

# STATE OF COLORADO

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## SOLID AND HAZARDOUS WASTE COMMISSION

Dedicated to protecting and improving the health and environment of the people of Colorado

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Colorado Department  
of Public Health  
and Environment

## NOTICE OF CONTINUATION OF PROPOSED RULE-MAKING HEARING BEFORE THE COLORADO SOLID AND HAZARDOUS WASTE COMMISSION

### **SUBJECT:**

Continuation of the consideration of proposed amendments to the Solid Waste Regulations, 6 CCR 1007-2, Part 1. The following regulations (**as submitted by the Hazardous Materials and Waste Management Division on December 9, 2013**) will be considered for adoption:

**Revision to Regulations Pertaining to Solid Waste Sites and Facilities (6 CCR 1007-2, Part 1) –Deletion and Replacement of Existing Section 5.5 Regulations (Management of Asbestos-Contaminated Soil) with New Section 5.5 Regulations (Management of Regulated Asbestos Contaminated Soil (RACS)); the Addition of Appendix 5A (Sample Collection Protocols and Analytical Methodologies) and the Associated Additions and Revisions to Section 1.2 Definitions**

This modification is made pursuant to the authority granted to the Solid and Hazardous Waste Commission in Sections 25-15-302 and 30-20-109 C.R.S. The purpose of this revision to Section 5.5 and the associated definitions are aimed at improving the management of asbestos contaminated soils (ACS), while maintaining protectiveness of human health and the environment.

The State Board of Health<sup>1</sup> promulgated a revision to Section 5 of the Solid Waste Regulations in 2006 in order to address asbestos contamination in the soil. The Air Quality Control Commission has promulgated Regulation No. 8, The Control of Hazardous Air Pollutants, Part B, The Control of Asbestos (Regulation No. 8), in order to protect public health and the environment during asbestos abatement and control projects dealing with facility components. Regulation No. 8 deals with Asbestos Containing Material (ACM) which is defined as containing greater than 1% asbestos. Revisions to Section 5 of the Solid Waste Regulations address sites that were contaminated with asbestos at levels that are less than 1% asbestos in soils, and where the asbestos contamination is not related to the presence of a facility component, and thus not specifically regulated under Regulation No. 8. Any

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<sup>1</sup> The Board of Health previously had authority to promulgate rules for solid waste disposal sites and facilities. This authority was transferred to the Solid and Hazardous Waste Commission in July of 2006.

remaining ACM and/or soil impacted by asbestos are a solid waste under the Solid Waste Regulations. The purpose of the current Section 5.5 revision is to update the ACS regulations based on the Hazardous Material and Waste Management Division's and stakeholders' experience gained from implementing the regulation since its promulgation in 2006. These regulatory changes apply practical and implementable engineering controls to effectively control the release of asbestos fibers and improve the management of ACS while maintaining protectiveness of human health and the environment.

These regulation changes will create and update definitions, retain the standard operating procedures (SOPs) and pre-approved work plan options, and establish new minimum requirements (Section 5.5.7) that can be implemented in lieu of a work plan or SOP, thus eliminating the need for plan submittal.

**HEARING SCHEDULE:**

DATE: February 18, 2014  
TIME: 9:30 AM  
PLACE: Colorado Department of Public Health & Environment  
4300 Cherry Creek Drive South, Sabin Conference Room  
Denver, Colorado 80246

**PLEASE NOTE: The Commission heard testimony by accepted parties and members of the public during the December 12, 2013 hearing and has closed the record. All parties and members of the public who have submitted written comments, alternative proposals, and oral testimony by the December 12, 2013 hearing are automatically included in the administrative record.**

**PUBLIC COMMENT:**

The Commission reserves the right to re-open the administrative record. Public testimony may be taken during the hearing as necessary, and may be limited at the discretion of the Commission.

Pursuant to C.R.S. §24-4-103(3), a notice of proposed rule-making was originally submitted to the Secretary of State on August 15, 2013 and updated on October 15, 2013. This notice of continuation was submitted to the Secretary of State on December 23, 2013. Copies of the proposed rulemaking will be electronically mailed to all persons on the Solid and Hazardous Waste Commission's mailing list on or before the date of publication of the notice of proposed rule-making in the Colorado Register on January 10, 2014. The proposed rulemaking materials may also be accessed at <http://www.colorado.gov/cs/Satellite/CDPHE-Main/CBON/1251611209861> or the Solid and Hazardous Waste Commission Office, Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, 5<sup>th</sup> Floor, Building A, Denver, CO 80246-1530. Any information that is incorporated by reference in these proposed rules is available for review at the Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division and any state publications depository library.



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Michael Silverstein, Commission Administrator

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 5.5 Regulations (Management of  
9 Asbestos-Contaminated Soil) with New Section 5.5 Regulations (Management of  
10 Regulated Asbestos Contaminated Soil (RACS)); the Addition of Appendix 5A  
11 (Sample Collection Protocols and Analytical Methodologies) and the Associated  
12 Additions and Revision to Section 1.2 Definitions

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

17  
18 1.2 Definitions

19 \*\*\*\*\*

20  
21  
22 “Adjacent Receptor Zone” means an area of uncontrolled access at a distance of 150’  
23 or less from the nearest Regulated Work Area (RWA) boundary during active RACS  
24 disturbance. For the purpose of this definition, roadways without sidewalks, where only  
25 vehicles as defined in §42-1-102, C.R.S, are permitted, are considered to be areas of  
26 controlled access and therefore not adjacent receptor zones. For the purpose of this  
27 definition, an area for which access is not ordinarily controlled that is closed to the  
28 public during soil disturbing activities in the adjacent RWA is considered to be an area  
29 of controlled access and therefore not an adjacent receptor zone.

30 \*\*\*\*\*

31  
32  
33 “Air Monitoring Specialist” (“AMS”) means a person trained and certified, in  
34 accordance with the requirements of Air Quality Control Commission Regulation No. 8  
35 (5 CCR 1001-10, Part B), for the collection of air samples to determine airborne  
36 particulate and/or asbestos concentrations.

37 \*\*\*\*\*

40 **“Ancillary Worker”** means a worker that has not completed the training under Section  
41 5.5.3(C) and (D) of these Regulations.

42 \*\*\*\*\*

43  
44 **“Area of Contamination” (“AOC”)** means a discrete, discernible area of known  
45 RACS.

46 \*\*\*\*\*

47  
48  
49 **“Certified Asbestos Building Inspector” (“CABI”)** means a person trained and  
50 certified in accordance with Air Quality Control Commission Regulation No. 8 (5 CCR  
51 1001-10, Part B), for the identification of asbestos-containing materials and the  
52 collection of samples to determine asbestos content.

53 \*\*\*\*\*

54  
55  
56 **“Debris”** means ~~the remains of any non-earthen material that has been discarded,~~  
57 ~~broken down, destroyed, or burned.~~ any discarded material that contains or consists of  
58 any of the following: construction, renovation and demolition debris (regardless of how it  
59 was generated), building or facility components, components of building systems  
60 (HVAC, plumbing, electrical, control, fire protection, roofing), components of pavement  
61 or drainage systems, industrial or machinery components, and/or mechanical  
62 components from motorized vehicles.

63 \*\*\*\*\*

64  
65  
66 **“Friable asbestos-containing material”** means any material that contains asbestos  
67 and when dry can be crumbled, pulverized, or reduced to powder by hand pressure and  
68 that contains more than one percent asbestos by weight, area, or volume. The term  
69 includes non-friable forms of asbestos after such previously non-friable material  
70 becomes damaged to the extent that when dry it can be crumbled, pulverized, or  
71 reduced to powder by hand pressure as determined in the field by a CABI.

72 \*\*\*\*\*

73  
74 **“Non-Regulated Asbestos Contaminated Soil” (“Non-RACS”)** means soil or debris  
75 that contains only:

- 76  
77 1) Intact non-damaged, non-friable asbestos-containing materials;  
78  
79 2) Non-friable asbestos-containing materials that do not have a high probability to  
80 release fibers based on the forces expected to act upon the material as

81 determined in the field by a CABI. The following asbestos-containing materials  
82 are predetermined to be Non-RACS:  
83

- 84 a. Resin based materials including but not limited to phenolic-plastic  
85 (Bakelite), used in electrical and mechanical parts  
86
- 87 b. Resilient flooring (vinyl, asphalt, rubber) excluding non-tar impregnated  
88 friable felt backing on sheet vinyl flooring (linoleum)  
89
- 90 c. Tar impregnated or asphaltic materials in good condition that have not  
91 become brittle
- 92 d. Elastic, pliable, or rubberized materials, including but not limited to:  
93
  - 94 i. Pliable duct sealant
  - 95
  - 96 ii. Pliable fiberglass insulation sealant
  - 97
  - 98 iii. Pliable fire-stop caulking /sealants
  - 99
  - 100 iv. Pliable window and door caulking
  - 101
- 102 e. Extremely hard materials, coatings and sealants including but not limited  
103 to:  
104
  - 105 i. Laboratory countertops and sinks
  - 106
  - 107 ii. Epoxy type Concrete Masonry Unit (CMU) coatings
  - 108
  - 109 iii. Epoxy type panel adhesive
  - 110
  - 111 iv. Duct sealant
  - 112
  - 113 v. Ceiling tile adhesive
  - 114
- 115 f. Other asbestos-containing materials as approved by the Department.

116 \*\*\*\*\*  
117

118  
119 **"Project"** means any soil disturbing activity that involves RACS within a planned  
120 geographic area(s) of disturbance, as defined in the Notification of RACS Disturbance  
121 form submitted for that specific management or remediation scope, starting from the  
122 time of first RACS disturbance and continuing through final RACS removal or  
123 stabilization and final demobilization. A project may include one or more Regulated

124 Work Areas (RWAs), and start dates and stabilization dates for individual RWAs within  
125 a project may be different.

126  
127 \*\*\*\*\*

128  
129 **“Qualified Project Monitor” (“QPM”)** means an individual who has the training and/or  
130 experience necessary to identify materials suspected of containing asbestos fibers and  
131 who has the authority to make prompt decisions relating to the management of such  
132 materials, and who meets the training requirements in Section 5.5.3.

133  
134 \*\*\*\*\*

135 **“Regulated Asbestos Contaminated Soil” (“RACS”)** means soil, ash or debris (plus  
136 6 inches in all directions of surrounding soil or other matrix material) containing:

137  
138 1) Friable asbestos-containing materials;  
139  
140 2) Asbestos-containing materials that have been broken/resized/damaged, and  
141 have a high probability of becoming, crumbled, pulverized, reduced to powder, or  
142 releasing fibers from the forces expected to act upon the material, as determined  
143 by a CABI in the field. The following asbestos-containing materials are RACS if  
144 they have been broken/resized/damaged, and have a high probability of  
145 becoming, crumbled, pulverized, reduced to powder, or releasing fibers from the  
146 forces expected to act upon the material, as determined by a CABI in the field:

- 147  
148 a. Asbestos cement materials  
149  
150 b. Plaster  
151  
152 c. Brittle caulking, glazing and sealants  
153  
154 d. Powdery Concrete Masonry Unit (CMU) sealant  
155  
156 e. Powdery floor leveling compound  
157  
158 f. Drywall/wallboard and associated joint compound material  
159  
160 g. Firebrick  
161  
162 h. Deteriorated non-friable materials that are in poor condition due to  
163 weathering, mechanical impact, fire damage (by evidence of ACM within  
164 an ash layer) or other factors  
165

166 i. Other material as determined by the Department, at the request of the  
167 person disturbing debris, to have a high probability to release fibers  
168

169 3) Soil or ash known to contain non-visible asbestos based on documented  
170 evidence.  
171

172 \*\*\*\*\*

173  
174 **“Regulated work area” (“RWA”)** as used in Section 5.5 of these Regulations means  
175 the portion(s) of a site at which soil disturbing activities involving RACS occur.  
176

177 \*\*\*\*\*

178  
179 **“Staging”** for the purposes of Section 5.5, means the accumulation of RACS in the  
180 RWA for twelve (12) hours or less.  
181

182 \*\*\*\*\*

183 **“Stockpiling”** for the purposes of Section 5.5, means the accumulation of RACS that  
184 will exist for more than 12 hours, up to and including ten (10) calendar days.  
185

186 \*\*\*\*\*

187  
188 **“Storage”** for the purposes of Section 5.5, means the accumulation of RACS greater  
189 than ten (10) days, but not exceeding six (6) months.  
190

191 \*\*\*\*\*

192  
193 **“Visible”** means capable of being seen with the unaided eye.  
194

195 \*\*\*\*\*

196  
197 **2) Section 1.2 is being amended by revising the following definitions to read as**  
198 **follows:**  
199

## 200 **1.2 Definitions**

201 \*\*\*\*\*

202  
203 **“Adequately wet”** means sufficiently ~~mix or penetrate with liquid to completely prevent~~  
204 ~~the release of particulate material and fibers into the ambient air. If visible emissions~~  
205 ~~are observed coming from asbestos contaminated soil or asbestos containing material,~~  
206 ~~then the material has not been adequately wetted. However, the absence of visible~~  
207 ~~emissions is not sufficient evidence of being adequately wet. **WET TO MINIMIZE OR**~~  
208 ~~**ELIMINATE VISIBLE EMISSIONS OF DUST AND/OR DEBRIS WITHIN THE REGULATED WORK AREA**~~

209 AND PREVENT THE RELEASE OF VISIBLE EMISSIONS FROM LEAVING THE REGULATED WORK  
210 AREA (RWA) IN ACCORDANCE WITH SECTION 5.5 OF THESE REGULATIONS. THE OBSERVANCE  
211 OF VISIBLE EMISSIONS, OUTSIDE OF THE RWA, OF DUST AND/OR DEBRIS ~~MAY BE~~ AN  
212 INDICATION THAT SOILS ARE NOT ADEQUATELY WET.

213  
214 \*\*\*\*\*

215  
216 **“Asbestos”** means the asbestiform varieties of serpentinite (chrysotile), riebeckite  
217 (crocidolite), amosite (cummingtonite-grunerite), anthophyllite, ~~and actinolite-~~AND  
218 tremolite.

219  
220 **“Asbestos-containing material” (“ACM”)** means any material that contains more than  
221 one percent (1%) asbestos, ~~by weight, area or volume.~~

222  
223 \*\*\*\*\*

224 **“Friable asbestos waste”** means any asbestos waste that HAS BEEN OR can be  
225 pulverized or reduced to powder by hand pressure when dry.

226  
227 \*\*\*\*\*

228  
229 **“Mechanical”** means operated or produced by mechanism or machine. ~~This may~~  
230 ~~include, but shall not be limited to, an excavator, backhoe, grader, tiller, auger, or hand~~  
231 ~~shovel.~~

232  
233 \*\*\*\*\*

234  
235 **“Soil-disturbing activities”** means ~~excavation, grading, tilling, or any other mechanical~~  
236 ~~activity used to disturb the soil.~~ DIGGING, EXCAVATING, STAGING, LOADING, STOCKPILING,  
237 BACKFILLING, COMPACTING, GRADING, TILLING, DRILLING, INTRUSIVE SAMPLING, AND  
238 EQUIPMENT OR VEHICLE MOVEMENT OR ANY OTHER MECHANICAL ACTIVITY, THAT WHEN USED,  
239 DISTURBS THE SURFACE AND/OR SUBSURFACE SOIL. FOR THE PURPOSES OF SECTION 5.5  
240 DISTURBANCE OR REMOVAL OF SOLID WASTE AND/OR RACS IS CONSIDERED A SOIL  
241 DISTURBING ACTIVITY. FOR THE PURPOSES OF SECTION 5.5 HAND DISTURBANCE OR REMOVAL  
242 OF RACS IS SUBJECT TO THIS REGULATION, BUT IS NOT CONSIDERED TO BE A MECHANICAL  
243 DISTURBANCE.

244  
245 \*\*\*\*\*

246  
247 **“Visible emissions”** means ~~any emissions which are visually detectable without the~~  
248 ~~aid of instruments, coming from material containing asbestos, asbestos waste,~~  
249 ~~asbestos-contaminated soil, or from handling and disposal of asbestos waste, material~~  
250 ~~containing asbestos or asbestos-contaminated soil.~~ ANY AIRBORNE OR LIQUID EMISSIONS,  
251 COMING FROM, OR HAVING COME INTO CONTACT WITH RACS, WHICH ARE VISUALLY

252 **DETECTABLE WITHOUT THE AID OF INSTRUMENTS. PROPER DISPOSAL OF APPROPRIATELY**  
253 **FILTERED DECONTAMINATION WATER TO A SANITARY SEWER DOES NOT CONSTITUTE A VISIBLE**  
254 **EMISSION.**

255 \*\*\*\*\*  
256

257 **3) Section 1.2 is being amended by deleting the definition of “Asbestos-**  
258 **contaminated soil” as follows:**

259  
260 **1.2 Definitions**

261  
262 \*\*\*\*\*

263  
264 ~~“Asbestos-contaminated soil” means soil containing any amount of asbestos.~~

265  
266  
267 **4) A Table of Contents for Section 5 (Asbestos Waste Management) is being**  
268 **added to the regulations to read as follows:**

269  
270 **SECTION 5**

271  
272 **ASBESTOS WASTE MANAGEMENT**

- 273  
274 5.1 General Provisions  
275  
276 5.2 Non-Friable Asbestos Waste Disposal Areas  
277  
278 5.3 Friable Asbestos Waste Disposal Areas  
279  
280 5.4 Storage of Asbestos Waste  
281  
282 5.5 Management of Regulated Asbestos-Contaminated Soil (RACS)  
283  
284 5.5.1 Scope and Applicability  
285 5.5.2 Exemptions  
286 5.5.3 Training and Outreach  
287 5.5.4 Response for Unplanned RACS Discovery  
288 (A) Immediate Actions  
289 (B) 24-Hour Notification Requirements  
290 (C) Interim Actions  
291 5.5.5 Response for Planned RACS Management  
292 (A) Project Specific RACS Management Plan (PSRMP)  
293 (B) Standard Operating Procedures (SOPs)  
294 (C) ~~Minimum Standard~~ Requirements of Section 5.5.7  
295 5.5.6 Remediation of Asbestos in Soil  
296 5.5.7 ~~Minimum Standard~~ Requirements for the Disturbance of RACS  
297 (A) Establishment and Control of a Regulated Work Area (RWA)  
298 (B) Personal Protective Equipment (PPE) for the Purposes of  
299 Preventing Cross-Contamination

- 300 (C) Wetting
- 301 (D) Wind Speed Monitoring
- 302 (E) Air Monitoring
- 303 (F) Work Practices to be Followed During RACS Disturbance
- 304 (G) Loading and Placement of RACS
- 305 (H) Onsite Staging, Stockpiling, and Storage of RACS
- 306 (I) Decontamination
- 307 (J) RACS Spill Response
- 308 (K) Requirements for Exposed RACS Remaining in Place
- 309 (L) Documentation
- 310 | 5.5.8 Packaging and Disposition of Regulated Asbestos-Contaminated Soil
- 311 5.5.9 Fees

312  
313 Appendix 5A: Sample Collection Protocols and Analytical Methodologies

314  
315  
316 **5) The existing Section 5.5 Regulations (Management of Asbestos-Contaminated**  
317 **Soil) are being deleted in their entirety and replaced with new Section 5.5**  
318 **Regulations (Management of Regulated Asbestos-Contaminated Soil (RACS)) to**  
319 **read as follows:**

320  
321 **SECTION 5**

322  
323 **ASBESTOS WASTE MANAGEMENT**

324 \*\*\*\*\*

325 **5.5 MANAGEMENT OF REGULATED ASBESTOS-CONTAMINATED SOIL**  
326 **(RACS):**

327  
328 **5.5.1 SCOPE AND APPLICABILITY**

329  
330 (A) Any person who disturbs debris or encounters debris during a soil disturbing activity  
331 shall have protocols to characterize waste for appropriate management, disposal, or  
332 re-use, and appropriate personnel to implement those protocols. Any person who  
333 disturbs debris or encounters debris during a soil disturbing activity shall:

334  
335 (1) Conduct visual assessment of disturbed material;

336  
337 (2) If debris is encountered, and/or the soil or ash is known to contain asbestos  
338 fibers, through documented evidence, then Section 5.5 is applicable. If there is  
339 no visible RACS or documented evidence of RACS at a site, an owner/operator  
340 does not have a duty under these regulations to sample or otherwise investigate  
341 for RACS prior to commencing soil disturbing activities;

342  
343 (3) If debris is encountered that only contains ~~metal, glass, plastic, wood, green~~  
344 ~~waste, -and/ or natural~~ stone ~~with no associated material suspected of containing~~  
345 ~~asbestos fibers being asbestos-containing material (ACM)~~, then Section 5.5 is not  
346 applicable.

347  
348 (4) In the event of an emergency in which a soil disturbing activity in an area of  
349 debris must continue or commence at once, a RACS determination in  
350 accordance with Section 5.5.1(B) may be postponed during the initial response to  
351 the immediate emergency. However, the RACS determination must be made  
352 within 48 hours of the initial emergency response.

353  
354 (5) Any person who encounters but does not disturb debris during a soil disturbing  
355 activity shall have protocols to characterize debris as required by this section  
356 5.5.1(A) and stabilize any debris determined to be RACS as required by Section  
357 5.5.7(K), unless the debris is exempted by subsection 5.5.2(A) through (F).

358  
359 (B) Any person who disturbs debris ~~or encounters debris~~ during soil disturbing activities,  
360 when the subject debris is not excluded within 5.5.1(A)(3), must inspect the debris,  
361 through continuous visual observation during soil disturbing activities, to determine  
362 if the debris is, or contains, suspect asbestos-containing material. If debris is  
363 encountered that only contains metal, glass, plastic, wood, and/or bare concrete with  
364 no associated material suspected of being asbestos-containing material (ACM)  
365 (such as sealants, adhesives, mastics, coatings, adhered materials, or resins), then  
366 Section 5.5 is not applicable. The visual inspection shall be conducted in a manner  
367 sufficient to provide thorough inspection of the ~~material~~ debris being disturbed, while  
368 maintaining the safety of the inspector. The person(s) visually inspecting the debris  
369 must be a Qualified Project Monitor (QPM) or a Certified Asbestos Building Inspector  
370 (CABI).

371  
372 All suspect asbestos-containing materials must be:

373  
374 (1) Assumed to be ACM; or

375  
376 (2) Sampled by a CABI. The samples shall be analyzed by a National Voluntary  
377 Laboratory Accreditation Program (NVLAP) participating laboratory utilizing  
378 Polarized Light Microscopy (PLM) (EPA Method 600/R-93/116 or equivalent) to  
379 determine if it is ACM; or

380  
381 (3) Determined to be ACM, or non-ACM, through the use of documentation unique to  
382 the material observed in the field establishing the asbestos content of the  
383 material (e.g. laboratory analysis results from previous encounters with the same  
384 material).

- 385  
386 (4) The asbestos determination shall be made within seven (7) calendar days of  
387 discovery of the debris.  
388  
389 (a) Within 24 hours of discovery of debris, and until the asbestos determination is  
390 made, the debris shall be stabilized in accordance with Section 5.5.4(A)(3) of  
391 these regulations.  
392  
393 (b) No additional disturbance, other than necessary to perform the required  
394 stabilization in Section 5.5.4(A)(3), of the debris shall occur prior to the  
395 asbestos determination.  
396  
397 (5) A person who disturbs debris, determined or assumed to be ACM per 5.5.1(B),  
398 shall determine if the ACM is exempted in accordance with Section 5.5.2 of these  
399 regulations.  
400  
401 (6) A person who disturbs debris, determined or assumed to be or contain ACM per  
402 5.5.1(B), shall make a RACS vs. Non-RACS determination, as the terms are  
403 defined in Section 1.2 of these regulations, by:  
404  
405 (a) Assuming the debris containing asbestos is RACS and managing the RACS  
406 in accordance with Section 5 of these regulations; or  
407  
408 (b) Applying site and material specific generator knowledge of the presence or  
409 absence of RACS based on observation and/or documented evidence about  
410 the nature of asbestos-containing material(s).  
411  
412 (7) The owner/operator shall retain, or make available for inspection, records of all  
413 ~~asbestos determinations for debris and~~ RACS vs. Non-RACS determinations  
414 onsite for the duration of the debris disturbance, and retained by the  
415 owner/operator for a period of six months after the completion of debris  
416 disturbing activities.  
417  
418 (C) Soil or ash known to contain non-visible asbestos, based on documented evidence,  
419 is RACS and shall be managed in accordance with these regulations.  
420  
421 (D) If soil, ash, or debris is, or contains, RACS then:  
422  
423 (1) RACS that is disturbed shall be managed, disposed of, or reused in accordance  
424 with these regulations.  
425  
426 (2) Removal of asbestos-containing material that is on, or comprises, a facility  
427 component, that is located on or in soil that will be disturbed, shall be conducted

428 under this Section 5.5, in accordance with work practices in Air Quality Control  
429 Commission Regulation No. 8 (5 CCR 1001-10, Part B), Section III.V, and is not  
430 subject to the permit requirements of 5 CCR 1001-10, Part B, if the total quantity  
431 of asbestos-containing material is below the following trigger levels:

- 432
- 433 (a) 260 linear feet on pipes; or
- 434
- 435 (b) 160 square feet on other surfaces; or
- 436
- 437 (c) The volume of a 55-gallon drum.
- 438
- 439 (3) RACS that is generated and not disposed of or reused in compliance with  
440 Section 5.5.8 of these Regulations is solid waste and shall be managed in  
441 accordance with the landfill requirements of the Colorado Solid Wastes Disposal  
442 Sites and Facilities Act (C.R.S. 30-20, Part 1) and the Regulations Pertaining to  
443 Solid Waste Sites and Facilities (6 CCR 1007-2, Part 1).
- 444
- 445 (4) A person who disturbs RACS shall make the decision upon the initial discovery of  
446 RACS to either manage the RACS in accordance with Section 5.5, or cease soil  
447 disturbing activities and permanently stabilize the disturbed RACS to control the  
448 release of asbestos fibers in accordance with one of the following:
- 449
- 450 (a) Cover RACS with geofabric, or equivalent visible barrier, and restore the site  
451 to pre-disturbance conditions using fill suitable for unrestricted use; or
- 452
- 453 (b) Cover RACS with geofabric, or other visible barrier, followed by 18 inches of  
454 fill suitable for unrestricted use, and vegetation; or
- 455
- 456 (c) Cover RACS with geofabric, or other visible barrier, followed by 6 inches of fill  
457 suitable for unrestricted use, and concrete or asphalt; or
- 458
- 459 (d) Cover RACS with geofabric, or other visible barrier, followed by fill suitable for  
460 unrestricted use to grade for vertical excavation faces or trenches; or
- 461
- 462 (e) Alternate cover designs as approved by the Department.
- 463
- 464

## 465 **5.5.2 EXEMPTIONS**

- 466
- 467 (A) Removal of asbestos-containing material on a facility component with asbestos  
468 quantities above the trigger levels, as defined in 5.5.1(D)(2), is subject to the permit  
469 and abatement requirements of Air Quality Control Commission Regulation No. 8 (5

470 CCR 1001-10, Part B), and is therefore not subject to this Section 5.5., but shall still  
471 comply with Sections 5.1 through 5.4 of these regulations.

472  
473 (B) Spill response activities that are subject to the requirements of Air Quality Control  
474 Commission Regulation No. 8 (5 CCR 1001-10, Part B) are not subject to the  
475 requirements of Section 5.5, but shall still comply with Sections 5.1 through 5.4 of  
476 these regulations.

477  
478 (C) Ambient occurrences of asbestos fibers in soil that are demonstrated to be the result  
479 of background conditions and not the result of site specific activities are not subject  
480 to the requirements of this Section 5.5. This background demonstration shall be  
481 submitted to, and approved by, the Department prior to the exemption being  
482 applicable exercised.

483  
484 (D) During active solid waste disposal operations, asbestos waste disposal areas that  
485 have a certificate of designation are not subject to 5.5, but shall comply with the  
486 facility's Engineering Design and Operations Plan.

487  
488 (E) De minimis projects involving a total RACS disturbance of less than 1 cubic yard,  
489 using low-emission methods, are exempt from this Section 5.5, except for the  
490 decontamination procedures in 5.5.7(l) and the disposal requirements in 5.5.8. For  
491 the purpose of this Section 5.5, Low Emissions Methods means soil disturbing  
492 activities that will not result in visible emissions without the use of wet methods.

493  
494 (F) Projects conducted directly by a homeowner on their primary residence, including  
495 residential landscaping projects and other private residential soil-disturbing projects  
496 conducted after the primary dwelling is built, e.g. planting trees, digging holes for  
497 fence posts, installing sign posts, gardening, other projects done by private  
498 individuals on their primary place of residence are not subject to this Section 5.5, but  
499 shall still comply with Sections 5.1 through 5.4 of these regulations.

500  
501 (G) Soil disturbing activities involving Non-RACS, where no RACS is present or  
502 generated, are not subject to the requirements of Section 5.5, but Non-RACS must  
503 be disposed as non-friable asbestos waste in accordance with the disposal  
504 requirements set forth in Section 5.2 of these regulations. However, ~~removal of if~~  
505 ~~Non-RACS is not removed during from a project area is required if seeking a No~~  
506 ~~Further Action or No Action Determination for~~ a remediation project conducted  
507 Section 5.5.6, or an environmental covenant, in accordance with § 25-15-320  
508 C.R.S., is may be necessary to the extent that it is required by in accordance with §  
509 25-15-320 C.R.S. for Non-RACS left in place.

510  
511 (H) Soil disturbing activities involving debris that only contains metal, glass, plastic,  
512 wood, and/or bare concrete with no associated material suspected of being

513 | asbestos-containing material (ACM) (such as sealants, adhesives, mastics,  
514 | coatings, adhered materials, or resins), as determined by a CABI, QMP, or  
515 | generator knowledge, is not subject to the requirements of Section 5.5.

517 | (I) Soil disturbing activities involving debris that only contains green waste or natural  
518 | stone is not subject to the requirements of Section 5.5

### 520 | **5.5.3 TRAINING AND OUTREACH**

522 | ~~(A) Community outreach shall be conducted for projects involving mechanical~~  
523 | ~~disturbance of RACS containing friable ACM with an adjacent receptor zone present.~~  
524 | ~~In addition, ancillary worker awareness briefing(s) shall be conducted through the~~  
525 | ~~dissemination of fact sheets and/or informational meetings that discuss the presence~~  
526 | ~~of RACS that includes friable ACM and the measures being taken to prevent~~  
527 | ~~emissions and cross-contamination.~~

529 | (BA) Projects involving the disturbance of debris or soil/ash containing debris shall  
530 | include at least one onsite QPM during active disturbance.

532 | (CB) Personnel inside the RWA during the disturbance of RACS shall have annual  
533 | awareness training. This training requirement applies to equipment operators and  
534 | drivers of trucks carrying contaminated material for offsite disposal or reuse. Truck  
535 | drivers who do not complete this training are ancillary workers. Soil disturbing  
536 | activities must cease if the truck driver is present within the RWA unless the driver  
537 | remains in the cab of the truck, the truck's windows and doors remain closed, and  
538 | the air handling system remains off while the truck is inside the RWA. This training  
539 | shall cover information necessary to comply with Section 5.5 requirements and the  
540 | approved PSMRP or SOP (if any) including:

- 542 | 1) General asbestos awareness; including health effects; and
- 544 | 2) Overview of the requirements of Section 5.5; and
- 546 | 3) Overview of suspect ACM that requires further evaluation by a CABI; and
- 548 | 4) Overview of RACS and Non-RACS; and
- 550 | 5) Worker protection, including levels of personal protective equipment (PPE)  
551 | required for various activities and conditions; and
- 553 | 6) Decontamination requirements for equipment and personnel; and
- 555 | 7) Engineering controls to prevent the release of asbestos outside the RWA; and

556  
557 8) Overview of RACS handling procedures. This training shall be conducted by a  
558 CABI or QPM who is familiar with the site specific plan and/or the **Minimum**  
559 **Standard** Requirements in Section 5.5.7. Records of this training shall be  
560 retained, by the trained individual, and be available for inspection, for a minimum  
561 of one year from the date of the training.

562  
563 | (~~DC~~) Per-project site-specific awareness training for personnel disturbing RACS. This  
564 training shall cover site-specific information necessary to comply with Section 5.5  
565 and the selected management approach for the project (project specific RACS  
566 management plan (PSRMP), standard operating procedures (SOPs), or the  
567 **minimum-standard** requirements of Section 5.5.7, including project chain-of-  
568 command and identification of authorized personnel with stop work authority, and  
569 identification of QPM(s). This training shall be provided by a CABI or QPM.  
570 Records of this training shall be retained, and be available for inspection, for the  
571 duration of the project for which the training was conducted.

572  
573 | (~~ED~~) Qualified Project Monitors shall have, at a minimum:

574  
575 1) Annual awareness training and site specific awareness training under Section  
576 5.5.3(C) and (D); and,

577  
578 2) Training from a CABI on identifying debris, exempted materials under Section  
579 5.5.1(A)(3), and the assumption of debris to be RACS as outlined in Section  
580 5.5.1; and,

581  
582 | 3) Training from a CABI on how to implement the **minimum-standard** requirements  
583 under Section 5.5.7 and how to perform the duties that a QPM may perform in  
584 lieu of a CABI; and

585  
586 4) Training from a CABI on how to implement the provisions of the chosen RACS  
587 management approach (PSRMP, SOPs, or **minimum-standard** requirements of  
588 Section 5.5.7) and how to perform the duties that a QPM may perform in lieu of a  
589 CABI; and,

590  
591 5) 40 verifiable hours of direct experience on projects conducted under Section 5.5.

592  
593 | (~~FE~~) Inspection and identification of RACS shall be conducted by a CABI, with 40  
594 verifiable hours of on the job asbestos in soils experience on a minimum of three (3)  
595 different asbestos in soils jobs, conducted under either AQCC Regulation No. 8 or  
596 Section 5.5. The CABI shall be independent of the general contractor (GC) and/or  
597 abatement contractor unless the CABI and the GC or abatement contractor are both  
598 direct employees of the property owner. However, the GC or abatement contractor

599 may hire a subcontractor CABI, but the CABI shall not be a direct employee of the  
600 GC or abatement contractor.

601  
602 | (~~GF~~) Air monitoring conducted in accordance with this Section 5.5 shall be performed by  
603 an Air Monitoring Specialist (AMS).

604  
605

#### 606 **5.5.4 RESPONSE FOR UNPLANNED RACS DISCOVERY**

607

608 Soil disturbing activities that encounter RACS without previously approved plans are  
609 subject to the following requirements:

610

611 (A) IMMEDIATE ACTIONS: Immediate actions shall be taken by the person conducting  
612 the soil disturbing activity, or representative of the owner or operator, to manage  
613 RACS in accordance with Section 5.5 and Section 1.2 definitions of these  
614 Regulations. These actions shall include, at a minimum, the following:

615

616 (1) Stopping all soil disturbing activities, related to RACS, until the 24-hour  
617 notification requirements in Section 5.5.4(B), and the interim action requirements  
618 in Section 5.5.4(C), are met. In the event of an emergency in which a soil  
619 disturbing activity must continue or commence at once, notification shall be made  
620 as soon as possible, but within 24 hours of identifying or assuming RACS within  
621 the soil disturbing area. During the initial response to the immediate emergency,  
622 | the ~~minimum standard~~ requirements of Section 5.5.7 shall be implemented to the  
623 | extent possible. Within 48 hours, any disturbed and/or exposed RACS shall be  
624 | managed in accordance with the ~~minimum standard~~ requirements of Section  
625 | 5.5.7, an approved PSRMP, or an approved SOP.

626

627 (2) Establishing, and taking measures to prevent access to, the regulated work area  
628 by unauthorized persons.

629

630 (3) Conducting interim surface soil stabilization to reduce emissions including:

631

632 a. Polyethylene sheeting or geotechnical fabric with daily inspection, and  
633 inspection after storm events, and repair/replacement of sheeting as  
634 necessary to maintain stabilization; or

635

636 b. Chemical stabilizer demonstrated to be effective in the stabilization of RACS  
637 (e.g. magnesium chloride) with weekly inspection, and inspection after storm  
638 events, and re-application of chemical stabilizer as necessary to maintain  
639 stabilization; or

640

641 c. Minimum of 3 inches of soil appropriate for unrestricted use; or

- 642
- 643 d. Other means of stabilization as approved by the Department.
- 644
- 645 e. Stabilization is not required if RACS is kept adequately wet. Verification of
- 646 adequately wet conditions shall be conducted at least every two hours, or
- 647 RACS shall be stabilized.
- 648
- 649 (B) 24-HOUR NOTIFICATION REQUIREMENTS: The owner/operator, or
- 650 owner/operator representative shall submit a completed Notification of RACS
- 651 Disturbance form to the Department's Hazardous Materials and Waste Management
- 652 Division within 24 hours of encountering RACS during a soil disturbing activity.
- 653
- 654 (C) INTERIM ACTIONS: In accordance with 5.5.5, the owner/operator, or
- 655 owner/operator representative, shall submit to the Department's Hazardous
- 656 Materials and Waste Management Division, for review and approval, within five (5)
- 657 | workings days of the discovery, PSRMP, SOPs, or indicate the minimum-standard
- 658 requirements of Section 5.5.7 will be followed.
- 659
- 660 (D) Once the requirements of Sections 5.5.4(A), (B), and (C) are completed, any soil
- 661 disturbing activities shall proceed in accordance with applicable requirements.
- 662

### 663 **5.5.5 RESPONSE FOR PLANNED RACS MANAGEMENT**

664

665 Planned soil disturbing activities involving RACS in regulated work areas shall be

667 | conducted in accordance with the minimum-standard requirements identified in Section

668 5.5.7, and with one of the following management strategies and the associated

669 notification requirement:

#### 670 (A) PROJECT SPECIFIC RACS MANAGEMENT PLAN (PSRMP);

671

672

673 (1) The owner/operator, or owner/operator representative, shall submit a completed

674 Notification of RACS Disturbance form to the Department's Hazardous Materials

675 and Waste Management Division at least 10 working days prior to any planned

676 soil disturbing activity. This notification shall include submittal of a Project

677 Specific RACS Management Plan (PSRMP) conforming to the requirements of

678 Section 5.5.5(A)(2). The Division will acknowledge receipt of a notification of the

679 intent to utilize a PSRMP by mail or electronic correspondence. The PSRMP

680 shall be approved by the Department prior to implementation.

681

682 (2) If the owner/operator choose(s) management in accordance with Section

683 5.5.5(A), a PSRMP shall be developed and submitted to the Department's

684 Hazardous Materials and Waste Management Division for review and approval

685 prior to implementation. The Department will use its best efforts to review and  
686 respond to the plan within ten (10) working days of receipt. The PSRMP shall  
687 include the following:

- 688 (a) Property representative's name and phone number; and
- 689 (b) Property location; and
- 690 (c) General site description, including a description of RACS and the types of  
691 known or assumed asbestos-containing material(s), and the location(s) of  
692 these material on the site; and
- 693 (d) Description of planned soil disturbing activities; and
- 694 (e) Description of site management, emission control activities, and work  
695 practices to control the release of, and/or exposure to, asbestos outside of the  
696 RWA including:
  - 697 (i) Measures to assure that the soil is adequately wet (as that term is defined  
698 in Section 1.2 of these regulations), stabilized, or covered during soil  
699 disturbing activities; and
  - 700 (ii) Wind speed monitoring during RACS disturbance, including frequency of  
701 monitoring, and shutdown and start up criteria; and,
  - 702 (iii) An air monitoring plan to verify that the measures to control the release of,  
703 and/or exposure to, asbestos outside of the RWA are effective. The plan  
704 may include a tiered air monitoring approach providing less frequent air  
705 monitoring given demonstrated effectiveness of work practices; and,
  - 706 (iv) Work practices specific to mechanical and/or hand disturbance of RACS  
707 including measures to prevent the release of visible emissions outside of  
708 the RWA; and,
  - 709 (v) Work practices for the loading and placement of RACS including spill  
710 prevention procedures.
  - 711 (vi) The owner /operator has the option to erect a structure maintained at a  
712 negative pressure differential sufficient to contain all dust, with off-gas  
713 from the evacuation system treated with HEPA filtration. If chosen, the  
714 requirement to submit an air monitoring plan, under 5.5.5(A)(2)(e)(iii) is not  
715 applicable.

728 and,

729

730 (f) Description and location of any planned sampling. All sampling shall be  
731 performed in accordance with the procedures set forth in Appendix 5A. All  
732 investigation derived waste shall be managed in accordance with 5.5.8.

733

734 (3) A copy of the PSRMP shall be maintained on the site during RACS disturbing  
735 activities.

736

737 (4) At the option of the owner/operator and upon notice to the Division, a Soil  
738 Characterization and Management Plan approved prior to the effective date of  
739 the amended regulation, and that complies with the substantive requirements of  
740 the regulation prior to amendment, shall remain in effect until the completion of  
741 the subject project or until it is replaced by a PSRMP.

742

743 (B) STANDARD OPERATING PROCEDURES (SOPs)

744

745 (1) The owner/operator, or owner/operator representative, shall notify the  
746 Department's Hazardous Materials and Waste Management Division, by  
747 submitting a completed Notification of RACS Disturbance form, prior to  
748 implementation of the previously approved SOPs at a RWA. SOPs that conform  
749 to Section 5.5.5(B)(2) shall be approved by the Department prior to  
750 implementation. The Department will acknowledge receipt of a notification of the  
751 intent to utilize an SOP by mail or electronic correspondence.

752

753 (2) If the owner/operator chooses Section 5.5.5(B), the owner/operator shall develop  
754 and submit to the Department's Hazardous Materials and Waste Management  
755 Division, for review and approval, thirty (30) calendar days in advance of any  
756 RACS disturbing activities, SOPs that conform with Section 5.5.5(A)(2)(a) – (f)  
757 that will be implemented, upon notice to the Department per Section 5.5.5(B)(1),  
758 at future regulated work areas. A copy of the SOPs shall be maintained on site  
759 during RACS disturbing activities for the duration of the Project.

760

761 (3) At the option of the owner/operator and upon notice to the Division, a Standard  
762 Operating Procedure approved prior to the effective date of the amended  
763 regulation, and that complies with the substantive requirements of the regulation  
764 prior to amendment, shall remain in effect and may be used to comply with the  
765 amended regulation.

766

767 (C) MINIMUM STANDARD REQUIREMENTS OF SECTION 5.5.7

768

769 The owner/operator, or owner/operator representative, shall submit to the Department's  
770 Hazardous Materials and Waste Management Division a completed Notification of

771 | RACS Disturbance form indicating the intent to utilize the minimum-standard  
772 requirements of Section 5.5.7, as a default RACS management plan, prior to any  
773 planned soil disturbing activity. This notification shall include property location, general  
774 site description, and contact information for the owner/operator responsible for the  
775 regulated work area activities. The Department will acknowledge receipt of a  
776 notification of the intent to utilize the minimum-standard requirements of Section 5.5.7  
777 by mail or electronic correspondence.

778  
779 (D) The owner/operator may choose to submit, for Division review and approval, a site-  
780 specific risk assessment work plan to quantify/evaluate the risks of the proposed work  
781 practices associated with planned disturbance activities in an area or areas of RACS.  
782

### 783 784 **5.5.6 REMEDIATION OF ASBESTOS IN SOIL**

785  
786 (A) Remediation is not required of properties at which asbestos-containing material,  
787 RACS, or asbestos waste is located. If the owner of a property chooses to  
788 remediate (rather than just manage) all or a portion of the property containing ACM,  
789 RACS, or asbestos waste and seeks a No Further Action or No Action Determination  
790 in accordance with the Voluntary Cleanup and Redevelopment Act (C.R.S. 25-16-  
791 301 et seq.), the Resource Conservation and Recovery Act Subtitle D (C.R.S. 30-20,  
792 Part 1) or the Resource Conservation and Recovery Act Subtitle C (C.R.S. 25-18-  
793 302 et seq.), as may be required by a final enforceable mechanism, a Remediation  
794 Plan shall be submitted to the Department's Hazardous Materials and Waste  
795 Management Division for review and approval prior to commencement of activities  
796 associated with the remediation. The Remediation Plan shall comply with this  
797 Section 5.5, and the governing regulatory authority and include the following:

- 798  
799 | (1) The minimum-standard requirements in accordance with Section 5.5.7, and the  
800 plan requirements outlined in 5.5.5(A). Alternatively, a risk based approach may  
801 be proposed, for Department review and approval, for disturbance of RACS; and  
802  
803 (2) A detailed description of planned remediation activities, including proposed depth  
804 and areal extent of remediation, and work practices to be implemented; and  
805  
806 (3) The proposed use of the property and area of remediation; and  
807 (4) Any planned engineering or institutional controls to prevent exposure to any  
808 asbestos left in place within the area covered by the Remediation Plan, and  
809  
810 (5) A schedule for submittal of a Remediation Completion Report that incorporates  
811 the information from Section 5.5.7(L) and any additional information necessary to  
812 demonstrate that the remediation goals have been achieved.  
813

814 (B) The Department shall use its best efforts to provide written notification that a  
815 Remediation Plan has been approved or disapproved within no more than forty-five  
816 (45) calendar days after a request by a property owner, unless the property owner  
817 and the Department agree to an extension of the review to a date certain.

818  
819 (C) If a remedial decision is made by the Department, the area subject to the remedial  
820 decision is may be subject to C.R.S. Section 25-15-320(2), and an environmental  
821 covenant may be required for waste left in place.

822

823

824 | **5.5.7 MINIMUM-STANDARD REQUIREMENTS FOR THE DISTURBANCE OF RACS**

825

826 The requirements of this section, if followed in their entirety, constitute a default RACS  
827 management plan, eliminating the need to submit a PSRMP or SOP.

828

829 (A) ESTABLISHMENT AND CONTROL OF A REGULATED WORK AREA (RWA)

830

831 (1) Requirements for establishment and control of a RWA applicable to all projects  
832 subject to this Regulation:

833

834 (a) Establish a RWA which is identifiable to all persons. Haul roads between  
835 RWAs, where RACS is not present, are considered to be outside the RWA(s);  
836 however, equipment decontamination [5.5.7(I)] and spill response procedures  
837 [5.5.7(J)] shall be followed; and

838

839 (b) Stop all soil disturbing activities in the RWA if ancillary workers or members of  
840 the public are present within the RWA. Truck drivers who do not complete  
841 the training under 5.5.3(C) are ancillary workers. Soil disturbing activities  
842 must cease if the truck driver is present within the RWA unless the driver  
843 remains in the cab of the truck, the truck's windows remain closed, and the air  
844 handling system remains off while the truck is inside the RWA; and

845

846 (c) Post labeling and signage to demarcate RWA(s). The RWA shall be  
847 demarcated with a visual means that fully defines the extent of the RWA.  
848 Labeling and signage shall indicate the presence of asbestos, and that the  
849 area is off limits to unauthorized personnel.

850 (2) **Additional Requirement for Projects Disturbing RACS Containing Friable**  
851 **ACM.** Establish a secured work site (e.g., fencing/locks/zip-ties/chains).  
852 Personnel, or staff assigned to this duty, may be used to secure the RWA in lieu  
853 of fencing. If the RWA is located within a larger secure facility, fencing of the  
854 RWA is not necessary as long as the RWA is secured.

855

856 (B) PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR THE PURPOSES OF  
857 PREVENTING CROSS-CONTAMINATION

858  
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(1) Requirements applicable to all RWAs subject to this Regulation:

- (a) Use disposable booties or impermeable footwear that will be decontaminated per 5.5.7(I); and
- (b) Use disposable gloves or impermeable gloves that will be decontaminated per 5.5.7(I); and
- (c) Replace or decontaminate (per 5.5.7(I)) all PPE as necessary to prevent contamination from leaving the RWA via cross contamination. This requirement applies to all instances where the integrity of the PPE is compromised, and when workers exit the RWA; and
- (d) Decontaminate (per 5.5.7(I)) or dispose of all used PPE as asbestos contaminated waste.

(2) **Additional Requirement Applicable to Projects at RWAs Containing Friable ACM.** Use disposable impermeable suits or equivalent coveralls, remove suits or coveralls upon exiting the RWA, and dispose of used suits or coveralls as asbestos contaminated waste.

(C) WETTING

(1) Wetting requirements applicable to all RACS disturbance:

- (a) Adequately wet all RACS and soils, or other materials, containing RACS, on the surface and in the sub-surface (as defined in Section 1.2 of the Solid Waste Regulations) prior to and during RACS disturbance, except as provided in 5.5.7(F)(1)(b)(ii). Pre-wetting is not necessary if soils are already adequately wet. Apply water or amended water (as required in 5.5.7(C)(2)) at low pressure in order to prevent dust generation and splattering.
- (b) Continuously mist RACS and soils, or other materials, containing RACS during placement using equipment mounted spray bars, or additional hose operator(s).

(2) **Additional requirement for RACS that contains friable ACM.** Use amended water containing a wetting agent, such as a 50:50 mixture of polyoxyethylene ester and polyoxyethylene ether, or the equivalent, in a 0.16 percent solution (1 ounce to 5 gallons) of water, or as per manufacturer recommendations for the

899 wetting of asbestos. This requirement may be waived by the Department for  
900 emergency situations where the work must occur immediately and wetting agents  
901 are not available.

902  
903 (D) WIND SPEED MONITORING

904  
905 (1) Requirements applicable to all projects involving mechanical disturbance of  
906 RACS, and hand disturbance of RACS containing friable ACM:

907  
908 (a) Take wind measurements from within the RWA using a hand held  
909 anemometer. Alternatively, or in conjunction with hand held measurements,  
910 an onsite weather station may be used within a quarter mile of the RWA as  
911 long as the conditions measured by the weather station are representative of  
912 conditions in the RWA.

913  
914 i. Collect wind speed measurements at a minimum of 30 minute intervals  
915 and during wind gust(s). Average wind speed measurements shall be  
916 obtained manually by taking ten readings at one minute intervals and  
917 averaging the ten readings, or through the use of instrumentation that  
918 provides a ten minute average wind speed reading.

919  
920 ii. If wind break barriers are used, wind speed measurements may be taken  
921 from within barriers; however, wind speed measurements shall also be  
922 taken outside the wind break barriers if any RACS disturbing activities,  
923 such as loading, are taking place outside or above the barriers. Wind  
924 speed shut-down criteria shall be based on measurements taken that are  
925 representative of the area of active RACS disturbance.

926  
927 (b) Immediate stoppage of all RACS disturbance shall occur based on the  
928 following criteria:

929  
930 i. Wind gust(s) in excess of 20 mph, or

931  
932 ii. Sustained winds in excess of 12 mph, averaged over 10 minutes, or

933

- 934           iii. Winds are interfering with the ability of engineering controls to work as  
935           intended, or  
936  
937           iv. Winds are creating visible emissions that leave the RWA.  
938  
939       (c) RACS disturbance may resume when all of the following criteria are met:  
940  
941           i. No gust(s) in excess of 20 mph occur for 20 minutes, and  
942  
943           ii. No sustained winds in excess of 12 mph occur for 20 minutes, based on a  
944           10 minute average wind speed measurement, and  
945  
946           iii. Winds are not interfering with the ability of engineering controls to function  
947           as intended, and  
948  
949           iv. Winds are not creating visible emissions that leave the RWA.  
950

#### 951 (E) AIR MONITORING

952  
953       (1) Air monitoring is required ~~for all projects involving~~during Mechanical Disturbance  
954       of RACS in RWAs with an Adjacent Receptor Zone (as an indication of the  
955       ~~demonstrate~~ effectiveness of work practices, not for risk evaluation):

956  
957       (a) No air monitoring is required for ~~projects with~~RACS disturbance that will not  
958       exceed a durations of 2 days ~~or less~~. However, the requirements for  
959       adequate wetting (5.5.7(C)) and no visible emissions leaving the RWA  
960       (5.5.7(F)) shall be adhered to on all RACS disturbance projects. Dividing  
961       projects into multiple 2 day or shorter components shall not be used as a  
962       mechanism to avoid air monitoring requirements.  
963

964       (b) Area monitoring shall consist of a minimum of four samples collected on the  
965       perimeter of the RWA at appropriate intervals to provide representative  
966       information regarding potential releases of asbestos fibers to the adjacent  
967       receptor zone(s). Additional samples shall be collected for large perimeter  
968       RWAs (greater than 1 acre). RWAs greater than 1 acre shall require  
969       additional perimeter monitoring points be added at a rate of one sample for  
970       every 200 linear feet (or approximately each additional ¼ acre). If  
971       representative information about potential releases to the adjacent receptor  
972       zone(s) can be collected using less than the minimum number of samples,  
973       the remaining sample locations shall be at the discretion of the AMS.  
974

975       (c) PCM analysis is required on all samples collected (unless all samples will be  
976       analyzed by Transmission Electron Microscope (TEM) by default). The

977 laboratory shall be requested to provide verbal results to the AMS or the QPM  
978 by the start of the next working day, or as soon as possible after the start of  
979 the next working day, with written results within 24 hours of the receipt of  
980 verbal results. A consultation with the Department is required If this  
981 timeframe cannot be met by the laboratory.  
982

983 (d) Upon receipt of a laboratory report indicating a “cannot be read (CBR)”, or a  
984 “not analyzed (NA) or rejected” due to loose debris or uneven loading,  
985 analysis result:

986  
987 i. The AMS shall evaluate the lab report and any field documentation to  
988 determine a possible cause for the CBR or “not analyzed (NA) or rejected”  
989 result; and,  
990

991 ii. If the CBR or “not analyzed (NA) or rejected” cannot be correlated to a  
992 specific field event that compromised the sample (e.g. the sample was  
993 blown over, the filter of the sample was sprayed with water, etc.) then the  
994 sample shall be prepared for indirect TEM presence/absence analysis to  
995 determine potential asbestos content in accordance with Appendix 5A;  
996 and,  
997

998 iii. If the CBR or “not analyzed (NA) or rejected”, analysis result can be  
999 correlated to a compromised sample, then preparation for indirect TEM  
1000 presence/absence analysis is not required as long as adequate air  
1001 monitoring data is available to evaluate the effectiveness of engineering  
1002 controls. However, overloading of a sample with particulate matter does  
1003 not constitute a compromised sample, and will require indirect preparation  
1004 for TEM presence/absence analysis; and,  
1005

1006 iv. Field personnel shall evaluate why the sample was compromised and  
1007 modify field procedures as necessary to ~~prevent~~avoid future samples from  
1008 being compromised; and,  
1009

1010 v. The Department project manager shall be notified by phone or email of  
1011 instances of CBR or “not analyzed (NA) or rejected” analysis results within  
1012 24 hours of receipt of verbal results.  
1013

1014 (e) TEM presence/absence analysis is required (analysis providing fiber  
1015 counts/concentrations is always optional) as described in paragraphs i  
1016 through iv below. The laboratory shall be requested to provide verbal results  
1017 by the start of the next working day, or as soon as possible after the start of  
1018 the next working day, with written results within 24 hours of the receipt of  
1019 verbal results.

- 1020 i. All samples, required by this Section 5.5, with PCM results having fiber  
1021 concentrations greater than 0.01f/cc shall be submitted for TEM analysis.  
1022
- 1023 ii. During the first five (5) days of RACS disturbance – A minimum of 25% of  
1024 the samples collected from each RWA, inclusive of the downwind floating  
1025 samples as described in 5.5.7(E)(2), shall be submitted for TEM analysis.  
1026 The sample(s) selected for TEM analysis shall have the highest PCM  
1027 result(s) based on fiber concentration. If all PCM results are Below  
1028 Detectable Limit (BDL) for fiber concentration, then the sample(s) selected  
1029 for TEM analysis shall be determined by highest fiber count. If all samples  
1030 have no fiber counts (i.e. zero fibers counted, not a “below detection limit”  
1031 fiber concentration) then no TEM analysis is required.  
1032
- 1033 iii. After five (5) days of RACS disturbance with no asbestos detections by  
1034 TEM analysis, the frequency of analysis by TEM, on the highest 25% of  
1035 PCM results(s), may be reduced to once every five (5) working days, or  
1036 portions thereof, using the same selection criteria as in paragraph i above.  
1037 The samples submitted for TEM analysis during the period of reduced  
1038 frequency TEM analysis shall be either the first occurrence of: 1) high  
1039 winds exceeding wind shut down criteria, or 2) visible emissions. In the  
1040 absence of high wind events or visible emissions the selected day for TEM  
1041 analysis may be random, as determined by the AMS.  
1042
- 1043 iv. If there are any asbestos detections during the random once every five  
1044 days analysis by TEM, then TEM analysis shall be conducted for the next  
1045 three (3) consecutive work days, or portions thereof, using the same  
1046 procedures as in paragraph i above. If there are no additional asbestos  
1047 detections during the next three (3) consecutive working days with  
1048 samples submitted for TEM analysis, then the frequency of TEM analysis  
1049 may return to random once every five (5) working days. If site conditions,  
1050 friability of the materials being managed, or work practices change, then  
1051 the initial 5 days of TEM analysis shall restart using the provisions set  
1052 forth in 5.5.7(E)(1)(e).  
1053
- 1054 (f) Detection responses - For each detection of asbestos by TEM analysis, the  
1055 following shall be conducted:  
1056
- 1057 i. Notify the Department project manager by phone or email, on the same  
1058 calendar day as receipt of verbal or written results (whichever comes first)  
1059 from the laboratory.  
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- ii. Evaluate site conditions and engineering controls for each detection, and immediately implement any identified engineering control revisions necessary to prevent future detections of asbestos fibers.
  - iii. Submit an Emission Control Plan (ECP) to the Department project manager for each detection (days with multiple detections can be addressed by a single ECP). The ECP shall be submitted within 48 hours from the asbestos detection event and shall contain:
    - 1. The date of the detection.
    - 2. A written description of sample details (sample ID, number of structures detected, type of asbestos detected, PCM analytical result) and any potential cause of the release. Include a description of site activity (engineering controls being employed, equipment being used, size of excavation/soil disturbing activity, types of materials encountered, etc.) and CABI observations at the work area before and during the presumed time of release.
    - 3. Include a diagram or write up of all air sample positions clearly indicating which sample received the TEM detection. Indicate, through illustration or description, prevailing wind direction and average wind speeds for the detection event; include any wind speed shutdowns for the date of detection. If applicable, indicate through illustration or description downwind floater air sample relocation times and new positions.
    - 4. Attach laboratory reports confirming the type and amount of fibers detected by TEM analysis.
    - 5. Include any other pertinent information that will additionally describe the release and/or will assist in the prevention of future releases from the RWA.
    - 6. Provide a written description of actions taken and any other proposed actions to prevent future releases from the RWA.
- (g) If there are three (3) TEM detections on consecutive analysis events or ten (10) detections for a single project, consultation with the Department is required to determine if the minimum standard requirements of Section 5.5.7 are being implemented appropriately and whether;

- 1103 | i. Changes in the minimum standard requirements of Section 5.5.7 are likely  
1104 | to prevent future releases; or  
1105 |  
1106 | ii. Changes in the minimum standard requirements of Section 5.5.7 are not  
1107 | likely to prevent future releases and a PSRMP is necessary per Section  
1108 | 5.5.5(A)(2); or  
1109 |  
1110 | iii. If the owner/operator believes fibers are coming from offsite and are not  
1111 | under the control of the owner/operator, then, in addition to the  
1112 | information provided in the ECP, documentation shall be provided  
1113 | demonstrating possible additional sources of asbestos fibers; or  
1114 |  
1115 | iv. Consultation with the Department is required to determine whether develop  
1116 | criteria for the evaluation of additional engineering controls for structures  
1117 | within the adjacent receptor zone are appropriate.

1118 |  
1119 | (2) **Additional requirement for projects disturbing RACS containing friable**  
1120 | **ACM.** Collect two additional downwind floating samples for mechanical  
1121 | disturbance of RACS containing friable ACM. The samplers shall be moved  
1122 | based on prevailing wind direction and adjacent receptors. For example, if  
1123 | adjacent receptors are present on only one side of the RWA, one sample location  
1124 | should be maintained between the RWA and the adjacent receptor.  
1125 |

1126 | (F) WORK PRACTICES TO BE FOLLOWED DURING RACS DISTURBANCE

1127 |  
1128 | (1) Work practice requirements applicable to all management of RACS:

1129 |  
1130 | (a) Prevent visible emissions from leaving the RWA by:

- 1131 |  
1132 | i. Excavating in lifts not to exceed the extent of wetting; or  
1133 |  
1134 | ii. Conducting continuous wetting while mixing dry materials at the point of  
1135 | RACS disturbance to ensure all materials are adequately wet prior to  
1136 | removal from the excavation.  
1137 |  
1138 | iii. Instances of visible emissions leaving the RWA shall be documented and  
1139 | addressed by changing or increasing controls (e.g. more effective wetting,  
1140 | reduced speed of excavation).

1141 |  
1142 | (b) RACS on exposed excavation faces that will be disturbed and/or managed  
1143 | during the project shall either be kept adequately wet (in accordance with  
1144 | Section 5.5.7(C)), or be stabilized using any of the following to prevent visible  
1145 | emissions from leaving the RWA:

- 1146 i. Polyethylene sheeting or geotechnical fabric with daily inspection, and  
1147 inspection after storm events immediately or within 12 hours, and  
1148 repair/replace sheeting as necessary to maintain stabilization; or  
1149
- 1150 ii. Chemical stabilizer demonstrated to be effective in the stabilization of  
1151 RACS (e.g. magnesium chloride) with weekly inspection, and inspection  
1152 after storm events immediately or within 1 calendar day, and re-application  
1153 of chemical stabilizer as necessary to maintain stabilization; or  
1154
- 1155 iii. Minimum of 3 inches of soil appropriate for unrestricted use.  
1156
- 1157 (c) Stormwater shall be managed in accordance with the Water Quality Control  
1158 Commission's stormwater regulations (5 CCR 1002-61), which include  
1159 specific stormwater permitting and management requirements for  
1160 construction sites. The Water Quality Control Division should be contacted to  
1161 determine the specific requirements for each project. Stormwater shall be  
1162 managed in a manner that minimizes run on and runoff from RACS.  
1163 Stormwater that comes into contact with RACS shall be treated as asbestos  
1164 contaminated water in accordance with Section 5.5.7(J)(4), and other  
1165 material(s) impacted by asbestos contaminated stormwater shall be managed  
1166 as RACS in accordance with Section 5.5.7(J)(3).  
1167
- 1168 (2) Work Practice requirements applicable to the management of RACS using hand  
1169 methods:  
1170
- 1171 a. Wet and remove the RACS and 6 inches, in all directions, of surrounding  
1172 soil or other material from the last occurrence of visible ACM; and,  
1173
- 1174 b. A CABI shall confirm that the visual extent of ACM and surrounding soil, or  
1175 other material, has been removed (or extent of excavation has been  
1176 reached). If RACS remains, it shall be managed for stabilization or future  
1177 removal. If there is no documented evidence of non-visible RACS at the  
1178 site, then a visual clearance shall be sufficient to determine the removal of  
1179 RACS. If there is documented evidence of non-visible RACS at the site,  
1180 sampling is required to confirm the removal of RACS. After the removal of  
1181 the additional six (6) inches, and in the absence of any debris, a QPM may  
1182 make the determination that RACS has been removed; and,  
1183
- 1184 c. For the purpose of disposal, containerize non-friable asbestos-containing  
1185 materials and associated soil and/or other matrix material using a single  
1186 layer of 6 mil leak tight packaging, or containerize friable asbestos-  
1187 containing materials and associated soil and/or other matrix material using  
1188 a double layer of 6 mil leak tight packaging. Rigid leak tight containers are

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also acceptable as packaging for asbestos waste. Dispose of materials properly in accordance with 5.5.2 or 5.5.3 as applicable.

- d. In-situ sub-surface hand removal of a single location RACS pocket shall consist of:
  - i. Removal of the pocket of RACS and associated soil or other material, plus removal of an additional 6 inches in the direction of planned disturbance; and
  - ii. CABI confirmation that the visual extent of RACS and surrounding soil and/or other matrix material has been removed. If RACS remains, it shall be managed for stabilization or future removal. If there is no documented evidence of non-visible RACS in the project area, then a visual clearance shall be sufficient to determine the removal of RACS. If there is documented evidence of non-visible RACS in the project area, sampling is required to confirm the removal of RACS; and
  - iii. For the purpose of disposal, containerize non-friable asbestos-containing materials and associated soil and/or other matrix material using a single 6 mil leak tight bag, or containerize friable asbestos-containing materials and associated soil and/or other matrix material using a double 6 mil leak tight bag. Dispose of materials properly in accordance with 5.5.8(A).

(3) Work practice requirements applicable to management of RACS using mechanical methods:

- a. For surface occurrence of RACS - Wet and remove all RACS and a minimum of 6 inches of soil, and/or other matrix material, in all directions from the last occurrence of visible ACM, with CABI confirmation that the visual extent of RACS has been removed; and/or
- b. For subsurface occurrence of RACS - Wet and remove all RACS and a minimum of three (3) linear feet of soil or other matrix material, in the direction(s) of planned excavation, with CABI confirmation that the visual extent of RACS has been removed. If there is no documented evidence of non-visible RACS at the site, then a visual clearance shall be sufficient to determine the removal of RACS. If there is documented evidence of non-visible RACS at the site, sampling is required to confirm the removal of RACS. After the removal of the additional three (3) linear feet, and in the absence of any debris, a QPM may make the determination that RACS has been removed; and

- 1232 c. If RACS remains in the RWA, it shall be managed for stabilization, per  
1233 5.5.7(K), or future removal.  
1234  
1235 d. In lieu of stabilization or full removal, sampling may be performed per  
1236 Appendix 5A to demonstrate that the material is not RACS.  
1237  
1238 e. Package and dispose of RACS in accordance with Section 5.5.8.  
1239

1240 (4) Soil or other matrix material that remains after removal of RACS in accordance  
1241 with 5.5.7(F), 5.5.7(H)(1)(c)(i), or an approved plan, is not considered RACS, is  
1242 not subject to Section 5.5, and may be appropriate for unrestricted use, onsite or  
1243 offsite, as long as it does not contain any other regulated material.  
1244

#### 1245 (G)LOADING AND PLACEMENT OF RACS

##### 1246 (1) Requirements for the loading of RACS:

- 1247  
1248 (a) Protect clean surfaces (including loading surface and truck or disposal  
1249 container surfaces that may come in contact with RACS) by covering or  
1250 decontamination of surfaces prior to transport or removal of the truck or  
1251 disposal container from the RWA and/or loading zone.  
1252  
1253 (b) Spill prevention shall consist of:
- 1254 i. Minimization of spillage by not overfilling the excavator or loader bucket  
1255 and returning the bucket to a closed position prior to moving from the  
1256 loading point; and
  - 1257 ii. Replacement of protective coverings when worn or damaged to prevent  
1258 breaches; and
  - 1259 iii. Control of runoff to prevent cross contamination from water containing  
1260 asbestos; and
  - 1261 iv. Mitigation of spills of RACS in accordance with 5.5.7(J).  
1262
- 1263 (c) During the process of loading the container, the equipment operator shall  
1264 lower the bucket as close as possible to the interior of the container before  
1265 dumping, and dump the load slowly to allow adequate misting and to prevent  
1266 emissions.  
1267

##### 1272 (2) Requirements for the transportation of RACS:

1273  
1274

- 1275 (a) Onsite transportation of RACS between the RWA and an onsite area of  
1276 staging, stockpiling, storage, disposal or reuse shall comply with the following:  
1277  
1278 i. The packaging requirements for RACS set forth in Section 5.5.8(A) of  
1279 these Regulations are not applicable; however, the decontamination  
1280 requirements of Section 5.5.7(l) shall be followed at the end of disposal  
1281 operations, or before disposal equipment is removed from the site; and  
1282  
1283 ii. Driving speeds shall not exceed 12 miles per hour or RACS shall be  
1284 covered during transport; and  
1285  
1286 iii. For transportation between the RWA and a non-contiguous onsite staging,  
1287 stockpiling, storage, disposal, or reuse ~~or stockpile~~-area:  
1288 1. Transportation equipment tires shall kept off RACS; or  
1289  
1290 2. RACS that is driven upon shall be kept adequately wet to prevent  
1291 visible emissions and all equipment surfaces that have come into  
1292 contact with RACS shall be decontaminated per 5.5.7(l) before leaving  
1293 the RWA; or  
1294  
1295 3. The haul road shall be managed as RACS for stabilization, per  
1296 5.5.7(F)(1), and future removal of a minimum of 3 inches of soil, or  
1297 other matrix material. If the road is constructed of a durable surface  
1298 such as concrete or asphalt, the surface shall be decontaminated in  
1299 accordance with 5.5.7(l)(1)(b) using wet methods, followed by CABI  
1300 inspection verifying that all soil and debris has been removed from the  
1301 surface. Rinsate/runoff shall be collected and filtrated to less than 5  
1302 microns (or applicable local requirements) and discharged to a sanitary  
1303 sewer or other Department-approved disposal facility or re-applied to  
1304 RACS that will be managed under these regulations~~removed~~.

1305  
1306 (H) ONSITE STAGING, STOCKPILING, AND STORAGE OF RACS  
1307

1308 (1) Staging, as defined in Section 1.2 of these regulations, is the accumulation and  
1309 temporary storage of RACS in the RWA for 12 hours or less. The following  
1310 requirements shall apply to the staging of RACS:  
1311

1312 (a) Staged RACS shall remain adequately wet,  
1313

1314 (b) Staging of RACS shall be on 6 mil, or greater, polyethylene sheeting or shall  
1315 include removal, and management as RACS, of a minimum of 3 inches of  
1316 material, from below the staging pile/area prior to demobilization; with visual  
1317 or measured confirmation of removal. If poly is placed on top of a durable

1318 surface such as concrete or asphalt, the surface must be decontaminated  
1319 using wet methods, followed by CABI inspection verifying that all soil and  
1320 debris has been removed from the surface. Rinsate/runoff shall be collected  
1321 and filtrated to less than 5 microns (or applicable local requirements) and  
1322 discharged to a sanitary sewer or other Department-approved disposal facility  
1323 or re-applied to RACS that will be managed under these Rregulations.

1324  
1325 (c) Staging of clean material with incidental discovery of RACS shall be managed  
1326 as follows:

- 1327  
1328 i. If a CABI was continually inspecting the material during generation,  
1329 remove the piece of ACM and one foot of material in all directions, with  
1330 CABI confirmation that the visual extent of RACS has been removed. If  
1331 more than one piece of ACM, or a pocket of ACM is discovered, remove  
1332 the pocket of ACM plus one foot of material in all directions, with CABI  
1333 confirmation that the visual extent of RACS has been removed. Material  
1334 that remains after removal of RACS, and CABI visual confirmation, is not  
1335 considered RACS, is not subject to Section 5.5, and may be appropriate  
1336 for unrestricted reuse, onsite or offsite, as long as it does not contain any  
1337 other regulated material.
- 1338  
1339 ii. If a CABI was not continually inspecting the material during generation, an  
1340 intrusive inspection of the pile shall be conducted to determine the extent  
1341 of RACS contamination, followed by the removal of the visual extent of  
1342 contamination plus removal of one foot of material in all directions.  
1343 Alternatively, the entire pile, plus 3 inches of material below the pile, shall  
1344 be removed and managed as RACS. If the pile was placed on top a  
1345 durable surface such as concrete or asphalt, the surface shall be  
1346 decontaminated using wet methods, followed by CABI inspection verifying  
1347 that all soil and debris has been removed from the surface. Rinsate/runoff  
1348 shall be collected and filtrated to less than 5 microns (or applicable local  
1349 requirements) and discharged to a sanitary sewer or other Department-  
1350 approved disposal facility or re-applied to RACS that will be managed  
1351 under these regulations~~removed~~.

1352  
1353 (2) Stockpiling, as defined in Section 1.2 of these regulations, is the accumulation  
1354 and storage of RACS that will exist for more than 12 hours, up to and including  
1355 10 calendar days. The following requirements shall apply to stockpiled RACS:

- 1356  
1357 (a) Stockpiled RACS shall be placed on a minimum of 6 mil polyethylene  
1358 sheeting or shall include removal, and management as RACS, of a minimum  
1359 of 3 inches of soil, or other matrix material, from under the entire area of  
1360 RACS stockpiling after stockpile removal. If the stockpile was placed on top

1361 of a durable surface such as concrete or asphalt, the surface must be  
1362 decontaminated using wet methods, followed by CABI inspection verifying  
1363 that all soil and debris has been removed from the surface. Rinsate/runoff  
1364 shall be collected and filtrated to less than 5 microns (or applicable local  
1365 requirements) and discharged to a sanitary sewer or other Department-  
1366 approved disposal facility or re-applied to RACS that will be managed under  
1367 these regulations removed.  
1368  
1369 (b) RACS shall be adequately wet during disturbance.  
1370  
1371 (c) Stockpiled RACS shall be controlled per 5.5.7(A)  
1372  
1373 (d) Stockpiled RACS shall be stabilized by:  
1374  
1375 i. Polyethylene sheeting or geotechnical fabric with daily inspection, and  
1376 inspection after storm events, and repair/replace sheeting as necessary to  
1377 maintain stabilization; or  
1378  
1379 ii. Chemical stabilizer demonstrated to be effective in the stabilization of  
1380 RACS (e.g. magnesium chloride) with weekly inspection, and inspection  
1381 after storm events, and re-application of chemical stabilizer as necessary  
1382 to maintain stabilization; or  
1383  
1384 iii. Minimum of 3 inches of soil appropriate for unrestricted use.  
1385  
1386 (e) The maximum duration that RACS may be stockpiled shall not exceed 10  
1387 calendar days  
1388  
1389 (f) For stockpile areas that are non-contiguous with the RWA, transportation of  
1390 RACS shall be conducted in accordance with the following:  
1391  
1392 i. Transportation equipment tires shall kept off RACS; or  
1393  
1394 ii. The tires shall be decontaminated per 5.5.7(I) before leaving the RWA; or  
1395  
1396 iii. The haul road shall be managed as RACS for stabilization, per  
1397 5.5.7(H)(2)(d), and future removal of a minimum of 3 inches of soil, or  
1398 other matrix material. If the road is constructed of a durable surface such  
1399 as concrete or asphalt, the surface shall be decontaminated using wet  
1400 methods, followed by CABI inspection verifying that all soil and debris has  
1401 been removed from the surface. Rinsate/runoff shall be collected and  
1402 filtrated to less than 5 microns (or applicable local requirements) and  
1403 discharged to a sanitary sewer or other Department-approved disposal

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facility or re-applied to RACS that will be managed under these regulations~~removed~~.

(g) For a stockpile that was previously thought to be free of RACS, but where RACS is subsequently identified, follow the procedure outlined in 5.5.7 (H)(1)(c).

(3) Storage of RACS exceeding ten calendar days shall require the submission of a RACS Storage Plan. ~~Storage of RACS shall not exceed 6 months or the duration of the project, whichever is shorter.~~ Storage of RACS shall not commence prior to approval of the RACS Storage Plan by the Department's Hazardous Materials and Waste Management Division. The RACS Storage Plan shall include:

- (a) Approval of storage with signature from the property owner; and
- (b) Volume of RACS intended for storage; and
- (c) Liner design or provisions for removal of a minimum of 3 inches of underlying material; and
- (d) Storm water design including protections for run-on and run-off; and
- (e) Cover design or use of an equivalent durable stabilizer; and
- (f) Access control and signage; and
- (g) Storage timeframe (shall not exceed 6 months unless an extended storage timeframe is approved by the Department or the duration of the project, whichever is shorter); and
- (h) Inspection and maintenance schedule; and
- (i) Closure and removal requirements; and
- (j) Documentation and reporting; and
- (k) Certification by an independent, qualified, and registered Professional Engineer.

(4) Temporary sub-surface storage of RACS in areas of future planned RACS removal shall not exceed 6 months and shall comply with the following:

- 1446 (a) RACS may only be placed within the Area of Contamination (AOC) that it  
1447 was originally removed from.  
1448  
1449 (b) Placement of RACS utilizing standard RACS management requirements in  
1450 accordance with the minimum standard requirements of Section 5.5.7, an  
1451 approved PSRMP, or an approved SOP.  
1452  
1453 (c) Cover RACS in accordance with the requirements of Section 5.5.7(K).  
1454  
1455 (d) RACS not removed within 6 months, or the duration of the project, whichever  
1456 is shorter (unless an extended storage timeframe is approved by the  
1457 Department), shall be considered disposal in accordance with Section  
1458 5.5.8(A), or reuse within an area of contamination and will require an  
1459 environmental covenant in accordance with 5.5.8(B)(1).  
1460  
1461 (5) Offsite staging, stockpiling, and storage of RACS are allowed as long as it must  
1462 complies with the disposition requirements of Section 5.5.8.  
1463  
1464

1465 (I) DECONTAMINATION

1466 (1) Requirements applicable to all projects subject to Section 5.5:

1467 (a) Personnel Decontamination:

- 1468  
1469 i. Remove booties and/or gloves before exiting RWA and dispose as  
1470 asbestos contaminated waste; or  
1471  
1472 ii. If not using disposable PPE, decontaminate boots in a boot wash station,  
1473 remove gloves after exiting the boot wash station, and dispose of gloves  
1474 as asbestos contaminated waste. Rinsate from the boot wash station  
1475 shall be collected, filtrated to less than 5 microns (or applicable local  
1476 requirements) and discharged to a sanitary sewer or other Department-  
1477 approved disposal facility, or re-applied to RACS that will be managed  
1478 under these regulations.  
1479  
1480

1481 (b) Decontamination of Equipment or Surfaces that have come into Contact with  
1482 RACS  
1483

1484 i. For equipment that comes into contact with RACS:

- 1485  
1486 1. Wet decontamination on a decontamination pad (minimum 10 mil poly  
1487 or other durable non-permeable barrier) followed by CABI inspection  
1488

1489 and verification of equipment decontamination before it leaves the  
1490 decontamination area. All decontamination liquids and solids shall be  
1491 contained, and run-on and run-off shall be prevented. Rinsate/runoff  
1492 shall be collected, filtrated to less than 5 microns (or applicable local  
1493 requirements) and discharged to a sanitary sewer or other  
1494 Department-approved disposal facility or re-applied to RACS that will  
1495 be managed under these regulations~~removed~~;

1496  
1497 **Note:** For breaches in the decontamination pad where RACS or  
1498 water contaminated with asbestos may have impacted the material  
1499 below the decontamination pad, implement the provisions of  
1500 section 5.5.7(J);

1501 and/or

1502  
1503  
1504 2. Decontamination using HEPA vacuums followed by CABI inspection  
1505 and verification of equipment decontamination before it leaves the  
1506 decontamination area.

1507  
1508 (c) Protection of Clean Equipment and Surfaces:

1509  
1510 i. Keep all equipment off of RACS; or

1511  
1512 ii. Protect clean surfaces from coming in contact with RACS by covering  
1513 equipment surfaces or RACS surfaces with polyethylene sheeting or  
1514 equivalent durable impermeable covering. For onsite movement of  
1515 excavation equipment between RWAs, where only the excavator bucket  
1516 has come in contact with RACS, the bucket shall be wrapped in  
1517 polyethylene sheeting (minimum 6 mil) prior to movement. Protective  
1518 coverings shall be cleaned, repaired, or replaced as necessary. If  
1519 protective coverings are breached and RACS or asbestos contaminated  
1520 water comes into contact with underlying material, the provisions of  
1521 section 5.5.7(J) shall be followed. Coverings that have come in contact  
1522 with RACS shall be disposed as asbestos contaminated waste.

1523  
1524 (2) Additional Requirements for Projects Disturbing RACS Containing Friable ACM:

1525  
1526 (a) Remove disposable impermeable suits or equivalent coveralls before exiting  
1527 RWA and dispose as asbestos contaminated waste, or

1528  
1529 (b) After removal of suits or coveralls, conduct full wet decontamination prior to  
1530 exiting RWA with collection of rinsate and filtration to less than 5 microns and

1531 | discharge to a sanitary sewer or other Department-approved disposal facility.  
1532 | Re-application of decontamination shower water is prohibited.

1533 |  
1534 | (J) RACS SPILL RESPONSE

- 1535 |  
1536 | (1) Areas where RACS is spilled are RWAs until clean up is completed.  
1537 |  
1538 | (2) Spilled material shall be cleaned up immediately and not allowed to dry out or  
1539 | accumulate on any surface. The Department's Hazardous Materials and Waste  
1540 | Management Division shall be notified, through the spill reporting hotline, in the  
1541 | event that spills of RACS cannot be cleaned up within 24 hours of spill  
1542 | identification.  
1543 |  
1544 | (3) Where there are breaches in ground coverings that have the potential to allow  
1545 | RACS or water contaminated with asbestos to impact the material below the  
1546 | covering, a minimum of 3 inches of soil, or other matrix material, shall be  
1547 | removed from beneath the breached ground coverings. Visual or measured (e.g.  
1548 | survey) confirmation that 3 inches of soil and/or other matrix material from  
1549 | beneath the breached covering has been removed shall be conducted. If ground  
1550 | coverings are placed on top a durable surface such as concrete or asphalt, the  
1551 | surface shall be decontaminated using wet methods, followed by CABI inspection  
1552 | that all soil and debris has been removed from the surface.  
1553 |  
1554 | (4) Rinsate, runoff, or any other water that has come into contact with RACS shall be  
1555 | considered to be asbestos contaminated water and shall be collected and  
1556 | | filtrated to less than 5 microns and discharged to a sanitary sewer or other  
1557 | | Department-approved disposal facility or re-applied to RACS that will be  
1558 | | managed under these regulations.  
1559 |  
1560 | (5) Surfaces that are contacted by asbestos contaminated water shall be managed  
1561 | as RACS as per 5.5.7(J)(3) or permanently stabilized as per 5.5.7(K).  
1562 |  
1563 | (6) If work practices in an RWA are causing an ongoing spill outside the RWA, the  
1564 | work practices shall cease or be modified to prevent additional releases.

1565 |  
1566 | (K) REQUIREMENTS FOR EXPOSED RACS REMAINING IN PLACE

- 1567 |  
1568 | (1) Any remaining RACS that has been exposed by the soil disturbing activity, but is  
1569 | not disturbed, such as an excavation side-wall or bottom shall be covered or  
1570 | stabilized using one of the following:  
1571 |  
1572 | (a) Cover RACS with geofabric, followed by 18 inches of fill suitable for  
1573 | unrestricted use, and vegetation; or

- 1574  
1575 (b) Cover RACS with geofabric, followed by 6 inches of fill suitable for  
1576 unrestricted use, and concrete or asphalt; or  
1577  
1578 (c) Cover RACS with geofabric, followed by fill suitable for unrestricted use to  
1579 grade or six inches, whichever is greater, for vertical excavation faces or  
1580 trenches; or  
1581  
1582 (d) Alternate cover designs as approved by the Department.  
1583

1584 (L) DOCUMENTATION  
1585

1586 (1) The documents listed below shall be maintained during a project and available  
1587 for Department review upon request. However, this documentation need not be  
1588 submitted to the Department unless requested. CABI and AMS notes may be  
1589 collected by one individual if they possess both certifications; however, if no AMS  
1590 is onsite it may be necessary for the CABI to provide items listed in the AMS  
1591 notes section (e.g. wind monitoring and shutdown events). CABI and AMS notes  
1592 may be taken by a scribe, but shall be reviewed and approved by the CABI or  
1593 AMS for whom the notes are being taken. Other appropriate personnel may also  
1594 provide the following documentation.  
1595

- 1596 (a) CABI/QPM Notes shall include documentation of:  
1597 i. Site description including location; and  
1598 ii. Descriptions of site activities; and  
1599 iii. Descriptions of equipment in use; and  
1600 iv. Descriptions of hand removals (including locations); and  
1601 v. Descriptions of types of debris encountered; and  
1602 vi. Descriptions of suspect material encountered; and  
1603 vii. Friability of ACM encountered (As determined by a CABI); and  
1604 viii. Sampling, if conducted (All sampling shall be conducted by a CABI); and  
1605 ix. Decontamination visual clearances; and  
1606 x. Excavation visual clearances; and  
1607 xi. Spill response activities; and  
1608 xii. Observations of visible emissions and responses; and  
1609 xiii. Observations non-earthen material or the appearance of fill; and  
1610 xiv. Observations of other indicators of impact to soils.  
1611

- 1612 (b) AMS notes shall include documentation of:  
1613 i. Wind speed measurements; and  
1614 ii. Prevailing wind direction(s); and  
1615 iii. Wind shut down event(s); and  
1616 iv. Initial air sample locations; and

- 1617 v. Air sample relocation notes; and  
1618 vi. Observations of visible emissions and responses; and  
1619 vii. Notes pertaining to sample malfunctions (pump faults, overloading, etc.);  
1620 and  
1621 viii. Instances of samples being compromised (samples knocked over,  
1622 sample filters being sprayed with water, samples physically impacted by  
1623 equipment, etc.); and  
1624 ix. Air sample data (flow rates, time of sampling, volumes, calibration method,  
1625 etc.).  
1626  
1627 (c) General documentation shall include:  
1628 i. Disposal records; and  
1629 ii. Analytical reports including chain of custody forms; and  
1630 iii. Evaluations of any samples with a “cannot be read” analysis result and the  
1631 notifications of these events to the Department; and,  
1632 iv. Location of known remaining RACS; and  
1633 v. Creation and removal dates for, and locations of, staged, stockpiled,  
1634 and/or stored RACS, and  
1635 vi. Stockpile and staging pile inspection logs and documentation of weather  
1636 events requiring inspection, and  
1637 vii. Logs of all site personnel with access to the RWA, and  
1638 viii. Certification records for all CABIs and AMSs utilized on the project, and  
1639 ix. Records for training conducted in accordance 5.5.3(C) and 5.5.3(D)  
1640 x. Records demonstrating the QPM(s) meet the training and experience  
1641 requirements set forth in Section 5.5.3(E).  
1642  
1643

1644 | **5.5.8 PACKAGING AND DISPOSITION OF REGULATED ASBESTOS**  
1645 **CONTAMINATED SOIL**

1646  
1647 (A) Disposal of RACS  
1648

- 1649 (1) RACS containing one percent (1%), or one pound, or greater of friable ACM (as  
1650 determined in the field by a CABI) by volume per load or container, based on  
1651 visual estimation through continuous inspection or other Department-approved  
1652 quantifiable means of measurement, shall be packaged in a leak tight container  
1653 and disposed as friable asbestos waste, in accordance with Section 5.3 of these  
1654 regulations. Alternatively, no friable ACM determination by a CABI is required if  
1655 the disposal load is assumed to be RACS containing 1% or greater of friable  
1656 ACM and is packaged and disposed of in accordance with Section 5.3 of these  
1657 regulations. Documentation shall accompany each load of RACS removed from  
1658 the site stating that soil originating from this site shall not be used as daily cover  
1659 or reused offsite.

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(2) For RACS containing

- (a) Less than one percent (1%), and less than one pound, of friable ACM (as determined in the field by a CABI) by volume, per load or container, based on visual estimation through continuous inspection, or other Department-approved quantifiable means of measurement, shall be packaged in a leak tight container and disposed in a manner similar to non-friable asbestos waste, as described in Section 5.2 of these regulations. Documentation must accompany each load of RACS removed from the site stating that soil originating from this site shall not be used as daily cover or reused offsite.
- (b) Only visible non-friable ACM (as determined in the field by a CABI) that has not been rendered friable, or RACS that contains no visible ACM, shall be packaged in a leak tight container and disposed of as non-friable asbestos in accordance with Section 5.2 of this Part 5. Documentation shall accompany each load of RACS removed from the site stating that soil originating from this site shall not be used as daily cover or reused offsite.
- (c) A total volume of debris that is less than 1% of the disposal load, based on visual estimation through continuous inspection, and the debris is all assumed to be RACS, then a CABI is not required to make a friable ACM determination.

(3) A Design and Operations (D&O) plan shall be submitted to, and approved by, the Department for onsite disposal of RACS outside of the AOC, in accordance with the Colorado Solid Wastes Disposal Sites and Facilities Act (C.R.S. 30-20, Part 1) and these regulations. The packaging requirements set forth above in 5.5.8(A)(1-2) are not required for onsite disposal, but the requirements of Section 5.5.5(A)(2) (e) are applicable. An environmental covenant, in accordance with 25-15-320, C.R.S., is required for onsite RACS disposal, and a Certificate of Designation shall be required, in accordance with Section 1.6 of these regulations, unless exempt under Section 1.4.

(4) Owners/operators may propose pilot projects to demonstrate that alternative packaging for RACS, that contains only non-friable ACM and/or asbestos fibers in soil, is equivalently protective. Pilot project work plans shall be submitted to the Department for review and approval prior to implementation. The alternative packaging must also be approved by the disposal facility accepting the waste.

(B) Onsite reuse of RACS:

- 1702 (1) Reuse of RACS within the footprint of the AOC shall comply with 5.5.5(A)(2)(e),  
1703 and the following cover requirements:  
1704  
1705 (a) Cover RACS with geofabric, followed by 18 inches of fill suitable for  
1706 unrestricted use, and vegetation; or  
1707  
1708 (b) Cover RACS with geofabric, followed by 6 inches of fill suitable for  
1709 unrestricted use, and concrete or asphalt; or  
1710  
1711 (c) Cover RACS with geofabric, followed by fill suitable for unrestricted use to  
1712 grade for vertical excavation faces or trenches; and  
1713  
1714 (d) The final grades shall promote surface water run-off and minimize erosion,  
1715 and shall have slopes no less than 5% (20:1) and no greater than 25% (4:1);  
1716 or  
1717  
1718 (e) Alternate cover designs as approved by the Department; and  
1719  
1720 (f) An environmental covenant, in accordance with 25-15-320, C.R.S., is  
1721 required for onsite reuse of RACS.  
1722  
1723 (2) A plan for beneficial reuse of RACS outside the footprint of the AOC, in  
1724 accordance with Section 8.6, shall be submitted to the Department for review and  
1725 approval prior to its implementation. The plan shall include provisions for  
1726 covering RACS to prevent direct exposure, and shall comply with the  
1727 management requirements of Section 5.5.5(A)(2)(e). Additionally, the cover  
1728 requirements outlined in Section 5.5.4(A)(3) shall be adhered to. An  
1729 environmental covenant, in accordance with 25-15-320 C.R.S. is required for  
1730 beneficial reuse of RACS.  
1731  
1732 (C) Soil or other matrix material initially determined to be RACS may be demonstrated  
1733 not to be RACS based on visual inspection, removal of all ACM, and sampling and  
1734 analysis of the remaining material showing no detectable asbestos. Sampling and  
1735 analysis shall be conducted in accordance with Appendix 5A. If there is no  
1736 detectable asbestos, this material is no longer subject to Section 5.5 and may be  
1737 appropriate for unrestricted use, onsite or offsite, as long as it does not contain any  
1738 other regulated material.  
1739  
1740 ~~(D) Soil or other matrix material that remains after removal of RACS in accordance with~~  
1741 ~~5.5.7(F), 5.5.7(H)(1)(c)(i), or an approved plan, is not considered RACS, is not~~  
1742 ~~subject to Section 5.5, and may be appropriate for unrestricted use, onsite or offsite,~~  
1743 ~~as long as it does not contain any other regulated material.~~  
1744

1745

1746 **5.5.9 FEES.**

1747

1748 The Department shall collect fees, from the owner, operator, or person conducting the  
1749 soil disturbing activity, based on total documented costs, in accordance with Section 1.7

1750 **6) Appendix 5A (Sample Collection Protocols and Analytical Methodologies) is**  
1751 **being added to Section 5 to read as follows:**

1752  
1753  
1754  
1755

**APPENDIX 5A  
SAMPLE COLLECTION PROTOCOLS AND ANALYTICAL METHODOLOGIES**

1756 **Purpose**

1757 The purpose of this appendix is to establish standard sample collection requirements  
1758 and analytical methods and procedures for use in identifying and quantifying asbestos  
1759 fibers in air, bulk material, and environmental media such as soil or ash.

1760 **Sample Collection Requirements**

1761 The following sample collection requirements shall be followed when collecting samples  
1762 for the purpose of determining the applicability of Section 5.5, and when collecting  
1763 samples necessary to comply with the requirements of Section 5.5. Remediation plans  
1764 submitted in accordance with Section 5.5.6 shall include a site specific sampling and  
1765 analysis plan that incorporates the sample collection methodologies and analytical  
1766 procedures in this Appendix, or proposes alternatives, and includes site specific  
1767 clearance criteria.

1768

1769 **Bulk Samples**

1770 Bulk samples shall be collected, in a manner sufficient to determine whether the  
1771 material is asbestos-containing material (ACM) or not ACM, from each type of suspect  
1772 ACM. Bulk samples shall be collected by a State of Colorado certified Asbestos  
1773 Building Inspector. In the absence of bulk sample collection, any suspect ACMs must  
1774 be assumed to be ACMs.

1775

1776 Bulk samples shall be collected by homogenous type based on color, pattern, texture,  
1777 thickness, associated materials, or by other identifying characteristics. Additionally, the  
1778 quantity and location of a suspect material shall be used to determine the number of  
1779 bulk samples required to characterize the asbestos content of each homogeneous  
1780 suspect material. For the purpose of determining that a homogeneous suspect material  
1781 does not contain asbestos, a minimum of three bulk samples shall be collected from the  
1782 homogeneous material unless there is insufficient material to constitute three samples.  
1783 If one of the collected samples of a homogeneous bulk material is determined to be  
1784 ACM, then the homogeneous material shall be considered ACM.

1785

1786 Soil Samples

1787 Samples collected to determine asbestos content in soil shall be 10 point aliquot  
1788 composite samples collected from a maximum area of 1,250 square feet (representing  
1789 0-6 inches beyond the exposed surface) or a maximum volume of 40 cubic yards.  
1790 Individual aliquots shall be approximately 1/10 of the entire sample volume. At each  
1791 aliquot location approximately one tablespoon of soil shall be collected. The total  
1792 volume of the 10 aliquots should equal roughly a half cup. The total collected sample  
1793 volume should be greater than one quarter cup, but should not exceed one cup. Aliquot  
1794 locations shall be randomly selected but shall be representative of the entire sample  
1795 area or volume (to be inclusive of the interior of soil piles in addition to the surface).  
1796 However, aliquots shall be co-located with any areas where friable ACM was formerly  
1797 present. All samples collected to determine asbestos content shall be collected by a  
1798 State of Colorado Certified Asbestos Building Inspector.

1799  
1800 Sampling for clearance purposes of any exposed horizontal or vertical surface shall  
1801 have the following additional requirements:

- 1802 A) The aliquots of a clearance sample shall not be collected until after the RACS,  
1803 and the required amount of associated material, has been removed.
- 1804 B) A visual inspection shall be performed and passed (i.e., no visible ACM present)  
1805 by a State of Colorado certified Asbestos Building Inspector prior to the collection  
1806 of soil samples. Visual inspections shall include the following:
- 1807 a. The area to be cleared shall be designated before the visual inspection;  
1808 and,
  - 1809 b. Former locations of friable materials shall be designated; and,
  - 1810 c. The surface being inspected shall be dry enough to allow identification of  
1811 suspect ACM; and,
  - 1812 d. The visual inspection shall be conducted in adequate lighting; and,
  - 1813 e. The area to be cleared shall be free of visual impediments (e.g. snow  
1814 cover, plastic sheeting, standing water, etc.); and,
  - 1815 f. At a minimum the area to be cleared shall be inspected in at least two  
1816 perpendicular directions; and,
  - 1817 g. Single or multiple inspectors may be used to perform a visual clearance.  
1818 However, a single inspector shall visually inspect no more than a five foot  
1819 width with each pass [i.e. for a clearance area that is 25' x 50' a single  
1820 inspector would be required to make at least 5 passes in one direction (25'  
1821 length) and at least 10 passes in the other direction (50' length)]; and,
  - 1822 h. Detailed close examination of the area being cleared is required. The  
1823 inspector(s) should use limited invasive inspection techniques, such as

1824 periodically sifting the surface being cleared and closely inspecting the  
1825 disturbed area.

1826 C) If sidewalls with 6" or greater of vertical height are present, independent 10 point  
1827 aliquot composite samples shall be collected from each of the sidewalls and the  
1828 floor of the excavation.

1829

1830 Ash Samples

1831 Ash that contains, and/or is comingled with, suspect asbestos containing material  
1832 and/or construction and demolition debris shall be considered to be RACS unless the  
1833 ash is sampled, and analysis demonstrates that the ash is not RACS. Representative  
1834 samples of each type of ash materials shall be sampled and analyzed in the same  
1835 manner as soil (including area/volumetric limitations of sampling). Ash samples shall be  
1836 collected by homogenous strata, location, content of other surrounding material, or  
1837 other observations indicating heterogeneity of the ash present. All samples collected to  
1838 determine asbestos content shall be collected by a State of Colorado Certified Asbestos  
1839 Building Inspector. In the absence of suspect asbestos containing materials or  
1840 construction and demolition debris, and in the absence of documented evidence of non-  
1841 visible asbestos, ash material may be treated as non-RACS.

1842

1843 Cross Contamination Prevention

1844 All sample collection equipment shall be decontaminated in a manner sufficient to  
1845 prevent cross contamination between individual samples or individual composite  
1846 samples. Decontamination is not required between the collection of aliquots comprising  
1847 a single composite sample.

1848

1849 Air Samples

1850 Air samples shall be collected by drawing air through 0.8-micron ( $\mu\text{m}$ ), 25-millimeter  
1851 (mm), mixed cellulose ester (MCE) filters, using an open-faced cowl extension oriented  
1852 face down at an angle of 45°. Sample flow rate shall be between 0.5-10 liters per  
1853 minute depending on the anticipated duration of sampling and the specified detection  
1854 sensitivity. If the minimum air volume required by the method being utilized cannot be  
1855 met, the AMS shall request that the laboratory prepare the sample using an indirect  
1856 preparation method, for TEM presence/absence analysis. Air samples shall be  
1857 collected at a height that is representative of the disturbance activity taking place.  
1858 However, air samples shall be located at a height between 3' above the ground surface  
1859 but not to exceed 20 feet above the ground surface. Air samples shall be collected by a  
1860 State of Colorado trained and certified Air Monitoring Specialist.

1861 Documentation

1862 All of the following sampling and analytical documentation shall be maintained during a  
1863 project and available for Department review upon request. This documentation need  
1864 not be submitted to CDPHE unless requested or as required in a project specific plan.

1865 1) Bulk, soil, and ash samples:

- 1866 a. Description of the material being sampled including friability
  - 1867 i. For samples collected for characterization purposes also include
  - 1868 an estimate of the quantity of visible suspected RACS present
  - 1869 ii. For samples of ash, also include a brief description of the ash
  - 1870 layer, and any associated identifiable debris
- 1871 b. Name of person collecting the sample(s)
- 1872 c. Date and time of sample collection
- 1873 d. Location of sample collection (A map, drawing, or diagram showing
- 1874 sample locations in relation to the work area and surrounding area)
- 1875 e. The boundary/limits that are represented by the collected sample
- 1876 f. Chain of custody documentation
- 1877 g. Laboratory analysis reports
- 1878 h. Log of characterized homogeneous bulk materials including material
- 1879 descriptions, photographic documentation, and asbestos content

1880 2) Air samples:

- 1881 a. Name of person collecting the sample(s)
- 1882 b. Date and time(s) of sample collection
- 1883 c. Locations of air sample collection
- 1884 d. Any relocations of air samples
- 1885 e. A map, drawing, or diagram showing air sample locations (initial and
- 1886 relocations) in relation to the work area and the surrounding area
- 1887 f. Chain of custody documentation
- 1888 g. Laboratory analysis reports
- 1889 h. Explanation of any air sample malfunctions and any voided air samples
- 1890 i. Air sample data (flow rates, time of sampling, volumes, calibration
- 1891 method, etc.)
- 1892 j. Wind speed measurements
- 1893 k. Prevailing wind directions
- 1894 l. Wind shut down events
- 1895 m. Observations of visible emissions and responses

1896  
1897  
1898

1899 **Analytical Requirements**

1900 The following analytical methods shall be used to evaluate the presence of asbestos  
1901 and/or to determine asbestos content when analyzing samples for the purpose of  
1902 determining the applicability of Section 5.5, and when analyzing samples collected in  
1903 accordance with Section 5.5:

1904

1905 Bulk Samples

1906 Samples of suspect asbestos-containing material shall be analyzed by polarized light  
1907 microscopy (PLM), according to United States Environmental Protection Agency  
1908 (USEPA) Method EPA/600/R-93/116 or equivalent method, to determine if any asbestos  
1909 fibers are present. If the asbestos content of a sample is estimated to be 1% asbestos  
1910 or less, but greater than 0%, by a method other than point counting (such as visual  
1911 estimation), the determination shall be repeated using the point counting technique with  
1912 PLM. Alternatively, the material may be assumed to be ACM. Analysis shall be  
1913 conducted by a National Voluntary Laboratory Accreditation Program (NVLAP)  
1914 accredited laboratory.

1915

1916 Soil Samples and Ash Samples

1917 Prior to preparation of a soil or ash sample, bulk materials shall be separated from the  
1918 soil or ash sample for independent analysis. Any bulk materials identified in a soil or  
1919 ash sample that contain any amount of asbestos shall be reported as independent  
1920 layers of the whole sample. The samples shall be adequately prepared (crushed and  
1921 dried) to facilitate stereomicroscopic analysis by the laboratory. The goal of the  
1922 preparation process should be to produce dried conglomerates of approximately one  
1923 eighth inch (1/8") to one quarter inch (1/4") size. Rock and/or stone material does not  
1924 need to be crushed (this process is not intended to be homogenization). Soil and ash  
1925 samples shall be analyzed by PLM according to USEPA Method EPA/600/R-93/116 to  
1926 determine if any asbestos fibers are present. Analysis shall be conducted by a National  
1927 Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory. During the  
1928 stereomicroscopic analysis (10X – 50X) of the soil/ash sample the analyst shall sift  
1929 through the sample at a rate of approximately one tablespoon per minute. At the end of  
1930 the stereomicroscopic analysis the sample shall be agitated or shaken as a final check  
1931 for asbestos prior to the preparation of PLM grab mounts. At no time during the  
1932 stereomicroscopic analysis shall a sub sample be collected. The entire sample shall be  
1933 analyzed and the results reported. If no asbestos was identified by PLM after the initial  
1934 stereomicroscopic examination, then three random grab mount preparations shall be  
1935 analyzed by PLM to determine if the sample is none detected for asbestos content. If

1936 any asbestos is found by the laboratory it shall be reported even in the absence of a  
1937 second detection (i.e. there does not need to be a second detection to qualify a trace  
1938 level of asbestos in the sample). Quantification of asbestos content shall be based on  
1939 the entire sample volume, and be reported as such.

1940

1941 | Air Samples Collection

1942 Air samples submitted for Phase Contrast Microscopy (PCM) shall be analyzed  
1943 according to NIOSH Method 7400 by a laboratory showing successful participation in  
1944 the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing  
1945 (PAT) Program or individual(s) certified through the AIHA Asbestos Analysts Registry  
1946 (AAR) Program.

1947

1948 Air samples submitted for Transmission Electron Microscopy (TEM), for which  
1949 quantification of asbestos is desired, shall be prepared and analyzed according to the  
1950 standard Asbestos Hazard Emergency Response Act (AHERA) method (AHERA; 40  
1951 CFR Part 763, Subpart E, Appendix A). All TEM analysis shall be performed by a  
1952 NVLAP accredited laboratory. If a presence/absence analysis is desired, the analysis  
1953 shall be performed using the AHERA method modified in the following manner:

- 1954 ● A minimum of two preparations shall be prepared and utilized for each  
1955 sample
- 1956 ● Analysis shall be conducted on a minimum of four grid openings or until  
1957 three or more structures are identified, whichever comes first
- 1958 ● Any structure (adhering to the AHERA counting rules) identified during  
1959 analysis shall be reported
  - 1960 ○ Identification of less than three structures shall be reported as  
1961 present
  - 1962 ○ Identification of three or greater structures shall be reported as  
1963 detected

1964

1965 Any air sample analysis that results in a “cannot be read (CBR)” determination from the  
1966 analyst, or a “not analyzed (NA) or rejected” due to loose debris or uneven loading, shall  
1967 be evaluated by the AMS to determine if a cause of the CBR or NA can be ascertained.  
1968 If it is determined that the CBR is a result of overloading from airborne emissions, then  
1969 the AMS shall request that the laboratory prepare the sample, using an indirect  
1970 preparation method, for TEM presence/absence analysis.

1971

1972 Deviation from this sampling and analysis appendix shall only be allowed upon  
1973 consultation with, review by, and approval from, the Department.