Response to Comments for the Chemical Waste Management Bakersfield Draft Post-Closure Permit Renewal

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The following provides the Department of Toxic Substances Control (DTSC) response to comments for the Chemical Waste Management (CWM) Bakersfield Draft Post-Closure Permit Renewal (PCPR). The public comment period for this PCPR ended August 31, 2006. All comments received for this PCPR were submitted by CWM. CWM submitted comments on each of the three documents in the public repository which included a Fact Sheet, the Draft Post-Closure Permit, and the Post-Closure Care Findings and Determination document.

Fact Sheet Comments & Responses

Fact Sheet Comments and Responses

Comment 1)

Page 1: The third sentence in the Introduction states that *"This facility was closed in 1989..."* This is an incorrect date (or perhaps a typo). The final Closure Construction Report (EMCON, 1988) shows that the closure construction was completed on November 18, 1987. The final Closure Construction Report, including a certification by an independent engineer that the closure construction was performed in accordance with the approved closure construction plan (EMCON, 1985)(approved by the California Department of Health Services [DHS] on June 26, 1987), was submitted on April 1, 1988 and approved by DHS in a letter dated March 31, 1989 (DHS, 1989). The date the facility was closed should be revised to April 1, 1988 as shown in Part II, Section 5 of the Draft Permit.

DTSC Response to Comment 1)

The Draft Post-Closure Permit states the facility closed April 1, 1988.

Comment 2)

Page 2: The second line of the second paragraph states, *"... continued waste disposal operations until October 1985."* Although this date is cited in the final Closure Construction Report (EMCON, 1988a), it is not correct. According to facility records and the Final Hydrogeologic Characterization Report (EMCON, 1989), no waste was received after May 1985 (p. 1-4).

DTSC Response to Comment 2)

Future Fact Sheets will be modified accordingly.

Comment 3)

The first line of the third paragraph states, *"In March 1989, the closure plan was certified complete."* (DHS, 1991). That line should be modified to specify, "...certified by DTSC to be complete."

DTSC Response to Comment 3)

Future Fact Sheets will be modified accordingly.

Comment 4)

The last line of the third paragraph states, *"The April 1991 post-closure permit expired in 2001 and is due for renewal."* This line gives the mistaken impression that the facility is currently operating without a permit. To clarify that this is not the case, the language should be modified as follows:

"Although the 1991 closure permit was slated to expire in 2001, CWM submitted a RCRA Post-Closure Permit Renewal Application in October 2000, and is therefore operating under the terms of the original permit, pending completion of the current permit renewal process."

DTSC Response to Comment 4)

DTSC understands the comment and concern and it was not DTSC's intention to misrepresent the facility's operating status. Future Fact Sheets will be modified accordingly.

Comment 5)

Page 2: Item number (4) states, *"...and semi-annual leachate monitoring and reporting"* This should be corrected to indicate that leachate is actually sampled annually (not semi-annually) and that the *volume* of leachate, which is periodically pumped for disposal (no fixed schedule), is *reported* on a semi annual basis. Leachate thickness is monitored as required by the Waste Discharge Requirements (WDRs). Leachate has been pumped when enough leachate was present in the leachate collection and removal system (LCRS) sump to pump, typically greater than 12 inches.

DTSC Response to Comment 5)

Future Fact Sheets will be modified accordingly.

Comment 6)

Page 2: Post-Closure Permit Special Conditions paragraph indicates that the new permit *"will additionally include special conditions that will extend the post-closure care period for 30-years from 2006 as well as require submission of plans and specifications for extensive repairs or replacement of the facility's existing closure cover."*

California Code of Regulations Title 22 (CCR Title 22) requires that such an extension of the post-closure period must be "*necessary to protect human health and the environment.*" Existing site groundwater monitoring data and other site-specific information confirms that the cover is functioning as designed and constructed, that the leachate and groundwater do not contain hazardous substances, and that the groundwater downgradient of waste disposal areas has improved to near background quality. The evidence is presented in more detail in CWM's comments to the Hazardous Waste Facility Permit, Part V, which follow, and in the comments to the Findings report on which the recommendations are based. Because the site-specific data indicate that the closure is functioning as intended, the special conditions presented by DTSC in the Draft Permit are not

necessary to protect human health and the environment and should be removed from the Draft Permit.

DTSC Response to Comment 6)

Comment noted.

Post-Closure Permit Comments & Responses

Comment 7)

Page 4: The second line of the first paragraph states, *"These wastes consisted of liquid, semi-solids, and solid wastes which were predominantly generated from local oil field exploration and production."*

It should be noted that the referenced oil exploration and production wastes (E&P wastes) are exempted from the Resource Conservation and Recovery Act (RCRA) (40 Code of Federal Regulations, Section 261.4) as non-hazardous wastes. In addition, DTSC has evaluated E&P wastes as a general matter (DTSC, 2002) and confirmed that they are exempt from RCRA. The DTSC evaluation also reported that *"the wastestreams sampled were not found to be hazardous based on the data obtained and the statistical analysis of that data; however isolated cases are discussed where E&P wastes displayed California hazardous waste characteristics."*

DTSC Response to Comment 7)

Comment Noted.

Comment 8)

Page 4: The last line of the first paragraph states, *"Wastes commonly included oily wastes, oil field drilling muds, and oil field scrubber wastes. Constituents in these wastes generally contained elevated levels of metals, as well as hydrocarbons, biocides, and some organic solvents."*

These statements characterize all wastes accepted as having elevated levels of metals as well as hydrocarbons, biocides and organic solvents. Table 1-1 of the RCRA Post-Closure Permit Application (CWM, 1990) shows that most of the wastes received were scrubber wastes, drilling muds, and brines. Oily wastes were a small percentage of the wastes received. Neither biocides nor organic solvents were listed as a primary waste category in Table 1-1, although they may have been a minor component of another accepted waste. The statements regarding "commonly" accepted wastes should be revised in the Draft Permit to reflect the facts.

DTSC Response to Comment 8)

This section has been revised.

Comment 9)

Page 6: This first paragraph in this section states, *"On March 30, 1981, DHS issued an Interim Status document to the M.P. Disposal Company for the Facility which was transferred to Chemical Waste Management, Inc. upon purchase of the*

site in 1981. On April 30, 1991, DHS issued the Facility's first 10-year post-closure permit.

As stated in this paragraph, the facility was originally regulated by DHS (DTSC's predecessor agency) under an Interim Status Document (ISD) in 1981. DHS issued a cover memo related to this permit to "All Facility Operators" stating *"the purpose for issuance of the ISD is to allow you to continue to operate your facility until a final hazardous waste facility permit is issued."*

CWM complied with the ISD including Closure Certification in 1989 by DHS. The Post-Closure Care Permit was issued by DHS in 1991 (DHS, 1991). The U.S. Environmental Protection Agency (USEPA) issued a Final Hazardous Waste Facility Post Closure Permit (for post-closure care) on March 27, 1991 (USEPA, 1991a). The current cover was designed to meet the closure requirements of the DHS in California Code of Regulations (CCR) Title 22, §67211, as applicable at the time (now repealed).

DTSC Response to Comment 9)

Comment noted.

Comment 10)

Page 7: The first paragraph in this section states, *"The environmental monitoring plan followed at the Facility is contained in the document 'Amended Report of Waste Discharge Groundwater Monitoring Plan ...' (Einarson Geoscience, October 1995), and comments contained in the document 'Response to RWQCB Review...' (Einarson, Fowler, and Watson, Oct 1997). These documents are hereby included in this permit by reference, and are hereafter referred to as the Approved Environmental Monitoring Plan."*

As requested by the California Regional Water Quality Control Board (RWQCB) in a letter dated January 26, 2006, and as discussed with DTSC in a meeting at the RWQCB office on March 22, 2006, CWM has prepared a revised Site-Specific Water Quality Monitoring Plan (SSWQMP) for the facility, which was submitted to DTSC and RWQCB on July 17, 2006 (Geomatrix, 2006b). As requested by DTSC in an e-mail dated March 27, 2006, the SSWQMP was developed in compliance with CCR Title 22, Chapter 14, Article 6, and CCR Title 23, Chapter 15, Article 5, both of which address Water Quality Monitoring and Response Programs at hazardous waste facilities. Because the new facility permit will extend for the next 10 years, it would seem prudent to revise the Environmental Monitoring section to reflect the recently submitted SSWQMP instead of citing to an outdated monitoring plan in the permit. This is especially important if approval of a new SSWQMP triggers a permit modification and a new public comment period, as indicated in Section 8 of the Draft Permit.

DTSC Response to Comment 10)

DTSC is in receipt of the referenced draft Site-Specific Water Quality Monitoring Plan. The draft permit has been revised to incorporate the final Site-Specific Water Quality Monitoring Plan upon its approval.

Comment 11)

Page 7: Items a through e and g: The Approved Environmental Monitoring Plan should be the finalized SSWQMP after it has been approved by the RWQCB. In the interim, groundwater monitoring should be in accordance with the WDR Order No. 99-088, Monitoring and Reporting Program No. 99-088, and the 1995 Amended Report of Waste Discharge Monitoring Plan.

DTSC Response to Comment 11)

Please see DTSC Response to Comment 10).

Comment 12)

Page 7: Item (f) states, *"For the purpose of Title 22, Cal. Code of Regs., section 66264.96 the Compliance Period for each regulated unit at the CWM Bakersfield Facility is 30 years from the effective date of this permit."*

The "Compliance Period" is the period of time that the water quality monitoring program must be maintained. CCR Title 22 §66264.96, has no provision for setting the compliance period to 30 years. The regulation says the compliance period is,

> *"(a) ...the number of years equal to the active life of the regulated unit (including any waste management activity prior to permitting, and the closure period) and constitutes the minimum period of time during which the owner or operator shall conduct a water quality monitoring program subsequent to a release from the regulated unit. (b) The compliance period begins each time the owner or operator initiates an EMP meeting the requirements of 66264.99. (c) If the owner or operator is engaged in a corrective action program at the scheduled end of the compliance period specified under subsection (a) of this section, the compliance period is extended until the owner or operator can demonstrate that the regulated unit has been in compliance with water quality protection standard of section 99264.92 for a period of three consecutive years."*

Thus, the compliance period is 12 years (life of regulated unit from 1973 to 1985) plus 2 years (closure period from 1985 to 1987) or 14 years from the beginning of the evaluation monitoring program in 1985. The compliance period would have ended in 1999, except the facility was and still is engaged in a corrective action program for the Western Waste Management Unit (WWMU) at that point. Per subsection (c) of CCR Title 22 §66264.96, the compliance period will end 3 years after the regulated unit comes into compliance with the water quality protection

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Although this references a statistical release at one Waste Management Unit, DTSC is silent on 30 YRS of PCC on the Eastern WMU.

standard. The compliance period in item (f) should be revised to reflect the regulation.

DTSC Response to Comment 12)

The draft permit has been revised to state the Compliance Period for the Western Waste Management Unit will continue until CWM can demonstrate that the regulated unit has been in compliance with the water quality protection standard of section 66264.92 for a period of three consecutive years and DTSC has evaluated all the factors in determining the Compliance Period.

Comment 13)

Page 8: CWM does not generate hazardous wastes at the Bakersfield facility. In addition, the 1991 Post-Closure Care Permit (DHS, 1991) prohibited storage of hazardous waste on the facility. Leachate and impacted groundwater from the Northwest Canyon are profiled as non-hazardous and are trucked under non-hazardous waste manifests for disposal. Therefore, the waste minimization certification is inappropriate and should be removed from the Draft Permit.

DTSC Response to Comment 13)

The Waste Minimization Certification section has been removed from the draft permit. However, the facility does generate hazardous waste in the form of leachate.

Comment 14)

Page 8: As noted previously, CWM does not generate hazardous wastes at the Bakersfield facility. In addition, the 1991 Post-Closure Care Permit (DHS, 1991) prohibited storage of hazardous waste on the facility. Leachate and impacted groundwater from Northwest Canyon are profiled as non-hazardous and are trucked under nonhazardous waste manifests. Therefore, the waste minimization conditions are inappropriate and should be removed from the Draft Permit.

DTSC Response to Comment 14)

The Waste Minimization Conditions have been removed from the draft permit.

Comment 15)

Page 10: The second to the last sentence in this section states *"Leachate collection and removal from the WWMU is accomplished through natural groundwater drainage and collection pipes that outfall into a detention pond known as the North West Canyon Sump."*

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The leachate is NOT hazardous. (Process knowledge)

The Northwest Canyon Collection Point (NWCCP) is incorrectly referred here to as the "North West Canyon Sump". The NWCCP is not a "sump" per the definition of "sump" included in Title 22, as it is not lined and does not collect hazardous waste. The DTSC statement regarding leachate collection is also inaccurate, as the affected groundwater collected in the NWCCP is not leachate, but a mixture of perched groundwater of meteoric origin and residual impacted groundwater (non-hazardous) dating from release prior to site closure. For example, leachate collected in the Pond P02 LCRS typically has a total dissolved solids (TDS) concentration of about 100,000 milligrams per liter (mg/L), while impacted groundwater for the last few years from the NWCCP typically has TDS values of about 30,000 mg/L (Geomatrix, 2006a). Page 6-4 of the RCRA Post-Closure Permit Renewal Application (CWM, 2005) specifically states that the NWCCP is not a leachate collection system. CCR Title 22 §66260.10, defines a LCRS as follows:

> *"Leachate collection and removal system/leak detection system (LCRS/LCS)" means the liner system component that immediately underlies the uppermost liner of a waste management unit, and that serves both: (a) as a leachate collection and removal system (LCRS), by collecting and conveying leachate to a sump for disposal; and (b) as a leak detection system (LDS), by enabling the discharger to determine when the uppermost liner is leaking, by virtue of the leachate flow rate through the uppermost liner's exceeding the action leakage rate."*

The WWMU consists of former lined and unlined waste ponds, landfills, and spreading areas. The WWMU lined cells were not constructed with leachate collection systems underlying the liners. During closure, waste was stabilized and solidified in the former ponds, landfills, and spreading areas and capped with the cover layer.

The NWCCP is not an LCRS and was not constructed as a leachate collection point for the WWMU nor is there a natural or engineered liner to focus leachate potentially generated in the WWMU to the NWCCP. Rather, the NWCCP was constructed to remediate local non-hazardous waste (scrubber waste) impact in the Northwest Canyon and to mitigate continued migration toward Poso Creek. By 1991, impact in Poso Creek alluvium had attenuated to background conditions. Although no additional impact to Poso Creek Alluvium has been observed since 1991, impacted groundwater continues to accumulate in the NWCCP and is pumped out as needed. The NWCCP effectively operates as a large-diameter extraction well; however, because the "well" is open, it collects meteoric water (rainfall and possibly surface runoff) as well as perched groundwater. A more detailed history and discussion of the NWCCP in included in CWM's comments to DTSC's Findings.

The above-referenced sentence regarding the NWCCP should be deleted.

<u>DTSC Response to Comment 15)</u>

After review of additional information, it is DTSC's understanding that there is not a hydraulic connection between the WWMU and the northwest canyon leachate collection point. The findings document has been revised to reflect this information.

Comment 16)

DTSC developed these "Special Conditions" based on the conclusions drawn in the Findings (DTSC, 2006). [1]The Findings provide a series of statements and conclusions, but does not present site-specific facts demonstrating that the facility has failed to protect human health and the environment. Instead, CWM will demonstrate that the site-specific data indicate that the facility is adequately protecting human health and the environment. CWM has provided detailed comments on the report (CWM, 2006). Specific comments on Part V are provided as follows.

Page 11: [2]The first paragraph of this section states DTSC's finding that *"it is necessary to extend the post-closure care period for the CWM Bakersfield Facility a minimum of thirty years from 2006."* It states that the reason for this extension is to *"ensure isolation of wastes to minimize the risk posed by these wastes to either humans or environmental receptors for an indefinite and possibly perpetual period."*

According to CCR Title 22, §66264.117 (b)(2)(B), the " post-closure care period" can be extended by DTSC, if it finds that " the extended period is necessary to protect human health and the environment (e.g., leachate or ground water monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment)." No evidence exists that the leachate collecting in the Eastern Waste Management Unit (EWMU) EWMU LCRSs, groundwater collecting in the NWCCP, or the groundwater passing the point of compliance results in an increased risk to human health or the environment. To the contrary, the water quality data collected over the period of record (1985 to 2006) indicate no hazardous wastes or hazardous levels of constituents in the site leachate or the groundwater beneath the site.

[3]The evidence cited in the Draft Permit for the finding includes *"document review, analysis, and field observations which show that the existing closure cover is not effective in preventing rainfall from entering the waste or sustaining damage from weathering and animal activity."* However, extensive data collected over the past 19 years show that the cover is effective in preventing rainfall from entering the waste and from sustaining damage from weathering. The period from 1991 through 1998 contained 7 years of above average precipitation (based on data from the Bakersfield Airport station, where the average precipitation is 6.18 inches), including the highest (13.32 inches, 1998) and sixth highest (9.84 inches, 1995) annual precipitation for the period of record (69 years). Yet, no new impacts were recorded in the EWMU or WWMU detection monitoring program

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[1]wells. Further, these heavy rain years had no discernable effect on the historical declining concentration trends of waste constituents in impacted groundwater (see Figure 1, below). Therefore, the wastes appear to be *isolated* from environmental receptors by the site geology and closure activities and no increased "*risk posed by these wastes*" has manifested in the 19 years since the closure cover was completed, regardless of precipitation patterns.

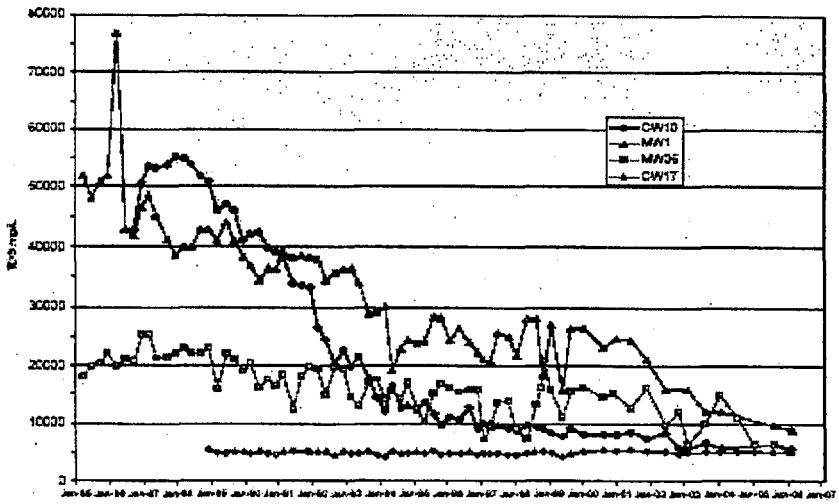

Figure 1. Total Dissolved Solids in Impacted Wells (CW10, MW1, MW06) and Background Well (CW17)

[2]The groundwater monitoring results to date indicate that no releases have occurred to the groundwater from the EWMU and no new releases have occurred to the groundwater from the WWMU (Geomatrix, 2006b). In fact, the impacts to groundwater from the initial release from the WWMU, that occurred prior to closure, have been attenuating with time (Geomatrix, 2006b), indicating that the closure activities have been effective in isolating the remaining waste in the WWMU. DTSC apparently came to a similar conclusion in their *Comprehensive Monitoring Evaluation (CME) Report for the Chemical Waste Management, Inc. Bakersfield Facility* dated September 3, 2002 (DTSC, 2002b).

Appendix A of the CME report consists of the Comprehensive Ground Water Monitoring Evaluation Technical Review of Hydrogeologic Characterization and Ground Water Monitoring Program, CME Checklist. [3]In Item 86 of the checklist, DTSC found that the three impacted site wells in the WWMU, CW10, MW01, and MW06, have shown "significant" decreasing concentrations of chloride, iron, magnesium, sodium, sulfate, and TDS since 1980. In Item 88 of the checklist, DTSC identified the reason for the decreasing trends was due to"... cessation of waste disposal activities and closure of the units in the WWMU area." In the CME report, DTSC found the ability of the monitoring program to identify releases was unclear, because the site monitoring parameters did not include organic constituents, such as volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs), alleged to be present in the waste. As

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See last sentence. DTSC CME stated no releases.

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requested by the DTSC in the CME report, VOCs and SVOCs were added to the routine monitoring parameter list for four consecutive monitoring events (second semiannual 2003, first semiannual 2004, second semiannual 2004, and first semiannual 2005) and VOCs only for the second semi-annual 2005 monitoring event. No VOCs or SVOCs were confirmed in groundwater (EWMU and WWMU monitoring wells, Poso Creek wells, or NWCCP impacted groundwater) or leachate samples collected during that time.

The requirement for extension of post-closure care are not met because:

- There are no hazardous waste constituents in leachate or groundwater. Site leachate is non-hazardous, impacted groundwater is non-hazardous, and impacts to groundwater have attenuated substantially since closure construction

- There is no threat to human health or the environment.

Thus, the site does not meet the regulatory standard for a finding that extension of the post-closure care period is necessary to protect human health and the environment. The extensive data at this site do not support an extension of post closure care. Therefore, this finding should be removed from the permit.

DTSC Response to Comment 16)

The DTSC Draft Post-Closure Permit Special Conditions have been modified to allow for the following:

1. Within 60 days of the effective date of the permit, submit a waste declassification notification pursuant to California Code of Regulations, title 22, section 66260.200; or

2. Within 60 days of the effective date of the permit, submit a work plan demonstrating the Facility will meet the closure by removal and decontamination standards of chapter 14 of division 4.5 of the California Code of Regulations, title 22; or

3. CWM shall follow the Special Conditions of the Draft Post-Closure Permit, which are included in Part V, 3. of the Final Post-Closure Permit.

The Final Post-Closure Permit Special Conditions Part V, 3. are based on the following:

The Chemical Waste Management (CWM) Bakersfield facility received hazardous waste and is regulated as a closed hazardous waste disposal facility. CWM is required to operate with a post-closure permit during the facility's post-closure period. California law is clear that hazardous waste disposal facilities must be monitored and maintained for a period to be determined by DTSC. Relevant citations include:

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California Health and Safety Code section 25245(a) which states that DTSC is required to adopt standards and regulations which do both of the following:

(1) "Specify the financial assurances necessary ... to respond adequately to damage claims arising out of the operation of that type of facility and to provide for the cost of closure and subsequent maintenance of the facility, including, but not limited to, the monitoring of groundwater and other aspects of the environment after closure..."

(2) "Provide that every hazardous waste facility can be closed and maintained for at least 30 years subsequent to its closure in a manner that protects human health and the environment and minimizes or eliminates the escape of hazardous waste constituents, leachate, contaminated rainfall, and waste decomposition products to ground and surface waters and to the atmosphere."

California Code of Regulations, title 22, section 66264.117 sets forth regulations for a 30-year post-closure period as well as provisions to implement an alternative post-closure period. Section 66264.117(b)(1) provides a 30-year post-closure period for all facilities requiring post-closure care. Section 66264.117(b)(2)(A) and (B) provide provisions to implement a different post-closure period during the post-closure period. Section 66246.117(b)(2)(B) allows for the extension of the post-closure period when the department makes a finding that an extended period is necessary to protect human health or the environment. For facilities with surface impoundments and landfills, the California Code of Regulations, title 22, section 66264.310 dictates 100 year requirements for closure covers. DTSC issues post-closure permits for a maximum of 10 years, and therefore upon renewal, must review if the 30-year post-closure period is adequate, or if an alternative post-closure period must be implemented. DTSC shall release the owner/operator from financial assurance requirements of post-closure care only after the facility no longer poses a risk to human health or the environment if left unmanaged.

While a closed hazardous waste disposal facility is in post-closure care, it is DTSC's policy and duty to ensure that each of the following elements of post-closure is independently present and appropriately maintained at the facility:

- closure cover
- environmental monitoring
- leachate collection and removal, and
- financial assurance

The word "independently" is used to express that one of these elements of post-closure care does not influence another. For example, if a closed hazardous waste disposal facility was in compliance with the standards of its environmental monitoring program, this element of post-closure care does not influence DTSC's requirements to have a closure cover present and appropriately maintained, a leachate collection and removal system, or the facility's financial assurance.

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DTSC has not provided sufficient technical data to support their position.

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This is a design standard not a PCC compliance standard.

T Number: 3 Author: pperley Subject: Comment on Text Date: 7/13/2007 12:54:12 PM

Groundwater data confirms that there is no risk to human health and the environment. The wastes were solidified during closure; since no hazardous wastes were present at the time of disposal, there are none now. There is no risk from the waste in place if the cover is left unmanaged.

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But it can be reasonable to expect certain elements of care can be reduced or eliminated. Groundwater sampling can be eliminated or reduced if there is no release or indications when apply scientific models.

In determining whether the above elements of post-closure care are present and appropriately maintained, DTSC must make decisions based on applicable regulation, site data and information, DTSC policy, and the collective experience of the Department in ensuring long-term human and environmental health of the State of California.

Meteorological and leachate removal data collected during and following the 1998 water year indicate that the CWM Bakersfield closure cover does not meet the standards of preventing downward entry of water into closed disposal areas for a period of at least 100 years as required by California Code of Regulations, title 22, section 66264.310. Section 66264.310 requires cover placement and assessment based on the following:

- prevents downward entry of water into closed disposal areas for a period of at least 100 years;
- functions with a minimum maintenance;
- promotes drainage and minimizes erosion;
- accommodates settling and subsidence;
- accommodates lateral and vertical shear forces generated by the maximum credible earthquake;
- has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present;
- conforms to the provisions of subsections (e) through (r) of section 66264.228, which outlines additional criteria for closure cover layers, grading, runoff control, and construction and maintenance.

Meteorological and leachate removal data during and following the 1998 water year indicated that large amounts of rainfall during this time resulted in large amounts of leachate removal which indicates the closure cover does not meet the requirements of title 22, section 66264.310.

Furthermore, the assumption that because there is no significant exposure at this time there never will be one in the future, regardless of the condition of landfill, is a considerable error. If there are no financial assurances or party to ensure the condition of the landfill cover system, the cover system will degrade and future exposure will change. It is ironic that CWM is arguing that lack of exposure based on a monitored and maintained hazardous waste landfill is a rationale for ending the very activities preventing exposure.

Comment 17)

Page 11 Item 1: The Draft Permit states that the facility shall provide, *"Revised financial assurance equal to a 30-year cost estimate approved by DTSC for all elements of post-closure care. Attachment 7 provides a DTSC derived 30-year cost estimate."* The revised financial assurance (FA) in Attachment 7 to the Draft Permit does not accurately reflect known natural events for which FA is needed. The cost estimate prepared by DTSC does not reflect market costs of disposal of

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DTSC position is based upon a policy of "not if, but when". Where is the statutory authority to regulate indefinitely as a policy. In the closing paragraph, DTSC is critical of CWM making an assumption, yet, DTSC in later comments makes the assumption that there will be failure of the containment system that will lead to an risk to human health and the environment. DTSC has not quantified this risk, nor have they completed a risk assessment to determine the level of risk if there were to be such a failure.

Also, DTSC has not released an Waste Management Unit from on-going monitoring even if there is no risk (or historic release) to the environment.

T Number: 2 Author: PPerley Subject: Comment on Text Date: 7/13/2007 12:59:37 PM

We fulfilled the requirement of less than 3 mm infiltration. All covers, including prescriptive cover leak. So what is the standard to "prevent" downward entry of water into the closed disposal area? The meteorological and leachate removal data do support that the cover was sufficient.

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2007 meteorological data indicates that there has been little to no rain for the last six months and yet very small volumes of leachate are recovered from one riser. This next to last paragraph in the DTSC response to Comment 17 implies that when it rains there is leachate generated and when it does not rain leachate should not be generated. In the second quarter of 2007 no rain fell on the facility, yet approximately 3 gallons of leachate were generated.

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[1]non-hazardous liquids. Kettleman Hills charges $0.56 per gallon for non-hazardous liquids that do not require stabilization. In addition, actual transport charges for the previous 7 months from the facility averaged $566 per load. The cost estimate for leachate management and disposal should be adjusted to reflect an average of 44,000 gallons per year (264 loads over 30 years) at $0.56 per gallon disposal cost and at $566 per load. CWM has prepared a revised FA cost estimate. The cost estimate is included as Attachment I. Other changes reflected in this updated cost estimate include recognition of costs related to quarterly cover inspections, quarterly fence inspections and repair, animal control, and cover repairs. The assumption of 1,040 hours per year spent managing work efforts at this facility is not realistic (assumes 20 hours per week, 52 weeks per year). Based on CWM's experience at this and other similar sites, a more accurate estimate is 520 hours per year. Consequently, the attached updated PCC cost estimate annual cost is $25,000 per year. Also, after 19 years of conducting PCC, a contingency of 10 percent should be adequate. The revised PCC annual FA is $259,921 and the total cost estimate for the remaining life of the permit is $7,797,632. The Special Conditions section of the Draft Permit also imposes modifications to the closure cover that require a near total reconstruction of the existing cover.

DTSC Response to Comment 17)

The post-closure cost estimate shall be based on the costs of hiring a third party to conduct post-closure care activities. [2]The information provided above is not third party costs and relies on internal costs associated with another of CMW facilities. DSTC cannot accept the cost estimate provided by CWM. In addition, [3]CWM provides no basis for using a lower estimated cost for site management.

Comment 18)

Page 11: In paragraph three, DTSC states, *"To address the deficiencies identified with the existing closure cover the facility shall provide..."*

Item 2 *"Engineering plans and specifications to reconstruct the closure cover to original design specifications that meet regulatory requirements."* DTSC indicates that those *"plans and specifications should specify a cover that includes the following components or their equivalent; a low hydraulic conductivity layer consisting of 24 inches of compacted clay and a geomembrane of a minimum thickness of 60 mil, a drainage layer, a biotic layer, and top soil layer of 24 inches."*

CWM does not agree that the existing closure cover has "deficiencies" that would warrant the significant reconstruction or replacement of the closure cover suggested by DTSC in Item 2 of paragraph 3. CWM's closure plan (EMCON, 1985) meets the requirements for effective isolation of hazardous and nonhazardous waste residues through the approval of the plan by the DHS (1987) and the RWQCB (1990). The closure plan was implemented and certified by a

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Implied in these numbers is DTSC assertion that the leachate is hazardous. CWM has determined that all waste in was non hazardous or was neutralized. Therefore the leachate is not hazardous.

Number: 2 Author: PPerley Subject: Highlight Date: 7/13/2007 1:03:39 PM

The costs provided by Kettleman Hills is the preferred rate for the disposal of large volumes of liquid non-hazardous wastes.

Number: 3 Author: pperley Subject: Comment on Text Date: 7/13/2007 1:04:33 PM

DTSC provides no basis for 50% time to manage this facility.

California-registered Professional Engineer (EMCON, 1988) and the closure certification was approved by the DHS (1989). CWM was issued post-closure care permits by the DHS (1991) and the USEPA (1991a) after approval of the post-closure care plan. The postclosure care plan described maintenance of the closure cover, which was to be commissioned after an annual inspection and recommendation by a California registered Professional Engineer. In accordance with the permit, CWM has had the closure cover inspected annually each spring since 1991 and has implemented the maintenance recommendations of the inspector.

The applicable closure performance standard for the facility is presented in CCR Title 22 §66264.111. These requirements are performance standards (i.e., "controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste ... to the ground or surface waters or to the atmosphere") rather than prescriptive standards (i.e., specified thickness of low permeability materials [USEPA, 1991b]). The data indicate that the existing closure cover meets the performance requirements for closure cover design in CCR Title 22 §66264.111.

Several areas of cover maintenance may require minor enhancement under the existing approved post-closure care plan and post-closure care permit. Some maintenance issues that need attention include: 1) maintenance of the cover from cracks and rodent burrows, and 2) maintenance of adequate fencing to prevent cattle from entering the site. CWM has already implemented the following:

- Quarterly fence inspection and repair program. In July 2006, more than 400 feet of fence and fence posts were replaced.

- An animal burrowing investigation and eradication program. This program is being developed with input from the US Fish and Wildlife Service and the California Department of Fish and Game.

- Annual landfill cover assessment conducted in late winter or early spring. This cover assessment will include a detailed examination of cracks that would represent failure of the underlying clay layer.

Information collected during routine post-closure care and maintenance, including the above, will present a clearer picture of ongoing cover performance and maintenance needs.

The existing CWM-Bakersfield cover was designed to meet the applicable closure requirements and was certified by an independent engineer and approved by USEPA and DHS as complying with those requirements. Despite some expected surficial aging, the closure cover continues to meet applicable performance standards, and does not have deficiencies that justify the major reconstruction proposed in the Draft Permit. Therefore, the requirement for cover reconstruction

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according to prescriptive standards in the Draft Permit is inappropriate and should be removed and replaced with an enhanced maintenance program.

DTSC Response to Comment 18)

The DTSC Draft Post-Closure Permit Special Conditions have been modified to allow for the following:

1. Within 60 days of the effective date of the permit, submit a waste declassification notification pursuant to California Code of Regulations, title 22, section 66260.200; or

2. Within 60 days of the effective date of the permit, submit a work plan demonstrating the Facility will meet the closure by removal and decontamination standards of chapter 14 of division 4.5 of the California Code of Regulations, title 22; or

3. CWM shall follow the Special Conditions of the Draft Post-Closure Permit, which are included in Part V, 3. of the Final Post-Closure Permit.

In the Special Conditions of the Draft Post-Closure Permit regarding the CWM Bakersfield closure cover, DTSC considers the following:

The California Code of Regulations, title 22, section 66264.310 require closure cover placement and assessment based on the following:

- prevents downward entry of water into closed disposal areas for a period of at least 100 years;
- functions with a minimum maintenance;
- promotes drainage and minimizes erosion;
- accommodates settling and subsidence;
- accommodates lateral and vertical shear forces generated by the maximum credible earthquake;
- has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present;
- conforms to the provisions of subsections (e) through (r) of section 66264.228, which outlines additional criteria for closure cover layers, grading, runoff control, and construction and maintenance.

DTSC considers the defacto components of a cover meeting title 22, section 66264.310 requirements to include: a low hydraulic conductivity layer consisting of 24 inches of compacted clay and a geomembrane of a minimum thickness of 60 mil, a drainage layer, a biotic barrier layer, and a top soil layer of at least 24 inches. However, covers using alternative components may also be acceptable if it can be demonstrated that they are equivalent in their ability to prevent moisture from penetrating though the cover system.

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In the last paragraph DTSC considers defacto components "if it can be demonstrated that they are equivalent" How does a regulated entity demonstrate "equivalent"?

Will DTSC accept "equivalent" additional data that is collected to demonstrate that the existing cover meets the regulatory standard stated in 66264.310?

DTSC states "...components may also be acceptable..." DTSC has not articulated what components are or are not acceptable.

[1]Based on historic leachate removal data, the CWM Bakersfield closure cover has not prevented downward entry of water.

Additionally, see DTSC Response to Comment 16).

Comment 19)

Page 11: Item 3. In the third paragraph on this page, [2]DTSC requires that FA include the costs of *"cover reconstruction"* at CWM-Bakersfield. First, site data do not justify cover reconstruction. Second, the preceding Item 2 requires that plans and specifications for cover reconstruction be submitted within 90 days of the effective date of the permit, and construction be completed within 210 days of plan approval. A 30-year FA for such a short-term capital expenditure is inappropriate and unnecessary.

DTSC Response to Comment 19)

The DTSC Draft Post-Closure Permit Special Conditions have been modified to allow for the following:

1. Within 60 days of the effective date of the permit, submit a waste declassification notification pursuant to California Code of Regulations, title 22, section 66260.200; or

2. Within 60 days of the effective date of the permit, submit a work plan demonstrating the Facility will meet the closure by removal and decontamination standards of chapter 14 of division 4.5 of the California Code of Regulations, title 22; or

3. CWM shall follow the Special Conditions of the Draft Post-Closure Permit, which are included in Part V, 3. of the Final Post-Closure Permit.

[3]If the above alternative 3 is selected, the CWM Bakersfield Facility is required to have in place a closure cover that will demonstrate to DTSC that the cover meets the requirements of title 22, section 66264.310. Please refer to DTSC Response to Comment 16). DTSC considers the defacto components of a cover meeting title 22, section 66264.310 requirements to include: a low hydraulic conductivity layer consisting of 24 inches of compacted clay and a geomembrane of a minimum thickness of 60 mil, a drainage layer, a biotic barrier layer, and a top soil layer of at least 24 inches. However, covers using alternative components may also be acceptable if it can be demonstrated that they are equivalent in their ability to prevent moisture from penetrating though the cover system. If the above alternative 3 is selected, it is CWM's responsibility to complete an evaluation and selection of cover replacement or repair methods that will be submitted to DTSC which demonstrates that the renovated cover system will meet the requirements of title 22, section 66264.310. Financial assurance for the CWM chosen, and DTSC accepted, renovation work will be required. Upon completion of renovation activities, this component of post-closure FA will no longer be required.

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T Number: 2 Author: PPerley Subject: Highlight Date: 7/12/2007 4:43:48 PM

T Number: 3 Author: PPerley Subject: Highlight Date: 7/12/2007 4:43:20 PM

Comment 20)

[1]Page 11: Item 4. DTSC requires that the facility provide, *"Monthly leachate measurements and quarterly leachate production reports that document monthly rainfall."*

This requirement is overly restrictive. The WDRs (RWQCB, 1999) provide a schedule for leachate monitoring that has been working adequately. Monthly measurements are required in the LCRSs that routinely contain enough leachate to remove.

Monthly rainfall data can be obtained at the following website for the Bakersfield airport: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0442 .

DTSC Response to Comment 20)

The DTSC Draft Post-Closure Permit Special Conditions have been modified to allow for the following:

1. Within 60 days of the effective date of the permit, submit a waste declassification notification pursuant to California Code of Regulations, title 22, section 66260.200; or

2. Within 60 days of the effective date of the permit, submit a work plan demonstrating the Facility will meet the closure by removal and decontamination standards of chapter 14 of division 4.5 of the California Code of Regulations, title 22; or

3. CWM shall follow the Special Conditions of the Draft Post-Closure Permit, which are included in Part V, 3. of the Final Post-Closure Permit.

[2]If the above alternative 3 is selected, DTSC requires that CWM provide monthly leachate measurements and quarterly leachate production reports that document monthly rainfall until such time that DTSC determines the closure cover meets the requirements as stated in the DTSC Response to Comment 18).

Comment 21)

[3]Item 5. DTSC requires that the facility provide, *"A survey plat which shows the exact boundaries of the current closure cover and all disposal areas superimposed on a parcel map."*

CWM submitted these data as part of the facility closure. A copy of these data can be provided to DTSC if requested.

DTSC Response to Comment 21)

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Number: 2 Author: PPerley Subject: Highlight Date: 7/13/2007 1:30:31 PM

What is the criteria that determines if the cover meets the requirements?

Number: 3 Author: PPerley Subject: Highlight Date: 7/12/2007 5:34:16 PM

The DTSC Draft Post-Closure Permit Special Conditions have been modified to allow for the following:

1. Within 60 days of the effective date of the permit, submit a waste declassification notification pursuant to California Code of Regulations, title 22, section 66260.200; or

2. Within 60 days of the effective date of the permit, submit a work plan demonstrating the Facility will meet the closure by removal and decontamination standards of chapter 14 of division 4.5 of the California Code of Regulations, title 22; or

3. CWM shall follow the Special Conditions of the Draft Post-Closure Permit, which are included in Part V, 3. of the Final Post-Closure Permit.

If the above alternative 3 is selected, DTSC requires a survey plat which shows the exact boundaries of the current closure cover and all disposal areas superimposed on a parcel map. The survey plats previously submitted do not provide this information. For purposes of cover inspection and evaluation, DTSC must know the exact boundaries of the closure cover.

Comment 22)

> Item 6. DTSC requires that the facility provide, *"Plans and specifications to repair and upgrade fencing to effectively prevent cattle from entering the premises."* CWM has already implemented quarterly fence inspection and repair program. In July 2006, more than 400 feet of fence and fence posts were replaced.

DTSC Response to Comment 22)

The next site inspection by DTSC personnel will determine if these plans are required to be submitted.

Comment 23)

> Page 13: Next to last sentence in first paragraph states, *"DTSC acknowledges that the Facility is not manned 24-hours a day."* In fact, the facility is not manned at all. The facility is closed and no staff are present on site unless a scheduled activity, such as inspections, monitoring or maintenance, is occurring. The Draft Permit should be modified to accurately reflect address this fact.

DTSC Response to Comment 23)

The referenced language has been changed accordingly.

Comment 24)

T Number: 1 Author: PPerley Subject: Comment on Text Date: 7/19/2007 3:29:52 PM

DTSC provided maps in past that were found to be sufficient.

Attachment 2

[1]Note that Table 1 included with Attachment 2 lists wastes and volumes in each waste unit. None of the listed wastes appear to be hazardous wastes.

DTSC Response to Comment 24)

Please see DTSC Response to Comment 30).

Comment 25)

Attachment 7

[2]The revised FA in Attachment 7 to the Draft Permit does not accurately reflect known natural events for which financial assurance is needed. The Cost Estimate prepared by DTSC does not reflect market costs of disposal of non-hazardous liquids. CWM is submitting a revised cost estimate that reflects actual incurred costs. For example, Kettleman Hills charges $0.56 per gallon for non-hazardous liquids that do not require stabilization. In addition, actual transport charges for the previous 7 months from the facility averaged $566 per load. CWM's cost estimate for leachate management and disposal has been adjusted to reflect an average of 44,000 gallons per year (264 loads over 30 years) at $0.56 per gallon disposal cost and at $566 per load. CWM has prepared a revised FA cost estimate. The cost estimate is included as Attachment I. Other changes reflected in CWM's updated cost estimate include recognition of costs related to quarterly cover inspections, quarterly fence inspections and repair, animal control, and cover repairs. DTSC's assumption of 1,040 hours per year spent managing work efforts at this facility is not realistic. This assumes 20 hours per week is required. A more realistic value is 520 hours per year. Consequently, the annual cost is adjusted to $25,000 per year. A contingency of 20 percent exceeds what is required. DTSC requires a 10 percent contingency. The revised PCC annual FA is $259,921 and the total cost estimate for the remaining life of the permit is $7,797,632.

DTSC Response to Comment 25)

Please see DTSC Response to Comment 17).

[3]A contingency of 20 % is appropriate for a facility where significant repairs or refurbishment is needed. This indicates that the facility will require more resources than was originally estimated. A lower contingency may be used in the future at this site, once DTSC is convinced the facility is in a stable condition and does not require extensive repair.

Comment 26)

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No material was classified as a Hazardous Waste that was disposed of in a licensed Hazardous Waste Facility.

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Attachment I - Financial Assurance

Financial Assurance 2007 - 2047		Cost per event	Total Number of Events	Total Cost Estimate	Annualized Cost Estimate (Total Cost Estimate)
Task 1 - Quarterly Elevation Monitoring		$770	120	$92,400	$3,080
Task 2 - Semiannual Groundwater Monitoring		$8,380	60	$502,800	$16,760
Task 3 - Reporting					
	SA and Annual Reports	$9,360	60	$561,600	$18,720
Task 4 - Semiannual Analysis		$6,720	24	$161,280	$5,376
Task 5 - COC Analysis		$8,106	6	$48,636	$1,621
Task 6 - Appendix IX Analysis		$0	0	$0	$0
Task 7 - Well Maintenance		$4,500	30	$135,000	$4,500
Totals				$1,501,716	$50,057
Task 1 - Monthly Monitoring		$285	360	$102,600	$3,420
Task 2 - Transportation					
	NWC Waste	$566	180	$101,880	$3,396
	LCRB Waste	$870	0	$0	$0
Task 3 - Disposal					
	NWC Waste @44,000 gal/yr	$0.56	$739,200	$739,200	$24,640
	LCRB Waste	$2,000	0	$0	$0
Task 4 - Analysis					
	NWC Waste	$700	30	$21,000	$700
	LCRB Waste	$460	30	$13,800	$460
Task 5 - Equipment Repair					
	NWC	$1,000	30	$30,000	$1,000
	LCRB	$500	30	$15,000	$500
Totals				$1,023,480	$34,116
Task 1 - Catastrophic Event Inspection		$570	8	$4,560	$152
Task 2 - Quarterly Cover Inspections		$1,500	120	$180,000	$6,000
Task 3 - Independent 3rd Party Inspection		$8,500	30	$255,000	$8,500
Task 4 - Annual Surveying		$5,000	30	$150,000	$5,000
Totals				$589,560	$19,652
Task 1 - Annual Facility Maintenance		$10,000	30	$300,000	$10,000
Task 2 - Dirty Fence Inspection and Repair		$1,500	120	$180,000	$6,000
Task 3 - Animal Control		$2,500	30	$75,000	$2,500
Task 4 - Cap repairs		$50,000	30	$1,500,000	$50,000
Totals				$2,055,000	$68,500
Task 1 - Hazardous Waste Facility Fee		$10,300	30	$309,000	$10,300
Task 2 - WDR Fees		$15,000	30	$450,000	$15,000
Task 3 - Permit Renewal Fee		$25,000	2	$50,000	$1,667
Totals				$809,000	$26,967
Task 1 - Project Manager		$25,000	30	$750,000	$25,000
Task 2 - Property Taxes		$12,000	30	$360,000	$12,000
Totals				$1,110,000	$37,000

Activity	Annual Cost Estimate	Total Cost Estimate
Groundwater	$50,057	$1,501,716
Leachate/NWC	$34,116	$1,023,480
Inspections	$19,652	$589,560
Facility Maintenance	$68,500	$2,055,000
Agency Costs	$26,967	$809,000
Administrative Costs	$37,000	$1,110,000
Sub Totals	$236,292	$7,088,756
Contingency 10%	$23,629	$708,876
Totals	$259,921	$7,797,632

DTSC Response to Comment 26)

Please see DTSC Response to Comment 17) and Comment 25).

Post-Closure Care Findings and Determination document Comments & Responses

Comment 27)

INTRODUCTION

In 1987, Chemical Waste Management (CWM) closed a landfill in Bakersfield that contained primarily non-hazardous oil field wastes (the Bakersfield Facility). Only a very small volume of California-only hazardous wastes were documented to be disposed of at the Bakersfield Facility. Nonetheless, it was treated as a Resource Conservation and Recovery Act (RCRA) hazardous waste landfill and was closed in accordance with applicable federal and California hazardous waste regulations. The Closure Plan (EMCON, 1985) was implemented and certified by a California Registered Professional Engineer in 1985. The Department of Health Services (DHS) (predecessor to the Department of Toxic Substances Control [DTSC]) approved the closure certification in 1989. By federal and state law, post-closure care is required for a 30-year period from the completion of closure. In 1991, DHS issued the initial 10-year post-closure permit for the Bakersfield Facility. For the Bakersfield Facility, the 30-year period extends until 2018.

In October 2000, CWM submitted a timely application for renewal of its post-closure permit for the Bakersfield Facility. During 2004, DTSC requested an updated permit application, which was submitted August 2005. These comments respond to DTSC's Post Closure Care Findings and Determination (DTSC, 2006 [Findings]) dated June 2006 concerning renewal of the post closure permit for the Bakersfield Facility.

The Findings relate to "the required duration of post-closure care at the (Bakersfield) Facility" and present DTSC's assessment of "the current conditions of the Facility and ...a determination relating to the adequacy of the Facility's existing closure cover." Based on the conclusions drawn in the Findings, DTSC has developed a renewed Draft Hazardous Waste Facility Post-Closure Permit (Draft Permit). In the Draft Permit, DTSC makes the following findings:

• "It is necessary to extend the post-closure period for the Chemical Waste Management, Inc. (CWM) Bakersfield Facility a minimum of thirty years from 2006."

• "The existing closure cover is not effective in preventing rainfall from entering the waste or sustaining damage from weathering and animal activity."

• "Extension of the post-closure period and replacing or conducting extensive repairs to the existing closure cover [is required]."

Many of the statements and conclusions presented in the Findings are unsupported by relevant site-specific data, and therefore do not justify the major modifications proposed in the Draft Permit. The regulatory standard for modification of the post-closure permit upon renewal is that the terms and conditions to be imposed must be "*necessary to protect human health and the environment.*" While CWM acknowledges that some cracking and animal

burrows are present on the landfill cover, the Findings grossly overstate the nature and extent of damage or disrepair. Moreover, the Findings *assume*, rather than establish through substantive evidence, that the cited conditions have actually resulted in or are likely to pose a threat to human health and the environment. In fact, these assumptions are directly contradicted by extensive groundwater monitoring and sampling data collected over the past 19 years since initial closure of the site. The site data confirm that:

- The site generates minimal amounts of leachate;
- There are no *hazardous* concentrations of constituents in the leachate or groundwater collected from the site;
- The incidence and impact of *inorganic* constituents in groundwater has consistently diminished over time and is generally consistent with background (naturally occurring) levels of high total dissolved solids (TDS); and
- There is no evidence of any demonstrable impact or threat to human health or the environment from this site.

It appears that DTSC has focused almost exclusively on issues of leachate and water *volume*, and has neither included or considered the critical leachate and *water quality* data in its Findings. However, in light of the site-specific data, DTSC's Draft Permit proposals, which require extensive reconstruction of the cover (estimated to cost over $26 million) and a new 30-year post-closure care period, are clearly not warranted as "*necessary to protect human health and the environment.*"

CWM concludes that enhanced maintenance and inspection of the existing cover will be fully adequate to continue post-closure care at the Bakersfield Facility. It is premature to consider extending the 30-year post closure period, which is not slated to expire until 2018. CWM further concludes that DTSC's proposed $26 million installation of a new cover is unreasonable and entirely unwarranted by environmental conditions at the Bakersfield Facility, where no hazardous concentrations of constituents have been released to groundwater and where high levels of naturally occurring TDS are present. CWM agrees with DTSC that enhanced maintenance and security of the existing cover is appropriate and CWM has already taken significant steps in that direction.

CWM and its consultants offer the following Comments on the DTSC Findings both to correct the record, and to present data demonstrating the effective performance of the landfill cover to date. In addition, these Comments outline a range of enhanced maintenance and security measures that CWM is developing or has already implemented at the site to ensure that the cover continues to protect human health and the environment.

The following specific Comments to the Findings track the section, page, and paragraph numbers in the Findings report. References to cited materials are provided in a separate section at the end of the comments.

DTSC Response to Comment 27)

The above comments are noted. DTSC will address each of the above items as they individually presented in subsequent comments.

Comment 28)

1.0 FINDINGS -- EXECUTIVE SUMMARY
Most of the issues raised in the Executive Summary of the Findings are discussed in greater detail in the body of the Findings. Therefore, while some of these issues are addressed in the following Comments on the Executive Summary itself, other issues are addressed where they appear elsewhere in the Findings.

DTSC Response to Comment 28)

Comment noted.

Comment 29)

Page 4: In paragraph 2, DTSC outlines its reasons for extending the post-closure care period for 30 years from 2006, as follows:

• *Disposed hazardous wastes have not likely degraded since the Facility's closure, and will not likely degrade in a 30-year time period from 2006.*

• *The burden of costs associated with maintaining the Facility will default to the California taxpayers should post-closure care be allowed to cease.*

• *The closure cover (aka containment system) at the Facility has deteriorated since 1991 when it became subject to the first postclosure permit. If any cessation of the post-closure period were allowed, the deterioration of the closure cover which has occurred over the first 15-years of post-closure will continue and will likely be considerably more significant. The result of such deterioration would include onsite and potentially offsite environmental exposures to the disposed hazardous wastes.*

• *If post-closure care were to cease, this deterioration will likely result in hazardous wastes washing from the Facility into Poso Creek which could impact several downstream environmental receptors. Poso Creek's final discharge point is the Kern National Wildlife Refuge which provides habitat for a number of aquatic species, migrating birds, shorebirds, marsh and water fowl, upland*

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[1]pecies, and the endangered Buena Vista Lake shrew, San Joaquin kit fox and blunt-nosed leopard lizard.

1.1.2 Regulatory Standards. The cited DTSC reasons do not correspond to or meet the regulatory standards for extension of the 30-year post-closure care period. As outlined in California Code of Regulations (CCR) Title 22, §66264.117, the DTSC can *"extend the post-closure care period applicable to the hazardous waste management unit or facility, if the Department finds that the extended period is necessary to protect human health and the environment."* The regulation goes on to provide an example of how such a finding would be justified; *"(e.g., leachate or ground-water monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment)."*

DTSC Response to Comment 29)

The above comments are noted. DTSC will address each of the above items as they individually presented in subsequent comments.

Comment 30)

[2]**1.1.3 Degradation of Wastes.** Per the first bullet point above, the regulations do not cite "degradation of disposed wastes" as a relevant inquiry, nor does DTSC provide any data in the Findings regarding any current or projected rate of waste degradation that might impact or threaten human health or the environment. Most of the waste disposed of at the Bakersfield Facility was non-hazardous oil field wastes; only a small volume of hazardous wastes were ever documented as being sent to the facility. Moreover, as further detailed in Section 2.1.1 of these Comments, groundwater monitoring indicates that no hazardous concentrations of waste constituents or of waste decomposition products have been detected in groundwater or leachate at the closed facility. Because there is no environmental problem with groundwater, installation of a new cover is not warranted.

DTSC Response to Comment 30)

Once a material is classified as a hazardous waste, it remains a waste until it meets the criteria described in CCR title 22 and CWM goes through waste declassification process. CWM appears to be circumventing these regulations by placing the burden upon DTSC of proving waste buried at the CWM Bakersfield site is hazardous. CWM retains responsibility to manage the waste as waste until the material has been reclassified as nonhazardous. CWM management will need to provide field data to support the assertion that the waste material has degraded below legal criteria.

Accordingly, the DTSC Draft Post-Closure Permit Special Conditions have been modified to allow for the following:

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1. Within 60 days of the effective date of the permit, submit a waste declassification notification pursuant to California Code of Regulations, title 22, section 66260.200; or

2. Within 60 days of the effective date of the permit, submit a work plan demonstrating the Facility will meet the closure by removal and decontamination standards of chapter 14 of division 4.5 of the California Code of Regulations, title 22; or

3. CWM shall follow the Special Conditions of the Draft Post-Closure Permit, which are included in Part V, 3. of the Final Post-Closure Permit.

Comment 31)

> **1.1.4 Cessation of Post-Closure Care.** The remaining three bullet points offered in support of the proposed 30-year extension (starting in 2006), are all based on the fundamentally *false premise* that the alternative to such an extension is "cessation of the post-closure care period." This framing of the issues completely mischaracterizes the permitting decision. This is a permit renewal exercise; occurring 18 years into a statutory 30-year post-closure care period. Neither CWM nor the DTSC has proposed that the post-closure care period should "cease" tomorrow, or at any other time short of the current 30-year period, which ends in 2018. Therefore, the relevant inquiry, for purposes of any potential extension of the post-closure care period is *not* what would happen if all post-closure care suddenly ceased in 2006, but whether current and projected conditions at the site are sufficiently protective of human health and the environment going forward. If site conditions are *not* adequately protective, then the question is -- what period of extension beyond the original 30 years is "necessary" to secure such protection? In fact, this question is more appropriately posed towards the end of the 30-year period, when the impending "cessation" of post-closure care may be genuinely at issue. At present, there are still 12 years remaining on the post-closure clock, and no evident threat to human health or the environment. Therefore, at this time, there is no basis for requiring any extension beyond the original 30-year postclosure care period.

DTSC Response to Comment 31)

The DTSC Draft Post-Closure Permit Special Conditions have been modified to allow for the following:

1. Within 60 days of the effective date of the permit, submit a waste declassification notification pursuant to California Code of Regulations, title 22, section 66260.200; or

2. Within 60 days of the effective date of the permit, submit a work plan demonstrating the Facility will meet the closure by removal and decontamination standards of chapter 14 of division 4.5 of the California Code of Regulations, title 22; or

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DTSC did not respond to the statement that the site is currently protective of human health and the environment. There is no evidence of a threat at this time.

3. CWM shall follow the Special Conditions of the Draft Post-Closure Permit, which are included in Part V, 3. of the Final Post-Closure Permit.

In regard to the above alternative 3, DTSC issues post-closure permits for a maximum of 10 years and upon renewal must review if the 30-year post-closure period is adequate, or if an alternative post-closure period must be implemented. Restarting the thirty year post-closure period is based on the DTSC analysis that without proper operation and maintenance of the existing closure structures, significant impacts to human health and the environment will occur. [1]DTSC does not have to document an existing significant impact. Without adequate post-closure care, the waste material entombed within the facility will eventually be released into the environment through natural processes of rainfall, wind, erosion, and surface water infiltration to groundwater. It is not a matter of if, it is a matter of when. Please see DTSC Response to Comment 16) and Comment 32).

Comment 32)

> [2]**1.1.5 Burden on Taxpayers.** Taking these bullets in turn, the second bullet, which asserts that the burden of post-closure care would fall to California taxpayers "should post-closure care cease" is doubly flawed. Not only does it posit the premature cessation of care half-way through the post-closure care period, it ignores the existence of the required financial assurances that are in place specifically to address such a lapse or default, if it were to occur during the remaining 12 years of the current post-closure period. CWM has not proposed to cease operation or withdraw its existing financial assurances for this site, so the site poses no burden to taxpayers. Rather, the DTSC's proposals pose a greater risk of burden on California taxpayers and consumers, by requiring the unnecessary expenditure of significant CWM resources to reconstruct the properly functioning cover of a non-polluting closed landfill.

DTSC Response to Comment 32)

The DTSC Draft Post-Closure Permit Special Conditions have been modified to allow for the following:

1. Within 60 days of the effective date of the permit, submit a waste declassification notification pursuant to California Code of Regulations, title 22, section 66260.200; or

2. Within 60 days of the effective date of the permit, submit a work plan demonstrating the Facility will meet the closure by removal and decontamination standards of chapter 14 of division 4.5 of the California Code of Regulations, title 22; or

3. CWM shall follow the Special Conditions of the Draft Post-Closure Permit, which are included in Part V, 3. of the Final Post-Closure Permit.

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Where is the threat to the environment within the next 2, 5, 10 or 12 years? ,The threat is not documented.

T Number: 2 Author: PPerley Subject: Highlight Date: 7/12/2007 5:45:21 PM

In regard to the above alternative 3, hazardous waste landfills require ongoing and long term operation and maintenance to ensure that essential engineering controls and systems keep the waste and its residuals entombed. At CWM Bakersfield this includes repairing erosion and damage to the cover and drainage system, removal and disposal of leachate and contaminated groundwater. Groundwater monitoring is also required to assure the local community and other stakeholders that the landfill is not leaching contaminates into the groundwater and subsurface. If DTSC cannot require CWM to conduct these activities, the taxpayers will be forced to cover these activities to protect human health and the environment. The financial assurance program was created to ensure that these financial burdens would not fall on California taxpayers. CWM is putting forth an argument that delays the decision for long term care or that implies their Financial Responsibility ends after thirty years of post-closure care. Such arguments do not address who will conduct and pay for these activities at year 31. This problem is discussed in more detail in the California Legislative Analyst Report: Financial Assurances, dated April 2006.

Comment 33)

> **1.1.6 Deterioration of the Cover.** The third bullet asserts that the landfill cover has deteriorated in the first 18 years post-closure, and would likely deteriorate further due to cessation of post-closure care. Again, since cessation of postclosure care is not even on the menu of options, the appropriate question is whether the level of "deterioration" observed to date has resulted in conditions that pose or may pose a threat to human health or the environment. If so, then the question is -- what is "necessary" to address the threat of further deterioration and potential environmental impacts during the remaining postclosure care period? The DTSC Findings provide no evidence to support a finding of current or projected environmental impacts due to current conditions. However, even assuming there were such evidence, the more appropriate remedy, would not necessarily be an extension of the post-closure care period (or installation of a new cover), but rather enhanced maintenance and repair of the existing cover during the remainder of the current period. In the current situation, where groundwater quality data indicate that the surficial damage to the cover has not resulted in any threat to human health or the environment, the more appropriate response, as CWM has proposed, is to repair the existing cover where needed, and enhance maintenance and security measures going forward, to ensure that the cover continues to perform as necessary to protect the environment.

DTSC Response to Comment 33)

Please see DTSC Response to Comment 16), Comment 18), Comment 31), Comment 32), and Comment 35).

Comment 34)

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The legislature has been notified but no action has been taken. Until the legislature takes action, it is only a report. There is no indication that contaminated groundwater is leaving the property; even DTSC staff state that groundwater contamination is not an issue. These statement by DTSC imply that Post Closure Care will never cease. There is no clear escape from their oversight.

T Number: 3 Author: PPerley Subject: Highlight Date: 7/12/2007 5:47:47 PM

T Number: 4 Author: pperley Subject: Comment on Text Date: 7/13/2007 2:48:12 PM

DTSC maintains that it is not a matter of if the cover will fail. They imply failure is imminent and that contaminants will be released into to Pozo Creek and beyond. But DTSC has not documented when this failure will occur on a system that has worked for over 12 years.

T Number: 5 Author: pperley Subject: Comment on Text Date: 7/19/2007 3:23:39 PM

DTSC assumes that failure will occur. It should demonstrate the failure and what is the level of risk to the public.

1.1.7 Downstream Impacts. The final bullet in this section of the Findings asserts that, if post-closure care were to cease, the referenced deterioration of the cover would "*likely result in hazardous wastes washing from the Facility into Poso Creek which could impact several downstream environmental receptors.*" However, the Findings document provides no evidence to indicate that such "washing" of hazardous wastes into the Poso Creek has occurred or is likely to occur in the future at concentrations that have impacted or could be expected to impact downstream environmental receptors. In fact, as referenced in the Introduction, and discussed in detail in Section 2.1.1 of these Comments, water quality data for the sites indicates no hazardous concentrations of constituents in the leachate and groundwater collected at the site, and diminishing levels of inorganic constituents. In its *Comprehensive Groundwater Monitoring Evaluation Report (CME) for the Chemical Waste Management, Inc. Bakersfield Facility* dated September 3, 2002, DTSC's own technical experts concluded that stable or decreasing trends in groundwater impacts have been observed since implementation of corrective measures during closure (DTSC, 2002). Similarly, the Regional Water Quality Control Board (RWQCB or Water Board) found in 1999 that, "**[t]he closure of the (CWM-Bakersfield) waste management units with waste left in place will protect water quality and the beneficial uses for surface water or groundwater below the site**" (RWQCB, 1999). Monitoring data collected to date confirms and supports the Water Board's findings on this point.

DTSC Response to Comment 34)

Please see DTSC Response to Comment 16) and Comment 30).

Comment 35)

1.1.8 No Factual Basis for "Necessity" of Extension. DTSC has not established the factual basis for a finding that extension of the post-closure care period is necessary to protect human health and the environment. The DTSC Findings do not meet the regulatory standard because:

- DTSC presents no findings as to the existence of hazardous concentrations of waste constituents in leachate or groundwater.

- DTSC presents no findings as to any threats to human health.

- DTSC presumes a theoretical threat to downstream environmental receptors without presenting any actual evidence of hazardous waste concentrations that might be harmful.

- DTSC did not include or discuss relevant and extensive site-specific data, which clearly demonstrates that the cover is performing effectively, that leachate is minimal and non-hazardous, that impacted groundwater is

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T Number: 2 Author: PPerley Subject: Highlight Date: 7/13/2007 2:55:06 PM
DTSC is ignoring its own staff observations.

T Number: 3 Author: PPerley Subject: Highlight Date: 7/12/2007 5:49:52 PM

[1]non-hazardous, and that impacts to groundwater from inorganic constituents have attenuated to near background since closure construction.

[2]Consistent with the requirements of CCR Title 22 §66264.117, unless DTSC can make a properly supported finding that the proposed 30-year extension of the post-closure care period is "necessary to protect human health and the environment", then no such extension is justified.

DTSC Response to Comment 35)

The DTSC Draft Post-Closure Permit Special Conditions have been modified to allow for the following:

1. Within 60 days of the effective date of the permit, submit a waste declassification notification pursuant to California Code of Regulations, title 22, section 66260.200; or

2. Within 60 days of the effective date of the permit, submit a work plan demonstrating the Facility will meet the closure by removal and decontamination standards of chapter 14 of division 4.5 of the California Code of Regulations, title 22; or

3. CWM shall follow the Special Conditions of the Draft Post-Closure Permit, which are included in Part V, 3. of the Final Post-Closure Permit.

[3]In regard to the above alternative 3, restarting the thirty year post-closure period is based on the DTSC analysis that without proper operation and maintenance of the existing closure structures, significant impacts to human health and the environment will occur. DTSC does not have to document an existing significant impact. Without adequate long term post-closure care, the waste material entombed within the facility will eventually be released into the environment through natural processes of rainfall, wind, erosion, and surface water infiltration to groundwater. It is not a matter of if, it is a matter of when.

Additionally, please see DTSC Response to Comment 16), Comment 18), and Comment 32).

Comment 36)

Page 4: In paragraph 3 of the Executive Summary of Findings, DTSC includes a condition for extending financial assurances to correspond with the proposed 30-year extension of the post-closure care period:

"*Revised financial assurance equal to a 30-year cost estimate approved by DTSC for all elements of post-closure care. The CWM Bakersfield postclosure permit will include a DTSC derived 30-year cost estimate. Should CWM not provide an*

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DTSC has exceeded their authority. With this statement, all sites will be in perpetual post closure care.

alternate cost estimate which is deemed adequate by DTSC, CWM shall use the cost estimate provided by DTSC."

1.2.1 Post-Closure Cost Estimates. Because there is no demonstrated necessity for extension of post-closure care, there is no necessity for extension or revision of the post-closure care cost estimate. [1] Additionally, the applicable financial assurance (FA) regulation (CCR Title 22 §66264.142) requires preparation and submittal of a post-closure care estimate by the owner/operator. It makes no provision for imposition of a post-closure care estimate prepared by the DTSC. CWM has reviewed the DTSC's revised FA calculations (Attachment 7 to the Draft Permit), and has provided its comments and alternative calculations in [2] Section 6.3.

DTSC Response to Comment 36)

[3] Please see DTSC Response to Comment 17), Comment 25), Comment 31), Comment 32), and Comment 35).

Comment 37)

[4] **1.3 Reconstruction of Closure Cover**
Page 5: In the first paragraph, DTSC includes a condition for reconstructing the closure cover. *"Replacing or conducting extensive repairs to the existing closure cover is therefore required. DTSC is including the following additional conditions in the CWM Bakersfield post-closure permit to address Facility deficiencies identified herein, and to bring the Facility into regulatory compliance. The Facility shall provide:*

> *2. Engineering plans and specifications to reconstruct the closure cover to original design specifications that meet regulatory requirements. These plans and specifications should specify a cover that includes the following components or their equivalent: a low hydraulic conductivity layer consisting of 24 inches of compacted clay and a geomembrane of a minimum thickness of 60 mil, a drainage layer, a biotic barrier layer, and a top soil layer of at least 24 inches."*

1.3.1 Performance Standards. The applicable closure performance standards for the Facility are presented in CCR Title 22 §66264.111, which requires that the facility be closed in a manner that "... controls, minimizes or eliminates, ***to the extent necessary to protect human health and the environment,*** postclosure escape of hazardous waste, hazardous constituents, leachate, contaminated rainfall or runoff, or waste decomposition products to the ground or surface waters or to the atmosphere." It does not impose specific prescriptive standards (e.g., a specific thickness of low permeability materials applicable at every site), nor does it provide for DTSC's imposition of such prescriptive closure cover requirements.

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DTSC Response to Comment 37)

[1]DTSC considers the defacto components of a cover meeting title 22, section 66264.310 requirements to include: a low hydraulic conductivity layer consisting of 24 inches of compacted clay and a geomembrane of a minimum thickness of 60 mil, a drainage layer, a biotic barrier layer, and a top soil layer of at least 24 inches. However, covers using alternative components may also be acceptable if it can be demonstrated that they are equivalent in their ability to prevent moisture from penetrating though the cover system.

Please see DTSC Response to Comment 16) and Comment 18).

Comment 38)

> [2]**1.3.2 Certified Landfill Cover.** The Facility's existing landfill cover was constructed in accordance with an approved closure plan EMCON, 1985) and has met applicable performance standards for environmental protection. CWM's closure plan (EMCON, 1985) was found to meet the requirements for effective isolation of hazardous and non-hazardous waste residues through the approval of the plan by the DHS (1987) and the RWQCB (1990). The closure plan was implemented and certified by a California-registered Professional Engineer (EMCON, 1988a) and the closure certification was approved by the DHS (1989). CWM was issued post-closure care permits by the DHS (1991) and the US Environmental Protection Agency (USEPA) (1991a) after approval of the post-closure care plan. The post-closure care plan described maintenance of the closure cover, which was to be commissioned after an annual inspection and recommendation by a California-registered Professional Engineer. In accordance with the permit, CWM has had the closure cover inspected annually each spring since 1991 and has implemented the maintenance recommendations of the inspector.

DTSC Response to Comment 38)

Please see DTSC Response to Comment 16), Comment 18), and Comment 19).

Comment 39)

> **1.3.3 Maintenance and Security Issues.** DTSC has identified a number of maintenance and security issues relating to the current condition of the cover, which CWM agrees, require appropriate attention. These include, visible cracks in the cover material, burrowing animals, breached fences, and cattle grazing at the site. However, these are surficial issues and do not represent the kind of extreme deterioration of the landfill cover that the Findings suggest.[3]Moreover, as noted in Sections 5.2 and 5.3, the evidence indicates that while these maintenance and security issues are of concern, they have not compromised the fundamental integrity of the cover. Therefore, they do not warrant the near total cover reconstruction prescribed in the DTSC Findings. Such findings are unreasonable

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DTSC does not provide the option to repair the existing cover. Rather, there is the expectation that the cover must meet the current standard.

T Number: 3 Author: PPerley Subject: Highlight Date: 7/13/2007 3:35:56 PM
This statement is ignored by DTSC.

and not legally justified under California law because the Bakersfield Facility does not present a viable threat to human health or the environment. Nevertheless, in order to address the cited current concerns and prevent them from developing into problems that could affect the ongoing performance of the landfill cover, CWM has implemented the following measures:

- Quarterly fence inspection and repair program. In July 2006, more than 400 feet of fence and fence posts were replaced.

- An animal burrowing investigation and eradication program. This program is being developed with input from the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

- Annual landfill cover assessment conducted in late winter or early spring. This cover assessment will include a detailed examination of cracks that would represent failure of the underlying clay layer.

Information collected in the course of these special programs, as well as during routine post-closure care and maintenance, will provide a clearer picture of current conditions and of any risk they may post to the integrity of the cover.

DTSC Response to Comment 39)

Comment noted.

Comment 40)

Page 6: In the second paragraph, DTSC outlines the relevant citations from the Health and Safety Code (§25245[a]) for monitoring and maintaining closed hazardous waste disposal facilities. Item (2) states, *"Provide that every hazardous waste facility can be closed and maintained for at least 30 years subsequent to its closure in a manner that protects human health and the environment and minimizes or eliminates the escape of hazardous waste constituents, leachate, contaminated rainfall, and waste decomposition products to ground and surface waters and to the atmosphere."*

2.1.1 19 Years of Groundwater Data. The Bakersfield Facility has been closed for 19 years and has consistently met this performance standard. Groundwater monitoring has shown that no escape of hazardous concentrations of waste constituents or waste decomposition products has occurred from the closed facility.

Groundwater sampling for volatile organic compounds (VOCs) was conducted during two sampling events in 1984. When no VOCs were detected, they were removed from the list of parameters monitored. Following a DTSC request in the Comprehensive Groundwater Monitoring Evaluation Report (DTSC, 2002b),

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[1]groundwater and leachate samples were again tested for VOCs and semivolativle organic compounds (SVOCs) during four monitoring events in 2003 and 2004. No VOCs or SVOCs were confirmed in groundwater or leachate samples collected from the site.

The last constituents of concern (COC) groundwater monitoring event occurred during the second half of 2004 (Golder Associates and GeoChem Applications, 2005). Groundwater monitoring data from the 2004 COC event and other monitoring data are included in a Table included as Attachment 1. Attachment 1 includes those COCs that have designated soluble threshold limit concentration (STLC) values from CCR Title 22 §66261.24. Leachate from the facility leachate collection and removal systems (LCRSs) and groundwater from the Northwest Canyon Collection Point (NWCCP) were last tested during 2005 and those data are included in Attachment 1. None of the constituents in groundwater or leachate exceed their respective STLC (California Hazardous Waste Threshold).

[2]A fish bioassay was also performed on leachate from the P02 LCRS (3/11/05) and NWCCP groundwater (8/8/05). The leachate and groundwater samples passed the fish bioassay.

DTSC Response to Comment 40)

Once a material is classified as a hazardous waste, it remains a waste until it meets the criteria described in CCR title 22 and CWM goes through waste declassification process. CWM appears to be circumventing these regulations by placing the burden upon DTSC of proving waste buried at the CWM Bakersfield site to be hazardous. CWM retains responsibility to manage the waste as waste until the material has been reclassified as nonhazardous. CWM management will need to provide field data to support the assertion that the waste material has degraded below legal criteria.

Accordingly, the DTSC Draft Post-Closure Permit Special Conditions have been modified to allow for the following:

1. Within 60 days of the effective date of the permit, submit a waste declassification notification pursuant to California Code of Regulations, title 22, section 66260.200; or

2. Within 60 days of the effective date of the permit, submit a work plan demonstrating the Facility will meet the closure by removal and decontamination standards of chapter 14 of division 4.5 of the California Code of Regulations, title 22; or

3. CWM shall follow the Special Conditions of the Draft Post-Closure Permit, which are included in Part V, 3. of the Final Post-Closure Permit.

In regard to the above alternative 3, the California Code of Regulations, title 22, section 66264.310 require closure cover placement and assessment based on the following:

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- prevents downward entry of water into closed disposal areas for a period of at least 100 years;
- functions with a minimum maintenance;
- promotes drainage and minimizes erosion;
- accommodates settling and subsidence;
- accommodates lateral and vertical shear forces generated by the maximum credible earthquake;
- has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present;
- conforms to the provisions of subsections (e) through (r) of section 66264.228, which outlines additional criteria for closure cover layers, grading, runoff control, and construction and maintenance.

Based on historic leachate removal data, the CWM Bakersfield closure cover has not prevented downward entry of water and does not meet applicable requirements.

[4]Furthermore, the Chemical Waste Management (CWM) Bakersfield facility is regulated as a closed hazardous waste disposal facility. CWM is required to operate with a post-closure permit during the facility's post-closure period. California law is clear that hazardous waste disposal facilities must be monitored and maintained for a period to be determined by DTSC. Relevant citations include:

California Health and Safety Code section 25245(a) which states that DTSC is required to adopt standards and regulations which do both of the following:

(1) "Specify the financial assurances necessary ... to respond adequately to damage claims arising out of the operation of that type of facility and to provide for the cost of closure and subsequent maintenance of the facility, including, but not limited to, the monitoring of groundwater and other aspects of the environment after closure..."

(2) "Provide that every hazardous waste facility can be closed and maintained for at least 30 years subsequent to its closure in a manner that protects human health and the environment and minimizes or eliminates the escape of hazardous waste constituents, leachate, contaminated rainfall, and waste decomposition products to ground and surface waters and to the atmosphere."

California Code of Regulations, title 22, section 66264.117 sets forth regulations for a 30-year post-closure period as well as provisions to implement an alternative post-closure period. Section 66264.117(b)(1) provides a 30-year post-closure period for all facilities requiring post-closure care. Section 66264.117(b)(2)(A) and (B) provide provisions to implement a different post-closure period during the post-closure period. Section 66246.117(b)(2)(B) allows for the extension of the post-closure period when the department makes a finding that an extended period is necessary to protect human health or the environment. For facilities with surface impoundments and landfills, the California Code of Regulations, title 22, section 66264.310 dictates 100 year requirements for closure covers. DTSC issues post-closure permits for a maximum of 10 years, and therefore upon renewal, must review if the 30-year post-closure period is adequate, or if an alternative post-closure period must be

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implemented. DTSC shall release the owner/operator from financial assurance requirements of post-closure care only after the facility no longer poses a risk to human health or the environment if left unmanaged.

Comment 41)

2.1.2 Non-Hazardous Constituents/TDS. The principal constituents that do appear in groundwater are non-hazardous inorganic chemicals, primarily sodium and sulfate, which comprise part of the TDS of the water. In CME, DTSC concluded that all of the current monitoring parameters and COCs are naturally occurring and, with some demonstration, could be attributed to natural spatial variability or other causes.

DTSC Response to Comment 41)

Please see DTSC Response to Comment 40).

Comment 42)

2.1.3 Local Water Quality. The Bakersfield Facility is located in an area of relatively high background levels of TDS. In 1985, a release of inorganic constituents comprising sodium, sulfate, and TDS, which was identified as primarily scrubber waste, was discovered in groundwater at the northern and southern margins of the Western Waste Management Unit (WWMU). The release was attributed to the infiltration of scrubber wastes from permitted, unlined disposal ponds along the northern ridge and from wet-weather ponds along the southern portion of the site. The release likely occurred prior to 1980, as those ponds were not used by CWM. The five monitoring wells that showed groundwater impacts from the initial release documented in 1985 (wells CW10, MW1, MW06, and CW17) have all seen significant improvement in water quality during the period of record, which ranges from 17 to 21 years (See Figures 1 and 2). DTSC's own technical experts reached similar conclusions in the CME.

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DTSC has not defined risk. How is risk determined? When can an owner/operator be released?

T Number: 2 Author: PPerley Subject: Highlight Date: 7/12/2007 6:04:41 PM

T Number: 3 Author: pperley Subject: Comment on Text Date: 7/13/2007 3:38:39 PM

DTSC has not established an appropriate level of risk and how such risk is defined.

T Number: 4 Author: PPerley Subject: Highlight Date: 7/12/2007 6:05:24 PM

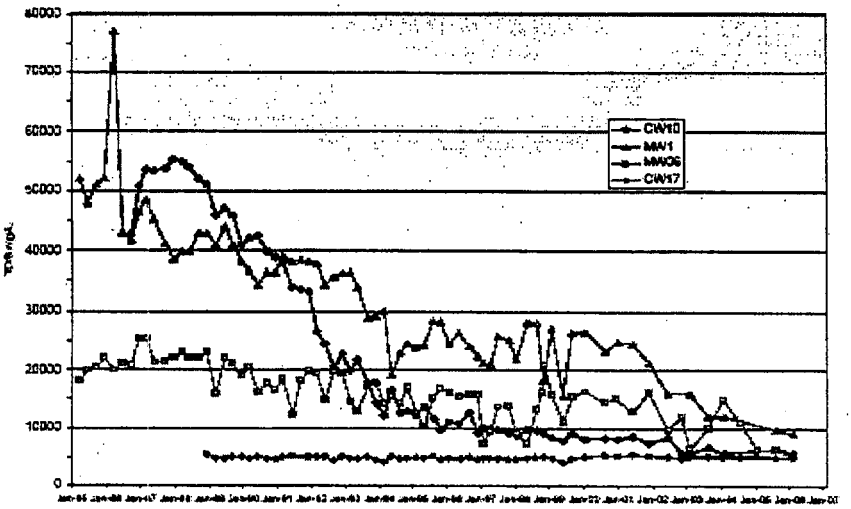

Figure 1. Total Dissolved Solids in Impacted Wells (CW10, MW1, MW06) and Background Well (CW17)

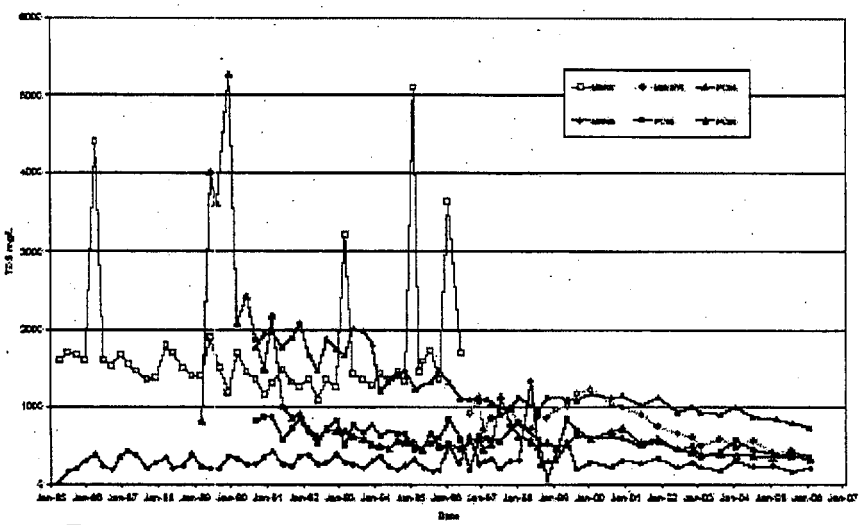

Figure 2. Total Dissolved Solids (TDS) in Poso Creek Alluvium Wells

DTSC Response to Comment 42)

Please see DTSC Response to Comment 30).

Comment 43)

2.1.4 Diminishing TDS Concentrations. Concentrations of TDS, sodium, and sulfate in wells MW07 and PC04, which are completed in the Poso Creek alluvium, achieved background conditions by 1991 (Geomatrix, 2006b). Water quality in the remaining three wells (MW06, MW01, and CW10) has shown

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DTSC has ignored all of their requested VOA data that has been collected and ignores all trends and data displayed in the Figures. The agency is stating the monitoring will cease when there is no risk, but do not define what the level or risk is or how to quantify such risk. DTSC experts agree that groundwater quality is improving but DTSC does not indicate when there is sufficient improvement.

Number: 4 Author: PPerley Subject: Highlight Date: 7/12/2007 6:08:47 PM

[1]rders of magnitude reduction in concentrations of the impacting constituents, which comprise inorganic chemicals, primarily sodium and sulfate (Figure 1). **None of these wells, even during the initial stages of monitoring in 1985, contained hazardous concentrations of waste constituents.** This 18-year post closure period included 9 years of aboveaverage rainfall, 7 of the top 20 annual rainfall years, and the highest annual rainfall year for the 69-year period of record at the Bakersfield Airport station (located about 9 miles southwest of Facility). Therefore, the 18-year period since closure provides a reliable test of the [2]akersfield Facility's ability to perform for the 30-year required post-closure care period.

DTSC Response to Comment 43)

Please see DTSC Response to Comment 30).

Comment 44)

[3]**.1.5 Leachate.** The Facility does not produce significant volumes of leachate, and the leachate from the site does not contain hazardous concentrations of waste constituents (Attachment 1). LCRSs are present below the closed surface impoundments on the Eastern Waste Management Unit (Eastern Waste Management Unit). In the rare event that it accumulates enough to be pumped, leachate is collected from the LCRS sumps and hauled, as nonhazardous waste, by tanker truck to Kettleman Hills Facility, a Class I disposal site. On average, the Facility currently pumps and disposes of approximately 20 gallons of this accumulated leachate every month. **Water quality analyses of leachate collected from the LCRSs have never contained VOCs or hazardous concentrations of other waste constituents (see Attachement I).** Waste profiling analyses have shown the leachate to be non-hazardous.

DTSC Response to Comment 44)

Please see DTSC Response to Comment 30).

Comment 45)

[4]**.1.6 Leachate Collection.** Leachate is collected and does not escape from the Facility. The LCRSs are underlain by a compacted clay liner, designed to minimize vertical movement of leachate through the liner. Further, the closed surface impoundments are located on broad flat areas that are underlain by more than 100 feet of Round Mountain Silt (EMCON, 1989). The Round Mountain Silt is composed of siltstone and claystone and is the geologic formation from which the clay bottom liners and clay portion of the closure cover were derived. This geologic formation provides a further significant barrier to leachate migration as the first groundwater beneath the EWMU is in the Olcese Sand, which underlies the Round Mountain Silt. No groundwater is found in the Round Mountain Silt

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[1]eneath the EWMU, and water quality in the Olcese Sand has been shown to be unaffected by the waste management units (Geomatrix, 2006b).

DTSC Response to Comment 45)

Please see DTSC Response to Comment 16) and Comment 30).

Comment 46)

[2]**2.1.7 Rainfall Impacts.** Contrary to the Findings' concern regarding rainfall washing hazardous constituents downstream, rainfall does not contact waste at the site. All areas of waste were covered by the engineered and accepted cover layer, which is comprised of 18 inches of compacted clay and 15 inches of compacted fill. The site is inspected regularly for breaches in the cover layer and, if found, the breaches are repaired. Moreover, as discussed elsewhere in these Comments, the waste in Bakersfield landfill was essentially non-hazardous to begin with.

DTSC Response to Comment 46)

Please see DTSC Response to Comment 16), Comment 30), and Comment 35).

Comment 47)

[3]**2.1.8 Emissions.** No waste products escape to the atmosphere, as only incidental VOC wastes were disposed at the Facility. No VOCs have been found in leachate or groundwater, and only minor amounts (less than the soluble threshold limit value) have been detected in soil samples, and only in a very few locations. These soils have been isolated from the atmosphere by the cover layer. Thus, it is clear from existing site data that the Bakersfield Facility meets the criteria that the facility "*can be closed and maintained for at least 30 years subsequent to its closure in a manner that protects human health and the environment and minimizes or eliminates the escape of hazardous waste constituents, leachate,* [4]*contaminated rainfall, and waste decomposition products to ground and surface waters and to the atmosphere.*"

DTSC Response to Comment 47)

Please see DTSC Response to Comment 16), Comment 30), and Comment 35).

Comment 48)

[5]**2.1.9 Duration of the Post-Closure Maintenance.** The Findings document confused the post-closure care period with the closure cover design standards. Page 6: The fifth sentence in the third paragraph states, *"For facilities with surface impoundments and landfills, the California Code of Regulations, title 22,*

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Section 66264.310 dictates requirements to meet performance standards for closure covers that must be maintained for a period of at least 100 years."

100 Year Design. The Findings interpretation is a misrepresentation of CCR Title 22 CCR §66264.310. This section in Title 22 says, *"at final closure of the landfill or upon closure of any cell, the owner or operator shall cover the landfill or cell with a final cover designed and constructed to: (1) prevent the downward entry of water into the closed landfill throughout a period of at least 100 years; (2) function with minimum maintenance."* This is a design-life performance standard, not maintenance standard. It says the cover must be designed and constructed to meet the performance standard for 100 years and function with minimum maintenance; it does not say, "closure covers ... must be maintained for a period of at least 100 years." Otherwise, the postclosure care period would have been set at 100 years instead of 30 years as it is and has been since CCR Title 22 was initially promulgated. Further, the performance standard for closure, as described above in our comments to page 5 of the Findings, is set forth in CCR Title 22 §66264.111 and requires the facility to control, minimize or eliminate post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated rainfall or runoff, or waste decomposition products to the extent necessary to protect human health or the environment. The cover meets the performance standard in CCR Title 22 §66264.111, based on evidence from monitoring wells (see discussion under Section 3.3, below).

DTSC Response to Comment 48)

Please see DTSC Response to Comment 16) and Comment 18).

Comment 49)

2.2 The Findings Fail to Address Water Quality Data

The most significant feature of the Findings is the omission of water quality data for the site. By its own admission, the Findings report simply declines to address water quality issues, dismissing as "*inconclusive*" two decades of required and appropriately conducted water quality data on record for this site. This is apparently because the only contaminants found in groundwater, inorganic constituents, are also found to occur naturally at high concentrations in the regional groundwater. However, the omitted data indicates that no organic or hazardous concentrations of waste constituents have leached from the Bakersfield Facility into local groundwater and the levels of TDS in previously impacted groundwater have declined steadily over the past 21years.

Page 7: The second paragraph states, *"It should be noted that although California law also requires environmental monitoring, groundwater monitoring information is not discussed in this report as the region's naturally poor groundwater quality, combined with the inorganic characteristics of the disposed*

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wastes, makes a finding as to the extent of a release to groundwater inconclusive."

2.2.1 DTSC Participated in Water Quality Monitoring. The Findings ignore the 21 years of groundwater monitoring from 38 groundwater monitoring wells at the Facility. They label all of this data "inconclusive," even though DTSC has at times helped shape and direct the groundwater monitoring at the Facility. In its CME (DTSC, 2002b), DTSC made several conclusions regarding the groundwater quality data, including the observation that constituent concentrations in groundwater have decreased since site closure. Based upon review of water quality data, DTSC also made numerous recommendations for the facility. In the CME, DTSC requested that VOCs and SVOCs be added to the routine monitoring parameter list for four consecutive semiannual monitoring events in 2003 and 2004 and VOCs only for the second semi-annual event in 2005. Groundwater samples were tested in 1984 and when no VOCs were detected, they were removed from the list of parameters monitored. These constituents had not been required by the Waste Discharge Requirements, as it was apparently recognized that the release from the facility was inorganic in nature. DTSC also requested numerous changes to monitoring well locations, and screened intervals within the monitoring wells. As reported in the semi-annual groundwater monitoring reports, no VOCs or SVOCs were confirmed in groundwater or leachate samples collected during that time from EWMU and WWMU monitoring wells, Poso Creek wells, or the groundwater in the NWCCP.

DTSC Response to Comment 49)

Please see DTSC Response to Comment 16) and Comment 30).

Comment 50)

2.2.2 Poor Groundwater Quality. DTSC acknowledges the "region's naturally poor groundwater quality" (which has naturally high concentrations of inorganic chemicals) and essentially concedes the fact that the disposed waste is of an "inorganic" as opposed to hazardous character. In fact, the data are so "conclusive" on this point, that no data has been provided to demonstrate that hazardous materials are present in the groundwater or leachate. If they were present, the extent of any hazardous releases specific hazards posed should be a focal point in this discussion. Additionally, DTSC points to no specific hazards that could result from the presence of inorganic waste either. This is because the data clearly show that **the likelihood of *risk to human health and the environment* from a release of leachate or groundwater impacted by waste of an inorganic character -- in an area of already naturally poor groundwater quality -- *is extremely low*.** A risk evaluation concluded that there is little or no likelihood of direct or indirect human contact with waste or waste constituents. Even if a pathway involving human contact could be envisioned, such exposure would not pose a risk to human health or safety (Meredith/Boli, 1989). The risk

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