

Technical Guidance and FAQs for the Preparation of Site-specific Non-water Release Corrective Action Plans February 2011

This technical guidance was developed to assist landfill operators, consultants, and local enforcement agencies in developing sound cost estimates resulting from each reasonably foreseeable causal event for corrective action in the site-specific non-water release Corrective Action Plan (CA Plan). The technical guidance provides recommendations on how to define or characterize each reasonably foreseeable causal event and reflects input from stakeholders and a Technical Advisory Group. CalRecycle staff will monitor the implementation of these recommendations and will communicate with stakeholders when the recommendations need to be amended. The FAQs covering this technical guidance will be updated as questions regarding its implementation are received. If an owner or operation determines that one or more of the recommended reasonably foreseeable causal event are not applicable to their landfill, the owner or operator should meet with the LEA and CalRecycle staff in advance of developing the CA Plan.

Background

CalRecycle adopted regulations, Title 27, California Code of Regulations (CCR), section 22100 et seq., affecting requirements for long-term postclosure maintenance, corrective action, and financial assurances for landfills. The owners and operators of all disposal facilities that were or are required to be permitted as solid waste landfills and have been or will be operated on or after July 1, 1991, are required to provide financial assurance for corrective action based on the highest amount of either the water release corrective action or non-water release corrective action. The regulations allow an owner or operator to determine the value of the non-water release corrective action fund through one of three methods: the CA Plan; the cost for replacement of the final cover; or the closure cost estimate for the landfill. If a landfill owner or operator selects to prepare a CA Plan, the CA Plan must be updated in accordance with the regulations.

The CA Plan is required to provide an assessment of the known or reasonably foreseeable impacts due to causal events and the costs to remediate the known or reasonably foreseeable impacts. Specific causal events identified in the regulations include earthquake, flood, precipitation, tsunami, seiche and fire. In addition to the assessment of the reasonably foreseeable causal events, the CA Plan must also contain the following:

- An evaluation of the long-term performance of the final cover system to ensure that it will continue to meet the requirements of 27 CCR section 21140 without the need for corrective action; and
- Provisions to restore the integrity or establish the adequacy of a damaged or inadequate containment structure or environmental monitoring or control system, to bring a landfill into compliance with the applicable requirements.

Applicability

The desired outcome for the CA Plan is to develop cost estimates based on sound science, engineering, and professional standards of practice to establish financial assurances to ensure that known or

reasonably foreseeable corrective actions at solid waste landfills are accounted for with minimal financial risk to the State. Staff considered the following in development of the recommendations:

- The causal event cannot be the required minimum design standards or siting requirements in Title 27 CCR;
- There is documentation that the causal event has occurred in California;
- The causal event is consistent with current practice and
- Evaluations by other governmental agencies on the likelihood that a causal event would occur in California.

More information on the causal events can be found in the Background document. The background document refers to the recommendations as best management practices, but since the CA Plan is a new requirement; CalRecycle has determined that it is more appropriate to refer to the recommendations as technical guidance is.

The following provides recommendations on the characterization of each reasonably foreseeable causal event as to be used in the CA Plan.

Earthquake as the Causal Event^{1,2}

| Not Reasonably Foreseeable | Deterministic Assessment | Landfill Risk ³ Category | Recommended Return Periods for a Probabilistic Assessment |
|--|--------------------------|-------------------------------------|---|
| MCE* or 2475-yr return period design event; and ≤ 12 inches permanent deformation. | MCE | Low (≤35) | 200-year |
| | MCE | Medium (36-69) | 475-year |
| | MCE | High (≥70) | 475 to 950-year |

*MCE is the Maximum Credible Earthquake

1. If the landfill is located in a Seismic Hazard Zone, the CA Plan should also evaluate the potential effects of liquefaction; and identify the required corrective action and costs.
2. If the landfill is located within 200 feet of a Holocene fault, the CA Plan should also evaluate for the potential damage from fault ruptures, identify the required corrective action and costs.
3. The landfill risk methodology is contained in Chapter 5 of the 'Study To Identify Potential Long-Term Threats And Financial Assurance Mechanisms For Long-Term Postclosure Maintenance And Corrective Action At Solid Waste Landfills, November 26, 2007'. Alternative methods may be used to determine the landfill risk.

(<http://www.calrecycle.ca.gov/archive/IWMBMtgDocs/mtgdocs/2007/12/00022762.pdf>)

Precipitation, Flood, Tsunami and Seiche as the Causal Events

| Causal Event | Not Reasonably Foreseeable | Recommended Reasonably Foreseeable Causal Event |
|---------------|--|---|
| Precipitation | Designed for 1000-year 24-hour storm event | 1000-year 24-hour storm event |
| Flood | The landfill is not located in the 500-year flood zone or the elevation of the landfill is above the depth of the flood event. | A landfill located within the 500-year flood zone should assess the potential damage resulting from the 500-year flood |
| Tsunami | The landfill is not located in an area that is designated to be prone to be inundated by a tsunami by the Department of Conservation or local emergency response agency. | For landfills located in an area that is prone to be inundated by a tsunami, the CA Plan should address the potential impacts and damage that may result |
| Seiche | The landfill is located greater than ½ mile away from a lake or a landlocked bay. | A landfill located within ½ mile of a lake or landlocked bay should identify the height of the wave and evaluate if the wave will inundate the landfill and cause any damage. |

Fire as the Causal Event*

It is recommended:

- 1-that an assumption that 50% of the combustible surface structures within 300 feet of the landfill cell boundaries are destroyed if the landfill is located in a very high fire hazard zone,
- 2- that an assumption that 25% of the combustible surface structures within 200 feet of the landfill cell boundaries are destroyed if the landfill is located in a moderate/medium fire hazard zone
- 3-for landfills not located in the above zones, provide a contingency for replacement of the combustible surface structures within 50 feet of the landfill cell.

*The CA plan also should address the potential for a subsurface fire; the CA Plan may address the subsurface fire by providing the costs necessary to employ one of the methods to extinguish a subsurface fire (as discussed at CalRecycle’s website) or provide a contingency for repair of the cover and landfill gas system.

*The percentage of structures potentially destroyed and the extent at which the fire spreads should be discounted if there are mitigation measures including engineered systems such as berms or fire breaks; the combustible structures are buried; the presence of on-site personnel trained in fighting fires with

the proper equipment and vehicles; or if there is a routine maintenance plan to remove vegetation and ground debris that would provide fuel to the fire; or if a climatic and/or topographic environment exist that is different than the baseline scenario. Conversely, the extent of combustible structures potentially destroyed should be increased if there is substantial vegetation or ground debris at the landfill interior that would fuel a fire; this situation may be found at a closed landfill that does not have a maintenance plan to control vegetation density.

CA Plan Preparation

CA Plans are required to be prepared by licensed third-party professionals pursuant to 27 CCR Section 22102(c)

Frequently Asked Questions

A set of frequently asked questions regarding the CA Plan and its preparation and the responses are provided below:

(Responses to other questions regarding the regulations can found at:

<http://www.calrecycle.ca.gov/lea/Regs/Implement/Postclosure/FAQs.htm#Cost>)

1. In practice the "entity responsible for the design of the solid waste landfill" usually comprises a team of firms, consisting of a primary consultant, subconsultants, and contractors. The "entity" or engineer of record (PE or CEG) that signs off on the JTD/Closure Plan is typically the primary consultant. In this scenario, would the subconsultants and contractors be excluded from being on the third party team?

No. The regulations would only exclude the entity (primary consulting firm) and the engineer of record (PE or CEG).

2. We have had a case where a firm who designed our landfills and is the engineer of record was recently purchased as a subsidiary of another company. Would the parent company be excluded from being a third party preparer despite not being involved in the design work?

No, the regulations would not exclude the parent company from being a third party preparer. The only regulatory restriction related to subsidiary/parental relationships is that associated with the owner/operator (27 CCR Section 22102(c) (1) (D)).

3. Similarly to number 2, a parent company who designed the landfill acquires a firm that was clearly eligible to be a third party preparer prior to the acquisition. Does the firm lose its eligibility status under the new ownership?

This one depends on the meaning of "acquires."

If the acquired firm remains a separate entity it would not lose its eligibility.

If the acquired firm is subsumed by the "entity responsible for the design of the solid waste landfill" the acquired firm would lose its eligibility.

4. 27 CCR Section 22102 refers to the entity/engineer of record in the JTD/Closure Plan of the most recent SWFP. Throughout the life of a landfill, many different entities/engineers may have played a

role in the design of the landfill and signed off on the JTD. Does the phrase "most recently issued SWFP" mean that previous entities/engineers that are not referenced in the most recently issued SWFP are now eligible third party preparers?

Yes, previous entities/engineers not referenced in the most recently issued SWFP would be eligible.

5. The design engineer of record would be excluded from being a third party preparer. However, that engineer does not work alone. Would an individual from the design team be eligible as third party preparers assuming they left the entity and worked for another firm? Likewise, if the design engineer of record sought opportunities at another firm, could he/she be on the third party team provided this individual did not sign off on the corrective action plan.

Yes to both. An individual from the design team would be eligible as a third party preparer assuming they left the entity and worked for another firm. Likewise, if the design engineer of record sought opportunities at another firm, he/she could be on the third party team provided this individual did not sign off on the corrective action plan.

6. Although 27 CCR Section 22102 explicitly refers to the JTD and Closure Plan, we assume that the entity/engineer of record for third party eligibility determination also extends to the PCMP. Is this correct?

Yes. Although 27 CCR Section 22102 does not explicitly refer to PCM plans it does reference 27 CCR Section 21780, which applies to both closure and PCM plans

7. Should the non-water release Corrective Action Plan address impacts on groundwater or water quality?

AB 1220/Eastin (1993; PRC 43101) established that the State Water Resources Control Board and Regional Water Quality Control Boards (RWQCBs) are the sole agencies with authority to regulate solid waste for the purposes of water quality protection. The CalRecycle non-water release Corrective Action Plan requirements therefore exclude addressing impacts to water quality.

However, the non-water release Corrective Action Plan is required to be submitted to RWQCBs for review. The RWQCBs may conclude that there are potential significant water quality impacts not otherwise addressed in the water-release Corrective Action Plan. The RWQCB may then require revisions to the water-release Plans and related requirements accordingly.

8. What is the timeframe to be addressed as part of the corrective action (what is considered long term)?

The requirements for providing financial assurance for corrective action are in effect during the entire period that the landfill is active and/or subject to postclosure maintenance requirements.

9. How are engineering flaws or failures addressed as part of corrective action?

The regulations require that if an operator chooses to use the non-water release site-specific corrective action plan, the plan must contain an analysis of the containment and environmental monitoring and control systems for adequacy with the applicable standards. If there are engineering flaws or failures that would prevent compliance with the applicable standards, the plan would need to address how the standards would be satisfied either through repair or replacement of the systems. If engineering flaws or failures require corrective action, the funds if needed may be used to remediate the flaws or failures.

10. How does one calculate the change from the MPE to the MCE?

An analysis should be completed to estimate the amount of deformation and ground acceleration based on each event and compare that to the design of the landfill to determine if there will be any damage and, if yes, to what extent. It is not the intent of Technical Guidance to recommend a methodology for this analysis. Methodologies that are standard practice will be considered acceptable.

11. How will the corrective action fund be used if a causal event resulted in both water and non-water corrective action or if the amount in the fund is not sufficient to cover the actual corrective action costs?

In adopting the corrective action financial assurances requirements, CalRecycle considered but did not require financial assurances for both the water release and non-water release Corrective Action Plans. The water release Corrective Action Plan or non-water release Corrective Action Plan cost estimate is required to be funded for the single Plan based on the highest estimate. It is likely that causal event will result in both a water release and non-water release requiring corrective action and that the amount in the fund will not cover fully both water and non-water corrective action. In such cases, CalRecycle and RWQCBs will collaborate, in conjunction with other local, state, and federal agencies to ensure public health and safety and the environment is protected while minimizing the use of public funds. Various potential enforcement and funding strategies are potentially available to CalRecycle and RWQCBs for such purposes and have been used successfully in similar cases.

12. It is our contention that a reasonably foreseeable causal event for precipitation should not be greater than a 200 to 500-year 24-hour storm event, depending on the results of a site-specific hazard analysis.

The 1000-year 24-hour storm event is a design standard for Class 2 landfills, some solid waste landfills are already designed to this standard, and 1000-year 24-hour storm events have occurred in California.

Staff did not find the 200 or 500-year 24-storm event to be commonly used. The recommendations are technical guidance to assist in the preparation of a CA Plan, if an owner or operator determines that one or more of the recommended reasonably foreseeable causal event are not applicable to their landfill, the owner or operator should meet with the LEA and CalRecycle staff in advance of developing the CA Plan.

13. It is proposed that for low-risk areas designated by FEMA that the 100-year flood be used, 200-year flood in undesignated areas, and the 200 to 500-year flood for moderate risk areas, as the reasonably foreseeable causal events.

In researching the FEMA information, the 200-year flood event is not found on the flood maps. As stated in the response to Question 12, owner or operators are encourage to meet with the LEA and CalRecycle staff in advance of developing the CA Plan.

14. It is proposed that up to a 950-year return period as a reasonably foreseeable causal event for some landfills. A reasonably foreseeable return period is between 200 to 475 years. The method for determining the risk category for a landfill has little to do with seismic risk, so alternative methods that are more representative of seismic risk needs to be allowed.

The recommended return period for performing a probabilistic seismic evaluation for a high risk landfill is a range of 475 to 950-year for the return period. If one applies the ICF risk methodology, a landfill would be in high risk category only if the landfill did not meet more than one significant minimum standard.

15. Are there additional challenges to working with the RWQCBs since CalRecycle is no longer part of CalEPA?

The integration of the Integrated Waste Management Board's responsibilities into CalRecycle does not affect the working relationship with the RWQCBs. The provisions of AB 1220 are still in effect, PRC 43101 (c) (11) states that: "Responsibility for establishing and enforcing financial responsibility requirements for solid waste landfills, from operation through to cleanup, shall, to the greatest extent practicable and consistent with applicable federal law, be consolidated into one set of regulations administered by the board, in consultation with the state water board."

16. Should a contingency be used as part of the cost estimates for the non-water corrective action plan, similar to how a contingency is used to determine the closure costs?

The regulations regarding cost estimates for non-water corrective action do not require the use of a contingency. CalRecycle staff would support the use of a contingency in addition to the cost estimates to determine the amount of financial assurance required to address uncertainties such as unforeseen events or needed activities.



LEA Central: Regulation Implementation Guidance

Frequently Asked Questions: Long-Term Postclosure Maintenance and Corrective Action

Following are the frequently asked questions (FAQs) regarding the Long-Term Postclosure Maintenance and Corrective Action Cost Estimates and Financial Assurance Demonstrations for Landfills (Phase 1 and Phase 2) regulations. The regulations require corrective action financial assurance demonstrations for non-water release exposures (in addition to those already required for water release exposures) and further define the required amounts of postclosure maintenance financial assurance demonstrations. The regulations also clarify and adjust requirements for change of ownership during closure and postclosure maintenance, permit application, permit review and CalRecycle permit processing, certification of closure, closure cost estimates, and postclosure maintenance plans and cost estimates.

The affected regulatory code sections include: California Code of Regulations, Title 27 (27 CCR), Division 2, Subdivision 1, Chapter 2, Article 2, Chapter 3, Subchapter 5, Article 2, Chapter 4, Subchapter 3, Article 2, Article 3.1, Subchapter 4, Subchapter 5, Chapter 6, Subchapter 2, Article 2, Article 4, Subchapter 3, Article 1, Article 2, and Appendix 3. The Office of Administrative Law (OAL) approved the Phase 1 regulations on February 25, 2008, and they became effective on the same date. OAL approved the Phase 2 regulations on April 9, 2010, and they became effective on July 1, 2010.

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Effective Dates

1. When is the effective date of the Phase 1 portions of the regulations?

February 25, 2008, was the effective date of Phase 1.

2. When will the Phase 2 portions of the regulations become effective?

July 1, 2010, was the effective date for most of the new requirements. However, the non-water release corrective action cost estimate and financial assurance requirement is not due until July 1, 2011.

Due Dates

Water Release Corrective Action Estimate and Financial Assurance

3. When is the water release corrective cost action estimate and financial assurance due?

The water release corrective action cost estimate and financial assurance has been required by State Water Resources Control Board (SWRCB) regulations since 1991. The Phase 1 and 2 regulations do not impact this requirement.

However, under new regulations, CalRecycle can no longer concur with any new or revised Solid Waste Facilities Permit (SWFP) unless the water release estimate has been submitted and the appropriate corrective

action financial assurance is in effect. Further, an operator will need to submit the estimate and financial assurance at the time of permit or closure/postclosure maintenance plans review.

Non-water Release Corrective Action Estimate and Financial Assurance

Note: FAQs in this section are based on the following premise: New regulations require an operator to provide a non-water release corrective action cost estimate and financial assurance on or before the first permit review or revision occurring on or after July 1, 2011.

4. For Permit Review Applications-Does the due date apply to the scheduled review date or the application due date that is 150 days prior to the scheduled review date? (For example, if Permit Review is scheduled for July 2, 2011, does the application package submitted 150 days before require the non-water release corrective action cost estimate and financial assurance?)

Due date applies to the application due date and not the scheduled review date.

5. For Permit Revision Applications-If the operator submits a permit revision application prior to July 1, 2011, but EA does not accept the application as complete and correct until after July 1, 2011, is the non-water release corrective action cost estimate and financial assurance due with this submittal?

No, since a valid application was submitted prior to July 1, 2011.

6. For Incomplete Application Packages-If a permit review or revision application is submitted prior to July 1, 2011, but is rejected by EA and resubmitted on or after July 1, 2011, is the non-water release corrective action cost estimate and financial assurance due with this submittal?

Yes, since the previous application was rejected, the resubmitted application is considered a new application.

7. For Incomplete Application Packages-If a permit review or revision application is submitted prior to July 1, 2011, and is accepted as incomplete by EA and the missing portion(s) of the application is provided on or after July 1, 2011, is the non-water release corrective action cost estimate and financial assurance due with this submittal?

No, since EA accepted the application that was submitted prior to July 1, 2011.

8. For a Report of Facility Information (RFI)-Will an operator be required to provide the non-water release corrective action cost estimate and financial assurances with a RFI amendment on or after July 1, 2011?

No, the operator is not required to provide a non-water release corrective action cost estimate and financial assurance with an RFI amendment. A permit review is still required during the 5-year period between July 1, 2011, and June 30, 2016, irrespective of an RFI amendment because an RFI amendment does not affect the 5-year permit review timeline, and the estimate is required to be submitted at the time of permit review.

9. Modified Permit Applications-Will an operator be required to provide the non-water release corrective action cost estimate and financial assurances with a modified permit application on or after July 1, 2011?

CalRecycle's intent for linking the submittal of the cost estimate to the permit review or revision timeline is threefold: (1) to assure that operators provide the first non-water release cost estimate and financial assurances by a time certain not later than June 30, 2016, (2) to balance workload and establish an orderly review process by distributing the submittals over a 5-year period, and (3) to establish a recurring 5-year schedule for submittal of updated and adjusted estimates.

Pursuant to statute and regulations a full solid waste facilities permit must be reviewed and, if necessary, modified or revised at least once every 5 years.

The new regulations do not explicitly require an operator to provide a non-water release corrective action cost estimate with a permit modification; however, a permit modification could reset the 5-year permit review timeline that could result in delaying submittal of the estimate beyond June 30, 2016. CalRecycle may pursue regulatory changes, as necessary, to ensure that regulations meet the stated intent.

10. For Permitted Closed sites-For closed sites with a closure permit, when is the non-water release corrective action cost estimate and financial assurances due?

The non-water release cost estimate and financial assurance is due with either the first permit review due or the first closure/postclosure maintenance plans revision/amendment submitted on or after July 1, 2011.

11. For Non-Permitted Closed Sites-For closed sites without a closure permit, when is the non-water release corrective action cost estimate and financial assurances due?

The non-water release cost estimate and financial assurance is due in conjunction with the updated closure and postclosure maintenance plans schedule in §21865(a)(1).

12. If a landfill operator has just applied for a 5-year SWFP review, when is the estimate due?

The non-water release corrective action cost estimate and financial assurance is due with the first permit review or revision or closure/postclosure maintenance plans review on or after July 1, 2011.

13. Closed and Closing Sites-If a landfill has final closure and postclosure maintenance plans that have been approved prior to July 1, 2010, but does not complete closure activities and is not deemed certified closed until after July 1, 2011, when is the corrective action cost estimate and financial assurances due?

If a landfill has final closure and postclosure maintenance plans that have been approved prior to July 1, 2010, but does not complete closure activities and is not deemed certified closed until after July 1, 2011, the operator shall submit the corrective action cost estimate and financial assurances consistent with the schedule in §21865 (a)(1) which is on or before July 1, 2014.

Financial Assurances-General

14. What are the financial assurance requirements for landfills that stopped accepting waste prior to 1988?

CalRecycle has no closure, postclosure maintenance, or corrective action financial assurance requirements for landfills that ceased operation prior to January 1, 1988.

Financial Assurances-Corrective Action

15. Does the non-water release corrective action demonstration requirement for permit review/revision with the first year apply if RWQCB has not reviewed or approved the cost estimates?

Yes, the requirement for non-water release corrective action financial demonstration is for the most recently approved or submitted estimate, whichever is greater. If the estimate has not been approved or has been disapproved, the financial demonstration must still be submitted for the highest estimated cost--either previously approved or as most recently submitted.

16. If a closed landfill requires corrective action funds to correct problems (or deficiencies) at a site, how will the funds be replenished without the landfill operator/owner having a source of revenue?

Many landfill operators/owners have other sources of income from either other landfills, solid waste facilities or other businesses. It is incumbent on the landfill operator/owner to show a source for repayment of funds.

Site-Specific Non-Water Release Corrective Action Plans-Third Party Preparer

Note: CalRecycle is developing Best Management Practices for site-specific non-water corrective action plans; this will be completed by January 2011 and additional FAQs will be added as necessary.

17. In practice the "entity responsible for the design of the solid waste landfill" usually comprises a team of firms, consisting of a primary consultant, subconsultants, and contractors. The "entity" or engineer of record (or CEG) that signs off on the JTD/Closure Plan is typically the primary consultant. In this scenario, would the subconsultants and contractors be excluded from being on the third party team?

No. The regulations would only exclude the entity (primary consulting firm) and the engineer of record (or certified engineering geologist [CEG]).

18. In the case where a firm that designed the landfill and is the engineer of record is subsequently purchased as a subsidiary of another company, would the parent company be excluded from being a third party preparer despite not being involved in the design work?

No, the regulations would not exclude the parent company from being a third party preparer.

19. Similarly, if a parent company that designed the landfill acquires a firm that was clearly eligible to be a third party preparer prior to the acquisition, does the acquired firm lose its eligibility status under the new ownership?

This depends on how the acquisition is structured. If the acquired firm remains a separate entity, it would not lose its eligibility. If the acquired firm becomes part of the "entity responsible for the design of the solid waste landfill," the acquired firm would lose its eligibility.

20. The regulations refer to the entity/engineer of record in the JTD/Closure Plan of the most recent SWFP. Throughout the life of a landfill, many different entities/engineers may have played a role in the design of the landfill and signed off on the JTD. Does the phrase "most recently issued SWFP" mean that previous entities/engineers that are not referenced in the most recently issued SWFP are now eligible third party preparers?

Yes, previous entities/engineers not referenced in the most recently issued SWFP would be eligible.

21. The design engineer of record would be excluded from being a third party preparer. However, that engineer does not work alone. Would an individual from the design team be eligible as third party preparers if they left the entity and worked for another firm?

Yes, an individual from the design team would be eligible as a third party preparer if they left the entity and worked for another firm.

22. If the design engineer of record became employed at another firm, could he/she be on the third party team provided this individual did not sign off on the corrective action plan?

Yes, if the design engineer of record became employed at another firm, he/she could be on the third party team provided this individual did not sign off on the corrective action plan.

23. Although §22102 explicitly refers to JTD and Closure Plan, does the entity/engineer of record for third party eligibility determination also extend to PCMP?

Yes, although §22102 does not explicitly refer to PCM plans it does reference §21780 which applies to both closure and PCM plans.

24. For an active landfill with a certified closed area (i.e., partial final closure implemented) which firm, or both, is considered the engineer-of-record if Firm A prepared the most recent JTD and Firm B prepared the partial final closure and postclosure maintenance plans?

Firm A, the entity that prepared the current JTD (as referenced in the current SWFP) would be considered the engineer of record for the landfill. Therefore, Firm B, the entity that prepared the final closure and postclosure maintenance plans, would be eligible to prepare the site-specific corrective action plan.

Cost Estimates

25. There is a 20 percent contingency for the closure cost estimate. Is there a contingency for the postclosure maintenance estimate?

There is no required contingency for postclosure maintenance.

26. Is it permissible to utilize existing soil from the existing cover in the default final cover replacement cost estimate for non-water release corrective action? Or is importing new soil required?

Final cover replacement is a site-specific design. The landfill operator would have to demonstrate how existing soil in the cover would be utilized in the replacement design and that the replacement final cover would meet State minimum standards. Absent such a demonstration, material would need to be imported.

27. May the cost estimate reflect the lesser cost from using on-site or other readily available material for closure activities?

Yes, the cost estimate may include the use of onsite materials, provided the cost estimate is based on costs the State may incur if the State would have to assume responsibility for closure activities due the failure of the operator to properly and adequately perform any or all of those activities.

28. Does the cost documentation provided in the Caltrans Equipment Rental Rates or Standard Specifications include contractor profits?

Yes, contractor profit is included in the 'Markups' portion of the "Force Account Payment" section of Caltrans Standard Specifications. Current Markups are: Labor--33 percent; Material--15 percent; Rental Equipment--15 percent.

29. If an operator is utilizing previous bid amounts to develop closure cost estimates, why should the maximum bid amount be used rather than the average or minimum bid amounts, since there is a 20 percent contingency? This appears overly conservative.

Maximum bids or price quotes for closure cost estimates are recommended, especially early in the landfill life when future costs are relatively uncertain and funds are gradually built up. Average bids or price quotes may also be appropriate where there are multiple (three or more) bids or price quotes and no minimum bids significantly outside the range. The contingency (20 percent) is required for closure cost estimates to account for cost over-runs due to unforeseen events, such as adverse weather conditions or inadequate site characterization, which would result in increased closure costs. The purpose of the contingency is not to compensate for inadequate or poor estimates. Therefore, the use of maximum bids or average bids or price quotes is not overly conservative.

30. How are postclosure maintenance costs assigned to second/third parties (e.g., LFG to energy systems) handled within the cost estimate?

The responsible party for providing financial assurance to the State is the permitted operator or owner of the landfill. This responsibility cannot be assigned by an operator/owner to a non-permitted party since the State has no authority over these parties. Therefore, the permitted operator/owner is required to calculate all postclosure maintenance costs, including those borne by other parties, in the cost estimate and provide the commensurate level of financial assurance.

31. How are emergency response (postclosure) costs related to and handled within corrective action costs?

The Emergency Response Plan required under § 21130 identifies the events which could require the implementation of emergency response actions. The corrective action plan identifies the events which may require significant corrective action (or remediation) of the landfill to restore it to pre-event conditions. While some of the events (e.g., earthquake, fire, flood, etc.) may be both emergency and corrective action events, the postclosure maintenance cost estimate only includes the immediate costs to initially respond to an event (i.e., temporary measures). The corrective action cost estimate reflects the longer-term remediation and repair costs.

Financial Assurance Draw-Down

32. If a landfill has approved final closure and postclosure maintenance plans on or before July 1, 2010, but does not complete closure activities and is not deemed certified closed until after July 1, 2011, is the landfill eligible for the postclosure maintenance multiplier drawdown?

Landfills which have approved final closure and postclosure maintenance plans approved on or before July 1, 2010, are eligible for the postclosure maintenance multiplier draw-down even if closure activities are not completed until after July 1, 2011.

33. If an operator has already completed more than 15 years of postclosure maintenance, does the operator still have to maintain an equivalent of 15 years of postclosure maintenance financial assurance?

Yes, the minimum multiplier for postclosure maintenance financial assurance is 15.

Proactive Monitoring

34. Are proactive monitoring plans required for all landfills?

No. Proactive monitoring plans are voluntary. They are only required for those landfills that wish to qualify for and maintain a reduced multiplier (step-down) for postclosure maintenance financial assurances.

Furthermore, landfills that have final closure and postclosure maintenance plans approved by all agencies on or before July 1, 2010, are eligible for multiplier draw-downs without performing proactive monitoring.

35. When does an operator need to implement a proactive monitoring program to qualify for a step-down of its financial assurances?

The proactive monitoring program will have to be initiated at least five (5) years prior to requesting a step-down, because the program must have been performed for the entire five-year period subject to the step-down request.

[Financial Assurances Regulations Implementation Home](#) | [Regulations Implementation Home](#)

Regulations, <http://www.calrecycle.ca.gov/LEA/Regs/>
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Solid Waste Industry Group

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San Bernardino County Department of Public Works, Solid Waste Division
San Joaquin County Department of Public Works, Solid Waste Division
Ventura Regional Sanitation District
OC Waste & Recycling
Rural Counties' Environmental Services Joint Powers Authority
Riverside County Waste Management Department
Salinas Valley Solid Waste Authority
Kern County Waste Management Department
Fresno County Public Works & Planning
Monterey Regional Waste Management District
League of California Cities
California State Association of Counties
Solid Waste Association of North America, California Chapters
City of Sunnyvale
City of Santa Cruz
Tulare County Resource Management Agency, Solid Waste Division
Lassen Regional Solid Waste Management Authority
Waste Management
Republic Services
Waste Connections
Recology***

December 27, 2010

Margo Reid Brown, Director
CalRecycle
1001 I Street
P.O. Box 4025
Sacramento, CA 95812

Dear Ms. Reid Brown:

***Subject: CalRecycle's Proposed Best Management Practices (BMPs) for
Preparing Site-Specific Non-Water Quality Corrective Action Plans***

The Solid Waste Industry Group is writing this letter to express our continued concern over the criteria that the CalRecycle Staff is developing for the preparation of site-specific non-water quality corrective

action plans. We have previously written two detailed letters expressing our strong concerns over the direction that this guidance document has taken (attached).

The thrust of our concern is regarding the use of the term “reasonably foreseeable” by CalRecycle staff. This term is the basis for determining what events require corrective action financial assurance, so it is very important that the term is not unreasonably defined or broadened. “Reasonably foreseeable” does not mean anything that can occur in the future – only those events for which there is reasonable likelihood of occurrence. Financial assurances are intended to address non-routine repairs that are likely to occur. It is not intended or cost effective to set aside local government monies or private capital for hypothetical events that are extremely rare or unlikely to occur. We strongly believe that these extreme events should not be included in what is considered “reasonably foreseeable” corrective action.

What is Reasonably Foreseeable?

As we have repeatedly pointed out to CalRecycle staff, “reasonably foreseeable” is what is likely or can be predicted to occur in the not too distant future with some degree of certainty based on empirical, historical, or scientific evidence. “Reasonably foreseeable” is different from “foreseeable”. The word “reasonable” makes up 50% of that phrase. A reasonably foreseeable event cannot be one of such low probability that the chances of it occurring at any given moment are extremely remote, becoming speculative in nature. For example, if the only known occurrence was during prehistoric times, which is the case for seiches in California, then it is not “reasonably foreseeable.”

It is our contention that any of the following criteria should be used to disqualify a causal event from being considered reasonably foreseeable:

- **Extreme Uncertainty in Quantification or Estimate is Questionable** – The event is so improbable and such an outlier that there is very poor accuracy or tremendous uncertainty in quantifying the impact. An example is the 1,000-year 24-hour storm, where in October 2007 the National Oceanic and Atmospheric Administration (NOAA) considered discontinuing the publication of 1,000-year precipitation frequency estimates because of the “severe uncertainty associated with computing such extreme events.” (See attached)
- **Extremely Low Probability of Occurrence** – The severity of certain types of causal events (earthquakes, precipitation, and floods) is determined by the probability of such an event occurring in any given year. As the probability of it occurring approaches zero, however, the causal event is so improbable and so infrequent that it can no longer be considered reasonably foreseeable. It is instead considered an “extreme event” that is extremely unlikely to occur and too speculative to predict. For example, there is a 0.1 % chance of a 1,000-year 24-hour storm occurring in any given year. In other words, there is a 99.9% chance of it not occurring. Such a storm is considered an extreme event, not a reasonably foreseeable event. As another example, the Federal Emergency Management Agency (FEMA) defines an “extreme flood as a 0.2% chance of exceedance (500-year flood).” (See attached)

CalRecycle is proposing events to define BMPs that are “extremely unlikely” rather than “reasonably foreseeable”

There is absolutely no basis for calling the following extreme events “reasonably foreseeable”:

- **Precipitation.** CalRecycle staff proposes a 1,000-year 24-hour storm as the BMP. A 1,000-year 24-hour storm is an extreme event where there is tremendous uncertainty in estimating the amount of rainfall. A 1,000-year 24-hour storm is not a reasonably foreseeable causal event with a 0.1% chance of occurrence. It is our contention that a reasonably foreseeable causal event should not be greater than a 200 to 500 year 24-hour storm, depending on the results of a site-specific hazard analysis.
- **Flooding.** CalRecycle staff proposes that a 500-year flood be the causal event. FEMA considers a 500-year flood an “extreme flood,” where in any given year there is a 0.2% chance of it occurring. As explained by the Chief Meteorologist of a local news station in Atlanta in a news article, “A 500 year flood is extreme and historic.”¹ This flood event should not be considered reasonably foreseeable.
- **Earthquakes.** CalRecycle’s proposed BMP proposes up to a 950-year return period as a “reasonably foreseeable” event for some landfills – with as low as a 0.1 % chance of occurrence. A reasonably foreseeable return period is between 200 to 475 years, as indicated below. Additionally, the proposed method for determining the risk category for a landfill has little to do with seismic risk, so alternative methods that are more representative of seismic risk need to be allowed.

Not only do the above BMP events represent extremely unlikely occurrences, they vastly exceed existing design standards adopted by the State of California already in regulation. The BMPs also exceed design standards and criteria by which virtually all other human activities and structures are evaluated. Just to take earthquakes as an example, as we have previously pointed out, here are the standards for evaluating other types of activities that pose a far higher threat to human health and the environment than do landfills:

- The United States Army Corps of Engineers, which oversees a wide range of facilities (mostly water-bearing) ranging from minimal to extremely high seismic hazards, uses the probabilistic method and a 144-year return period as their operating basis earthquake.
- As part of the Urban Levee Geotechnical Evaluations Program, the California Department of Water Resources (DWR) uses the probabilistic method and ground motions associated with a 200-year return period to evaluate the seismic stability of critical levees in the Sacramento-San Joaquin Valley and to identify areas in need of repair. This is also used by DWR to develop mitigation measures and corrective action cost estimates.

¹ Article “What does a 100-Year flood really mean?” by Kirk Melhuish, Chief Meteorologist for Atlanta Weather Examiner (<http://www.examiner.com/weather-in-atlanta/what-does-a-100-year-flood-really-mean>).

- In simple terms, the California Building Code (CBC) essentially requires that ground motions associated with a 475-year return period be used for designing buildings for human occupancy.
- The Office of Statewide Health Planning and Development has historically required hospitals to use ground motions associated with 475-year return period as a seismic design requirement for maintaining the building operational after an earthquake.

The key point is that if an extreme event were to occur, like one proposed by CalRecycle staff, the problems associated with landfills will likely be of substantially lower concern than damage to many other critical structures threatening human health and the environment (schools, roads, hospitals, buildings, homes, pipelines). Yet, if adopted as proposed, the only facilities in California with Corrective Action Financial Assurance for such extreme events will be solid waste landfills. While there have been numerous examples of building and freeway collapses during high seismic events, there has never been a substantiated or documented problem with landfills in California or elsewhere in the U.S. – yet landfills would be the only facilities to carry such extreme corrective action financial assurance. As a result, the BMP guidelines proposed by CalRecycle are excessive and extreme – rather than “reasonably foreseeable”.

The signatories to this SWIG letter urge that you withdraw the proposed Corrective Action BMP Guidelines and redevelop guidelines that are not so out-of-line with the expectations placed on other human activities and structures. We would be pleased to meet with you at your earliest convenience to discuss our concerns further.

Sincerely,

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Attachments: 1. SWIG letter on Seismic BMP – October 4, 2010
2. SWIG Comments on all BMPs – October 15, 2010

cc: Mark Leary, Deputy Director, CalRecycle
Ted Rauh, Deputy Director, CalRecycle
Scott Walker, Chief, Engineering Support Branch, CalRecycle
Michael Wochnick, Supervisor, Closure and Facility Engineering Unit, CalRecycle

