

Postclosure Maintenance Workshop

March 10, 2008
9:00 am to 12:00 pm

Cal/EPA Building

Room 550

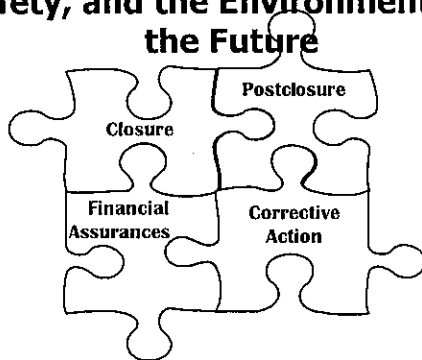
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
**INTEGRATED WASTE
MANAGEMENT BOARD**

AGENDA

- 9:00 - 9:15 Introductions and General Overview (Bill Orr)
- 9:15 - 9:45 Postclosure Maintenance 101 (Mike Wochnick)
- 9:45 - 10:30 California Experience with PCM Costs Over Past 15 Years (Garth Adams, Mike Wochnick, Rachel Davis)
- 10:30 - 11:00 Criteria for Ending Post Closure Maintenance (Mike Wochnick, Mke Houlihan, P.E. GeoSyntec)
- 11:00 - 11:45 Discussion of Financial Assurances Postclosure Scenarios (Richard Castle)
- 11:45 - 12:00 Next Steps (Bill Orr)

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**Goal: Protect Public Health,
Safety, and the Environment into
the Future**



Postclosure Maintenance 101

- Definitions of Terms
 - Postclosure Maintenance
 - *Maintain* the integrity of closed disposal site
 - Regular/periodic to deal with routine, expected wear and tear
 - Corrective Action
 - *Restore* the integrity of landfill/disposal site
 - Can occur during both operational and closure phases
 - Result of
 - Major events
 - Mismanagement, defective materials, poor design, improper installation, inadequate maintenance

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Postclosure Maintenance 101

- Major Maintenance
 - Undefined in Regulations
 - Need to assign to PCM or CA
 - Final Cover
 - Replacement of barrier layer not currently included in cost estimates
 - Costs for repair included in PCM
 - Leachate Collection & Recovery System *LCRS*
 - Water Board requirement
 - RWQCBs have required over-design to account for potential clogging

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California Experience with PCM Costs Over Past 15 Years

- Profiles of Currently Closed Landfills

| CATEGORY | COUNT | PERCENT |
|---------------------|-------|---------|
| Closed Landfills | 132 | 100% |
| Privately Owned | 26 | 20% |
| Publically Owned | 106 | 80% |
| Large (>30M cy) | 8 | 6% |
| Medium (0.5-30M cy) | 89 | 67% |
| Small (<0.5 M cy) | 35 | 27% |
| Urban | 20 | 15% |
| Non - Urban | 112 | 85% |

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California Experience with PCM Costs Over Past 15 Years

- Profiles of Currently Closed Landfills

| CATEGORY | COUNT | PERCENT |
|----------------------|-------|---------|
| <u>Operator Type</u> | | |
| Private - multiple | 5 | 4% |
| Public - multiple | 86 | 65% |
| Single | 41 | 31% |
| Public | 23 | 17% |
| Private | 18 | 14% |
| Large | 2 | 2% |
| Medium | 11 | 8% |
| Small | 5 | 4% |

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California Experience with PCM Costs Over Past 15 Years

- Actual Release of California Landfills from PCM, Myth or Reality
 - CIWMB/LEAs
 - No releases from PCM requirements
 - RWQCBs
 - Require no ground water monitoring (7 sites)
 - Rescinded WDRs (6 sites)
 - Sites are inspected periodically
 - All 7 sites required to perform PCM

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California Experience with PCM Costs Over Past 15 Years

- Reported Reductions/Increase in Annual PCM Costs
 - Insufficient evidence to determine definitive trend
 - Requests for fund releases
 - 1/30 of PCM estimate
 - Some for > 1/30 PCM estimate
 - Few revised PCM plans
 - Many included increased costs

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California Experience with PCM Costs Over Past 15 Years

- Development of Survey: Operators' Actual PCM Costs
 - Responding to stakeholder feedback
 - Goal of the Survey
 - Survey Design
 - We need your help!

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Criteria for Ending PCM

- PCM Period (California Standard)
 - Minimum 30 years
 - Until waste no longer poses a threat
- PCM Period (ITRC/EREF Proposal)
 - Point of Exposure impacts
 - "Custodial Care"
 - No regulatory oversight
 - Deed restrictions w/ local control
 - No financial assurances

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ITRC/EREF Consistency with CA Standards

- Consistent
 - General process could be used to justify proposed reduction in PCM
- Inconsistent
 - Point of Exposure vs. Intrinsic Waste Threat and Point of Compliance
 - If PCM is necessary (e.g., cap maintenance) then regulatory oversight is required (along with FA)
 - Deed restrictions would require additional statutory authority
 - Local planning/building departments are less familiar with disposal site issues

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27 CCR vs. Sub D Standards

- **PCM Period**
 - 27 CCR – minimum of 30 years and lasts as long as waste poses a threat
 - Sub D – default of 30 years but can be extended/shortened by approved state
- **PCM FA Requirement**
 - 27 CCR – must match PCM plan (currently 30 years)
 - Sub D – Identified PCM period (30 years)
- **CA for Ground Water Release**
 - 27 CCR – reasonably foreseeable or known release
 - Sub D – known release

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Criteria for Ending PCM

- **SURVEY QUESTIONS:**
 1. Has your state decreased or increased the post-closure care period of any Subtitle D municipal solid waste landfills in your state?
 - 49 states participated in the survey
 - 47 states have not changed the 30-year care period
 - Two states have changed the 30-year care period as follows:
 - Nebraska decreased the period of one MSWLF to 18 years
 - Tennessee increased the period of one MSWLF to 50 years
 - Wisconsin has increased the financial assurance requirement to 40 years with PCM required until the waste no longer poses a threat.

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Criteria for Ending PCM

- **SURVEY QUESTIONS:**
 2. If so, what criteria were used to make the determination?
 - Six states are currently considering criteria to increase or decrease the postclosure maintenance period:
 - Indiana,
 - Minnesota,
 - Nebraska,
 - Ohio,
 - Utah, and
 - Virginia.

(Draft documents are currently being prepared for the states of Indiana, Minnesota, Utah, and Virginia and will be considered "guidelines" not official mandates.)

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Financial Assurances PCM Scenarios

- Rolling 15/30 Year Individual Demonstrations
- Perpetual Individual Demonstrations
- Pooled Fund
- Reasonable PCM Cost Estimate Contingency
- Grandfathering
- **Narrowing Focus for Ongoing Scenarios**
 - Perpetual Care Demonstrations (with/without Pooled Fund)
 - Rolling Individual Demonstrations with Pooled Fund
 - Pooled Fund after 30 years

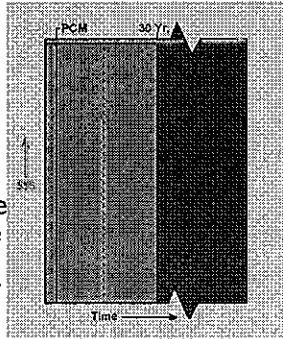
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Financial Assurances PCM Scenarios

- Post-30 year FA Demonstrations Scenarios

- Rolling PCM

- Holding at 30-year value will greatly extend time funds are available for routine PCM, but not indefinitely

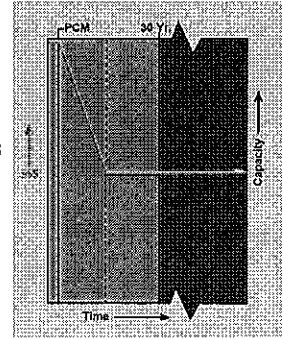


Financial Assurances PCM Scenarios

- Post-30 year FA Demonstrations Scenarios

- Rolling PCM

- Allowing reductions initially will lessen impact to operator and extend time funds are available for routine PCM, but not indefinitely

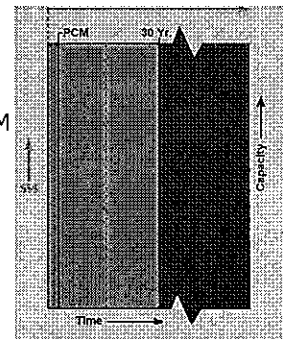


Financial Assurances PCM Scenarios

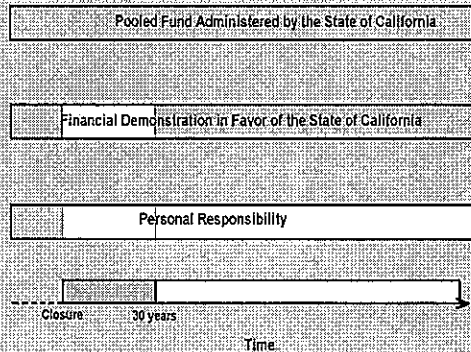
- Post-30 year FA Demonstrations Scenarios

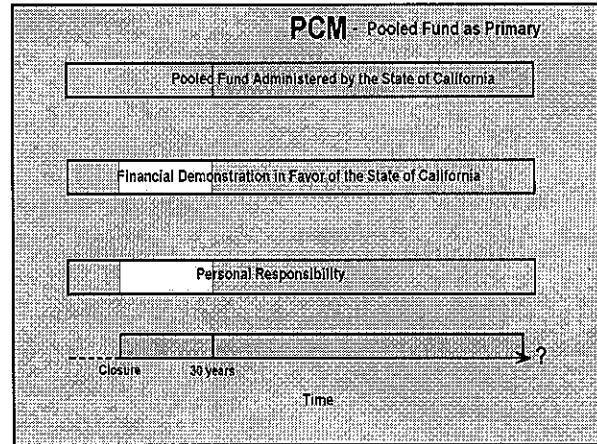
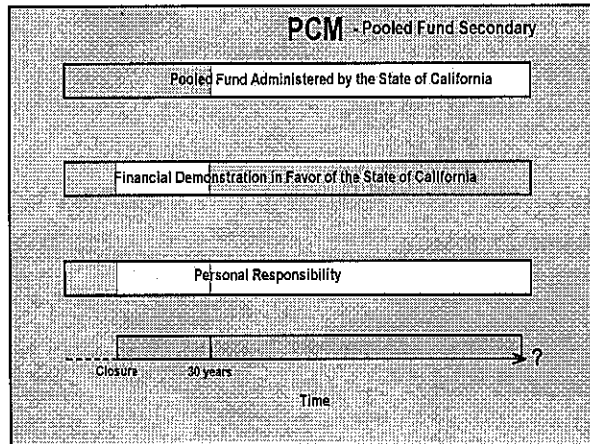
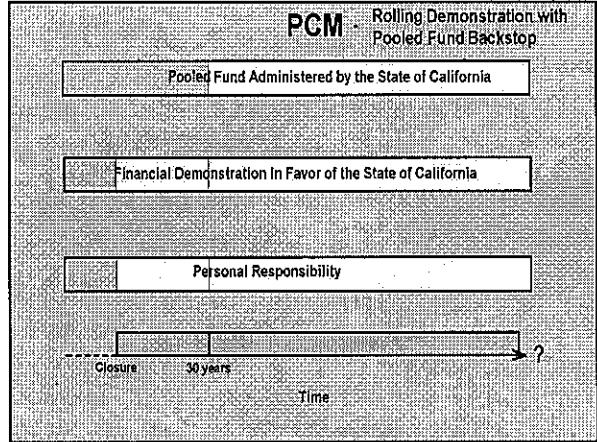
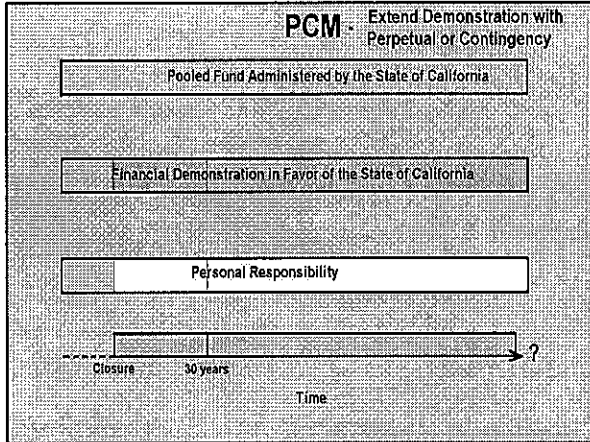
- Plus 11 Years to PCM Cost Estimates

- Provides assurance that funds will continue to be available for routine PCM



PCM Current Scenario (30-year Demonstration)





Workshops/Meetings April - July 2008

| Date | Location | Activity |
|---------|----------------------|--|
| 4/14/08 | CalEPA Rm-550 | Corrective Action Workshop |
| 5/12/08 | CalEPA Rm-550 | Phase II Informal Rulemaking |
| 6/9/08 | Coastal Hearing Room | Discussion and Request for Additional Direction P&C Committee Meeting |
| 7/14/08 | Coastal Hearing Room | Request for Rulemaking Direction for Phase II P&C Committee Meeting |

- Discuss potential dates for additional meetings

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Next Steps

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March 10, 2008

Discussion Paper Regarding Major Postclosure Maintenance Activities at Solid Waste Landfills

The purpose of this discussion paper is to describe the California Integrated Waste Management Board (CIWMB) staff's understanding of the current status of major maintenance activities at solid waste landfills.

Some stakeholders have opined that current postclosure maintenance (PCM) plans and, by extension, PCM cost estimates do not include the description and costs for what is referred to as "major maintenance." Major maintenance is described by these stakeholders as the need to (1) make major repairs and eventually replace the final cover and (2) repair the leachate collection lines that are clogged and cannot be cleaned out.

Postclosure Maintenance (PCM) means all activities undertaken at a closed solid waste management unit to maintain the integrity of containment features and to monitor compliance with applicable performance standards (27 CCR 20164). PCM is performed regularly or periodically to deal with routine wear and tear of containment features. To differentiate from PCM, corrective action (CA) includes both repairs of containment features damaged (1) as a result of major events, such as floods, storm water runoff, earthquakes, or fire and (2) due to mismanagement, defective materials, poor design, improper installation, or inadequate maintenance. The purpose of postclosure maintenance is to maintain the integrity of the closed landfill, while the purpose of corrective action is to restore the integrity of the closed landfill.

Final Cover Replacement

Current PCM plans include costs for repair of final covers. PCM final cover repairs may include damage due to erosion and/or differential settlement. However, PCM plans but do not include costs for complete replacement of final covers or more particularly the barrier layer of final covers. CIWMB staff has conferred with State Water Resources Control Board (SWRCB) staff concerning this issue. SWRCB staff has reported that they have not required complete replacement of the barrier layer in PCM plans and cost estimates.

PCM costs for barrier layer replacement appear to be inappropriate and/or unnecessary. University researchers have reported that based on extrapolating existing synthetic material history, *synthetic* covers (including FML [flexible membrane liner] and GCL [geosynthetic clay layer] covers) are estimated to last several decades if not hundreds of years if not exposed to sunlight and the landfill is properly maintained. *Soil* covers (i.e., Water Balance or ET (evapo-transporative) covers) consist of natural materials that have existed for eons. As long as the cover is properly maintained, these covers should endure indefinitely. If the soil cover is not overly compacted at installation, these covers are also self-healing because they resettle rather than fracture.

Based on recently reported anecdotal evidence and current scientific knowledge, *compacted clay* covers, because they are highly compacted and moisture treated during installation, may desiccate in as little as two to three (2-3) years after installation and will likely not be performing to original design specifications. However, continually replacing clay layers does not appear to be a cost effective PCM measure, but a clay barrier layer replacement could be a CA scenario based on the specific circumstances

at a particular site. In particular, for landfills that installed compacted clay final covers especially in climate areas where desiccation is more probable and the barrier layer may no longer performs as originally designed, it may be appropriate to require CA financial assurance for replacement of the clay layer of the final cover. Since it is unclear as to when and under what conditions that a compacted clay barrier layer will cease to perform its designed function, the cost for potential replacement of this barrier layer would be more appropriate as a CA item, rather than an PCM item.

Leachate Collection and Removal System

The leachate collection and removal system (LCRS) is part of the design of the overall liner system and is primarily under the purview of the particular Regional Water Quality Control Board (RWQCB) because the primary purpose of the LCRS is the protection of ground water quality.

LCRSs are required to be designed to transport twice the expected flow; but due to the entrapment of sediment and the development of biomats, LCRSs may clog over time which results in a loss of their effectiveness. Cleaning methods are not always effective in removing the clogs. However, at this time RWQCBs have not required PCM cost estimates to include the cost for replacement of leachate lines because:

- Should LCRS systems fail, there are alternatives that could be installed (e.g., leachate wells) to perform the function of the LCRS.
- LCRS systems are designed to last for several decades if properly maintained.
- Should the LCRS fail several years/decades into PCM, it is likely that the waste has dried out due to lack of incoming moisture and no leachate would be produced that the LCRS would need to collect and remove.

To address the potential for loss of LCRS effectiveness RWQCBs have required higher flow designs (than twice expected flow) to account for the potential clogging of LCRSs.

Furthermore, as with final covers, LCRS replacement could be a CA scenario based on the specific circumstances at a particular site especially if the site has a LCRS that has a lower excess capacity.

To help determine the potential (probability) for “major maintenance” activities to occur at landfills, CIWMB staff is reviewing historical landfill compliance records. The intent of the review is to document the various types and frequency of corrective actions that have occurred at landfills.

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March 10, 2008**

Discussion Paper Regarding Definitions of Terms, Postclosure Maintenance/Corrective Action

Existing 27 CCR, Section 20164

"Post-closure maintenance" (SWRCB) means all activities undertaken at a closed waste management unit to maintain the integrity of containment features and to monitor compliance with applicable performance standards.

"Post-closure maintenance period" (SWRCB) means the period after closure of a waste management unit (Unit) during which the waste in the Unit could have an adverse effect on the quality of the waters of the state.

"Postclosure maintenance plan" (CIWMB) as used in this division refers to preliminary, final, and/or partial final postclosure maintenance plans as appropriate.

Working Definitions from FA Study

- "Postclosure Maintenance (PCM)" means all activities undertaken at a closed solid waste management unit to maintain the integrity of containment features and to monitor compliance with applicable performance standards. PCM is performed regularly or periodically to deal with routine wear and tear of containment features. It does not include repairs of containment features damaged as a result of major events, such as floods, stormwater runoff, earthquakes, or fires; nor does it include repairs of containment features damaged due to mismanagement, defective materials, poor design, improper installation, or inadequate maintenance.

- "Corrective Action (CA)" means activities undertaken at an active or closed solid waste management unit needed to remediate a known release that has occurred to the environment, or activities that would need to be undertaken at an active or closed unit to restore the integrity of damaged containment, gas extraction, and drainage features. CA can include non-routine repairs, such as repairing covers and drainage systems damaged as a result of major events, such as floods, stormwater runoff, earthquakes, or fires; as well as repairs of containment features damaged due to mismanagement, defective materials, poor design, improper installation, or inadequate maintenance.

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March 10, 2008**

Discussion Paper Regarding Actual Release of California Landfills from Postclosure Maintenance, Myth or Reality

The purpose of this discussion paper is to describe the California Integrated Waste Management Board (CIWMB) staff's understanding if any California solid waste landfills (disposal sites) have been released from postclosure maintenance.

At this time neither the CIWMB nor any Local Enforcement Agency has released a disposal site from postclosure maintenance.

There have been anecdotal reports that one or more Regional Water Quality Control Boards (RWQCB) has released one or more landfills from water quality post closure maintenance (PCM). In the CIWMB's Landfill Facility Compliance Study (GeoSyntec Report), it was reported that seven disposal sites were not required to perform ground water monitoring. Some stakeholders have then postulated that these sites have been released from the water quality portion of PCM. CIWMB staff has researched this issue and has determined that no solid waste disposal sites subject to the financial assurance requirements have been released from PCM.

Of the seven (7) disposal sites that do not have to perform ground water monitoring, six (6) are in the North Coast RWQCB (all sites in Siskiyou County) and one (1) is in the Lahontan RWQCB (Inyo County). CIWMB staff has contacted both RWQCBs. Both RWQCBs have related to CIWMB staff that these sites still must perform PCM for water quality protection. The Lahontan RWQCB site is under closure waste discharge requirements (WDRs). Although the six disposal sites in the North Coast RWQCB do not have existing closure WDRs (operating WDRs were rescinded), the sites are periodically inspected (generally once per year) to determine compliance with Title 27, California Code of Regulation standards. If any issues are observed, the operator is required to address the issues.

North Coast RWQCB staff has reported that the operation WDRs for these disposal sites were rescinded soon after the sites completed closure activities. At that time the rescissions were adopted (circa 1995) because the Regional Board determined that: (1) if the landfills were properly maintained during the postclosure period there should not be any significant water quality impacts; (2) there were other regulatory agencies (CIWMB, LEA) that would be regulating the facilities; and (3) there was only one staff for all landfills in the North Coast RWQCB (i.e., limited staff resources). North Coast RWQCB staff has further iterated that should the closures have occurred 'today,' the WDRs would not have been rescinded and that closure WDRs would have been issued. The RWQCB intends to issue closure WDRs some time in the future for these sites.

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March 10, 2008

Discussion Paper Regarding Criteria for Determining the End of Postclosure Maintenance Activities at Solid Waste Landfills

The purpose of this discussion paper is to describe the California Integrated Waste Management Board staff's understanding of the current status of development of criteria for determining the end of postclosure maintenance (PCM) activities.

PCM Definition

Postclosure Maintenance (PCM) means all activities undertaken at a closed solid waste management unit to maintain the integrity of containment features and to monitor compliance with applicable performance standards (27 CCR 20164). PCM is performed regularly or periodically to deal with routine wear and tear of containment features. To differentiate from PCM, corrective action (CA) includes both repairs of containment features damaged (1) as a result of major events, such as floods, storm water runoff, earthquakes, or fire and (2) due to mismanagement, defective materials, poor design, improper installation, or inadequate maintenance. The purpose of postclosure maintenance is to maintain the integrity of the closed landfill, while the purpose of corrective action is to restore the integrity of the closed landfill.

PCM Period

Under current State statute and regulations (PRC 43509 and 27 CCR 21900), the PCM period is a minimum of 30 years and continues until the landfill no longer poses a threat to public health and safety or the environment (PHSE). The California standard is a performance-based standard rather than a specific time-based standard. Moreover, even though the Federal RCRA Subtitle D standard for PCM appears to be a time-based standard, in practice it operates more like a performance-based standard since an approved state may lengthen or shorten the default 30-year PCM period as necessary and appropriate to address any potential threats to public health and safety and the environment. Once a solid waste disposal site operator demonstrates that the disposal site no longer poses a threat to PHSE, the operator may be released from further PCM at that particular disposal site.

PCM Reduction

Under California standards, landfill operators may, at any time, request a reduction in PCM provided there is adequate justification for the reduction. For example, consistent non-detected results for ground water and/or landfill gas monitoring may result in a decrease in the frequency or number of parameters necessary for routine analyses. A reduction in landfill gas generation may allow for a reduction in flare operation. Both of these PCM reductions could be reflected in revised PCM cost estimates. Although, current regulations allow for the reduction of PCM activities, the regulations do not contain any specific criteria and/or process that must be utilized to request a reduction. The regulations allow for the greatest flexibility for the operator to propose any appropriate justification for PCM reductions.

Other documents have been prepared that propose processes for operators to use when justifying PCM reductions. These documents include: (1) *Evaluating, Optimizing, or Ending Post-Closure Care at*

Municipal Solid Waste Landfills Based on Site-Specific Data Evaluation prepared under the auspices of the Interstate Technology & Regulatory Council (ITRC Report) and (2) *Project Summary Report—Performance-Based System for Post-Closure Care at MSW Landfills: A Procedure for Providing Long-Term Stewardship under RCRA Subtitle D*, prepared under funding from the Environmental Research and Education Foundation (EREF Report). The ITRC Report used the process contained in the EREF Report as a base for its report.

Although these Reports propose procedures for operators to use to justify reducing (optimizing) or even ending PCM at landfills, to CIWMB staff's knowledge, no regulatory agency nor any industry group or academic institution has developed specific numerical criteria for predicting or determining the end of the end of PCM. The guidance documents referenced above only provide a process by which an operator could propose and a regulatory agency could accept the cessation of PCM. However, no specific numerical criteria are included in the guidance.

CIWMB staff has conducted a survey of other states to determine if they have specific criteria. No states have criteria but some states have developed or are considering developing processes for operators to use when requesting cessation or lessening of PCM. A more detailed discussion of the results of the survey is included in a separate discussion paper.

CIWMB staff is aware of anecdotal evidence that various academic institutions and industry groups may have attempted to develop a method to predict the end of PCM based on current data. However, at this time it does not appear that the current level of scientific knowledge is such that this is attainable.

PCM Cessation

Under current California statute and regulations, PCM continues as long as the waste poses a threat to PHSE. Under current CalEPA practice, the landfill (disposal site) will continue to pose a threat to PHSE until the intrinsic properties of the in-situ waste are such that should no controls be present (i.e., no landfill cap, waste exposed to the elements), any leachate and/or landfill gas that could be produced would be inconsequential in both quality and quantity. In other words the waste is essentially inert and that any gas or leachate that could be produced would not pose any threat to PHSE. Therefore, PCM would continue and financial assurances would need to be provided until the operator demonstrates that the waste no longer poses a threat to PHSE.

Any current impact of the disposal site is measured at the points of compliance. For landfill gas migration compliance, this is usually the perimeter wells/probes and onsite structures. For ground water, although the point of compliance is the first water encountered *under* the disposal site (including the vadose zone), for practical purposes compliance is measured at the monitoring wells. However, monitoring at the points of compliance does not demonstrate the actual threat of the disposal site since the threat is based on the intrinsic properties of the waste; the monitoring only documents the current PHSE impact, if any, of the disposal site.

Some guidance documents (EREF, ITRC) have proposed an alternative approach.

These reports propose measuring risk at the point of exposure as an alternative to measuring risk of the waste material itself. The point of exposure is identified as the closest location at which a receptor could be exposed to the source and receive a dose in a credible pathway from the disposal site. The point of exposure (POE) differs from the point of compliance (POC) in that in many cases the POE would be outside of the disposal site facility boundary (e.g., the nearest usable water supply well [ground water] or nearest inhabited structure [LFG migration]). The guidance proposes that should there not be a current

adverse impact at the POE, the landfill does not pose a threat and regulatory PCM could be discontinued and financial assurances would no longer be required.

The guidance does indicate that some level of “custodial” care may be necessary, such as maintaining cap integrity and any deed restrictions that would be necessary to maintain cap integrity and prevent impacts at the point of exposure. The guidance documents assume that this level of custodial care could be adequately overseen by local governments and regulatory PCM (and the accompanying financial assurance requirements) would not be necessary. The guidance further postulates that should the landfill pose a threat in the future, the landfill could be re-regulated including financial assurances.

The guidance does recommend that should this approach be contemplated by landfill operators, that sufficient long-term data (ten years or more) be available to adequately document a historic trend.

Inconsistency with California Standards

The guidance is inconsistent with current California standards which defines landfill threat as intrinsic to the waste rather than at some point of exposure. Sampling at the POE only measures the current impact of the disposal site at the POE but not the latent threat of the site. Also, California applies its standards at the POC, not the POE. However, these sample analyses could be used as justification for a proposed reduction in PCM monitoring.

The proposal of a custodial care period outside of regulatory PCM is also inconsistent with California standards. As long as the waste poses a threat to PHSE and some level of PCM is necessary (e.g., cap maintenance), then the disposal needs to remain in regulatory PCM with its attendant financial assurance requirements. However, less intensive PCM may be justified with accompanying lower cost estimates and financial assurances.

Furthermore, the reliance on local government to adequately protect the landfill from inappropriate land use that could adversely impact the potential landfill exposures during the proposed custodial care period is misapplied. First, the California Integrated Waste Management Board (CIWMB) does not have the authority to issue deed restrictions on landfills or solid waste disposal sites. Therefore, there would be no deed restrictions that could be enforced even if a local government was inclined to enforce the deed restriction.

Additionally, the concept of custodial care would impose an additional burden on local government agencies (e.g., planning and building) that historically have not had this burden. Under strong regulatory oversight by State and local governments, it is usually the local environmental health departments, acting as local enforcement agencies, that provide the local expertise to oversee solid waste disposal sites. If the disposal site is outside the normal regulatory structure (i.e., under “custodial care”), the oversight would normally fall to local building and planning departments. Due to the lack of experience and exposure to solid waste disposal sites, local planning and building departments are normally not familiar with the potential impacts a closed solid waste disposal site represents. Therefore, local planning agencies have inadvertently allowed developments on and around closed disposal sites without requiring appropriate mitigation measures.

Although the overall process proposed by ITRC/EREF is inconsistent with California standards for ending PCM, a portion of the process could be used by operators to request reduction in PCM activities (i.e., optimize PCM).

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Discussion Paper Regarding the Survey of Other States' Postclosure Maintenance Period

BACKGROUND:

In an effort to provide comparison data for the Phase II draft regulations workshops, CIWMB staff sent a survey to all 50 states. Two questions were asked regarding their business practice on postclosure maintenance (PCM).

Public Resource Code, Chapter 2, Article 3 section 43509 states:

(a)The regulations shall also require solid waste landfill owners or operators to calculate, and periodically revise, cost estimates for closure and for postclosure maintenance, for as long as the solid waste could have an adverse effect on the quality of the waters of the state, but not less than 30 years after closure unless all wastes are removed in accordance with federal and state law.

Code of Federal Regulation, Title 40, Section 258.61 (Subtitle D) states:

(a) Following closure of each Municipal Solid Waste Landfill (MSWLF) unit, the owner or operator must conduct post-closure care. Post-closure care must be conducted for 30 years, except as provided under paragraph (b) of this section.

(b) The length of the post-closure care period may be: (1) Decreased by the Director of an approved State if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the Director of an approved State; or (2) Increased by the Director of an approved State if the Director of an approved State determines that the lengthened period is necessary to protect human health and the environment.

Since the Board initiated this process in November 2003, some operators of solid waste landfills have suggested that the PCM period could end after 30 years and possibly in some cases sooner. One operator further suggested the Board rely on the Federal Subtitle D regulations where a director of an approved state can decrease the PCM period (less than 30 years) if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment. A director of an approved state could also determine that the PCM period be lengthened (greater than 30 years) in order to protect human health and the environment.

While the Board in December 2007 directed CIWMB staff not to pursue statutory changes to mirror the Federal Subtitle D requirements for the length of the postclosure maintenance period, CIWMB is still interested in what other states are doing in implementing the Subtitle D requirements. As such, staff initiated a survey of all the states to inquire as to their business practice regarding the length of the PCM period.

Most state websites provided sufficient information to locate and contact the proper technical expert in the solid waste or environmental department. State responses were received from managers of the solid waste departments and/or technical experts, i.e., professional engineers.

SURVEY QUESTIONS:

1. Under Subtitle D, each state is authorized to shorten or lengthen the post-closure care period less than 30 years, or more than 30 years, as approved by the state director. Has your state decreased or increased the post-closure care period of any Subtitle D municipal solid waste landfills in your state?
 - 49 states participated in the survey
 - 47 states have not changed the 30-year care period
 - Two states have changed the 30-year care period as follows:
 - Nebraska decreased the period of one MSWLF to 18 years
 - Tennessee increased the period of one MSWLF to 50 years
2. If so, what criteria were used to make the determination?

Six states are currently considering criteria to increase or decrease the postclosure maintenance period: Indiana, Minnesota, Nebraska, Ohio, Utah, and Virginia. Draft documents are currently being prepared for the states of Indiana, Minnesota, Utah, and Virginia and will be considered “guidelines” not official mandates.

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Discussion Paper Regarding California Experience with Postclosure Maintenance Costs

The purpose of this discussion paper is to describe the California Integrated Waste Management Board (CIWMB) staff's experience with postclosure maintenance (PCM) costs over the past 15+ years since the CIWMB's requirements for PCM and the related financial assurance have been specified by statute and regulation.

Some stakeholders have stated that PCM costs have and will decrease over time and that in some cases PCM may be completed within the initial 30-years of PCM. Therefore, the current presumption that PCM costs stay current should be modified.

Over the past 15+ years few operators have submitted revised PCM plans. Of the few revised PCM plans that have been submitted many, if not most, have included increased costs above inflationary requirements. CIWMB staff cannot recall any revised PCM plans being submitted that requested reduced maintenance and/or monitoring.

For those facilities with cash-type financial assurance (FA) mechanisms (e.g., trust or enterprise funds, insurance), requests for release of funds have normally been for the equivalent of the average annual cost estimate. However, some requests have been for more than the average annual cost estimate. In these latter cases, CIWMB staff has requested that the operator prepare revised PCM cost estimates.

Since the current practice of the CIWMB has been to require financial assurance for only the first 30 years of PCM, yearly releases from the cash-type FA mechanisms have been equivalent to the average annual cost estimate.

Therefore, at this time, CIWMB staff has insufficient evidence to determine whether PCM costs decrease or increase over time.

Various stakeholders have offered to provide more detailed information on PCM costs. CIWMB staff will work with stakeholders to develop and conduct a survey to compare estimated and actual PCM costs.

