



ASTSWMO Subtitle C and Subtitle D Post-Closure Care Period Final Survey Report

Prepared by the
ASTSWMO Post-Closure Care Workgroup

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ASTSWMO Subtitle C and Subtitle D Post-Closure Care Period Survey Report

Introduction

In August 2011, the ASTSWMO Hazardous Waste and Materials Management Subcommittees conducted a joint Subtitle C and Subtitle D Post-Closure Care (PCC) Period Survey that was sent to hazardous and solid waste programs in the States, Territories and District of Columbia (States), to gather information on States' policies and/or regulations with respect to post-closure requirements beyond 30 years.

As facilities around the country, Subtitle C facilities in particular, are coming up on the end of the initial 30-year post-closure period, many States are grappling with the issue of how to address this situation. In particular, questions arise as to what specific criteria should be used to make a determination that post-closure care needs to be extended, decreased or may be ended at the end of the initial 30-year period.

Regulations promulgated under the authorities of Subtitle C and Subtitle D of the Resource Conservation and Recovery Act (RCRA) include provisions regarding the post-closure care of hazardous waste land disposal units, and municipal solid waste landfills, respectively. Both the Subtitle C and the Subtitle D regulations establish a 30-year post-closure care period as the default requirement (See 40 CFR § 264.117 and 40 CFR § 258.61). These regulations include provisions allowing the 30-year period to be extended or shortened. For Subtitle C facilities, the 30-year period may be extended if the Regional Administrator (or Director of an authorized State program) "finds that the extended period is necessary to protect human health and the environment". The 30-year period may be shortened if the Regional Administrator or State Director finds that the reduced period is "sufficient to protect human health and the environment." Similarly, for Subtitle D facilities, the 30-year period may be extended if the Director of an approved State determines that "the lengthened period is necessary to protect human health and the environment." The post-closure care period for Subtitle D facilities may be decreased if the Regional Administrator or State authority determines that, following a demonstration made by the owner/operator, the decreased period will be protective of human health and the environment.

In order to address PCC issues from both a Subtitle C and Subtitle D program perspective, an ASTSWMO PCC Workgroup was created in January 2011, comprised of the Chairs of the Hazardous Waste and Materials Management Subcommittees, the Chair and a member of the Corrective Action and Permitting Task Force within the Hazardous Waste Subcommittee, and the Chair of the Municipal D Waste Task Force within the Materials Management Subcommittee. The workgroup agreed that the two Subcommittees would collaborate to address PCC issues - those common to the Subtitle C and Subtitle D programs as well as those that are program-specific - through continuing discussions of their workgroup and through the

Task Forces within each of the Subcommittees. The workgroup developed the joint survey to identify key PCC issues and obtain input from both programs.

Thirty-eight (38) States and the District of Columbia responded to the survey. Respondents represented 31 hazardous waste programs and 27 solid waste programs. Nineteen (19) States provided both Subtitle C and D program responses; 12 States provided Subtitle C-only program responses; and 8 States provided Subtitle D-only program responses. Several of the survey results were highlighted in a [joint presentation](#) made by the Chairs of the ASTSWMO Corrective Action and Permitting Task Force and the Municipal D Waste Task Force during a session on Post-Closure Care at the October 2011 ASTSWMO Annual Meeting.

Response totals for some of the questions have been refined since the initial findings were presented at the 2011 Annual Meeting. Therefore, the total number of responses in this survey report may vary in a few cases from the numbers indicated in the 2011 presentation. The survey report contains the up-to-date numbers.

In addition to the survey findings, this report also addresses the follow-up that the ASTSWMO Corrective Action and Permitting Task Force and Municipal D Waste Task Force have taken in response to feedback from respondents regarding the products that would potentially be most helpful to their State programs in addressing PCC issues.

Products That States Identified as Potentially Helpful

Fifty (50) of 58 respondents from both the Subtitle C and Subtitle D programs indicated that EPA guidance on factors relevant to modifying the PCC period would be most helpful to State programs. Following are the additional options for products that were listed in the survey and the total number of responses each received:

- Guidance on evaluating PCC criteria (43)
- An ASTSWMO position paper making specific recommendations as to preferred elements of national guidance (40)
- EPA regulation or other policy directive (36)
- Training on evaluating PCC criteria (35)
- An ASTSWMO white paper summarizing States' activities with respect to modification of the PCC period (32)

Survey Follow-up by ASTSWMO Task Forces

The Corrective Action and Permitting (CAP) Task Force developed an ASTSWMO position paper regarding Subtitle C PCC, titled, [“Post-Closure Care – Beyond 30 Years at RCRA Subtitle C Facilities”](#). The position paper was approved by the ASTSWMO Board of Directors in October 2012. It highlights a number of key issues and concludes by recommending that EPA issue supplemental guidance on the implementation of the post-closure regulations under Subtitle C of RCRA. The recommendation goes on to say, “Such guidance should be congruent with the

key issues highlighted in the issues section of this position paper. ASTSWMO remains ready to work with EPA to achieve a mutually satisfactory outcome on this very important issue.” The Corrective Action and Permitting Task Force has also discussed the development of a white paper to provide more detailed information about State experiences with Subtitle C PCC.

The Municipal D Waste Task Force is on a parallel path with the Corrective Action and Permitting Task Force in terms of developing products specific to Subtitle D PCC. The Task Force is drafting a short position paper relevant to Subtitle D issues, and also plans to draw upon these 2011 ASTSWMO survey results in a document that highlights how State Subtitle D programs are addressing PCC.

The Corrective Action and Permitting and Municipal D Waste Task Forces will continue to coordinate regarding PCC issues that overlap the Subtitle C and Subtitle D programs.

Survey Results

A summary of total survey results and summaries of Subtitle C- and Subtitle D-only results are included as appendices to this report:

Appendix A: Combined Subtitle C and Subtitle D Results p. 5

Appendix B: Subtitle C Results p. 25

Appendix C: Subtitle D Results p. 41

APPENDIX A

Combined Subtitle C and Subtitle D Results

Subtitle C and Subtitle D Post-Closure Care (PCC) Period Survey

What program do you work for?



| Answer | # Responses |
|--------------------|-------------|
| Subtitle C Program | 31 |
| Subtitle D Program | 27 |

| |
|-----------------------------|
| Total # of Responses |
| 58 |

What has been your State's experience with modifying the post-closure care (PCC) period?

The 30-year PCC period was extended for 1 or more:

| Answer | # Responses |
|-----------------|-------------|
| Facilities | 11 |
| Regulated units | 2 |

| |
|-----------------------------|
| Total # of Responses |
| 11 |

Did the extension reset the clock to 30 years during permit renewal?

| Answer | # Responses |
|--------|-------------|
| Yes | 5 |
| No | 8 |

| |
|--|
| Total # of Responses 13 |
|--|

Does your State use any of the following mechanisms to extend PCC?

| Answer | # Responses |
|--|-------------|
| Order | 9 |
| Permit | 20 |
| Engineering, Design, and Operation Plan (EDOP) | 0 |
| Other (please specify) | 9 |

| |
|--|
| Total # of Responses 30 |
|--|

What other types of mechanisms does your State use to extend PCC?

| Responses |
|--|
| Amend PCC plan if necessary with minor modification of permit. |
| Cleanup Agreements |
| Corrective Action Regulation |
| Have not extended PCC. |
| Informal policy |
| Owner obligation for PCC is perpetual by statute in the State. |
| Propose to use permits. |
| We use a post-closure letter to extend the PCC. |
| Director's action (approval letter) |

The 30-year PCC period was reduced for 1 or more:

| | Answer | # Responses |
|-----------------|---------------|--------------------|
| Facilities | | 9 |
| Regulated units | | 10 |

| | |
|-----------------------------|-----------|
| Total # of Responses | 15 |
|-----------------------------|-----------|

The State decided to end PCC requirements after 30 years for 1 or more:

| | Answer | # Responses |
|-----------------|---------------|--------------------|
| Facilities | | 1 |
| Regulated units | | 1 |

| | |
|-----------------------------|----------|
| Total # of Responses | 2 |
|-----------------------------|----------|

None of the facilities or regulated units in the State has reached the end of the initial 30-year PCC period?

| | Answer | # Responses |
|-----|---------------|--------------------|
| Yes | | 44 |
| No | | 12 |

| | |
|-----------------------------|-----------|
| Total # of Responses | 56 |
|-----------------------------|-----------|

2. If corrective action needs to be performed at a site, would your State potentially allow PCC to be ended?



| Answer | # Responses |
|--------|-------------|
| Yes | 14 |
| No | 43 |

| |
|-----------------------------------|
| Total # of Responses 57 |
|-----------------------------------|

If you answered Yes, what mechanism(s) might be used to continue enforceable corrective action activities after PCC is ended?

| Answer | # Responses |
|--|-------------|
| Order | 12 |
| Other alternate mechanism (please specify) | 9 |

| |
|-----------------------------------|
| Total # of Responses 14 |
|-----------------------------------|

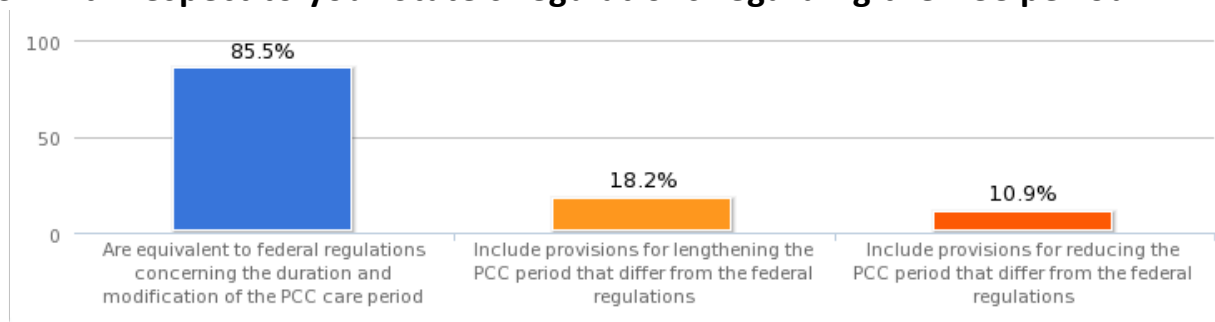
| Responses to Other alternate mechanism (please specify) |
|--|
| CA permit |
| Consent Agreement |
| Consent Decree |
| Corrective Action only permit |
| Directive |
| HSWA only Permit (not an Alternative Mechanism) |
| The State doesn't have CA authorization, so we would rely on EPA to take enforceable CA. |

Responses to Other alternate mechanism (please specify)

Permit

Voluntary Remediation Program Remedy Agreement

3. With respect to your State's regulations regarding the PCC period:



| Answer | # Responses |
|---|-------------|
| Are equivalent to federal regulations concerning the duration and modification of the PCC care period | 47 |
| Include provisions for lengthening the PCC period that differ from the federal regulations | 10 |
| Include provisions for reducing the PCC period that differ from the federal regulations | 6 |

Total # of Responses
55

If you checked, "Include provisions for lengthening the PCC period that differ from the federal regulations," do the regulatory provisions:

| Answer | # Responses |
|--|-------------|
| Include specific criteria that may be used in deciding whether to lengthen the PCC period | 4 |
| Include specific, mandatory criteria for use in deciding whether to lengthen the PCC period | 3 |

Total # of Responses
6

If you checked, "Include provisions for reducing the PCC period that differ from the federal regulations," do the regulatory provisions:

| Answer | # Responses |
|--|-------------|
| Include specific criteria that may be used in deciding whether to reduce the PCC period | 2 |
| Include specific, mandatory criteria for use in deciding whether to reduce the PCC period | 1 |

| |
|-----------------------------|
| Total # of Responses |
| 3 |

4. If your State has regulatory provisions for extending or reducing the PCC period, please provide the relevant citation(s) and URL if available:

| Responses |
|--|
| 18 AAC 60.397(b). |
| 3745-27-14 http://epa.ohio.gov/portals/34/document/currentrule/3745-27-14_current.pdf |
| Federal Regs adopted by reference |
| KRS 224.46-520 |
| Mississippi Nonhazardous Solid Waste Management Regulations (SW-2), Section IV.E.3.b |
| N/A (2) |
| Nebraska Dept. of Environmental Quality Title 128 - Nebraska Hazardous Waste Regulations Nebraska Dept. of Environmental Quality Title 142 - Integrated Solid Waste Management Regulations |
| None |
| Oklahoma Administrative Code 252:515-25-52 |
| R 299.4449: http://www.deq.state.mi.us/documents/deq-wmd-swp-pt115rls.pdf |
| Section 289.41, Wisc. Stats. |
| TN Rule Chapter 1200-01-11-.06(7)(h) TN Rule Chapter 1200-01-11-.06(6)(g) and (k) |
| WAC 173-303-610(7)(ii) http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-610 http://www.cdphe.state.co.us/hm/sw/swregs.htm |
| Env-Sw 807.05 http://des.nh.gov/organization/commissioner/legal/rules/documents/env-sw800.pdf Env-HW 708.03(d)(6) http://des.nh.gov/organization/commissioner/legal/rules/documents/env-hw_700.pdf |
| We have variances in our solid waste program that we could use to extend the PCC - ARSD 74:27:15:11. For HW we adopt the federal regulations by reference. |

Responses

Code of Maryland Regulations (COMAR) 26.13.05.07G(2) (same provisions as federal regulations at 40 CFR 264.117(a)(2)).

Title 27 California Code of Regulations, sections 21800(a) and 21900

<http://www.calrecycle.ca.gov/Laws/Regulations/Title27/ch3sb5.htm#21180>

<http://www.calrecycle.ca.gov/Laws/Regulations/Title27/ch4sb4.htm#21900>

OAR 340-094-0100 (4), (5), (6) OAR 340-094-0115 (3)(d)(B) OAR 340-094-0130(2)

http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_094.html

Our regs are the same as federal, however, the interpretation is that as long as the wastes/contamination remains in place, the PCC requirement will automatically extend. Also, we changed our PC Financial Assurance and PCC Cost Estimate regulations in the mid-90's to clarify that a facility must always maintain FA for 30 years of PCC (e.g., rolling 30 year costs) until all PCC is complete.

Iowa Code Section 455B.304(6). 6. The commission shall, by rule, require continued monitoring of groundwater pursuant to this section for a period of thirty years after the sanitary disposal project is closed. The commission may prescribe a lesser period of monitoring duration and frequency in consideration of the potential or lack thereof for groundwater contamination from the sanitary disposal project. The commission may extend the thirty-year monitoring period on a site-specific basis by adopting rules specifically addressing additional monitoring requirements for each sanitary disposal project for which the monitoring period is to be extended.

LAC 33:VII.711.F

<http://www.deq.louisiana.gov/portal/DIVISIONS/LegalAffairs/RulesandRegulations/Title33.aspx#ERC>

LAC 33:V.3521.A

<http://www.deq.louisiana.gov/portal/DIVISIONS/LegalAffairs/RulesandRegulations/Title33.aspx#ERC>

§ 265.117 <http://www.cdphe.state.co.us/regulations/hazwaste/10073265hazwasteinerimtsdf.pdf>

§ 264.117 <http://www.cdphe.state.co.us/regulations/hazwaste/10073264hazwastetsdfparta.pdf>

329 IAC 10-23-2(c) <http://www.in.gov/legislative/iac/T03290/A00100.PDF>

(this URL goes to a PDF of Indiana's entire solid waste rules, 329 IAC 10)

10 CSR 80-2.030(4)(A)3.E.(I) basis of site specific conditions and the need to protect public health or the environment

Hawaii Administrative Rules, 11-58.1--17(b)(2) <http://gen.doh.hawaii.gov/sites/har/AdmRules1/11-58.pdf>

The regulation basically states you shall petition at end of PCC period. If the petition is not approved, PCC shall continue. See 9 VAC 20-81-170.B.3, B.4. and C.

<http://leg1.state.va.us/cgi-bin/legp504.exe?000+reg+9VAC20-81-170>

Concerning 3 above, equivalent standards with the exception that jurisdictional health departments, not the Director of an approved state, may increase or decrease post-closure care periods. WAC 173-351-500(2): <http://apps.leg.wa.gov/WAC/default.aspx?cite=173-351-500>

25 Pa Code 264a.166 (c) Closure or PC doesn't take effect until 1 year after the Department's determination. (d) Certification isn't a waiver or release of bond liability for adverse environmental conditions (now or future) (f) At any time after issuance of certification, if an inspection indicates additional PC measures are required the Department will issue a written notice.

Responses

Oregon DEQ adopts the 40 CFR regulations at Oregon Administrative Rule (OAR) 340-100-0002(1), which in this case makes the federal and State requirement identical. See

http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_100.html

Subtitle C R.61-79 - 264.117(a)(2)(i) – Shorten; R.61-79 - 264.117(a)(2)(ii) - Lengthen

<http://www.scdhec.gov/environment/lwm/regs/R61-107-19.pdf>

Subtitle D: R.61-107.19 Part 5 Subpart F 258.61(b) <http://www.scdhec.gov/environment/lwm/regs/R61-107-19.pdf>

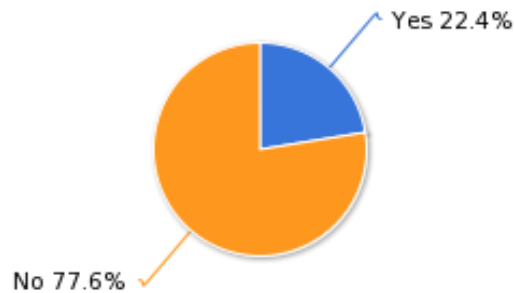
5. If your State regulations do not include specific criteria for evaluating whether to lengthen or reduce the 30-year PCC period, are such criteria contained in:

| Answer | # Responses |
|--|-------------|
| State guidance | 2 |
| Formal State policy | 3 |
| Informal policy that the State uses consistently | 7 |
| Other | 13 |

Total # of Responses

24

If your State does not currently have guidance for modifying the 30-year PCC period, is your State in the process of developing guidance?



| Answer | # Responses |
|--------|-------------|
| Yes | 11 |
| No | 38 |

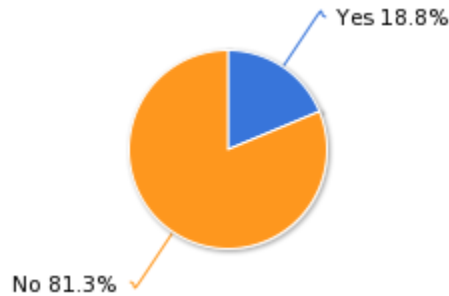
Total # of Responses
49

If No, does your State see a need for guidance?

| Answer | # Responses |
|--------|-------------|
| Yes | 28 |
| No | 9 |

Total # of Responses
37

If your State does not have a formal policy regarding modification of the 30-year PCC period, is it in the process of developing a formal policy?



| Answer | # Responses |
|--------|-------------|
| Yes | 9 |
| No | 39 |

Total # of Responses
48

In developing a State policy or guidance, please indicate the timeframe you would consider appropriate with regard to:

| | Years 30-29 | Years 28-26 | Years 25-21 | Total # of Responses |
|---|----------------|----------------|----------------|-------------------------|
| When should the 30 year PCC evaluations be initiated? | 8 | 8 | 26 | 42 |

| | | | | |
|--|----|----|----|----|
| When should the 30 year PCC evaluation be completed? | 13 | 13 | 15 | 41 |
| When should the 30 year PCC determinations be completed? | 21 | 9 | 11 | 41 |
| When should the new financial assurance be effective? | 21 | 7 | 13 | 41 |

6. Please provide the relevant citation(s) for your State's guidance, policy, regulatory enforceable mechanism (formal or informal) and URL if available:

Responses

40 CFR 264.117(a)(2)

APC&EC Regulation 22 - http://www.adeg.state.ar.us/regs/files/reg22_final_080426.pdf

End of Post-Closure Care Policy <http://www.cdphe.state.co.us/hm/postclosurecarepolicy.pdf>

Generally informal policy

HW - SDCL 34A-11, ARSD 74:28:25:01 adopting by reference 40 CFR 264. SW - ASRD 74:27:15.

Mississippi Nonhazardous Solid Waste Management Regulations (SW-2), Section IV.E.3.b

N/A (6)

None

None -- best professional judgment

One Cleanup Policy

Same as #4, NDEQ Title 128 - Nebraska Hazardous Waste Regulations

Same as #4, NDEQ Title 132 - Integrated Solid Waste Management Regulations

329 IAC 10-23-4, 329 IAC 10-31-4, 329 IAC 10-38-4

<http://www.in.gov/legislative/iac/T03290/A00100.PDF>

(this URL goes to a PDF of Indiana's entire solid waste rules, 329 IAC 10)

http://www.hazardouswaste.utah.gov/Solid_Waste_Section/Docs/SolidWaste/Closure_and_post-closure_care_termination.pdf

http://www.hazardouswaste.utah.gov/Solid_Waste_Section/Docs/SolidWaste/Closure_and_post-closure_procedures.pdf

None at present. With regard to the previous question, reevaluation of the PCCP period should be performed at least every ten years (e.g., at the time of permit renewal)

Same as question #4. See http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_100.html

LAC 33:VII.711.F

<http://www.deq.louisiana.gov/portal/DIVISIONS/LegalAffairs/RulesandRegulations/Title33.aspx#ERC>

LAC 33:V.3521.A

<http://www.deq.louisiana.gov/portal/DIVISIONS/LegalAffairs/RulesandRegulations/Title33.aspx#ERC>

Responses

See comments to item 4. These evaluations should be made annually and no reduction of PCC should be considered or approved until all corrective action is complete, and no reduction in FA requirements should be made until all CA is complete. This is a continual evaluation, not a point in time evaluation. The decision to extend should be automatic for as long as waste/contaminants remain in place, as well as for as long as the engineering controls, etc., are necessary to provide the protection upon which any risk evaluations were based.

7. Does your State guidance/formal State policy/informal, consistently used State policy (as you indicated in question 5) include specific criteria to be used in evaluating:

| Answer | # Responses |
|-----------------------------|-------------|
| Lengthening the PCC period | 18 |
| Reducing the PCC period | 11 |
| Total # of Responses | |
| 19 | |

8. Whatever the mechanism your State uses in deciding whether to modify the PCC period (meaning, regulations, guidance, a formal State policy or an informal, consistently used State policy), what elements does it contain?

| Answer | # Responses |
|---|-------------|
| Timeframes for evaluating the length of the PCC period | 10 |
| Process for evaluating the specific criteria identified in order to demonstrate that a modification to the PCC period is warranted | 18 |
| Burden of proof – statement as to who has the responsibility for demonstrating that a modification of the PCC period is warranted (i.e., State agency or facility) | 28 |
| Financial responsibility (addressing such things as allowable mechanisms, period of coverage, use of discounting in calculating cost estimate, etc.) | 23 |
| Allowance for extension of PCC period for a period of less than 30 years, and/or extension with reduced requirements (for example, less frequent monitoring or inspections) | 23 |
| Other (please specify) | 7 |

Total # of Responses
38

Responses to Other (please specify)

Best professional judgment.

If waste stays in place it needs monitoring and financial assurance.

Is waste still in place? General site conditions? Environmental Covenants in place? etc.

Question #5 and onward, our answers assume that our proposed policy will be authorized.

Responsible party must make a technical evaluation of how long care is needed.

Automatic continuation of PCC beyond initial 30 year period unless operator demonstrates waste no longer poses threat to public health and safety and the environment.

Concentrations of hazardous constituents in soil and groundwater meet residential or industrial (as applicable) risk-based levels when reducing the PPC period.

If you checked, "Timeframes for evaluating the length of the PCC period," indicate the timeframe your State uses with regard to:

| | Years 30-29 | Years 28-26 | Years 25-21 | Total # of Responses |
|--|------------------------|------------------------|------------------------|---------------------------------|
| When should the 30 year PCC evaluations be initiated? | 3 | 3 | 4 | 10 |
| When should the 30 year PCC evaluation be completed? | 3 | 4 | 3 | 10 |
| When should the 30 year PCC determinations be completed? | 5 | 3 | 2 | 10 |
| When should the new financial assurance be effective? | 7 | 1 | 2 | 10 |

Which entity is specified to make the demonstration to lengthen the PCC period?

| Answer | # Responses |
|--------------------|--------------------|
| the State | 17 |
| the owner/operator | 10 |

Total # of Responses
25

Which entity is specified to make the demonstration to reduce the PCC period?

| Answer | # Responses |
|-----------------------------|-------------|
| the State | 2 |
| the owner/operator | 22 |
| Total # of Responses | |
| 24 | |

9. Please evaluate the following criteria as to importance in deciding whether modification of the PCC period for a unit is warranted:

| | Critical/ Essential | Possibly Important | Non- essential | Not Applicable | Total # of Responses |
|--|------------------------|-----------------------|-------------------|-------------------|-------------------------|
| Type of unit (landfill, surface impoundment, residual contamination from closed tank, etc.) | 35 | 14 | 4 | 2 | 55 |
| Potential for release/migration of hazardous constituents from unit | 49 | 4 | 1 | 2 | 56 |
| Potential for release/migration of constituents other than hazardous constituents from unit | 27 | 26 | 2 | 1 | 56 |
| Potential for adverse impacts from releases based on considerations of contaminant fate and transport (e.g., presence of persistent, bioaccumulative contaminants versus biodegradable contaminants; presence of highly mobile constituents) | 44 | 8 | 2 | 2 | 56 |
| Importance of operation and maintenance (i.e., if O&M stops what are the consequences and robustness of closure systems) | 39 | 13 | 2 | 2 | 56 |
| Site geology/hydrogeology | 39 | 14 | 2 | 1 | 56 |
| Site location characteristics (proximity to residential areas, surface water, drinking water sources, flood zones, etc.) | 42 | 11 | 2 | 1 | 56 |
| History of releases and current associated contaminant levels | 44 | 12 | 1 | 0 | 57 |
| History of site corrective actions, and previous extent of contaminant source removal (i.e., waste, contaminated soil, free-product in ground water) | 32 | 19 | 4 | 1 | 56 |

| | | | | | |
|--|----|----|----|---|----|
| Presence of enforceable institutional controls that will remain in force following the end of the post-closure care period | 32 | 19 | 3 | 3 | 57 |
| Prospective or current land use for the site and for surrounding properties | 25 | 26 | 4 | 1 | 56 |
| Facility compliance history | 7 | 37 | 9 | 3 | 56 |
| Access control fencing | 7 | 34 | 12 | 3 | 56 |
| Signage | 8 | 23 | 18 | 7 | 56 |
| Adequate diversion or drainage system | 25 | 24 | 5 | 2 | 56 |
| Adequate vegetation or alternate cover material | 31 | 22 | 4 | 0 | 57 |
| Cover slopes | 30 | 22 | 3 | 0 | 55 |
| Cover drainage/ponding | 34 | 20 | 3 | 0 | 57 |
| Cover Integrity (cracks, burrows, etc.) | 37 | 16 | 4 | 0 | 57 |
| Differential settlement | 33 | 19 | 5 | 0 | 57 |
| Cover thickness (possibly eroded from wind or water) | 36 | 16 | 5 | 0 | 57 |
| Leachate collection system integrity | 32 | 19 | 5 | 0 | 56 |
| Leachate collection system functionality | 32 | 20 | 4 | 0 | 56 |
| Leachate generation rate | 36 | 16 | 4 | 0 | 56 |
| Leachate quality | 32 | 19 | 4 | 0 | 55 |
| Gas collection system integrity | 21 | 28 | 5 | 0 | 54 |
| Gas collection system functionality | 22 | 27 | 6 | 0 | 55 |
| Gas generation rate | 27 | 22 | 5 | 0 | 54 |
| Gas quality | 21 | 25 | 9 | 0 | 55 |
| Groundwater monitoring well integrity | 36 | 15 | 4 | 0 | 55 |
| Adequacy of groundwater monitoring network | 40 | 13 | 3 | 0 | 56 |
| Groundwater analytical results | 47 | 8 | 2 | 0 | 57 |
| Financial Assurance | 42 | 8 | 5 | 1 | 56 |
| Other | 4 | 2 | 0 | 5 | 11 |

If you answered Other, please specify what Other is here.

| Responses |
|--|
| Amount and type of waste disposed at the site |
| Is there a responsible party? |
| Site specific considerations |
| Soil results |
| Undescribed site specific conditions |
| A combination of the criteria above that would have a higher impact than a single criterion alone. |

10. Does your State select the criteria to evaluate the ending of the PCC period based on the end use of the property?

| Answer | # Responses |
|--------|-------------|
| Yes | 18 |
| No | 35 |

| |
|-----------------------------------|
| Total # of Responses 53 |
|-----------------------------------|

11. Does your State believe there can be circumstances that allow the PCC period for a disposal unit to be ended even though waste remains in place?

| | Answer | # Responses |
|-----|---------------|--------------------|
| Yes | | 38 |
| No | | 15 |

| |
|-----------------------------------|
| Total # of Responses 53 |
|-----------------------------------|

If No, does your State believe that there can be circumstances that allow financial assurance for a disposal unit to be ended even though waste remains in place?

| | Answer | # Responses |
|-----|---------------|--------------------|
| Yes | | 2 |
| No | | 13 |

| |
|-----------------------------------|
| Total # of Responses 15 |
|-----------------------------------|

12. Which of the following would be potentially helpful to your State?

| | Answer | # Responses |
|---|---------------|--------------------|
| EPA guidance on factors relevant to modifying the PCC period | | 50 |
| EPA regulation or other policy directive | | 36 |
| An ASTSWMO position paper making specific recommendations as to preferred elements of national guidance | | 40 |
| An ASTSWMO white paper summarizing States' activities with respect to modification of the PCC period | | 32 |
| Guidance on evaluating PCC criteria | | 43 |

| | |
|-------------------------------------|----|
| Training on evaluating PCC criteria | 35 |
| Other (please specify) | 5 |

| |
|-----------------------------|
| Total # of Responses |
| 58 |

| |
|---|
| Responses to Other (please specify) |
| Design/Implement federal funding program to support failed FR for PCC. |
| Grant funding to assist in developing guidance. |
| Guidance is useless. If it is not an EPA regulation, we will not be able to implement it. |
| The resources needed for implementation. |
| Database of C facilities with obligations beyond 30 years as comparison for competitive advantage available at facilities not subject to such extensions. |

13. What are the advantages your State will receive from extending PCC versus the existing groundwater protection requirements though an alternate mechanism?

| Answer | # Responses |
|---|-------------|
| Financial Assurance | 48 |
| Additional Public Outreach/Notification | 13 |
| Resource/personnel savings | 10 |
| Ease of initiating and implementing enforcement proceedings | 34 |
| Cost recovery | 10 |
| Other (please specify) | 9 |

| |
|-----------------------------|
| Total # of Responses |
| 50 |

Responses to Other (please specify)

Fees associated with enforceable documents such as permits, orders, plans, etc.

Flexibility in the requirements imposed during the extended PCC period.

Knowing if new contamination is discovered

Permit Fees

Some releases would need a long time of travel to detect.

State may not have the regulatory authority to implement an Order or other enforceable mechanism.

Extending PCC can provide for standard, specified oversight of a closed MSW landfill that continues to have problems. Once a landfill is released from post-closure, monitoring wells can be removed, standard cover maintenance ends, and specific requirements for maintenance default back to more general requirements, minimizing our ability to keep the site from harming human health and the environment.

With FAI's some assurance that facilities will conduct at least minimum maintenance work while the FAI(s) are in place.

Continued active cooperation and compliance by the owner/operator and continued oversight by regulators.

14. Has a facility challenged the decision to extend the 30-year PCC period?

| | Answer | # Responses |
|-----|---------------|--------------------|
| Yes | | 4 |
| No | | 38 |

| |
|-----------------------------|
| Total # of Responses |
| 42 |

[Note: Subtitle C - specific question]

15. Whatever the mechanism your State uses in deciding whether to modify the PCC period (meaning, regulations, guidance, a formal State policy or an informal, consistently used State policy), does it contain the following principal element?

| | Answer | # Responses |
|--|---------------|--------------------|
| Provision for alternate approaches for closed disposal units versus units under PCC because they could not be clean-closed (contamination caused by a leaking tank, for example) | | 11 |
| Other elements addressing issues unique to Subtitle C (please specify) | | 1 |

Total # of Responses
12

Responses to Other elements addressing issues unique to Subtitle C (please specify)

Use of the post-closure rule allowing contaminated groundwater to be addressed under facility-wide corrective action (either through a permit or alternative enforceable mechanism).

[Note: Subtitle D – specific questions follow]

16. Has your State exercised flexibility in reducing the frequency of monitoring or the amount of the following prior to the end of the PCC period?

| | Yes | No | Total # of Responses |
|------------------------------|-----|----|----------------------|
| Access control | 5 | 20 | 25 |
| Signage | 3 | 21 | 24 |
| Groundwater monitoring | 15 | 10 | 25 |
| Leachate Monitoring | 11 | 14 | 25 |
| Diversion System Management | 4 | 20 | 24 |
| Cover System Monitoring | 7 | 18 | 25 |
| Cover System Maintenance | 6 | 19 | 25 |
| Gas Monitoring | 10 | 15 | 25 |
| Reporting | 8 | 17 | 25 |
| Inspections | 11 | 13 | 24 |
| Financial Assurance | 6 | 19 | 25 |
| Other (please specify below) | 1 | 7 | 8 |

If you answered Other, please specify or explain here.

Responses

No facilities have ended PCC yet.

Settlement monitoring

17. Were the decisions above based on:

| Answer | # Responses |
|--|--------------------|
| Regulatory flexibility | 12 |
| Best guidance | 2 |
| Best professional judgment | 15 |
| Other (please provide reference, link, citation) | 1 |

| |
|--|
| Total # of Responses 17 |
|--|

| |
|---|
| Responses to Other (please provide reference, link, citation) Previous Management Direction |
|---|

APPENDIX B

Subtitle C Results

Subtitle C and Subtitle D Post-Closure Care (PCC) Period Survey

I work for a

| | Answer | # Responses |
|--|--------------------|-------------|
| | Subtitle C Program | 31 |
| | Subtitle D Program | 0 |

| | | |
|--|-----------------------------|-----------|
| | Total # of Responses | 31 |
|--|-----------------------------|-----------|

Extended the 30-year PCC period for 1 or more:

| | Answer | # Responses |
|--|-----------------|-------------|
| | Facilities | 9 |
| | Regulated units | 2 |

| | | |
|--|-----------------------------|----------|
| | Total # of Responses | 9 |
|--|-----------------------------|----------|

Did the extension reset the clock to 30 years during permit renewal?

| | Answer | # Responses |
|--|--------|-------------|
| | Yes | 5 |
| | No | 4 |

| | | |
|--|-----------------------------|----------|
| | Total # of Responses | 9 |
|--|-----------------------------|----------|

What type of mechanism does your State use to extend PCC?

| Answer | # Responses |
|--|-------------|
| Order | 6 |
| Permit | 11 |
| Engineering, Design, and Operation Plan (EDOP) | 0 |
| Other (please specify) | 3 |

| |
|-----------------------------------|
| Total # of Responses 15 |
|-----------------------------------|

| |
|--|
| Responses to Other (please specify) |
| Clean-up Agreements |
| Informal policy |
| Propose to use permits. |

Reduced the 30-year PCC period for 1 or more:

| Answer | # Responses |
|-----------------|-------------|
| Facilities | 6 |
| Regulated units | 10 |

| |
|-----------------------------------|
| Total # of Responses 12 |
|-----------------------------------|

Decided to end PCC requirements after 30 years for 1 or more:

| Answer | # Responses |
|-----------------|-------------|
| Facilities | 1 |
| Regulated units | 1 |

| |
|----------------------------------|
| Total # of Responses 2 |
|----------------------------------|

Have not had any facilities or regulated units reach the end of the initial 30-year PCC period?

| | Answer | # Responses |
|-----|---------------|--------------------|
| Yes | | 21 |
| No | | 9 |

| |
|-----------------------------------|
| Total # of Responses 30 |
|-----------------------------------|

2. If corrective action needs to be performed at a site, would your State potentially allow PCC to be ended?

| | Answer | # Responses |
|-----|---------------|--------------------|
| Yes | | 12 |
| No | | 18 |

| |
|-----------------------------------|
| Total # of Responses 30 |
|-----------------------------------|

If you answered Yes, what mechanism(s) might be used to continue enforceable corrective action activities after PCC is ended?

| Answer | # Responses |
|--|-------------|
| Order | 10 |
| Other alternate mechanism (please specify) | 8 |

| |
|--|
| Total # of Responses 12 |
|--|

| Responses to Other alternate mechanism (please specify) |
|--|
| CA permit |
| Consent Agreement |
| Corrective Action only permit |
| Directive |
| HSWA only Permit (not an Alternative Mechanism) |
| The State doesn't have CA authorization, so we would rely on EPA to take enforceable CA. |
| Permit |
| Voluntary Remediation Program Remedy Agreement |

3. With respect to your State's regulations regarding the PCC period:

| Answer | # Responses |
|---|-------------|
| Are equivalent to federal regulations concerning the duration and modification of the PCC care period | 30 |
| Include provisions for lengthening the PCC period that differ from the federal regulations | 2 |

| | |
|---|---|
| Include provisions for reducing the PCC period that differ from the federal regulations | 2 |
|---|---|

| |
|-----------------------------------|
| Total # of Responses 31 |
|-----------------------------------|

If you checked, "Include provisions for lengthening the PCC period that differ from the federal regulations," do the regulatory provisions:

| Answer | # Responses |
|--|-------------|
| Include specific criteria that may be used in deciding whether to lengthen the PCC period | 1 |
| Include specific, mandatory criteria for use in deciding whether to lengthen the PCC period | 0 |

| |
|----------------------------------|
| Total # of Responses 1 |
|----------------------------------|

If you checked, "Include provisions for reducing the PCC period that differ from the federal regulations," do the regulatory provisions:

| Answer | # Responses |
|--|-------------|
| Include specific criteria that may be used in deciding whether to reduce the PCC period | 0 |
| Include specific, mandatory criteria for use in deciding whether to reduce the PCC period | 1 |

| |
|----------------------------------|
| Total # of Responses 1 |
|----------------------------------|

4. If your State has regulatory provisions for extending or reducing the PCC period, please provide the relevant citation(s) and URL if available:

| Responses |
|---|
| Federal Regs adopted by reference KRS 224.46-520 |

Responses

N/A

Nebraska Dept. of Environmental Quality Title 128 - Nebraska Hazardous Waste Regulations

None

TN Rule Chapter 1200-01-11-.06(7)(h) TN Rule Chapter 1200-01-11-.06(6)(g) and (k)

WAC 173-303-610(7)(ii) <http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-610>

Code of Maryland Regulations (COMAR) 26.13.05.07G(2) (same provisions as federal regulations at 40 CFR 264.117(a)(2)).

Our regs are the same as federal, however, the interpretation is that as long as the wastes/contamination remains in place, the PCC requirement will automatically extend. Also, we changed our PC Financial Assurance and PCC Cost Estimate regulations in the mid-90's to clarify that a facility must always maintain FA for 30 years of PCC (e.g., rolling 30 year costs) until all PCC is complete.

§ 265.117 <http://www.cdphe.state.co.us/regulations/hazwaste/10073265hazwasteinerimtsdf.pdf>

§ 264.117 <http://www.cdphe.state.co.us/regulations/hazwaste/10073264hazwastetsdfparta.pdf>

LAC 33:V.3521.A

<http://www.deq.louisiana.gov/portal/DIVISIONS/LegalAffairs/RulesandRegulations/Title33.aspx#ERC>

25 Pa Code 264a.166 (c) Closure or PC doesn't take effect until 1 year after the Department's determination. (d) certification isn't a waiver or release of bond liability for adverse environmental conditions (now or future) (f) At any time after issuance of certification, if an inspection indicates additional PC measures are required the Department will issue a written notice.

Oregon DEQ adopts the 40 CFR regulations at Oregon Administrative Rule (OAR) 340-100-0002(1), which in this case makes the federal and State requirement identical. See

http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_100.html

Subtitle C R.61-79 - 264.117(a)(2)(i) – Shorten; R.61-79 - 264.117(a)(2)(ii) - Lengthen

<http://www.scdhec.gov/environment/lwm/regs/R61-107-19.pdf>

Subtitle D: R.61-107.19 Part 5 Subpart F 258.61(b) <http://www.scdhec.gov/environment/lwm/regs/R61-107-19.pdf>

5. If your State regulations do not include specific criteria for evaluating whether to lengthen or reduce the 30-year PCC period, are such criteria contained in:

| Answer | # Responses |
|--|-------------|
| State guidance | 0 |
| Formal State policy | 1 |
| Informal policy that the State uses consistently | 5 |
| Other | 10 |

Total # of Responses
15

If your State does not currently have guidance for modifying the 30-year PCC period, is your State in the process of developing guidance?



| | Answer | # Responses |
|-----|---------------|--------------------|
| Yes | | 5 |
| No | | 25 |

Total # of Responses
30

If No, does your State see a need for guidance?

| | Answer | # Responses |
|-----|---------------|--------------------|
| Yes | | 17 |
| No | | 7 |

Total # of Responses
24

If your State does not have a formal policy regarding modification of the 30-year PCC period, is it in the process of developing a formal policy?

| Answer | # Responses |
|--------|-------------|
| Yes | 5 |
| No | 23 |

| |
|-----------------------------------|
| Total # of Responses 28 |
|-----------------------------------|

In developing a State policy or guidance, please indicate the timeframe you would consider appropriate with regard to:

| | Years 30-29 | Years 28-26 | Years 25-21 | Total # of Responses |
|--|----------------|----------------|----------------|-------------------------|
| When should the 30 year PCC evaluations be initiated? | 2 | 5 | 16 | 23 |
| When should the 30 year PCC evaluation be completed? | 5 | 7 | 10 | 22 |
| When should the 30 year PCC determinations be completed? | 10 | 5 | 7 | 22 |
| When should the new financial assurance be effective? | 8 | 5 | 9 | 22 |

6. Please provide the relevant citation(s) for your State's guidance, policy, regulatory enforceable mechanism (formal or informal) and URL if available:

| Responses |
|---|
| 40 CFR 264.117(a)(2) |
| End of Post-Closure Care Policy http://www.cdphe.state.co.us/hm/postclosurecarepolicy.pdf |
| Generally informal policy |
| N/A (5) |
| None |
| None -- best professional judgment |
| Same as #4, NDEQ Title 128 - Nebraska Hazardous Waste Regulations |
| None at present. With regard to the previous question, reevaluation of the PCCP period should be performed at least every ten years (e.g., at the time of permit renewal) |
| Same as question # 4. See http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_100.html |

Responses

LAC 33:V.3521.A

<http://www.deq.louisiana.gov/portal/DIVISIONS/LegalAffairs/RulesandRegulations/Title33.aspx#ERC>

See comments to item 4. These evaluations should be made annually and no reduction of PCC should be considered or approved until all corrective action is complete, and no reduction in FA requirements should be made until all CA is complete. This is a continual evaluation, not a point in time evaluation. The decision to extend should be automatic for as long as waste/contaminants remain in place, as well as for as long as the engineering controls, etc., are necessary to provide the protection upon which any risk evaluations were based.

7. Does your State guidance/formal State policy/informal, consistently used State policy (as you indicated in question 5) include specific criteria to be used in evaluating:

| Answer | # Responses |
|----------------------------|-------------|
| Lengthening the PCC period | 9 |
| Reducing the PCC period | 6 |

Total # of Responses

9

8. Whatever the mechanism your State uses in deciding whether to modify the PCC period (meaning, regulations, guidance, a formal State policy or an informal, consistently used State policy), what elements does it contain?

| Answer | # Responses |
|---|-------------|
| Timeframes for evaluating the length of the PCC period | 5 |
| Process for evaluating the specific criteria identified in order to demonstrate that a modification to the PCC period is warranted | 7 |
| Burden of proof – statement as to who has the responsibility for demonstrating that a modification of the PCC period is warranted (i.e., State agency or facility) | 11 |
| Financial responsibility (addressing such things as allowable mechanisms, period of coverage, use of discounting in calculating cost estimate, etc.) | 10 |
| Allowance for extension of PCC period for a period of less than 30 years, and/or extension with reduced requirements (for example, less frequent monitoring or inspections) | 9 |

Other (please specify)

6

Total # of Responses
17

Responses to Other (please specify)

Best professional judgment.

If waste stays in place it needs monitoring and financial assurance.

Is waste still in place? General site conditions? Environmental Covenants in place? etc.

Question #5 and onward, our answers assume that our proposed policy will be authorized.

Responsible party must make a technical evaluation of how long care is needed.

Concentrations of hazardous constituents in soil and groundwater meet residential or industrial (as applicable) risk-based levels when reducing the PPC period.

If you checked, "Timeframes for evaluating the length of the PCC period," indicate the timeframe your State uses with regard to:

| | Years 30-29 | Years 28-26 | Years 25-21 | Total # of Responses |
|--|------------------------|------------------------|------------------------|---------------------------------|
| When should the 30 year PCC evaluations be initiated? | 2 | 2 | 1 | 5 |
| When should the 30 year PCC evaluation be completed? | 2 | 2 | 1 | 5 |
| When should the 30 year PCC determinations be completed? | 2 | 2 | 1 | 5 |
| When should the new financial assurance be effective? | 3 | 1 | 1 | 5 |

Which entity is specified to make the demonstration to lengthen the PCC period?

| Answer | # Responses |
|--------------------|--------------------|
| the State | 7 |
| the owner/operator | 4 |

Total # of Responses
10

Which entity is specified to make the demonstration to reduce the PCC period?

| Answer | # Responses |
|-----------------------------|-------------|
| the State | 1 |
| the owner/operator | 9 |
| Total # of Responses | |
| 10 | |

9. Please evaluate the following criteria as to importance in deciding whether modification of the PCC period for a unit is warranted:

| | Critical/ Essential | Possibly Important | Non- essential | Not Applicable | Total # of Responses |
|--|------------------------|-----------------------|-------------------|-------------------|-------------------------|
| Type of unit (landfill, surface impoundment, residual contamination from closed tank, etc.) | 21 | 8 | 1 | 0 | 30 |
| Potential for release/migration of hazardous constituents from unit | 27 | 2 | 1 | 0 | 30 |
| Potential for release/migration of constituents other than hazardous constituents from unit | 10 | 19 | 1 | 0 | 30 |
| Potential for adverse impacts from releases based on considerations of contaminant fate and transport (e.g., presence of persistent, bioaccumulative contaminants versus biodegradable contaminants; presence of highly mobile constituents) | 25 | 4 | 1 | 0 | 30 |
| Importance of operation and maintenance (i.e., if O&M stops what are the consequences and robustness of closure systems) | 20 | 8 | 1 | 1 | 30 |
| Site geology/hydrogeology | 21 | 7 | 2 | 0 | 30 |
| Site location characteristics (proximity to residential areas, surface water, drinking water sources, flood zones, etc.) | 22 | 6 | 2 | 0 | 30 |
| History of releases and current associated contaminant levels | 20 | 9 | 1 | 0 | 30 |
| History of site corrective actions, and previous extent of contaminant source removal (i.e., waste, contaminated soil, free-product in ground water) | 18 | 9 | 3 | 0 | 30 |

| | | | | | |
|--|----|----|---|---|----|
| Presence of enforceable institutional controls that will remain in force following the end of the post-closure care period | 19 | 7 | 3 | 1 | 30 |
| Prospective or current land use for the site and for surrounding properties | 18 | 9 | 3 | 0 | 30 |
| Facility compliance history | 4 | 20 | 5 | 1 | 30 |
| Access control fencing | 5 | 19 | 5 | 1 | 30 |
| Signage | 5 | 14 | 8 | 3 | 30 |
| Adequate diversion or drainage system | 13 | 12 | 4 | 1 | 30 |
| Adequate vegetation or alternate cover material | 13 | 13 | 4 | 0 | 30 |
| Cover slopes | 14 | 12 | 3 | 0 | 29 |
| Cover drainage/ponding | 15 | 12 | 3 | 0 | 30 |
| Cover Integrity (cracks, burrows, etc.) | 16 | 10 | 4 | 0 | 30 |
| Differential settlement | 16 | 9 | 5 | 0 | 30 |
| Cover thickness (possibly eroded from wind or water) | 18 | 7 | 5 | 0 | 30 |
| Leachate collection system integrity | 17 | 8 | 5 | 0 | 30 |
| Leachate collection system functionality | 17 | 9 | 4 | 0 | 30 |
| Leachate generation rate | 15 | 10 | 4 | 0 | 29 |
| Leachate quality | 13 | 12 | 4 | 0 | 29 |
| Gas collection system integrity | 7 | 16 | 5 | 0 | 28 |
| Gas collection system functionality | 6 | 16 | 6 | 0 | 28 |
| Gas generation rate | 8 | 15 | 5 | 0 | 28 |
| Gas quality | 6 | 16 | 6 | 0 | 28 |
| Groundwater monitoring well integrity | 18 | 9 | 3 | 0 | 30 |
| Adequacy of groundwater monitoring network | 20 | 7 | 3 | 0 | 30 |
| Groundwater analytical results | 21 | 7 | 2 | 0 | 30 |
| Financial Assurance | 25 | 2 | 3 | 0 | 30 |
| Other | 1 | 1 | 0 | 3 | 5 |

If you answered Other, please specify what Other is here.

| Responses |
|------------------------------|
| Site specific considerations |
| Soil results |

10. Does your State select the criteria to evaluate the ending of the PCC period based on the end use of the property?

| Answer | # Responses |
|--------|-------------|
| Yes | 12 |
| No | 15 |

| |
|-----------------------------------|
| Total # of Responses 27 |
|-----------------------------------|

11. Does your State believe there can be circumstances that allow the PCC period for a disposal unit to be ended even though waste remains in place?

| Answer | # Responses |
|--------|-------------|
| Yes | 14 |
| No | 12 |

| |
|-----------------------------------|
| Total # of Responses 26 |
|-----------------------------------|

If No, does your State believe that there can be circumstances that allow financial assurance for a disposal unit to be ended even though waste remains in place?

| Answer | # Responses |
|--------|-------------|
| Yes | 0 |
| No | 12 |

Total # of Responses
12

12. Which of the following would be potentially helpful to your State?

| Answer | # Responses |
|---|--------------------|
| EPA guidance on factors relevant to modifying the PCC period | 27 |
| EPA regulation or other policy directive | 18 |
| An ASTSWMO position paper making specific recommendations as to preferred elements of national guidance | 21 |
| An ASTSWMO white paper summarizing States' activities with respect to modification of the PCC period | 16 |
| Guidance on evaluating PCC criteria | 24 |
| Training on evaluating PCC criteria | 17 |
| Other (please specify): | 3 |

Total # of Responses
31

Responses to Other (please specify)

Design/Implement federal funding program to support failed FR for PCC.

The resources needed for implementation.

Database of C facilities with obligations beyond 30 years as comparison for competitive advantage available at facilities not subject to such extensions.

13. What are the advantages your State will receive from extending PCC versus the existing groundwater protection requirements though an alternate mechanism?

| Answer | # Responses |
|---|--------------------|
| Financial Assurance | 26 |
| Additional Public Outreach/Notification | 9 |
| Resource/personnel savings | 7 |
| Ease of initiating and implementing enforcement proceedings | 15 |
| Cost recovery | 8 |
| Other (please specify) | 6 |

| |
|--|
| Total # of Responses 28 |
|--|

| Responses to Other (please specify) |
|--|
| Fees associated with enforceable documents such as permits, orders, plans, etc. |
| Flexibility in the requirements imposed during the extended PCC period. |
| Permit Fees |
| Some releases would need a long time of travel to detect. |
| State may not have the regulatory authority to implement an Order or other enforceable mechanism. |
| Continued active cooperation and compliance by the owner/operator and continued oversight by regulators. |

14. Has a facility challenged the decision to extend the 30-year PCC period?

| Answer | # Responses |
|---------------|--------------------|
| Yes | 4 |
| No | 18 |

Total # of Responses
22

15. Whatever the mechanism your State uses in deciding whether to modify the PCC period (meaning, regulations, guidance, a formal State policy or an informal, consistently used State policy), does it contain the following principal element?

| Answer | # Responses |
|--|--------------------|
| Provision for alternate approaches for closed disposal units versus units under PCC because they could not be clean-closed (contamination caused by a leaking tank, for example) | 11 |
| Other elements addressing issues unique to Subtitle C (please specify) | 1 |

Total # of Responses
12

Response to Other elements addressing issues unique to Subtitle C (please specify)

Use of the post-closure rule allowing contaminated groundwater to be addressed under facility-wide corrective action (either through a permit or alternative enforceable mechanism).

APPENDIX C

Subtitle D Results

Subtitle C and Subtitle D Post-Closure Care (PCC) Period Survey

I work for a

| | Answer | # Responses |
|-----------------------------|--------------------|-------------|
| | Subtitle C Program | 0 |
| | Subtitle D Program | 27 |
| Total # of Responses | | 27 |

Extended the 30-year PCC period for 1 or more:

| | Answer | # Responses |
|-----------------------------|-----------------|-------------|
| | Facilities | 2 |
| | Regulated units | 0 |
| Total # of Responses | | 2 |

Did the extension reset the clock to 30 years during permit renewal?

| | Answer | # Responses |
|-----------------------------|--------|-------------|
| | Yes | 0 |
| | No | 4 |
| Total # of Responses | | 4 |

What type of mechanism does your State use to extend PCC?

| Answer | # Responses |
|--|-------------|
| Order | 3 |
| Permit | 9 |
| Engineering, Design, and Operation Plan (EDOP) | 0 |
| Other (please specify) | 6 |

| |
|-----------------------------------|
| Total # of Responses 15 |
|-----------------------------------|

| Responses to Other (please specify) |
|--|
| Amend PCC plan if necessary with minor modification of permit. |
| Corrective Action Regulation |
| Have not extended PCC. |
| Owner obligation for PCC is perpetual by statute in the State. |
| We use a post-closure letter to extend the PCC. |
| Director's action (approval letter) |

Reduced the 30-year PCC period for 1 or more:

| Answer | # Responses |
|-----------------|-------------|
| Facilities | 3 |
| Regulated units | 0 |

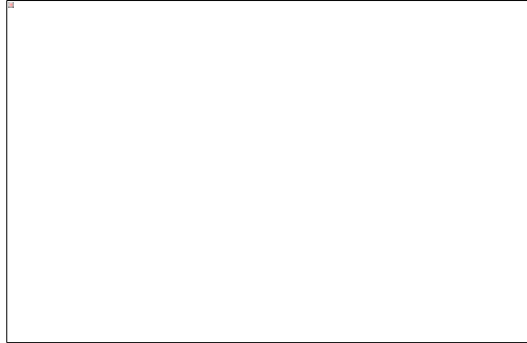
| |
|----------------------------------|
| Total # of Responses 3 |
|----------------------------------|

Decided to end PCC requirements after 30 years for 1 or more:

| Answer | # Responses |
|-----------------|-------------|
| Facilities | 0 |
| Regulated units | 0 |

Total # of Responses
0

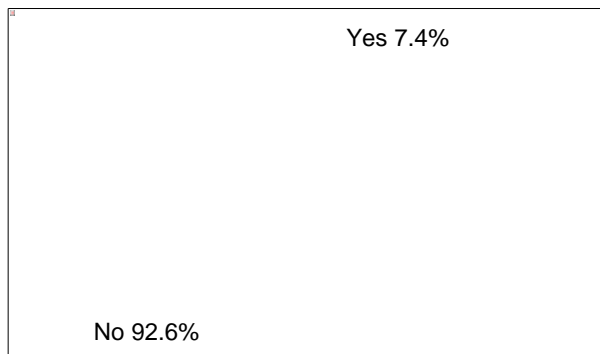
Have not had any facilities or regulated units reach the end of the initial 30-year PCC period?



| Answer | # Responses |
|--------|-------------|
| Yes | 23 |
| No | 3 |

Total # of Responses
26

2. If corrective action needs to be performed at a site, would your State potentially allow PCC to be ended?



| Answer | # Responses |
|--------|-------------|
| Yes | 2 |
| No | 25 |

Total # of Responses
27

If you answered Yes, what mechanism(s) might be used to continue enforceable corrective action activities after PCC is ended?

| Answer | # Responses |
|--|--------------------|
| Order | 2 |
| Other alternate mechanism (please specify) | 1 |

Total # of Responses
2

Response to Other alternate mechanism (please specify)

Consent Decree

3. With respect to your State's regulations regarding the PCC period:

| Answer | # Responses |
|---|--------------------|
| Are equivalent to federal regulations concerning the duration and modification of the PCC care period | 17 |
| Include provisions for lengthening the PCC period that differ from the federal regulations | 8 |
| Include provisions for reducing the PCC period that differ from the federal regulations | 4 |

Total # of Responses
24

If you checked, "Include provisions for lengthening the PCC period that differ from the federal regulations," do the regulatory provisions:

| Answer | # Responses |
|--|-------------|
| Include specific criteria that may be used in deciding whether to lengthen the PCC period | 3 |
| Include specific, mandatory criteria for use in deciding whether to lengthen the PCC period | 3 |

| |
|----------------------------------|
| Total # of Responses 5 |
|----------------------------------|

If you checked, "Include provisions for reducing the PCC period that differ from the federal regulations," do the regulatory provisions:

| Answer | # Responses |
|--|-------------|
| Include specific criteria that may be used in deciding whether to reduce the PCC period | 2 |
| Include specific, mandatory criteria for use in deciding whether to reduce the PCC period | 0 |

| |
|----------------------------------|
| Total # of Responses 2 |
|----------------------------------|

4. If your State has regulatory provisions for extending or reducing the PCC period, please provide the relevant citation(s) and URL if available:

| Responses |
|--|
| 18 AAC 60.397(b). |
| 3745-27-14 http://epa.ohio.gov/portals/34/document/currentrule/3745-27-14_current.pdf |
| Mississippi Nonhazardous Solid Waste Management Regulations (SW-2), Section IV.E.3.b |
| N/A |
| Nebraska Dept. of Environmental Quality Title 142 - Integrated Solid Waste Management Regulations |
| Oklahoma Administrative Code 252:515-25-52 |
| R 299.4449: http://www.deq.state.mi.us/documents/deq-wmd-swp-pt115rls.pdf |
| Section 289.41, Wisc. Stats. |

Responses

<http://www.cdphe.state.co.us/hm/sw/swregs.htm>

Env-Sw 807.05 <http://des.nh.gov/organization/commissioner/legal/rules/documents/env-sw800.pdf>

Env-HW 708.03(d)(6) http://des.nh.gov/organization/commissioner/legal/rules/documents/env-hw_700.pdf

We have variances in our solid waste program that we could use to extend the PCC - ARSD 74:27:15:11. For HW we adopt the federal regulations by reference.

Title 27 California Code of Regulations, sections 21800(a) and 21900

<http://www.calrecycle.ca.gov/Laws/Regulations/Title27/ch3sb5.htm#21180>

<http://www.calrecycle.ca.gov/Laws/Regulations/Title27/ch4sb4.htm#21900>

OAR 340-094-0100 (4), (5), (6) OAR 340-094-0115 (3)(d)(B) OAR 340-094-0130(2)

http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_094.html

Iowa Code Section 455B.304(6). 6. The commission shall, by rule, require continued monitoring of groundwater pursuant to this section for a period of thirty years after the sanitary disposal project is closed. The commission may prescribe a lesser period of monitoring duration and frequency in consideration of the potential or lack thereof for groundwater contamination from the sanitary disposal project. The commission may extend the thirty-year monitoring period on a site-specific basis by adopting rules specifically addressing additional monitoring requirements for each sanitary disposal project for which the monitoring period is to be extended.

LAC 33:VII.711.F

<http://www.deq.louisiana.gov/portal/DIVISIONS/LegalAffairs/RulesandRegulations/Title33.aspx#ERC>

329 IAC 10-23-2(c) <http://www.in.gov/legislative/iac/T03290/A00100.PDF>

(this URL goes to a PDF of Indiana's entire solid waste rules, 329 IAC 10)

10 CSR 80-2.030(4)(A)3.E.(I) basis of site specific conditions and the need to protect public health or the environment

Hawaii Administrative Rules, 11-58.1--17(b)(2) <http://gen.doh.hawaii.gov/sites/har/AdmRules1/11-58.pdf>

The regulation basically states you shall petition at end of PCC period. If the petition is not approved, PCC shall continue. See 9 VAC 20-81-170.B.3, B.4. and C.

<http://leg1.state.va.us/cgi-bin/legp504.exe?000+reg+9VAC20-81-170>

Concerning 3 above, equivalent standards with the exception that jurisdictional health departments, not the Director of an approved state, may increase or decrease post-closure care periods. WAC 173-351-500(2): <http://apps.leg.wa.gov/WAC/default.aspx?cite=173-351-500>

5. If your State regulations do not include specific criteria for evaluating whether to lengthen or reduce the 30-year PCC period, are such criteria contained in:

| Answer | # Responses |
|--|--------------------|
| State guidance | 2 |
| Formal State policy | 2 |
| Informal policy that the State uses consistently | 2 |
| Other | 3 |

| |
|----------------------------------|
| Total # of Responses 9 |
|----------------------------------|

If your State does not currently have guidance for modifying the 30-year PCC period, is your State in the process of developing guidance?

| Answer | # Responses |
|---------------|--------------------|
| Yes | 6 |
| No | 13 |

| |
|-----------------------------------|
| Total # of Responses 19 |
|-----------------------------------|

If No, does your State see a need for guidance?

| Answer | # Responses |
|---------------|--------------------|
| Yes | 11 |
| No | 2 |

| |
|-----------------------------------|
| Total # of Responses 13 |
|-----------------------------------|

If your State does not have a formal policy regarding modification of the 30-year PCC period, is it in the process of developing a formal policy?

| Answer | # Responses |
|--------|-------------|
| Yes | 4 |
| No | 16 |

| |
|--|
| Total # of Responses 20 |
|--|

In developing a State policy or guidance, please indicate the timeframe you would consider appropriate with regard to:

| | Years 30-29 | Years 28-26 | Years 25-21 | Total # of Responses |
|--|-------------|-------------|-------------|----------------------|
| When should the 30 year PCC evaluations be initiated? | 6 | 3 | 10 | 19 |
| When should the 30 year PCC evaluation be completed? | 8 | 6 | 5 | 19 |
| When should the 30 year PCC determinations be completed? | 11 | 4 | 4 | 19 |
| When should the new financial assurance be effective? | 13 | 2 | 4 | 19 |

6. Please provide the relevant citation(s) for your State's guidance, policy, regulatory enforceable mechanism (formal or informal) and URL if available:

| Responses |
|---|
| APC&EC Regulation 22 - http://www.adeg.state.ar.us/regs/files/reg22_final_080426.pdf |
| HW - SDCL 34A-11, ARSD 74:28:25:01 adopting by reference 40 CFR 264. SW - ASRD 74:27:15. |
| Mississippi Nonhazardous Solid Waste Management Regulations (SW-2), Section IV.E.3.b |
| N/A |
| One Cleanup Policy |
| Same as #4, NDEQ Title 132 - Integrated Solid Waste Management Regulations |
| 329 IAC 10-23-4, 329 IAC 10-31-4, 329 IAC 10-38-4 |
| http://www.in.gov/legislative/iac/T03290/A00100.PDF |
| (this URL goes to a PDF of Indiana's entire solid waste rules, 329 IAC 10) |
| http://www.hazardouswaste.utah.gov/Solid_Waste_Section/Docs/SolidWaste/Closure_and_post- |

Responses

[closure_care_termination.pdf](#)

http://www.hazardouswaste.utah.gov/Solid_Waste_Section/Docs/SolidWaste/Closure_and_post-closure_procedures.pdf

LAC 33:VII.711.F

<http://www.deq.louisiana.gov/portal/DIVISIONS/LegalAffairs/RulesandRegulations/Title33.aspx#ERC>

7. Does your State guidance/formal State policy/informal, consistently used State policy (as you indicated in question 5) include specific criteria to be used in evaluating:

| Answer | # Responses |
|-----------------------------|-------------|
| Lengthening the PCC period | 9 |
| Reducing the PCC period | 5 |
| Total # of Responses | |
| 10 | |

8. Whatever the mechanism your State uses in deciding whether to modify the PCC period (meaning, regulations, guidance, a formal State policy or an informal, consistently used State policy), what elements does it contain?

| Answer | # Responses |
|---|-------------|
| Timeframes for evaluating the length of the PCC period. | 5 |
| Process for evaluating the specific criteria identified in order to demonstrate that a modification to the PCC period is warranted | 11 |
| Burden of proof – statement as to who has the responsibility for demonstrating that a modification of the PCC period is warranted (i.e., State agency or facility) | 17 |
| Financial responsibility (addressing such things as allowable mechanisms, period of coverage, use of discounting in calculating cost estimate, etc.) | 13 |
| Allowance for extension of PCC period for a period of less than 30 years, and/or extension with reduced requirements (for example, less frequent monitoring or inspections) | 14 |
| Other (please specify) | 1 |

Total # of Responses
21

Response to Other (please specify)

Automatic continuation of PCC beyond initial 30 year period unless operator demonstrates waste no longer poses threat to public health and safety and the environment

If you checked, "Timeframes for evaluating the length of the PCC period," indicate the timeframe your State uses with regard to:

| | Years 30-29 | Years 28-26 | Years 25-21 | Total # of Responses |
|--|----------------|----------------|----------------|-------------------------|
| When should the 30 year PCC evaluations be initiated? | 1 | 1 | 3 | 5 |
| When should the 30 year PCC evaluation be completed? | 1 | 2 | 2 | 5 |
| When should the 30 year PCC determinations be completed? | 3 | 1 | 1 | 5 |
| When should the new financial assurance be effective? | 4 | 0 | 1 | 5 |

Which entity is specified to make the demonstration to lengthen the PCC period?

| Answer | # Responses |
|--------------------|-------------|
| the State | 10 |
| the owner/operator | 6 |

Total # of Responses
15

Which entity is specified to make the demonstration to reduce the PCC period?

| Answer | # Responses |
|--------------------|-------------|
| the State | 1 |
| the owner/operator | 13 |

Total # of Responses
14

9. Please evaluate the following criteria as to importance in deciding whether modification of the PCC period for a unit is warranted:

| | Critical/ Essential | Possibly Important | Non- essential | Not Applicable | Total # of Responses |
|--|--------------------------------|-------------------------------|---------------------------|---------------------------|---------------------------------|
| Type of unit (landfill, surface impoundment, residual contamination from closed tank, etc.) | 14 | 6 | 3 | 2 | 25 |
| Potential for release/migration of hazardous constituents from unit | 22 | 2 | 0 | 2 | 26 |
| Potential for release/migration of constituents other than hazardous constituents from unit | 17 | 7 | 1 | 1 | 26 |
| Potential for adverse impacts from releases based on considerations of contaminant fate and transport (e.g., presence of persistent, bioaccumulative contaminants versus biodegradable contaminants; presence of highly mobile constituents) | 19 | 4 | 1 | 2 | 26 |
| Importance of operation and maintenance (i.e., if O&M stops what are the consequences and robustness of closure systems) | 19 | 5 | 1 | 1 | 26 |
| Site geology/hydrogeology | 18 | 7 | 0 | 1 | 26 |
| Site location characteristics (proximity to residential areas, surface water, drinking water sources, flood zones, etc.) | 20 | 5 | 0 | 1 | 26 |
| History of releases and current associated contaminant levels | 24 | 3 | 0 | 0 | 27 |
| History of site corrective actions, and previous extent of contaminant source removal (i.e., waste, contaminated soil, free-product in ground water) | 14 | 10 | 1 | 1 | 26 |
| Presence of enforceable institutional controls that will remain in force following the end of the post-closure care period | 13 | 12 | 0 | 2 | 27 |
| Prospective or current land use for the site and for surrounding properties | 7 | 17 | 1 | 1 | 26 |
| Facility compliance history | 3 | 17 | 4 | 2 | 26 |
| Access control fencing | 2 | 15 | 7 | 2 | 26 |

| | | | | | |
|--|----|----|----|---|----|
| Signage | 3 | 9 | 10 | 4 | 26 |
| Adequate diversion or drainage system | 12 | 12 | 1 | 1 | 26 |
| Adequate vegetation or alternate cover material | 18 | 9 | 0 | 0 | 27 |
| Cover slopes | 16 | 10 | 0 | 0 | 26 |
| Cover drainage/ponding | 19 | 8 | 0 | 0 | 27 |
| Cover Integrity (cracks, burrows, etc.) | 21 | 6 | 0 | 0 | 27 |
| Differential settlement | 17 | 10 | 0 | 0 | 27 |
| Cover thickness (possibly eroded from wind or water) | 18 | 9 | 0 | 0 | 27 |
| Leachate collection system integrity | 15 | 11 | 0 | 0 | 26 |
| Leachate collection system functionality | 15 | 11 | 0 | 0 | 26 |
| Leachate generation rate | 21 | 6 | 0 | 0 | 27 |
| Leachate quality | 19 | 7 | 0 | 0 | 26 |
| Gas collection system integrity | 14 | 12 | 0 | 0 | 26 |
| Gas collection system functionality | 16 | 11 | 0 | 0 | 27 |
| Gas generation rate | 19 | 7 | 0 | 0 | 26 |
| Gas quality | 15 | 9 | 3 | 0 | 27 |
| Groundwater monitoring well integrity | 18 | 6 | 1 | 0 | 25 |
| Adequacy of groundwater monitoring network | 20 | 6 | 0 | 0 | 26 |
| Groundwater analytical results | 26 | 1 | 0 | 0 | 27 |
| Financial Assurance | 17 | 6 | 2 | 1 | 26 |
| Other | 3 | 1 | 0 | 2 | 6 |

If you answered Other, please specify what Other is here.

Responses

Amount and type of waste disposed at the site.

Is there a responsible party?

Undescribed site specific conditions.

A combination of the criteria above that would have a higher impact than a single criterion alone.

10. Does your State select the criteria to evaluate the ending of the PCC period based on the end use of the property?

| Answer | # Responses |
|--------|-------------|
| Yes | 6 |
| No | 20 |

| |
|-----------------------------------|
| Total # of Responses 26 |
|-----------------------------------|

11. Does your State believe there can be circumstances that allow the PCC period for a disposal unit to be ended even though waste remains in place?

| Answer | # Responses |
|--------|-------------|
| Yes | 24 |
| No | 3 |

| |
|-----------------------------------|
| Total # of Responses 27 |
|-----------------------------------|

If No, does your State believe that there can be circumstances that allow financial assurance for a disposal unit to be ended even though waste remains in place?

| Answer | # Responses |
|--------|-------------|
| Yes | 2 |
| No | 1 |

Total # of Responses

3

12. Which of the following would be potentially helpful to your State?

| Answer | # Responses |
|---|--------------------|
| EPA guidance on factors relevant to modifying the PCC period | 23 |
| EPA regulation or other policy directive | 18 |
| An ASTSWMO position paper making specific recommendations as to preferred elements of national guidance | 19 |
| An ASTSWMO white paper summarizing States' activities with respect to modification of the PCC period | 16 |
| Guidance on evaluating PCC criteria | 19 |
| Training on evaluating PCC criteria | 18 |
| Other (please specify) | 2 |

Total # of Responses

27

Responses to Other (please specify)

Grant funding to assist in developing guidance.

Guidance is useless. If it is not an EPA regulation, we will not be able to implement it.

13. What are the advantages your State will receive from extending PCC versus the existing groundwater protection requirements though an alternate mechanism?

| Answer | # Responses |
|---|-------------|
| Financial Assurance | 22 |
| Additional Public Outreach/Notification | 4 |
| Resource/personnel savings | 3 |
| Ease of initiating and implementing enforcement proceedings | 19 |
| Cost recovery | 2 |
| Other (please specify) | 3 |

| |
|-----------------------------------|
| Total # of Responses 22 |
|-----------------------------------|

Responses to Other (please specify)

Knowing if new contamination is discovered

Extending PCC can provide for standard, specified oversight of a closed MSW landfill that continues to have problems. Once a landfill is released from post-closure, monitoring wells can be removed, standard cover maintenance ends, and specific requirements for maintenance default back to more general requirements, minimizing our ability to keep the site from harming human health and the environment.

With FAI's some assurance that facilities will conduct at least minimum maintenance work while the FAI(s) are in place.

14. Has a facility challenged the decision to extend the 30-year PCC period?

| Answer | # Responses |
|--------|-------------|
| Yes | 0 |
| No | 20 |

| |
|-----------------------------------|
| Total # of Responses 20 |
|-----------------------------------|

[Note: Subtitle C – specific question; not answered by Subtitle D respondents]

15. Whatever the mechanism your State uses in deciding whether to modify the PCC period (meaning, regulations, guidance, a formal State policy or an informal, consistently used State policy), does it contain the following principal element?

| Answer | # Responses |
|--|-------------|
| Provision for alternate approaches for closed disposal units versus units under PCC because they could not be clean-closed (contamination caused by a leaking tank, for example) | 0 |
| Other elements addressing issues unique to Subtitle C (please specify) | 0 |

| Total # of Responses |
|----------------------|
| 0 |

[Note: Subtitle D – specific questions follow]

16. Has your State exercised flexibility in reducing the frequency of monitoring or the amount of the following prior to the end of the PCC period?

| | Yes | No | Total # of Responses |
|------------------------------|-----|----|----------------------|
| Access control | 5 | 20 | 25 |
| Signage | 3 | 21 | 24 |
| Groundwater monitoring | 15 | 10 | 25 |
| Leachate Monitoring | 11 | 14 | 25 |
| Diversion System Management | 4 | 20 | 24 |
| Cover System Monitoring | 7 | 18 | 25 |
| Cover System Maintenance | 6 | 19 | 25 |
| Gas Monitoring | 10 | 15 | 25 |
| Reporting | 8 | 17 | 25 |
| Inspections | 11 | 13 | 24 |
| Financial Assurance | 6 | 19 | 25 |
| Other (please specify below) | 1 | 7 | 8 |

If you answered Other, please specify or explain here.

| Responses |
|-----------------------------------|
| No facilities have ended PCC yet. |
| Settlement monitoring |

17. Were the decisions above based on:

| Answer | # Responses |
|--|-------------|
| Regulatory flexibility | 12 |
| Best guidance | 2 |
| Best professional judgment | 15 |
| Other (please provide reference, link, citation) | 1 |

| |
|-----------------------------------|
| Total # of Responses 17 |
|-----------------------------------|

| Response to Other (please provide reference, link, citation) |
|--|
| Previous Management Direction |