Off-site Use
(mg/kg dry weight basis)

CONSTITUENTS	MAXIMUM LEVEL
INORGANICS¹ (mg/kg)	
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800
BIOLOGICAL	
Fecal coliform	see 14.6 (D)
Salmonella	see 14.6 (D)

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¹Inorganic Methodology: Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846) Third Edition, December 1996: As, Cd, Cu, Pb, Ni, Se and Zn by Method 6010 or 7000. Hg by 7471. These documents are available for review at the Colorado Department of Public Health and Environment (See § 1.1.2 of these Regulations) and the State Publications Depository Libraries.

(D) The owner or operator of a composting facility must ensure that:

(1) The density of the fecal coliform present in the compost is less than 1000 Most Probable Number per gram of total solids (dry weight basis); or

(2) The density of Salmonella sp. bacteria in the compost is less than three (3) Most Probable Number per four (4) grams of total solids (dry weight basis) at the time the compost is to be sold or otherwise distributed for use; or

(3) An owner/operator of a composting facility may receive an approval from the Department and local governing authority for alternate testing after demonstrating how the alternative testing is protective of human health and the environment.

(E) **Sampling Frequency:** Finished compost must be sampled and tested once every 10,000 cubic yards of compost produced, or annually, whichever is more frequent. The Department, in consultation with the local governing authority, may impose site-specific EDOP provisions requiring a greater testing frequency on finished compost, especially from a Class III composting facility, in cases where the feedstocks and liquid waste accepted or the compost process warrants greater frequency.

(F) **Reintroduction of Finished Product into Compost Process:** Finished compost which has been sampled and tested, but to which raw or partially composted feedstock, bulking material, or liquid waste is added prior to, or during distribution, must be reintroduced into the composting process, re-sampled and re-tested prior to commencing or continuing distribution.

1432 (G) **Sampling Methodology:** Sample collection, preservation, and analysis must assure valid and
1433 representative analytical results. Sampling procedures must be described in the facility's design and
1434 operation plan.

1435
1436 (H) **Additional Testing:** The Department may require additional testing of finished compost for
1437 constituents not found in Table 1 and at a frequency greater than specified in Section 14.6(E) of this
1438 Section 14.

1439
1440 (I) **Exceedances:** Compost that exceeds the levels specified in Table 1 or as specified in the
1441 approved EDOP must be:

- 1442 (1) Reintroduced into the composting process; or
1443
1444 (2) Disposed of at a permitted solid waste disposal facility; or
1445
1446 (3) Otherwise used in a manner approved by the Department and local governing authority.

1447
1448 (J) **Unrestricted Use:** Compost that satisfies the levels specified in Table 1 and all other parameters
1449 identified by the Department per Section 14.6 is determined by these criteria to be finished compost and
1450 acceptable for unrestricted use. The finished compost is considered to be a product not a waste, and is
1451 no longer subject to these Solid Waste Regulations. For those additional constituents identified by the
1452 Department under Section 14.6 and not found on Table 1, the Department will approve protective
1453 unrestricted use constituent concentrations.
1454