

Solid Waste Industry Group

Allied Waste Industries

Norcal Waste Systems

Republic Services

Waste Management

November 2, 2007 Comments on Draft Report:

*“Study to Identify Potential Long-Term Threats
And Financial Assurance Mechanisms for Long-
Term Postclosure Maintenance and Corrective
Action at Solid Waste Landfills”*

ICF Report

October 10, 2007 Version

General comments:

Process objections: We recognize that the breakneck pace of this study, and the associated financial assurance rulemakings and workshops, has been dictated by AB 2296. It is nevertheless a fact that this has not been a deliberative process, and that the “advisory” process is little more than window dressing. It is not possible to provide meaningful substantive comment on highly substantive proceedings with one- or two-week turnarounds. Clearly, it also has not been possible for ICF to duly consider comments since so much of what the Solid Waste Industry Group (SWIG) have submitted has been ignored.

Nor would response by the CIWMB or ICF to hurriedly prepared comments in itself be sufficient. Many of our comments reflect the fact that it is not apparent what data underlie ICF’s assumptions. Only genuinely interactive dialogue, time consuming as it may be, would have allowed the contractor, CIWMB and the regulated community to understand the factual information available on any given point, consider any relevant expert testimony or professional literature, and come to a common understanding of terms. It is time for CIWMB to state for the record that proposals of this magnitude need careful thought, and they will take the time needed to be assured that any proposed legislative or regulatory changes are needed, cost-effective and founded in fact.

Implications of the report beyond MSW landfills: CIWMB action to assure due consideration and needed dialogue is particularly important because, as ICF notes (Draft

Report, 1-4; citations to the ICF draft report hereafter appear in parentheses without further attribution), the recommendations from this process have serious implications for federal and state programs for “hazardous wastes, brownfields, Superfund, and radioactive wastes (high and low level), among others” (e.g., industrial wastes, state Superfund and voluntary remedial cleanups, underground tank cleanups, and virtually all situations in which future land use must be restricted because wastes or hazardous materials remain in place). ICF appears to make a fundamental assumption that wastes or contaminants contained in the ground remain risks to health and the environment for hundreds of years. This assumption, if accepted, has repercussions for most property in commercial or industrial use in the State. Failure to act deliberately and to engage all of the affected stakeholders, as we have repeatedly requested, will result in impractical and unwise public policy. These are issues of profound financial and environmental import, and they must be treated as such where the State takes it upon itself to override two decades of deliberative evaluation and policy formation under RCRA, Superfund and other programs.

Factual foundation of the report: Much of ICF’s report is highly limited, subjective and judgmental. For example, as the contractor acknowledges at the outset (ES-2): “a qualitative evaluation (of a specific fund design) can only go so far, and that data are required for even a first order screening assessment of a fund design. This is a very troubling admission if the report is used to establish a foundation for a shift in the State’s PCM/CA financial assurance. A fundamental flaw in the study flows from its failure to perform the necessary first step: an analysis of the MSW landfills in California that have actually defaulted on their closure, post-closure or corrective action obligations. Projections of PCM costs are assumed without acknowledgement of the technical literature or consultation with the regulated community. Corrective action (CA) cost estimates have a specific and appropriate data set (78 California landfills and the Minnesota report on its Mixed Municipal Solid Waste Landfill program). CA probabilities, in contrast, have been assigned by “professional judgment” with no data cited or references to identify the credibility of the “judgment.” ICF merely provides assumptions (e.g., more rainfall must mean more CAs, larger landfill size must mean more CAs) – without any hard data to back up these assertions. (3-51-53). Advisory group comments on the risk factors selected by ICF have been largely ignored.

Without a gap analysis on where the current stringent regulatory program has failed (if, indeed, it has failed), the proposals for cure are merely theoretical and questionable as to necessity. As ICF notes in its discussion of a potential pooled fund, “the landfills that are the subject of the study all have responsible operators. For this cohort, as in much of the U.S. economy, defaults are relatively rare.” (3-2; see also 3-73: “Default rates are low in absolute terms.”) The solid waste business has steady demand with substantial capital requirements. “Survivor bias” means currently operating landfills can be expected to have better default performance than landfills closing before 1988.). Since “default data for solid waste disposal are not readily available” ICF based its approach on overall corporate defaults between 1981 and December 2002. How can a solution be legitimately derived where no documented problem exists, or where the problem is undefined? Without this information, ICF appears to be attempting to design a fix for something that is not broken.

Consideration of the “design” of these changes to financial assurance: The study should have begun with a clearly articulated goal instead of what appears to be a presumption that landfills are long-term risks. After defining the problem with a gap analysis, CIWMB should have considered the ultimate goals of any change to the financial assurance program.

- Is it to simply raise money for the handful of owners who may become bankrupt or default?
- Is it to understand the factors that make landfills safer over the long term, and to encourage best practices?
- Is it to incentivize owners to design and maintain landfills to minimize the potential for costs in the future?

All of these are important goals, but the first appears to have taken precedent over the others. Failure to consider design goals may be a function of the project’s haste, but no recommendation should go forward without evaluating whether it addresses the sites that default and whether it creates market and regulatory incentives for environmentally and financially sound waste management and performance.

Failure to accurately address risk: The ICF report assumes that sites with wastes or hazardous materials, no matter at what level or how contained, remain an active risk forever. The public and private sector solid waste service providers have tried repeatedly, and to no avail, to raise this issue, submitting hundreds of pages of documentation on the nature of potential landfill releases over time. Ignoring all of the data, the report assumes the cost of default is the same in year 240 as in year 30, and that simply is not the case.

CIWMB’s financial fears must be reconciled with the scientific and technical reality underpinnings of its – and EPA’s – regulatory standards. RCRA standards have been designed to minimize risk at sites operated and closed under its terms. Data collected pursuant to the mandates of RCRA must be considered in projecting time frames and magnitude of potential risk in the future. Geosyntec, *Technical Critique Report of “Day of Reckoning: Protecting California Taxpayers from the Looming Landfill Crisis”* (October 4, 2007; submitted to ICF and CIWMB by the Solid Waste Industry Group)(hereafter “*Geosyntec Technical Critique*”); Geosyntec, *Technical Memorandum: Body of Knowledge—Long-Term Trends of Primary Landfill Components: The Foundation to Evaluating Threat of an Individual Landfill* (July 17, 2007; submitted to ICF and CIWMB by Waste Management)(hereafter “*Geosyntec Body of Knowledge*”); Environmental Research and Education Foundation (EREF), *Municipal Solid Waste Landfill Leachate Characterization Study* (September 12, 2007)(submitted to CIWMB and ICF September 24, 2007)(hereafter *EREF Leachate Study*). ICF’s estimate of the total needed for PCM/CA in California is an order of magnitude larger than roughly comparable pooled funds described in Chapter 3. This fact goes un-remarked by ICF, but it reinforces the point here that these estimates are substantially inflated.

Drafting flaws: Too much of this report is extraneous to the charge given ICF and constitutes baseless subjective opinion (e.g., selected comments are termed “excellent,”

industry consolidation is considered bad). Often subjective opinions expressed in one chapter are contradicted in another (and sometimes within pages). These gratuitous opinions detract from the report and should be expunged.

Specific Comments:

Executive Summary

Summary charts: Exhibit 3-44 (Cumulative Total Defaulted Costs for the Median Cost Scenario) should be added to the Executive Summary for context. That exhibit (at 3-91) shows the cumulative total defaulted costs based on the median cost scenario. It shows the default total dollars over 240 years is below \$700M or less than \$3M per year. In our comments below, we highlight many reasons why the default cost estimation is very conservative and over-predicts costs. *However, even at this elevated estimate, it is important to note the annual default costs are very small.*

Acknowledgement of comments submitted (ES-3 and throughout the report): Exhibit ES-6 indicates the majority of defaulted PCM costs will be incurred in the first 30 years. The discussion suggests this is merely an artifact of the model design, but the Executive Summary should acknowledge the extensive data submitted by SWIG demonstrating that PCM costs diminish to negligible because risk is substantially eliminated by year 30. *Geosyntec Technical Critique; Geosyntec Body of Knowledge; Interstate Technology & Regulatory Council, Evaluating, Optimizing, or Ending Post-Closure Care at Municipal Solid Waste Landfills Based on Site-Specific Data Evaluations* (September 2006) (“The team recommends using a 30-year PCC period as a basis for initial FA planning,” p. 51)(hereafter “*ITRC Guidance*”); *EREF Leachate Study*.

Chapter 1: Introduction

30-year PCC (1-4): The statement that the 30-year PCC is “somewhat arbitrary” (1-4) is incorrect and does a disservice to the federal RCRA program. *ITRC Guidance*, p. 51; Morgan Lewis & Bockius, *The ‘Day of Reckoning’ Report Mischaracterizes Environmental Regulatory Development and Implementation* (October 4, 2007; submitted to ICF and CIWMB by Waste Management), p. 7-8 (hereafter “*Morgan Lewis Report*”). Moreover, the expert technical report submitted by SWIG conclusively demonstrates that, as an average, the 30-year PCC period is reasonable, and there is no reason to assume that expensive, very long term care will be required. *Geosyntec Technical Critique; Geosyntec Body of Knowledge; EREF Leachate Study*. Indeed, ICF’s alternative – the 240 year PCM duration based upon the limitations of the consultants’ software – gives the term “arbitrary” a whole new meaning.

Reference to consolidation (1-5): The statement that consolidation by commercial waste management firms increases their aggregate future obligations and the consequences of default (1-5) is not only inaccurate -- *it defies logic*. Future obligations

are incurred for individual sites. For each site no longer held by a small privately held company because it was sold to a larger firm, that responsibility has been assumed by larger publicly held companies. ICF's own data at 2-26 indicate "firms in higher net worth categories are much less likely to fail than smaller firms."

In particular, financially sound, investment grade corporations are far less likely to default less because these companies are highly regulated, fully disclosed and their liabilities monitored and reserved pursuant to increasingly precise securities obligations, as well as scrutinized by expert credit rating institutions. Environmental Finance Advisory Board, *Letter to Stephen L. Johnson, Administrator re: EFAB initial findings concerning use of the financial test and corporate guarantees to meet financial assurance requirements under RCRA programs* (January 11, 2006)(submitted to CIWMB and ICF July 11, 2007)(hereafter "*EFAB Letter on Financial Test*").

Reference to "sustainability" (1-5): The subjective opinion that the public and private sector solid waste managers "have not embraced financial responsibility as a tenet of sustainable development" (1-5) is both wrong and offensive. The solid waste industry, public and private, have been on public record dozens of times supporting financial assurance requirements. Indeed, financial assurance is a foundation of the industry: It is vital that all participants be fiscally responsible and demonstrated to be capable of fulfilling all closure/post-closure and corrective action obligations. It is in the waste industry strongly supports robust financial mechanisms to assure the closure/postclosure and corrective action obligations of a landfill because it is simply not in the industry best interest to put human health or the environment at risk. The evolution of industry support for enforceable land use restrictions, its embrace of beneficial land use (for example, all of SWIG's members are strongly committed to certified wildlife habitat and proliferation of beneficial conservation and recreational projects at our open and closed sites), its work with the insurance industry to evaluate long-term insurance products – all evidence commitment to sustainability. That the industry demands that the details of financial assurance make economic and environmental sense and be based upon facts rather than unsupported speculation is to its credit. By way of analogy: Buying a piece of property to create a wildlife habitat is sustainable, but no one thinks the buyer "fails to embrace sustainability" because he negotiates the purchase price and cares whether the price reflects accurate market value.

Definition of "corrective action" (1-5): As we have stated throughout this process, CIWMB's failure to employ the regulatory definition of "corrective action" under RCRA is confusing and unauthorized (see 1-5). By redefining the term to go beyond its definition under the federal RCRA program (prescribed response to release into groundwater), the report and resulting regulatory proposal overturns existing fundamental regulatory terminology and processes, and constitutes an indirect attempt to turn current operational expenses into "corrective action" for which financial assurance is required. This is the same as requiring a manufacturing plant not only to build to applicable standards, but to provide "assurance" to the state for the costs of construction. This is particularly unnecessary because there has been no record of default for these activities. We are unaware of a single instance in which a RCRA Subtitle D facility ceased activity in the midst of construction of a RCRA unit, and the state turned to the taxpayer for

money to take over facility construction. The few incidents of “default” cited by CIWMB involve corrective action as the traditional RCRA definition circumscribes it, not this new definition.

Failure to follow the regulatory definition of CA is then compounded by the obligation to quantify “reasonably foreseeable” CA. Pursuant to professional technical standards (as well as generally recognized accounting), CA cannot be reasonably foreseeable in most situations until a release is detected and confirmed. This study assumes, without factual basis, that the RCRA standards are by definition failures and CA is predictable. This is not what the record reflects. *See Morgan Lewis Report*; EPA, Office of Solid Waste, *Analysis of 40 Potential TSDs* (January 19, 2007).

The only exception is that the California State Water Resources Control Board (SWRCB) has previously identified what is meant by “reasonably foreseeable” releases in their technical guidance (see: Land Disposal Technical Note #8:

<http://www.waterboards.ca.gov/cwphome/land/docs/ch15tn8.pdf>

However, this guidance is limited only to releases that could affect water quality. The correct interpretation of “reasonably foreseeable release” by the SWRCB is that the financial assurance coverage must be adequate to address the largest release that a given waste management unit could have ***prior to the release being reliably detected***. No similar guidance is provided for any other form of “reasonably foreseeable” corrective action. Until there is such specific guidance in statute or regulation, the CIWMB should restrict their interpretation to only that “reasonably foreseeable” corrective action that has been specifically identified by the SWRCB.

Chapter 2: Evaluation of Existing Financial Assurance Mechanisms for Solid Waste Landfills

Context for reviewing financial assurance mechanisms: As ICF notes in the beginning of this report (1-4), finding long-term instruments is increasingly difficult at current FA levels in today’s financial environment. Given this, any expansions to financial assurance obligations or restrictions on the mechanisms available must be justified and based on genuine need. Unsubstantiated or unreasonable increases in FA amount, or limits on available instruments, will only serve to exacerbate the situation.

ICF’s declaration of limitations (2-1): ICF caveats its analysis of existing financial assurance mechanisms by acknowledging a comprehensive evaluation would address “dollar amounts of coverage and/or the details of cost estimating rules.” Since this evaluation forms the basis for the financial assurance amounts that are the foundation of the fund projections and underlie the discussion of other instruments and conservative factors that will expand financial assurance obligations, the analysis ICF notes cannot be “beyond the scope of the contract” and out of CIWMB’s consideration. SWIG respectfully suggests that ICF’s concern over its contracted scope of work should be a matter of immediate discussion with the CIWMB. Rather than have ICF acknowledge that they must cut back on gathering the hard data, they should be allowed to proceed with due diligence to collect and analyze industry specific data. This evaluation would

gain credibility and specificity if it included substantive input from the public and private sector waste facility owners and operators.

Cost/ burden criterion for evaluation (2-2): By combining administrative burden and cost into one category, ICF obviates meaningful evaluation of either. If an employee's compensation for the day spent performing an annual filing of a financial form (financial means test or corporate guarantee) is considered more of a burden than posting of hundreds of thousands of dollars on a letter of credit, there is no meaning to the column on "burden/cost." This is obvious when the burden/cost of letters of credit (1% to 3% value assured), surety bonds (1% to 5% value assured) and the pledge of revenue ("As no money must be put aside, there is no opportunity cost") are considered equal (low). Similarly, the pledge of revenue (no cost) is low, but the cost/burden of the financial test is considered medium using almost the same language: "Because no funds need to be set aside, there are no corresponding opportunity costs." (2-2, 2-23, 2-28)

Assumption of repeated CAs 2-2): It is important to recognize that the model used here, because it has no basis in data characterizing exposure and risk, is an artifice constructed only of assumptions. It's a truism that "a longer time period might make more CAs appear reasonably foreseeable, thus also possibly adding to the dollar amounts the mechanisms must be capable of assuring." (2-2) There is an utter absence of data showing that CA is repetitive over a long duration. Instead, the October 2007 technical critique report submitted by SWIG demonstrates that risks are predictable, they diminish over time, and potential releases into the environment grow progressively smaller in likelihood and impact (volume and toxicity of leachate, volume of gas). *Geosyntec Technical Critique; Geosyntec Body of Knowledge; EREF Leachate Study*. Instead of assuming that duration equals likelihood of CA, ICF should look to the data, which demonstrates that corrective action is linked to poor management practices and inadequate preventative maintenance. Both of these activities should be both enforced by the California permitting program (operational and post-closure care), and incentivized by the way any revised financial assurance program is structured.

"Risk" characterizations (2-3): ICF's comparative evaluation of the risks of various financial assurance mechanisms is highly subjective and sometimes internally contradictory. For example, the report cites an EPA analysis that trust funds "invested in very low risk (and low return) investments (e.g., Treasury bills) is the one type of FA mechanism that entails virtually no assurance risk." (2-26) If risk is defined only as access to XX dollars, that would be true. But if the risk is that the dollars possessed will be sufficient to pay for a task in the future, then reliance on a low risk low return investment that trails inflation in fact has a higher risk of failure. CIWMB must recognize that to the extent it would mandate relegation of "financial assurance" funds to non-productive uses (uses that are not generating the returns otherwise available from productive investment), it is adversely impacting the state economy. That too is a drain on taxpayers.

Evaluation of trust funds (2-5): As is true with other financial assurance mechanisms allowed by EPA Subtitle D Regulations, trust funds provide excellent assurance that capital will be available for use in post-closure maintenance. The trust fund regulations require the operator to provide money to the fund on an annual basis. This mechanism

assures the state that there will be money available with a high degree of liquidity. Even if an operator were unable to meet its obligations, the trust fund would still be available for post-closure maintenance. As is true with other EPA Subtitle D financial mechanisms, a trust fund lowers the risk of landfill post-closure expenses having to be born by the state or with taxpayer dollars.

Administrative fees for trust funds vary by bank, but trustee fees can be very high. While some base the fee on a determined amount, others charge a certain percentage based on the market value of the trust at the end of a certain time period – monthly, quarterly or annually. ICF notes that trust funds are well suited to provide long term assurance because they are irrevocable and do not require periodic renewal. Surety bonds are continuous, and letters of credit are irrevocable, and thus equally suited to provide coverage. They also lack the downside of a trust, which is that it ties up substantial amounts of cash better used in the business operations of the owner/operator. This feature would be particularly wasteful and constitute a drag on the economy if, as ICF suggests, trust moneys for parties who do not default on PCM/CA obligations are held indefinitely for “the assurance it provides.” (2-6) The existence of a large trust held 240 years in fear of “default” does nothing to provide jobs, improve services, or advance environmental technology.

Use of letter of credit (2-16): The rates and credit terms for letters of credit reflect the relationship between the financial institution and the facility owner/operator. The terms are business confidential and have no bearing on who can use a letter of credit.

Definition of surety bond (2-18): ICF’s statement that payment bonds assure that if the principal fails to make obligated payments, the surety will make those payments is true for contract obligations, but is *not true* for the type of payment bond used for closure/post-closure obligations. These obligations are assured by a financial guarantee bond. It does not make payment to subcontractors and suppliers. The surety would place funds into the depository trust fund if the owner/operator failed to perform its obligation. Under a performance bond, the surety has the option to either perform the obligation or place funds into the trust fund. This is correctly identified under Section 2.2.5.2 “How does the surety bond work.”

Not every operator can obtain a surety bond from a “qualified financial institution.” Financial institutions issue letters of credit; a surety bond is obtained from a surety company, which is an insurance company specializing in writing surety. In order for a company to write a surety bond in the U.S., it must be licensed by the insurance department of one of more states in which the surety conducts business.

With regard to writing larger amounts than those provided in Circular 570, the underwriting limitation for each surety reported in Circular 570 (often referred to as the Treasury listing) is a single bond limit. Reinsurance or co-sureties are used to write larger amounts.

Financial Test (2-27): ICF correctly acknowledges that “virtually no evidence has been found that indicates poor performance” of the financial test. The report also should cite the deliberations of EPA’s Environmental Finance Advisory Board. *EFAB Letter on the Financial Test*. In light of these repeated confirmations of the reliability on the financial

test, we urge California to eliminate its restrictions on its use and afford all companies satisfying the test's standards the opportunity to use it. Particularly if CIWMB continues to authorize use of the Pledge of Revenue, the test ranked lowest of acceptable mechanisms in the ICF report, there can be no justification for restrictions imposed on more reliable mechanisms applicable to the private sector.

In addition, the characterization of certainty for the financial test should distinguish – as did EFAB – between companies using the test who have investment grade credit and those who do not. Those with investment grade credit should be characterized as offering high certainty funds will be available.

Insurance (2-32): Insurers are not the only financial assurance providers who expect timely notification of potential claims. Surety companies have the same expectation so that they can be prepared to respond to the CIWMB when the claim notice is received and can be active in resolving the claim. ICF also misstates policy on deductibles for PCM and/or CA. Insurance policies for these claims have no deductible; policies provide first dollar coverage.

Captive Insurance (2-34): ICF's characterization of the nature and reliability of captive insurance is simply erroneous. As SWIG and individual companies have already demonstrated in comments submitted in this proceeding (*see Morgan Lewis Report*) and as confirmed by EPA's Environmental Finance Advisory Board (*see EFAB, The Use of Captive Insurance as a Financial Assurance Tool in Office of Solid Waste and Emergency Response Programs* (March 2007)(submitted to CIWMB and ICF on July 11, 2007)(hereafter cited as "*EFAB Report on Captive Insurance*"), captive insurance is as strictly regulated as commercial, is monitored more closely than commercial insurance, and assures payment of claims. The fact that this report repeats allegations without evidence and fails to even acknowledge detailed information submitted on this topic in this proceeding demonstrates the degree to which there has been no advice accepted by this "advisory" board.

ICF's assertion that captive insurers tend to be domiciled in "states (e.g., Vermont)" that have the least restrictive regulations and "low taxes" (2-34) is simply wrong. Vermont is the largest captive domicile in the U.S. and the fourth largest in the world – chiefly because of the stringency of its regulatory control and administration. Vermont has a level of sophistication and maturity that can only come with over 20 years of experience. Captives are held to a high set of licensing requirements by the State of Vermont, and once licensed, the State monitors the on-going operations and financial stability of captives. Captive insurers are required annually to provide comprehensive information to the Vermont Insurance Department on both the captive itself and the parent company. Loans must be approved by the state. In terms of meeting their financial obligations, Vermont regulated captives have a far better track record than commercial insurance companies regulated by other states – including California. State regulated commercial insurance companies are replete with examples of insurance companies that have failed to meet their financial obligations. This is simply not the case with Vermont regulated captives. EPA's Environmental Finance Advisory Board, in a document submitted to ICF but apparently not read, cites Vermont as the standard for reliable regulation of captives. *See EFAB Report on Captive Insurance; Morgan Lewis Report.*

With regard to the issue of assignability (2-35), which ICF asserts is an impediment to use of captive insurance as an FA mechanism, the report is once again wrong. Pure captives do provide insurance policies to demonstrate financial assurance, and the language allows for the assignment of the policy with the express consent of the state of domicile. Moreover, assignability is a moot point insofar as a landfill seller must maintain financial assurance until a buyer provides its own financial assurance accepted by the permitting authority. This fulfills the regulatory goal of ensuring no lapse in coverage.

Mechanisms not recommended (2-44): ICF's subsequent chapter on new insurance instruments should be viewed in light of its accurate observation in this section that the availability of cost cap, stop loss and cost containment policies has declined due to recent negative claims history (2-45). Insurers are prudent finance managers; when asked to issue policies with unrealistic conditions, they will simply decline to participate in the market.

Assumption of steady-state PCM expenditures (2-51): Here, and throughout ICF's text and in its models, the assumption is made that "most years of PCM will require generally similar amounts of expenditures (in current dollars)." That is not the extensively documented experience of the solid waste industry. The technical literature already submitted by SWIG and individual companies in this docket demonstrates that the primary components of a landfill will require less maintenance and costs will decline after the initial 5 years, to be negligible at year 30 or earlier. See *Geosyntec Body of Knowledge; Geosyntec Technical Critique; EREF Leachate Study*.. SWIG members' practical experience with closed landfills confirms the conclusions found in the literature.

Chapter 3: Analysis of State Fund

Concept of a stewardship fund: Current California regulation requires that PCM continue for as long as the landfill poses a threat. CIWMB has yet to adopt a systematic approach to determining if a landfill poses a threat such that PCM can be discontinued with confidence. The work performed by ICF will not serve as a substitute; it is designed to provide a general risk-screening tool with broad assumptions such as landfill size, operations, climate, engineering controls, etc. These inexact screening factors are further subjected to an arbitrary weighting and scoring system in an effort to prioritize sites on a worst-case basis. The solid waste industry has worked together through EREF and the Interstate Technology & Regulatory Council (ITRC) to develop a methodology that provides a technical approach to meet that standard., Please see ITRC *Technical/Regulatory Guideline: Evaluating, Optimizing, or Ending Post-Closure Care at Municipal Solid Waste Landfills Based on Site-Specific Data Evaluations* (September 2006)(hereafter *ITRC Guidance*). Yet these performance-based criteria, prepared by ITRC representing more than 43 member states, has not been considered.

Additionally, post-closure care stewardship funds have been implemented for purposes similar to CIWMB's interest in a default program for PCM and CA. The Minnesota Closed Landfill Program provides long-term care for mostly unlined pre-Subtitle D landfills and prioritizes sites based upon site-specific risk factors. In the 13 years this

program has been in effect, only one landfill in a program of 112 (<1%) has been determined to be an immediate threat to human health and the environment. Of the remaining sites, 24% have needed cover system improvements and response actions have been needed at 20%. Since the Minnesota sites are primarily unlined pre-Subtitle D landfills, this experience has direct relevance to California with regard to the nature and cost of PCM and CA anticipated for the California inventory of sites. See Mark Olson, *Minnesota Closed Landfill Program: Organization and Implementation* (September 17, 2007)(submitted to CIWMB and ICF September 24, 2007)(hereafter *Olson Report*).

SWIG understands regulators' desires for new models of long-term stewardship. For this reason, some of SWIG's members have been actively engaged in the RCRA Corrective Action Project that has been discussing means to assure long-term protection of health and the environment at RCRA and remedial sites. RCRA Corrective Action Project, *Report of the Long-Term Stewardship Summit* (November 6-7 2006). CIWMB has asked ICF to outline approaches to a fund for long-term PCM and CA. As a general matter, a pooled fund, if properly designed and calculated to cost no more than the defined needed benefit, has potential and is something that SWIG may be able to support. This approach is certainly preferable to imposition of large new financial assurance obligations on each permittee based on fear and supposition rather than fact. It is important that this fund cover the precise concern the state has expressed, however. The concern is not that solvent, responsible facility owners will capriciously fail to continue to provide care so long as a threat to human health and the environment is posed by the site. It is simply that a company will default on its obligations. The fund therefore needs to predict, to the extent it can, how many defaults are likely, from whom, and the average cost given what we know about the nature of potential threat over time. For this reason, the materials submitted by SWIG and Waste Management characterizing landfill leachate and gas over time are singularly relevant, and must be reflected in the ICF report. *Geosyntec Technical Critique; Geosyntec Body of Knowledge; EREF Leachate Study; ITRC Guidance.*

Estimate of amount needed to protect against defaults: ICF projects with 91% probability that 7.8 cents per ton disposed will be sufficient to meet the demand of defaulted PCM and CA liability over a 240 year period. On its face, that seems an amount small enough to be raised without market distortion and is something that SWIG can support. If the new fund were to be open to all landfills (both public and private) then the fee to support the fund must be similarly imposed on all landfills.

Fund in relation to other FA mechanisms: ICF references but provides no analysis of whether the proposed fund is layered on top of current FA mechanisms (which remain so long as the operator cannot demonstrate a threat no longer exists), or if it substitutes for current FA options at the end of the bench-line 30-year PCC period. Moreover, the discussion of insurance for costs not otherwise assured does not preclude the possibility this could be considered as a triple assurance, or an option in lieu of the state fund and substituting for beyond 30-year PCC financial assurance. The potential for overlap and economic waste among these three options is enormous and should be analyzed. The potential for unproductive diversion of assets to unused "beyond financial assurance" funds and policies is particularly important because, as ICF notes at 3-2, "the landfills

that are the subject of this study all have responsible operators” and defaults “for this cohort, as in much of the U.S. economy,” are relatively rare.

If a “safeguard” fund is implemented, it should not replace other financial assurance requirements. The “safeguard” fund should be used only in those relatively rare instances when a landfill owner and operator is unable to appropriately meet its PCM or CA obligations. If the “safeguard fund” is used, then all appropriate cost recovery actions should be taken against the owner or operator to seek cost recovery for fund expenditures required to cover their defaulted obligations. The “safeguard fund” must be administered in such a way that it does not provide unfair relief to owners or operators that fail to meet their obligations.

Default only vs. pay-all-costs funds (3-2): CIWMB must think carefully about the long-term impacts of the choice of default only vs. pay-all-costs funds. Default funds have the virtue of much lower cost, and they can also be managed to reinforce the kinds of preventative maintenance that deter future costs. If, as ICF estimates, the cost of the default only fund would be a 7.8 cent surcharge on each ton of waste handled by California municipal waste landfills, that amount is low enough to cause little disruption in the market so long as it is imposed universally across facilities and its collection entails minimal transaction costs. The default-only fund addresses the State’s expressed concern directly and does no more than that – and therefore minimizes the potential for unintended adverse consequences.

The context of the fund in California’s regulatory structure is important, however. Remember that, when it comes down to it, the fund pays for – and thus in a sense “rewards” – the facility owner who defaults, not the one with proper management practices. The existence of a “safeguard” fund must not be allowed to encourage laxity in enforcement of current obligations. Any state fund must be accompanied by a rigorous inspection and permit enforcement program, and should encourage preventative maintenance. The mere existence of a state fund could deter a facility owner from otherwise prudent preventative maintenance and long term care (particularly if it were the larger pay-all-costs fund). The fund might also lessen regulators’ emphasis on enforcing current financial assurance obligations. The goal of the fund therefore should not only be protection against future default, but also reward for prudent facility owners who manage their sites in a way that precludes future reliance on the fund. If the State decides to pursue a state fund, we urge ICF and CIWMB to consider a reward (perhaps in the form of refund of some portion of fees paid) to sites that do not rely upon the fund for a specified period (perhaps graduated with a rebate at year 40 after closure, another at year 50, etc.). At a minimum, cost recovery actions should be taken against owners and operators of sites for which fund expenditure is required. This would be a clear signal that recalcitrant owners and operators would not be allowed to reap any benefit by having fund expenditures take place at their landfills.

History of use of default vs. pay-all-costs funds (3-2): Although ICF is correct that most UST state funds are pay-all-costs, they also involve homogeneous materials and sites of significantly smaller size and extent of mitigation. Default-only funds have historically been used for orphaned sites with heterogeneous material and more complex design.

Closure costs (3-2): Active sites in compliance with their operating permits must have financial assurance sufficient to assure proper closure. These costs are not remote, are not contingent upon unusual and catastrophic events, and are readily amenable to estimation based upon specific design and operating requirements. If a facility owner cannot pay for proper closure, that event reflects profound failure by the state to enforce over time its environmental and financial assurance requirements and mandatory permit obligations. This failure should not be anticipated and even rewarded by including closure costs in a state fund for long term care and corrective action. The safeguard fund should be established only for PCM and CA – not for closure costs.

Liability compensation (3-3): It would be unprecedented, and undoubtedly unauthorized under current law, to use this new fund to preempt common law claims for harm to persons or property independent of the current, very limited structure. It is one thing to create a fund to provide long-term risk protection from default on a site operating and closing under the RCRA regulatory program. It's quite another to create a new long-tail victim's compensation fund. Not even the federal Superfund covers tort claims. Moreover, a new fund would undoubtedly attract frivolous claims, diverting resources from its primary purpose. The liability provisions of RCRA were created to deal with potential liabilities incurred for injuries suffered by third parties in the course of operations. See 45 Fed. Reg. 33260, 33262 (May 19, 1980). When the landfill is capped and closed, those opportunities for personal harm cease.

Fund's function (3-4): ICF assumes that the fund is intended to pay for CA default because the "primary source of revenue, tip fees, will have ceased." There are several sites in California where a co-disposal landfill (MSW and industrial wastes) has been unable to pay for remediation, and site users have paid for cleanup. If the new fund will be used in lieu of invoking Superfund liability (and that makes sense if the fund comes from a fee that will be passed on to the waste generators), that should be stated clearly. Because Superfund is litigious and costly, there may be support from the commercial and industrial communities for the new fund's ability to handle sites otherwise relegated to Superfund. They may feel that this feature, although paid by the waste generator, is low enough to represent value in avoiding Superfund joint and several liability at a site defaulting in the future. Their reaction would be entirely different, however, if a possibility remained that there would be a surcharge on waste generated and the State retained an option to pursue the generators and transporters at a defaulting site rather than make use of the fund for response action.

Timing of imposing surcharge: Waste services are often handled by contracts for a term of years with a fixed price. To assure that any new default fund has revenue sufficient to cover costs, it will be important to assure that all applicable landfills will be collecting the surcharge. The simplest way to assure this would be to impose the surcharge as a waste fee collected by the landfill for transmittal to the state. The surcharge should be applicable on date of enactment (i.e., should be effective on date of enactment as an addition to current fees, including those already established by contract, in order to assure the amounts envisioned by this proposal will in fact be realized).

The concept of combination funds (3-5): The concept of "contingent cost" is not particularly useful in evaluating combination funds. The "contingency" the fund is

projected to cover is not whether closure or PCM will occur. Of course they will. The “contingency” is whether a facility owner will default and funds therefore must be supplied from a third-party source. Properly understood, both PCM and CA are “contingent.” The only questions – and ones for which data are lacking – are (1) of the inevitable closure/PCM costs, how many owner/operators will default, and (2) of all landfills, how many will need CA and of those, how owner/operators will default?

The application of “lumpiness” to combination funds does not seem useful since the feature is neither inherently positive nor negative (the fund builds over time to pay for defaults largely anticipated in the distant future). A more helpful discussion would explain why it makes sense to combine PCM and CA costs within a single fund.

Combination PCM/CA fund (3-6): ICF notes that the kind of maintenance characteristic of proper PCM reduces the likelihood of CA (and note that this is true during both the operating and PCC periods). Given this logic, the failure to include inspection obligations and preventative maintenance in Chapter 5 is perplexing. SWIG strongly recommends that these activities be included in any risk characterization of a site.

Combination PCM/CA/Liability fund (3-6): As noted above, the mere existence of a pot of money for liability compensation is likely to trigger claims, many wholly frivolous nuisance suits stimulated by the availability of a new fund. SWIG recommends CIWMB reject the concept of creating this large, new fund to amend both regulatory obligations and tort law.

Comparison of fund scope (3-7): This section is largely subjective and would benefit greatly from the kind of analysis that should have preceded this report: an analysis of which landfills have defaulted from their obligations, when they defaulted and, once defaulted, how they ended up in receivership of the state. If there are no facilities operating under RCRA permits that default on closure, or CA during operation, then it makes little sense to create a “default” fund for a null set. If taxpayers have never been asked to compensate private parties for tort claims caused by permitted RCRA landfills, then there is no basis to create a fund for this purpose. As ICF acknowledges, the fees for this new fund will be passed on to consumers (i.e., waste generators). Consumers should not be paying the transaction costs for elements of a fund that will never be used.

Distinctions based on site ownership (3-8): SWIG strongly opposes a fund that distorts the market for waste services in a way that reflects anything independent of environmental excellence and operational efficiency. This would be particularly egregious if one group (public vs. private, large vs. medium/small) were to be assessed for a fund that could be used to absolve its competitors from long-term liabilities.

The discussion of a fund for private entities (3-9) does a disservice to both the private sector providers of waste services and regulators who work for the State of California. It is preposterous to suggest that the RCRA regulatory system – and those who provide its essential infrastructure – will abandon closed landfills. To the contrary, the solid waste industry has a history of beneficial reuse of its closed sites, as well as a history of effective and protective management of closed facilities.

Mandatory vs. voluntary funds (3-10): Plain English is needed here. A “mandatory” fund is a tax. A voluntary fund will be chosen if it is cost-effective and efficient. A voluntary fund will minimize transaction costs, and gives the landfill owner with superior performance the opportunity to avoid paying a fee to a fund the landfill will never access. What is the basis for ICF’s failure to evaluate a voluntary fund (see 3-13)? This omission seems particularly odd since a number of the pooled funds described in this chapter are voluntary.

Cost recovery funding (3-11): “Beneficiary” funding (funding from a beneficiary who will have a future default, but somehow manages to get more money later to pay back the “loan”) is far less reliable than a surcharge on tipping fee. If a company could pay for PCM/FA, it probably would; this is unlikely to be a matter of temporary liquidity. A system of assessing fees to other facilities when one of their competitors defaults sends precisely the wrong price signal. The compliant, fiscally prudent facility operator is charged for the incompetence and imprudence of his competitor. A surcharge on tipping fee has the virtue of being spread across all waste generators and, as ICF notes, can encourage beneficial activities like recycling and waste reduction. It makes no sense, however, to divert these funds into money to pay for running solid waste recycling and household hazardous waste programs. That diversion of funds to activities not germane to the purpose of the PCM/CA default proposal is precisely what’s criticized elsewhere in the ICF report (see, on the very next page, “even more sobering is raiding of available balances in some state funds in order to make up for budgetary shortfalls affecting other programs” (3-12); see also 1-4).

Evaluation of conceptual fund design (3-13): ICF’s comparison of fund designs is utterly circular: funds that cover more activities provide “more coverage.” Isn’t the pertinent question, “what sites have experienced default in the past, and on what basis did they default”?

Fund equity (3-15): ICF’s observation about the need to assure “high risk” sites pay their fair share compared with “low risk” landfills penetrates the core problem with “pay-all-costs” funds – the sheer scope of cost is too large. This problem diminishes with a default only fund.

Default-only risk characterization (3-15): ICF is incorrect in asserting that relative risk of default cannot be characterized for some operators. EPA’s Environmental Finance Advisory Board was confronted with that issue with regard to reliance on the financial test and determined that investment grade rating by the standard credit agencies (S&Ps, Moody’s) reliably forecast risk of default. Although ratings are more common for large publicly held companies, smaller and privately held companies can pay for a “shadow” rating that reflects financial stability. *See EFAB Report on the Financial Test; EFAB Report on Captive Insurance.*

Estimate of efficiency (3-15): ICF’s estimate of the “lumpiness” of PCM vs. CA is an artifact of its array of the data. ICF straight-lined 120% of the annual PCM cost at 282 landfills for the term studies (see 3-49). This is artificial and inaccurate. SWIG members’ experience, confirming the technical data previously submitted in this docket,

is that PCM costs drop significantly after the first 5 years and then decrease thereafter at a lower rate to the point where they become immaterial.

Comparison of fund designs (3-17): An additional model option of the current FA (current mechanisms applicable until the state confirms the mechanism is unnecessary because of absence of risk) should be added for context to properly understand the cost and potential benefit of these new proposals.

Assumptions in the working model (3-37): The “working model” has a veneer of detail and sophistication belied by the absence of data informing many of its many assumptions. The model has specific probability estimates, but no explanation of their basis (Why would urban landfills have more low-cost corrective actions -- because California doesn’t inspect or require routine monitoring of non-urban landfills?). The subsequent description of information used gives no clue as to how probabilities were assigned. Was there a database identifying landfills according to the categories here that determined the figures presented (the summary of data at 3-46 and 47 does not include CA, and indicates missing data were randomly assigned for 20% of the sites)? Why is it not cited in the text? If, as it appears, there is no such database, direct interaction with those who actually own the facilities evaluated would greatly improve the quality and usefulness of assumptions made.

Basic data for the working model (3-38): Further explanation is needed on the base data set: Why select landfills permitted and active after January 1988? Why do 20% of the 282 landfills (56) have missing data that is statistically developed, and is there any reason to believe this sector differs from the others?

Probability estimates (3-39): Were the results of this and following exhibits compared to actual landfill occurrences? It would be helpful to understand the comparison to existing facilities.

Additional parameters that could be included (3-45): A voluntary fund should be modeled.

Simulation of PCM (3-49): As noted above, ICF’s simulation of annual costs is flawed. SWIG’s experience, confirmed by the technical literature, is that PCM costs drop significantly after the first 5 years and decrease thereafter at a lower rate to the point where they become immaterial.

20% cost inflator (3-49): A 20% contingency typically reflects a high degree of uncertainty; this is not true for PCM of landfills. A contingency factor may be appropriate, but it should be considerably smaller, commensurate with the small risk typical with this type of spending. Absent data demonstrating that current estimating practices substantially understate actual expenditures -- despite CIWMB’s inflationary assumptions like third-party work at prevailing wages, a contingency of this level is inappropriate. Moreover, the contingency should apply to capital only, not labor, which has far less fluctuation. Further, the language of AB 2296 indicates that contingencies for PCM should be consistent with that of other public works projects in the state. Although contingencies for public works projects can vary widely depending on the circumstances,

most public works project in California typically have a 10% contingency as a matter of policy.

Assumptions regarding landfill characteristics (3-53): The paucity of data underlying assumptions relating landfill characteristics to number of corrective actions is obvious from the lack of supporting data cited. The opinions asserted are just that – opinions. The report speculates that larger landfills may be more complex, “which means more can go wrong.” This is wholly illogical. Large landfills are subject to the most stringent regulatory and engineering standards throughout RCRA and other environmental programs. It is the small facilities that receive exemptions and special treatment (e.g., the exemption from groundwater monitoring for small rural landfills, the volume cutoffs under the Clean Air Act). In fact, large landfills may be operated as regional facilities by owners with extensive experience and highly trained technical staff. Larger waste inputs may make more precise and protective environmental management systems affordable, and revenues – particularly for the owner of multiple large facilities – may afford a large and stable financial base making default highly unlikely. Larger landfills may be subject to more frequent and detailed regulatory scrutiny. Absent actual data rather than surmise tying size to number of corrective actions, these speculations are no basis for cost estimation.

These assumptions also should be more closely delineated. For example, risk characterization should include not just whether a landfill is lined and capped, but the percent capped. The assumption that more liquids equal more CA’s is rebutted by the literature on leachate circulation and the beneficial impacts on shortening the post-closure care period. See ITRC Guidance; see also 5-2.

240-year estimate (3-54): SWIG reiterates its objection to cost projections based on software limitations, particularly where the projections are lengthy and ignore hard scientific data and technical literature on the decline in PCM/CA over time at MSW landfills.

CA cost estimates (3-60, 3-70): As noted previously, ICF and CIWMB is radically expanding the definition of “corrective action” beyond the RCRA term of art involving response to a release into groundwater. Not only is this confusing, but it also leads to double counting of costs. For example, ICF estimates installation of a gas collection system as a “corrective action,” but it may well be that the system is required under the Clean Air Act, reflects routine PCM and is already counted under that cost estimate in California’s data base. Since corrective action FA must continue through the post-closure care period, expansion of the definition may cause duplication with respect to costs included in post-closure maintenance.

Further, as stated above, “reasonably foreseeable” corrective action should be limited to the guidance offered by the SWRCB regarding reasonably foreseeable releases. That is, the largest release of a contaminant from a landfill that could occur prior to detection and response.

The data base cited for CA estimates is appropriate, however. CA costs for 78 California landfills and the estimates published in the MMSW Landfill Liability Report provide the critical factual underpinning for this section of the report.

Default rate assumptions (3-72): The estimate of default for parties with multiple landfills appropriately reflects the benefit of diversification of risk. A portfolio of open landfills provides cash flow and “smoothing” of expenditures making a company far less vulnerable to higher than planned PCM or CA costs. As noted in Chapter 2 and reiterated here, “firms in higher net worth categories are much less likely to fail than smaller firms” and “larger firms with a stronger balance sheet (lower debt to equity) and cash flow (relative to total liabilities) are better able to survive even adverse economic conditions.” (2-26)

Chapter 4: Umbrella Policies of Insurance for Financial Assurance of Post-Closure Maintenance and/or Corrective Action

General comment: The concept proposed is umbrella coverage on top of existing FA mechanisms to step in where the FA instrument fails to pay (i.e., credit risk) or where the FA is inadequate and the covered entity cannot meet the increased cost (cost growth risk). As a threshold matter, the layering of coverage on existing FA obligations only makes sense after a gap analysis is conducted to demonstrate for which landfills current FA is inadequate and why.

To some extent, this may be a moot point because it is highly unlikely any insurer will agree to provide the policy proposed. The expectations are extraordinary: no SIR or deductible, claims-made coverage for 5 or 10 years, “all perils,” no upper limits, portfolio wide for landfills in California, no exclusions, no ability for the underwriter to exercise due diligence on claims but instead up-front funding of claim with reimbursement to the insurer if funds are in excess of claim requirements, front-loaded premiums with controls on price, and no ability to cancel for any reason other than premium payment (unlikely with front-end premium payments). Offerings with these terms (unlimited coverage for controlled price) are unprecedented in our experience.

We understand that members of the insurance industry have been contacted to determine interest in this umbrella policy, and, indeed, it appears based on the feedback provided that none of the likely insurers would agree to offer coverage consistent with the requirements of this proposal. Given this response, it appears that this proposal is infeasible. This is not a troubling result given the absence of data demonstrating a shortfall in current requirements. This is particularly true in light of the trust fund proposal also considered in the ICF study. *Although the details of that proposal need explanation and in many cases correction – as we assert throughout these comments – the fund approach appears more realistic than this insurance proposal.*

Chapter 5: Risk Screening Methodology

General Comment: ICF subcontracted CalRecovery Incorporated to lead the researching, analyzing, and documenting Task 6 of the Scope of Work. According to Section 5.2 of the ICF Draft Report, the basis of the development of the method “was that described in the Revised Work Plan/Methodology and an initial list of factors for solid

waste landfills provided by the Board staff early in the study.” SWIG and individual solid waste facility operators sent extensive comments on the initial and a second list of factors, but these comments largely do not appear to have been considered, nor are they incorporated into the draft ICF report.

The proposed risk factors are supposed to be used as a screening method to determine the overall potential threat of a landfill to human health and the environment with respect to post-closure care, corrective action, and financial assurance. We believe the factors and the proposed methodology can be improved in both usefulness and objectivity. We continue to stress that it would be appropriate to meet and discuss the best approach to finalizing a risk screening methodology that best serves the needs of this project.

Specific Risk Factor Comments:

Selection of factors: The factors that are used to screen a landfill’s potential overall threat to human health and the environment clearly need to be evaluated collectively and should have a quantitative basis. The list of factors that is being proposed to screen overall threat is still too vague and qualitative. Since the evaluation methodology is very simplified, the factors used to determine potential threat of a landfill should be as quantifiable as possible in order to meet the intent this effort. Specific improvements to the list of factors are provided below in response to Exhibit 5-2.

The Minnesota Closed Landfill Program (CLF) is a reasonable model of a successful risk screening methodology for a state stewardship program for unlined pre-Subtitle D landfills in need of PCM and potentially CA. The CLP criteria for prioritization include:

- Groundwater quality data and exceedances of standards and/or increasing/decreasing trends;
- Potential changes in groundwater flow regimes;
- Surface water quality data relative to the use and classification of adjacent surface waters;
- Landfill gas migration monitoring;
- Status of active gas collection systems (if applicable);
- Status of landfill cover (does it meet current regulatory requirements);
- Adjacent land-use changes and proximity to receptors (urban developments, newly installed water supply wells, changed use or classification of surface waters, etc.);
- Landfill mass.

The criteria used by the Minnesota CLF are quantitative and provide more defensible risk screening results than ICF’s more qualitative proposals. The Minnesota precedent as a stewardship fund warrants much more careful evaluation before CIWMB considers action.

Exhibit 5-2: Factors That Potentially Affect Landfill's Impact on Public Health and Safety and the Environment

The following changes are recommended to make the factors used to determine potential threat of a landfill as quantifiable as possible, and to be consistent with existing Subtitle D requirements (and therefore readily available data).

Seismic Characteristics

Scoring Criteria – This criterion should also be based on the location of a landfill to potential horizontal ground acceleration since the designed factor of safety (FOS) is a function of how susceptible a landfill is to seismic activity. Therefore, the following scoring criteria are proposed:

- Location within Seismic Impact Zone with high horizontal acceleration potential and:
 - no design (high)
 - FOS 1.3 to 1.5 (medium)
 - FOS > 1.5 (low)
- Location within Seismic Impact Zone with moderate horizontal acceleration potential and:
 - No design (high)
 - FOS 1.0 to 1.3 (medium)
 - FOS > 1.3 (low)
- Location within Seismic Impact Zone with low horizontal acceleration potential and:
 - No design (medium)
 - FOS > 1.0 (low)

Note: The potential impact “methane capture – greenhouse gases” is listed here and in other parts of the risk factors table, but it is unclear what is meant by this term. It is suggested that this term be clarified.

Rainfall Intensity

Scoring Criteria - Since Subtitle D requirements for storm water control is based on a “rainfall intensity” event equivalent to a 100-year storm event, the criterion for design should be based on this design specification. Additionally, the design factor should be based specifically on a site's drainage features. Therefore, the following scoring criteria are proposed:

- Drainages designed for:
 - No design (100 year/24 hour storm) (high)
 - Partial design (100 year/24 hour storm) (medium)
 - Designed for (100 year/24 hour storm) (low)

Flood Plain

Primary Resource/Potentially Impacted/Problem(s) – The term “waste release” needs clarification. It appears that the potential problem might be cover erosion or similar.

Fire (Intrusion from Off site)

Quantitative Parameters – When evaluating this potential risk factor, the amount of buffer property is a significant factor in assessing potential risk from adjacent land areas potentially susceptible to fire. Therefore, “buffer property” should be added as a quantitative parameter when determining the significance of this risk factor.

Engineering Controls

Scoring Criteria – It is unclear why the basis of this criterion is not Subtitle D design (or equivalent). In addition, one of the criterion proposed by CIWMB is “above Subtitle D design.” This term is undefined, subjective, and goes well beyond the purpose of the risk screening methodology for this study. Therefore, the following scoring criteria are proposed:

- Landfill Design:
 - Non-Subtitle D Equivalent Design (high)
 - Combination Subtitle D equivalent and non-Subtitle D equivalent Design (medium)
 - Subtitle D equivalent Design (low)

Permitted Capacity

Scoring Criteria – The range of risk based on waste volumes is useful only to the extent that some elements of PCM may require a higher level of management (e.g., equipment life, number of monitoring wells in network, etc.). The potential for an increase in risk or need for corrective action should not be equated with in place waste volumes. If this element is retained, it should be given little weight, and the volumes should be adjusted to better reflect the size differentials that may provide a meaningful level of differentiation regarding risk and/or corrective action..

- In Place Waste Volumes:
 - > 50,000,000 yd³ (high)
 - 5,000,000 to 50,000,000 yd³ (medium)
 - < 5,000,000 yd³ (low)

Hydrogeology

Quantitative Parameters(s) – The potential significance of the hydrogeology to potential threat can be better evaluated if the quantitative parameters used in the evaluation are consistent with the intent of Subtitle D. Specifically, the potential natural barrier to groundwater can be initially assessed by understanding the nature of the vadose zone soils and their estimated permeability values. Clearly, a landfill situated on low permeability clay has less potential for environmental concern than a landfill located on

higher permeability sandy deposits. In addition, the potential for groundwater to be a pathway of concern can be initially evaluated by understanding groundwater permeability values (velocity) and the distance of a landfill to public water wells or sensitive surface water areas (potential receptors). These items should be added to the quantitative parameters column.

Compliance Status

Scoring Criteria – We strongly believe that our previous recommendations proposed to CIWMB more appropriately capture the true potential risk a landfill may pose regarding its compliance status. Landfills that are in corrective action do not necessarily pose a risk to human health and the environment, and the corrective action may not necessarily occur within, or be designed to positively impact, offsite areas. In addition, landfills that have adequately performed a corrective action and that have little to no potential of ever needing additional mitigation measures should not be viewed as a moderate to high risk site. In consideration of the above, the following scoring criteria are proposed:

- Corrective Action/Violation Status:
 - Current un-permitted release to surface water or groundwater or administering cleanup or abatement order (high)
 - Repeat Offenders of Environmental-Related Violations or past history of repeat CA (medium)
 - Non-repeat Offenders of Environmental-Related Violations and Routinely Compliant with Regulations (low)

Preventative Maintenance

As discussed previously, preventative maintenance is one of the key factors determining the long-term adequacy of RCRA Subtitle D design features. Preventative Maintenance clearly is within the scope of the study's purpose to define "possible positive aspects of landfills'" construction and containment techniques and materials, which could impact long-term threats to public health and safety or the environment." (1-2) The risk screening methodology would be improved by adding this important factor.

In consideration of the above, the following scoring criteria are proposed:

- Preventative Maintenance:
 - No PM program (high)
 - PM plan (medium)
 - PM implemented pursuant to a plan subject to review by permitting authority by inspection or voluntary submittal (low)

We understand that California's PCM program does not currently include specific reference to preventative maintenance and that incorporation of this feature would be prospective.

Exhibit 5-3 - Examples of Potentially Affected Landfill Conditions or Characteristics and Causative Temporal Factors

The importance of temporal parameters as listed in Section 5.3.1 and summarized on Exhibit 5-3 of the Draft ICF report are presented in terms of their propensity to vary over long periods of time with their influence (i.e., effects) realized through either a steady upward or downward trend. Furthermore, Exhibit 5-3 includes a column titled “Affected Landfill Condition/Characteristic” associated with the listed temporal factors of potential concern. The “Affected Landfill Condition/Characteristic” listed on Exhibit 5-3 (and thus, the associated temporal factor) can be reasonably evaluated through a performance-based methodology consistent with Subtitle D requirements. This approach is recommended when assessing the potential for landfill conditions or characteristics to be affected by causative temporal factors.

Specifically, performance-based approaches to evaluating the main landfill components (leachate, landfill gas (LFG), groundwater, and cover) focus on identifying and quantifying the potential for a landfill to pose a threat to human health and the environment at the point of exposure and evaluating the duration of the threat. This type of evaluation generally involves examining statistical trends in leachate, LFG generation, and/or groundwater quality, as well as other relevant biological, chemical, and/or physical data, to predict future performance based on current or past trends. A number of key reference tools for making statistically valid, site-specific, performance-based assessments at landfills have recently been developed through multi-year studies of PCC, including Gibbons & Bull (2006), ITRC Guidance (2006b), and EREF (2006). The fundamental approach, termed the *Evaluation of Post-Closure Care (EPCC) Methodology*, involves a series of evaluations that can be used to assess the potential for landfill conditions or characteristics to be impacted by temporal factors.

Section 5.4 – Testing of Factors

The “particularly dominant” factors (5 of 13) selected by CalRecovery for scoring purposes (proximity to urban areas, permitted capacity, hydrology, rainfall/intensity, and engineering controls) are based on:

“the importance of proximity in assessing off site impacts of landfill emissions on human receptors; the fact that potential landfill emissions (uncontrolled and controlled) and impacts are directly related to mass of waste; the well known, dramatic potential of water-related variables to create or facilitate adverse conditions that might result in substantial landfill impacts; and importance of landfill design in controlling landfill emissions and impacts.”

Since the purpose of the screening criteria is to determine the overall potential threat of a landfill to human health and the environment at the point of exposure and the most pertinent risk factors were supposedly already established, it is unclear why certain factors are considered dominant for purposes of scoring. The goal of the screening should be to consider all the factors equally and develop scores that consider how each factor impacts the others either positively or negatively. For example, the logic of the scoring approach is summarized on Exhibit 5-6, which shows that a site scoring above 35

is a “moderate risk” site (with an uncertainty of 10% to 15%). This essentially means that a site determined to be “high risk” for 2 of the dominant factors would likely be considered a “moderate risk” site even though other factors may appropriately address the dominant factor of concern (e.g., engineered controls appropriately address shallow groundwater condition or a large waste area; landfill property has significant buffer within an urban area, etc.).

Most troubling is that the proposed dominant scoring factor proposed by ICF includes engineering controls, which are prescribed by current regulation as the appropriate design standard to manage landfill risk. How can the scoring criteria assert that a landfill in compliance with Subtitle D and CIWMB-approved standards and permits constitutes a “medium risk” when the authorizing statute for these programs requires protection of human health and the environment? To attain “low risk” is to be required to go beyond Subtitle D design, with no specification as to what that would mean.

Finally, the scoring breakpoints for low, medium, and high risk sites provided on Exhibit 5-6 are arbitrary and without technical basis. They provide a biased view of risk based upon largely arbitrary assumptions with no quantitative base. For example, ICF inexplicably de-emphasizes scoring for bioreactor technology, specifically designed to enhance waste degradation and reduce long-term threat potential from landfill gas migration or impacts to groundwater from gas or leachate.

It is very clear that ICF’s proposed methodology would be wholly inappropriate if adopted as a screening method for purposes of evaluating individual sites and not just a rough mechanism to sort the universe of California landfills for purposes of estimating program-wide costs of PCM and CA. Evaluation of risk at individual sites must take the form of quantitative, performance-based evaluation such as that presented in the ITRC Guidance, the EREF report, or other site-specific, performance based approaches. Again, we request that meaningful discussions take place with the regulated community before finalizing any risk screening methodology.