Department of Toxic Substances Control

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Secretary for
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Governor

November 6, 2017

Mr. Robert Henry
Senior District Manager
Chemical Waste Management, Inc.
P.O. Box 471
Kettleman City, California 93239

SECOND NOTICE OF DEFICIENCY FOR REVISED PERMIT RENEWAL APPLICATION FOR THE CHEMICAL WASTE MANAGEMENT, INC., KETTLEMAN HILLS HAZARDOUS WASTE FACILITY, 35251 OLD SKYLINE ROAD, KETTLEMAN CITY, CALIFORNIA; EPA ID. NO. CAT 000 646 117

Dear Mr. Henry:

The Department of Toxic Substances Control (DTSC) has completed its technical review of the *Hazardous Waste Facility Permit Renewal Application* dated July 15, 2017, for the Chemical Waste Management, Inc. (CWMI), Kettleman Hills Facility (KHF) located 35251 Old Skyline Road, Kettleman City, California, hereinafter referred to as the "Revised Application." The Revised Application has been reviewed for compliance with the applicable requirements of California Code of Regulations, title 22, division 4.5 and the Health and Safety Code, division 20. DTSC has determined that the Revised Application is deficient. The enclosed comments comprise the Notice of Deficiency (NOD) issued for the Revised Application. DTSC would like to schedule a meeting to discuss the deficiencies. I will contact you shortly to schedule this meeting.

**<u>The following must be submitted by March 16, 2018:</u>**

1) Two hardcopies and one electronic PDF copy (CD or flash drive) of the complete, clean version of the revised permit application. The revised permit application must be a complete application with all sections, figures, tables, appendices, calculations, attachments and all information required by California Code of Regulations, title 22, division 4.5 and the Health and Safety Code, division 20. In other words, the revised permit application must be a stand-alone document with all deficiencies corrected.

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2) One hardcopy redlined/strikeout version of the Revised Application showing the changes that have been made as requested in the NOD.

3) One hardcopy of the written response to each of the deficiencies identified in the NOD. In responding to each of the deficiencies, restate the deficiency and identify the page number(s) in the revised permit application where each deficiency has been addressed.

Please note that pursuant to Health and Safety Code section 25200.8 and California Code of Regulations, title 22, section 66271.2(e), DTSC may deny permit applications based on a failure of the applicant to respond to a NOD or when the applicant responds with substantially incomplete or substantially unsatisfactory information.

If you have any questions, please contact me at Ryan.Batty@dtsc.ca.gov or at (916) 255-3644.

Sincerely,

Ryan W. Batty, P.E.
Senior Hazardous Substances Engineer
Permitting Division
Department of Toxic Substances Control

Enclosures (4)

cc See next page.

cc (via email, w/ enclosures):

Ms. Reyna Verdin, CWMI-KHF, rverdin1@wm.com
Mr. Tom Huetteman, US EPA-Region 9, Huetteman.Tom@epa.gov
Ms. Barbara Gross, US EPA-Region 9, Gross.Barbara@epa.gov
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**SECOND**
**NOTICE OF DEFICIENCY**
**CHEMICAL WASTE MANAGEMENT, INC.**
**KETTLEMAN HILLS FACILITY**
**EPA ID. NO.: CAT 000 646 117**

**November 6, 2017**

The results of the Department of Toxic Substances Control's (DTSC) technical review of the permit application (Application) for the Chemical Waste Management, Inc. (CWMI), Kettleman Hills Facility (Facility), are presented below. The technical review is formatted to correspond with the sections presented in the Application. For each deficiency, the following are provided: (1) the chapter/section/page in which the deficiency is found in the Application; (2) the requirements (i.e. relevant statute and/or regulations, where applicable), which provides the basis for the deficiency; (3) DTSC's findings; and, (4) instructions for remedying the deficiency.

## General Comments on the Application

1. Proposed Waste Management Units: Pursuant to California Code of Regulations, title 22 (Cal. Code Regs., tit. 22), section 66270.14, an application to operate as a hazardous waste facility must include specific information to be considered complete. The regulations apply to all hazardous waste management units (units) i.e. both existing and proposed units.

   The Application includes several units that were proposed many years ago and were never constructed. For most of the proposed units, the information provided in the Application is either incomplete or out of date. In addition, some of the proposed units cannot be constructed at the locations originally proposed.

   CWMI should review all the proposed units to determine which of the units are still viable and actually necessary. For those proposed units that are retained, CWMI should ensure that the Application is complete.

2. References to Federal Regulations: DTSC implements the State of California Hazardous Waste Control Law (HWCL) and implementing regulations, in lieu of Resources Conservation or Recovery Act (RCRA). DTSC does not directly implement RCRA or its implementing regulations found in Code of Federal Regulations, title 40 (Code Fed. Regs., tit. 40).

   In several instances in the Application, Federal regulations (Code Fed. Regs., tit. 40) are cited but California regulations are not. DTSC does not object to including references to Federal regulations in an application if the corresponding California regulations are also indicated. However, providing only the reference to Federal regulations is not acceptable.

CWMI should revise the Application to ensure that California regulations are cited in addition to Federal regulations.

3. Permit Application Structure: Pursuant to Cal. Code Regs., tit. 22, § 66270.14(b)(19), the application must contain any additional information related to the proposed activity or facility which is requested by DTSC. This regulation provides DTSC with the discretion to request changes to the application to improve the readability and enforceability of the document.

   DTSC encourages applicants to structure permit applications on a per unit basis so that all relevant information for each unit is in one place, and to more closely align the application with the permit which is written on a per unit basis.

   DTSC recommends replacing Chapters 14 through 23 with individual chapters dedicated to the following units:

   - Drum storage unit.
   - Final stabilization unit.
   - Bulk storage units (combined).
   - PCB flushing/storage unit.
   - Surface impoundments (combined) i.e. keep Chapter 17 as is.
   - Landfill B-18 i.e. keep Chapter 19 as is.
   - Solar evaporation tanks (combined).

   DTSC would like to discuss this comment further during the meeting to be scheduled after the NOD is issued.

**Specific Comments on the Application**

4. Chapter 1 – Introduction, Page 1-1: Health and Safety Code, Division 20, Chapter 6.5, Section 25101(d), establishes that the California state hazardous waste program is implemented in lieu of RCRA.

   The statement that "…DTSC is authorized to implement the Resource Conservation and Recovery Act…" is not completely accurate. DTSC prefers alternative language that makes clear that DTSC implements the State Hazardous Waste Control Law in lieu of RCRA, and that the state program contains additional requirement not found in RCRA.

   DTSC suggests the following edits[1]:

   > *The State of California ~~DTSC~~ is authorized to administer ~~implement~~ the California Hazardous Waste Control Law (codified in Health and Safety*

[1] CWMI is responsible for the content of the Application. CWMI is not required to adopt DTSC's suggested edits but must address the comment.

*Code, division 20, chapter 6.5) in lieu of the Resource Conservation and Recovery Act (RCRA) ~~regulations applicable to KHF~~ pursuant to Code of Federal Regulations Title 40 (40 CFR) Part 271. DTSC has promulgated regulations in 22 CCR, division 4.5, to implement the Hazardous Waste Control Law which includes provisions that are more restrictive than those in 40 CFR. However, the U.S. Environmental Protection Agency (EPA) retains authority for administration of certain restrictions of the RCRA Hazardous and Solid Waste Amendments until California obtains final or interim authorization for those restrictions (40 CFR 271.3[b][3]). EPA is expected to review this Part B Permit Application for KHF in accordance with EPA's responsibilities and authority under 40 CFR Part 271.*

*DTSC~~The Department of Toxic Substances Control~~ issued an extension for the submittal deadline. This Part B Renewal Application was initially submitted to DTSC by CWMI on February 18, 2013.*

*…DTSC's Permit Completeness Checklist…*

5. Chapter 2 – Part A, Hazardous Waste Permit Information Form, Attachment 2: Pursuant to Cal. Code Regs., tit. 22, § 66270.13, all applicants for permits must provide information to the Department using the Part A application form provided by the Department. The Department directs applicants to use the current forms provided by the U.S. Environmental Protection Agency (EPA).

   The following deficiencies were identified with Part A of the Application.

   a. The Part A form included in the Application was current at the time that it was filed with DTSC in 2013. However, the form has since expired on 12/31/2014. EPA has a revised form which will expire on 05/31/2020.
   b. The hazardous waste management units at the Facility in post-closure are not referenced on page 3 of 7 or on Attachment 2.
   c. An estimate of the annual quantity of waste managed is not provided on page 5 of 7 or in Attachment 3.
   d. The information in Part A of the Application concerning the design capacity of the hazardous waste management units conflicts with information contained in Part B of the Application. For example, the Bulk Storage Unit capacity (4,600 CY vs. 4,978 CY) and the Drum Storage Unit capacity (467,500 gallons vs. 495,000 gallons) conflict.
   e. Attachment 2 does not mention micro-encapsulation or deactivation as treatment technologies.
   f. Attachment 2 references landfill B-18 phase III only but should indicate the total landfill capacity. As written, this would only allow for disposal in phase III. There may be a small amount of capacity remaining in landfill phases I and II.

g. Attachment 3 categorizes the waste streams received at the Facility into eleven (11) waste types. However, the categories are too broad to be able to clearly articulate which waste streams may be managed in which units.
h. The table in Attachment 3 (page 2) is a continuation of the information from page 5 of section 10 of the EPA form. However, the two tables together do not match the information in the table in Attachment 3 (page 3). For example, for line 1, process code S02 is missing from the table in Attachment 3 (page 2).
i. The table in Attachment 3 (page 2) contains incorrect information. For example, waste type #7 (other bulk liquids), should not include landfilling because disposal of liquids in a landfill is prohibited. Only those operations that apply to bulk liquids should be listed. If bulk liquids are solidified in the Final Stabilization Unit (FSU) then they are now a solid waste which is covered by waste type #8 (bulk or containerized solid wastes) which the table notes can be landfilled.

CWMI should revise Part A of the Application, as follows:

A. Use the Part A forms with an expiration date of 05/31/2020.
B. Include a note on the form that directs the reader to a new table with information on all the units in post-closure.
C. Provide an estimate of the annual quantity of waste received on a per waste code basis. For example, create a new table and providing the minimum, maximum, and average quantity of waste received annually over the last ten (10) years, on a per waste code basis.
D. Resolve the discrepancies between unit capacities to ensure that the information in Part A and Part B of the Application is consistent.
E. Include all forms of treatment performed at the Facility.
F. List all the phases of landfill B-18 and list the total landfill volume.
G. The eleven (11) categories of waste types should be expanded. For example, solids waste and lab packs are separate and distinct waste streams. DTSC would like to discuss this comment further during the meeting to be scheduled after the NOD is issued.
H. Ensure that the information on the form and the continuation table (Attachment 3, page 2), matches the information in the table in Attachment 3 (page 3).
I. The table should be revised so that the process codes refer to the waste in the form as described. For example, remove landfilling from waste type #7 because if bulk liquids are solidified in the FSU then they are now a solid waste which is covered by waste type #8.

6. <u>Chapter 4 – Topographic Map of Facility, Page 4-1:</u> Pursuant to Cal. Code Regs., tit. 22, §§ 66263.18 and 66264.1, waste transfer from container to container is a regulated activity.

The text in the most recent version of the Application was changed from the prior version and the word "transfer" was deleted. The change should be reversed or the basis for the deletion should be explained.

DTSC suggests the following edits:

- *Transfer, treatment, storage and disposal operations;*

7. Chapter 4 – Topographic Map of the Facility, Figure 4-2-1: Pursuant to Cal. Code Regs., tit. 22, § 66270.14(b)(18)(G), an applicant must provide a map clearly showing the legal boundaries of the hazardous waste management facility site.

   Figure 4-2-1 of the Application includes a line depicting the limits of the "operations area". However, the untarping rack, scales, and lab are not located within the operations area.

   CWMI should include a copy of the conditional use permit in the Application and demonstrate that operations conducted at the untarping rack, scales, and lab are authorized at their present location.

8. Chapter 4 – Topographic Map of the Facility, Figure 4-2-1: Pursuant to Cal. Code Regs., tit. 22, § 66270.14(b)(18), the topographical map must clearly show the location of operational units within the hazardous waste management facility site where hazardous waste is (or will be) managed. In addition, the location of all injection and withdrawal wells must be indicated on the map.

   The topographic map included in the Application (Figure 4-2-1) does not include elevations, so it is not possible to distinguish between areas of high and low elevation. In addition, the map does not indicate the locations of all proposed waste management units. Finally, nearby oil production wells are not indicated on the map.

   CWMI should revise the topographic map to allow the reader to distinguish between areas of high and low elevation, to show the planned location of any future waste management units, and to show the locations of any oil production wells within 2,000 feet of the property boundary.

9. Chapter 4 – Topographic Map of the Facility, Figure 4-3-1: Pursuant to Cal. Code Regs., tit. 22, § 66270.14(b)(19), the application must contain any additional information related to the proposed activity or facility which is requested by DTSC.

   The scope of the permit renewal does not include landfill B-20 and therefore it is not necessary or appropriate to mention it in the Application.

CWMI should remove references to proposed landfill B-20 from the Application.

10. Chapter 11 – Waste Profile Form, Page 11-2: Pursuant to Cal. Code Regs., tit. 22, § 66270.42, certain changes to operations at a hazardous waste facility may only be implemented via a permit modification.

    The Application states that "[a] sample waste profile form is provided in Exhibit 12-1. The actual form used may be modified from time to time to reflect changes in regulations, customer needs, facility operation, company policy, or other needs."

    CWMI should revise the Application to indicate that if the form is changed, the need for a permit modification will be evaluated at that time and in consultation with DTSC.

11. Chapter 12 – Revision of the Waste Analysis Plan (WAP), Page 12-2: Pursuant to Cal. Code Regs., tit. 22, § 66270.42, certain changes to operations at a hazardous waste facility may only be implemented via a permit modification.

    The language in the Application suggests that changes to the WAP can be made without a permit modification. The scenario described of a regulatory change with immediate effect can be addressed through a temporary authorization pursuant to Cal. Code Regs., tit. 22, § 66270.42(e).

    DTSC suggests the following edits:

    > ~~*CWMI strives to maintain, at all times, complete compliance with the hazardous waste regulations. Because new or revised testing requirements, such as those promulgated under the land disposal restrictions, often become effective prior to the time WAP revisions can be formally made and approved by appropriate agencies it is not practical to have in place an approved WAP meeting the conditions of the immediately effective regulatory requirements.*~~
    >
    > ~~*In lights of these facts, the facility has in place a protocol specifying the testing and frequency of testing requirements prior to acceptance and/or processing of the regulated waste. The facility may periodically revise the protocol to reflect scientific advances or additional regulatory requirements.*~~
    >
    > *This WAP may periodically require revision due to changes in technology and/or regulatory requirements. Changes to the WAP will be made in accordance with the requirements for completing a permit modification found in 22 CCR 66270.42. In addition, CWMI may request temporary authorization from DTSC to implement changes to the WAP when such*

*changes are needed on short notice. The procedures for requesting temporary authorization are found in 22 CCR 66270.42(e).*

12. Chapter 12 – Operating Record, Page 12-2: Pursuant to Cal. Code Regs., tit. 22, § 66270.14(b)(8)(D), the application must include a description of procedures used to mitigate effects of equipment failure and power outages.

    During the DTSC site visit on May 18, 2017, internet access was down and it appeared that this created challenges during waste acceptance.

    CWMI should revise the Application to describe which records are maintained at the Facility in hard copy and which are only accessible electronically. The Application should describe the strategies that will be used to ensure that the Facility can continue to operate without internet access while maintaining compliance with the applicable regulations.

13. Chapter 12 – Standard Profiles, Page 12-8: Pursuant to Cal. Code Regs., tit. 22, § 66264.13(c), the application must include a WAP that specifies the procedures used to ensure that waste received at the facility matches the identity on the accompanying manifest or shipping paper.

    The Application contains relatively little information on the process for establishing standard profiles. Standard profiles are useful for waste streams that are well defined and consistent. However, if improperly used, a standard profile could result in inadequate treatment.

    CWMI should revise Section 4.2 of the Application to provide additional detail regarding the process used to establish standard profiles and to assign a waste stream to the standard profile.

14. Chapter 12 – Waste Profile Re-evaluation, Page 12-9: Pursuant to Cal. Code Regs., tit. 22, § 66264.1082(c)(1), the owner or operator must review and update, as necessary, the average volatile organic (VO) concentration determination at least once every 12 months.

    The Application indicates that waste profiles will be evaluated at least every 24 months. However, the determination of average VO concentration must be made every 12 months.

    CWMI should revise the Application to state that the determination of average VO concentration will be reviewed and updated every 12 months.

15. Chapter 12 – Incoming Waste Shipment Procedures, Beginning Page 12-10: Pursuant to Cal. Code Regs., tit. 22, § 66264.13(c), the application must include a WAP that specifies the procedures used to ensure that waste received at the facility matches the identity on the accompanying manifest or shipping paper.

The Application does not mention the existing site practice of screening of incoming shipment of waste for radionuclides. This is achieved using fixed radiation detectors that are mounted at the entrance to the truck scales.

CWMI should revise the Application to include information on the type of equipment used, action levels, and the response to be taken if radionuclides are detected. DTSC recommends that CWMI consult with the California Department of Public Health on appropriate language and consider referencing the guidance document entitled "Detection and Prevention of Radioactive Contamination in Solid Waste Facilities," published March 1998 by the Conference of Radiation Control Program Directors, Inc.

16. Chapter 12 – Exemption for Non-RCRA Hazardous Waste, Page 12-12: Pursuant to Cal. Code Regs., tit. 22, § 66264.13, an off-site facility must have a WAP that specifies the procedures which will be used to inspect and, if necessary, analyze each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper.

    The Application indicates that all shipments of non-RCRA hazardous waste are exempt from mandatory sampling as defined in Table 3-1 of the WAP. This exemption is too broad. This exemption is also problematic as it pertains to non-RCRA used oil as will be discussed in the next comment in this NOD. In addition, the example paperwork references ten (10) standard exemptions but they do not correlate with the exemptions cited in the Application.

    CWMI should revisit the exemption from performing testing of incoming shipments of non-RCRA waste. For each of the mandatory analysis methods outlined in Table 3-1 of the WAP, CWMI must justify the decision to either include or exclude non-RCRA hazardous waste. In addition, the Application should contain additional information explaining the correlation between the exemptions in Section 5.1.1 of the WAP and the ten (10) exemptions indicated on the example paperwork.

17. Chapter 12 – Used Oil: Pursuant to Cal. Code Regs., tit. 22, § 66264.13, an off-site facility must have a WAP that specifies the procedures which will be used to inspect, and, if necessary, analyze each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper. In addition, Cal. Code Regs., tit. 22, div. 4.5, chpt. 29, article 10, contains requirements for the management of used oil.

    The Application indicates that any waste accepted at the Facility is eligible for container to container transfer, including used oil. However, the Application does

not specify the procedures used to determine whether used oil may be contaminated with poly-chlorinated biphenyls (PCBs) and/or halogens.

CWMI should revise the Application to describe how to demonstrate that non-RCRA used oil is free from contamination by PCBs and halogens prior to performing container to container transfer. As a guide, DTSC has provided example permit language as Attachment 1 of this NOD. It is DTSC's preference that CWMI include similar procedures in the WAP, thus avoiding the need to include these conditions in the permit.

18. Chapter 12 - Manifest Discrepancies, WAP, Page 12-13: Pursuant to Cal. Code Regs., tit. 22, § 66264.72(b), there are established criteria for determining when a significant discrepancy exists.

    The text in the most recent version of the Application was changed from the prior version and the reference to a weight discrepancy of 10% was removed. The change should be reversed or an explanation for the change should be provided.

    DTSC suggests the following edits:

    > *Facility management must classify the waste as being in "non-conformance" if it is significantly different in type from the information shown on the manifest (in accordance with 40 CFR 264.72 and 322 CCR 66264.72). In addition, it would also be classified as a significant discrepancy if ~~it is significantly different in weight (volume) or piece count~~ the piece count is different, or if the weight (volume) of a bulk load differs by more than 10%, from the information shown on the manifest.*

19. Chapter 12 – Waste Staging, WAP, Page 12-14: Pursuant to Cal. Code Regs., tit. 22, § 66263.18, there are location and timeframe limits on the storage of hazardous waste considered to be in transit.

    The Application mentions "proper staging locations" but no other information is provided indicating the existing staging locations used by the Facility or the process used to identify new or different locations.

    CWMI should revise the Application to include additional information describing the existing staging locations for waste that has yet to be formally accepted by the Facility. The Application should discuss the relevant regulations that govern such staging, and maximum timeframes etc.

20. Chapter 12, WAP, Page 12-16: Pursuant to Cal. Code Regs., tit. 22, § 66264.175(a), container transfer and storage areas must have a containment system.

The text in the most recent version of the Application was changed from the prior version and the words "within secondary containment" were deleted. The change should be reversed or an explanation for the change should be provided.

DTSC suggests the following edits:

> *Bulking operations may be carried out within secondary containment at the Final Stabilization Unit (FSU), DSU, or the PCB Flushing/Storage Unit.*

21. Chapter 12 – LDR Treatment Verification, Page 12-18: Pursuant to Cal. Code Regs., tit. 22, § 66268.7(b), a treatment facility must test its waste in accordance with the frequency specified in its WAP.

    The Application states that upon initial receipt of a land disposal restricted (LDR) waste stream, the first three shipments of the LDR waste will be stabilized, sampled, stored, and analyzed to demonstrate the treatment efficiency of the mix ratio used for stabilization. The Application does not specify if a waste stream refers to waste from a single generator or, as in the case of a standard profile, waste from multiple generators.

    CWMI should revise the Application to clarify whether the term "waste stream" refers to waste from a single generator or a single profile. If waste stream refers to a single profile, CWMI should revise the Application to indicate that some testing to confirm that the LDR treatment standard is met is required for each waste stream on a per generator basis. For example, DTSC suggests the following edits to the end of section 6.3.3:

    > *Notwithstanding the above, any time a new generator's waste is added to a standard profile, the first batch of treated waste from that generator will be tested to confirm that the treatment was effective. This analysis may serve as the annual verification analysis for the standard profile.*

22. Chapter 12 – Example 10.3: Pursuant to Cal. Code Regs., tit. 22, § 66268.7, the generator of a hazardous waste must complete an LDR certification.

    The LDR certification form included with Example 10.3 is a Waste Management form. The form references the certification language from Code Fed. Regs., tit. 40, part 268.49. The certification statement required by California regulations (Cal. Code Regs., tit. 22, § 66268.7) is different from the certification statement required by Federal regulations. The statement appearing on note 4 of the form does not overcome this problem. Furthermore, the example provided is for a California generated waste to be disposed in California so there is no potential issue of complying with rules for multiple states.

    CWMI should revise the Application so that the LDR notification and certification form that it provides to its customers complies with California regulations. The

example should be updated accordingly. In addition, CWMI should incorporate the three examples of completed paperwork (Examples 10.1 through 10.3) into the Application.

23. Chapter 12 – Appendix WAP-B: Pursuant to Cal. Code Regs., tit. 22, § 66262.11, a generator of hazardous waste is responsible for making a hazardous waste determination.

    The Application should include additional information concerning the characterization of landfill leachate, including the frequency of re-analysis, and any other applicable information from the EPA's August 23, 2011 Consent Agreement and Final Order. Furthermore, the Application should reference California regulations in addition to Federal regulations.

    CWMI should revise the Application to state the frequency of analysis of leachate for characterization purposes, and must reference Cal. Code Regs., tit. 22, div. 4.5, chpt. 18.

24. Chapter 12 – Methods and Standards: Pursuant to Cal. Code Regs., tit. 22, § 66264.13(b)(2), an owner/operator must follow a written waste analysis plan that specifies the test methods which will be used.

    The WAP references many EPA methods and standards published by other organizations. Some of the methods and standards are freely available and others must be purchased. The Application should indicate that the Facility has access to all the methods and standards mentioned in the Application.

    CWMI should revise the Application to indicate that it has access to all methods and standards for analysis performed on-site. CWMI should ensure that it can produce relevant methods and standards upon request.

25. Chapter 12 – Waste Compatibility Testing: Pursuant to Cal. Code Regs., tit. 22, § 66264.13(b)(2), an owner/operator must follow a written WAP that specifies the test methods that will be used.

    Changes to the WAP were proposed in a letter from R. Verdin to R. Batty dated July 27, 2017, that was prepared after the latest revision of the Application was submitted. These changes should be incorporated into the WAP.

    CWMI should revise the WAP to include the changes proposed in the July 27, 2017, letter.

26. Chapter 14 – Consolidation Activities, Page 14-2: Pursuant to Cal. Code Regs., tit. 22, § 66260.10, transfer means the loading, unloading, pumping or packaging of hazardous waste. Furthermore, the requirements of Chapter 14, Article 9, apply to facilities that transfer hazardous waste.

The Application contains very limited information regarding consolidation activities to be conducted at the Drum Storage Unit (DSU). The Application should be thoroughly revised to provide significant additional detail. For example, every type of consolidation operation (i.e. truck to truck, container to truck, container to bulk roll-off), should be described. In addition, reasonable constraints should be placed on the types of waste to be consolidated. Finally, it is DTSC's opinion that transfer activities should only occur in the loading/unloading area. The containers involved in the transfer should be moved to the loading/unloading area and staged so that they are both located within the same secondary containment i.e. the same pair of bays.

CWMI should revise the Application to include, at a minimum, the following information:

- A description of every type of consolidation operation and where and how it is performed. The Application should state that transfer activities will only occur in the loading/unloading area.
- The suitability of each category of waste (e.g. ignitable, reactive etc.) for consolidation.
- A discussion of parameters that indicate suitability for consolidation e.g. vapor pressure, dust generation.
- A description of safety issues during transfer including grounding (expand on the information on page 34-1).
- A discussion of the venting of vapor and any vapor recovery or control devices to be utilized.
- A discussion of the process for determining compatibility of the hose with the material to be transferred and procedures for emptying of hoses.
- For truck-to-truck consolidations, a description of the roles and responsibilities of the driver(s) and CWMI personnel i.e. identify who is responsible.
- Examples of forms used during consolidation.

CWMI should consider incorporating this information into a Standard Operating Procedure (SOP).

27. <u>Chapter 14 – Section 14.3(a), PCB Storage, Page 14-4:</u> Pursuant to Code Fed. Regs., tit. 40, part 761.65(a)(1), PCB waste must be disposed of within one year from the date it was determined to be PCB waste and the decision was made to dispose of it.

    The Application states that PCB articles and waste stored at the PCB Flushing/Storage Unit is removed from storage and treated and disposed within one year of the dated when the waste was first placed in storage. The

Application should clarify that the waste must be sent for disposal within one year of the date it was taken out of service by the generator.

CWMI should revise the Application to clarify that the one-year storage limit is tied to the date that the waste was generated, not received at the Facility.

28. Chapter 14 – Marco-encapsulation and Micro-encapsulation, Page-14-9: Pursuant to Cal. Code Regs., tit. 22, § 66270.14(b)(19), the application must contain any additional information related to the proposed activity or facility which is requested by DTSC.

    The information provided in the Application concerning encapsulation is too general.

    CWMI should revise the Application to include, at a minimum, the following:

    Macro-encapsulation
    - Dimensions and volume of vaults.
    - Top cover material and thickness.
    - A photograph of a vault.
    - Any other relevant information e.g. a copy of the patent.
    - The Application should state that an HDPE liner will only be used for large or irregularly shaped objects that will not fit in a vault.

    Micro-encapsulation
    - Range of coating materials used.
    - Required coating thickness.

29. Chapter 14 – Unloading Bay Secondary Containment Volume, Table 14-1: Pursuant to Cal. Code Regs., tit. 22, § 66264.175(b), an application must include information to demonstrate that a transfer area has adequate secondary containment.

    The information in Table 14-1 of the Application does not clearly indicate the storage volume of each unloading bay.

    DTSC suggests the following edits:

    Add a new footnote to the volume of 315 gallons in Table 14-1, as follows:

    *(1) Per individual storage bay (there are nine total).*
    *(?) Per individual unloading bay (there are four total, with a capacity for two trucks each).*

30. Chapter 14 - BSU Secondary Containment Calculations, Exhibit 14-1: Pursuant to Cal. Code Regs., tit. 22, § 66264.175, container transfer and storage areas

where waste containing free liquids are managed, must have secondary containment.

The Application includes a request to store waste containing free liquids in Bulk Storage Unit (BSU) 2. Accordingly, § 66264.175(c) does not apply. Therefore, the statement in the Application that secondary containment is "…not required by federal or state regulations…" is inaccurate. In addition, the exhibit consists of six pages of calculations but the engineer's certification is only associated with the final two pages.

CWMI should revise the Application to correctly reflect the relevant regulations. In addition, the engineer's certification should cover the entire exhibit.

31. Chapter 14 – Drum Storage Unit (DSU), Figure 14-1: Pursuant to Cal. Code Regs., tit. 22, § 66270.14(b)(19), the application must contain any additional information related to the proposed activity or facility which is requested by DTSC.

    In Figure 14-1 of the Application, there is no way to distinguish between the storage bays or between the unloading bays. The row of one bay featuring the cage is not shown and the design could impede access to the aisles. In addition, section B-B' of the figure could lead to confusion regarding the maximum number of drums that can be stored because the drum configuration shown is not consistent with painted lines designating aisles.

    CWMI should revise the Application to include storage bay numbers (i.e. 1 through 9) and unloading bay numbers. Revise figure section B-B' to indicate the maximum number of drums that can be stored in a storage bay in the north-south direction. Remove and/or modify the cage to ensure that it is a compliant modification to the DSU.

32. Chapter 14 – Drum Storage Unit (DSU) Storage Cage, No Page Reference: Pursuant to Cal. Code Regs., tit. 22, § 66270.42, certain modifications to a hazardous waste facility may only be implemented via a permit modification.

    The existing cage at the DSU should be discussed in the Application and be indicated on any relevant figures. In addition, the cage must be designed so that it does not infringe on the minimum aisle spacing and does not present an entrapment hazard.

    CWMI should revise Section 14.2 and figure 14-1 of the Application to include the cage and provide a demonstration that the cage complies with all relevant regulations.

33. Chapter 14, BSU 1 Asphalt, No Page Reference: Pursuant to Cal. Code Regs., tit. 22, § 66264.175, a container storage area must have a containment system

which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed.

In order for DTSC to take the asphalt area at BSU 1 into account, it must meet the requirements for secondary containment, including being free from cracks and gaps, etc. DTSC was not able to determine the condition of the asphalt during a site visit on May 18, 2017, because it was covered with gravel and soil. In addition, liquid waste spilt on the asphalt could run-off or tracked onto the non-paved portion of the unit. CWMI must either; (1) present all the required information to demonstrate that the asphalt is a functioning part of the secondary containment for BSU 1; or (2) acknowledge that the asphalt is simply an extra barrier that does not change the suitability of BSU 1 to store waste with free liquids.

Based on the existing information provided, DTSC suggests the following edits:

> *BSU 1 consists of a single geosynthetic liner overlain by an aggregate liner protection layer and is primarily used for ~~temporary~~ storage of stabilized waste from the FSU that has been treated to remove any free liquids. If it is subsequently found that the waste contains free liquids, the waste will be moved out of BSU 1. After confirmation that stabilized waste meets the appropriate treatment standard(s) based on the site's post-treatment analysis program, the stabilized waste is transported to an onsite landfill or to another off-site permitted facility for treatment and/or disposal. Approximately 7,000 square feet (18 percent) of BSU 1 includes a bermed asphalt pad above the aggregate layer that may be used for short-term (up to xx hours) staging of land disposal restricted (i.e., unstabilized) wastes that does not contain free liquids. For example, drums of waste, that do not contain free liquids, may be moved to the asphalt pad the night before the waste is intended to be processed at the FSU to facilitate operations efficiency. The asphalt pad may also be used for sealing (but not filling) of bulk containers for macro-encapsulation of land disposal restricted debris~~, and staging of bulk liquid delivery vehicles for FSU processing~~. The asphalt pad includes a roofed structure for sealing bulk containers (no foundation other than the asphalt floor) to provide weather protection for workers. Unstabilized wastes are not ~~normally~~ stored outside the paved area in BSU 1.*

34. Chapter 15 - Final Stabilization Unit (FSU) Tanks, Page 15-4: Pursuant to Cal. Code Regs., tit. 22, § 66270.16, the owners and operators of facilities that use tanks to transfer, store, or treat hazardous waste must provide a description of the design and operation procedures.

The Application does not include information about the sacrificial liners/wear plates that have been installed in the FSU tanks. Please discuss in the text of the Application in addition to the engineer's certification.

CWMI should revise the Application to describe the liners that have been installed including date installed, dimensions, steel thickness, sand bedding, etc. In addition, the Application should include information detailing the criteria used to determine when the liners should be replaced.

35. Chapter 15 - Future / Proposed Waste Management Units, Page 15-10: Pursuant to Cal. Code Regs., tit. 22, div. 4.5, chpt. 20, article 2, an application for a hazardous waste facility permit must contain all the information so specified to be considered complete.

    The Application includes language relating to several proposed waste management units. However, the Application does not include all the required elements specified in the regulations. For example, the information in Chapter 15, section 15.5(c), regarding the Future PCB Flushing/Storage Unit is not adequate.

    CWMI must decide which, if any, of the proposed units to retain and then provide all the required information from the regulations. CWMI must also ensure that any information provided relating to the proposed units is current. For example, a conceptual design document prepared in the 1980s is unlikely to satisfy the relevant regulations. See also NOD comment #1.

36. Chapter 15 - Tank Vault, No Page Reference: Pursuant to Cal Code Regs., tit. 22, § 66264.193(e)(2) a vault containing a tank must have the specified features.

    A tank vault is required to have an impermeable interior coating or lining. The Application does not provide information indicating that the vault is coated. Furthermore, there is no discussion in the Application regarding the potential for ignitable vapors to accumulate in the vault.

    CWMI should revise the Application to specify that the vault has an impermeable interior coating or lining and the product name/type should be specified. In addition, the Application should indicate how the vault is protected from the formation of ignitable vapors.

37. Chapter 15 - New FSU Tanks, No Page Reference: Pursuant to Health and Safety Code, Section 25200.19(c)(4)(A), the unloading of bulk hazardous waste must be conducted with a containment device or other system capable of collecting and containing leaks and spills that may reasonably be anticipated to occur.

The language in the Application regarding the two new FSU waste storage tanks does not mention an unloading pad. All other units at the Facility (i.e. surface impoundments, DSU, PCB) have dedicated unloading areas.

CWMI should add language to the Application explaining how leaks and spills will be contained during unloading. DTSC encourages CWMI to incorporate a truck unloading pad into the design as a best management practice for containing leaks and spills.

38. Chapter 17 – Corrosive Waste, Page 17-1: Pursuant to Cal. Code Regs., tit. 22, §§ 66268.37 and 66268.40, corrosive waste identified with waste code D002 is not eligible for land disposal in a surface impoundment unless it has been first treated by deactivation.

    The Application indicates that any waste listed in Appendix A may be treated in a surface impoundment except for the list of wastes identified on page 17-1 of the Application. However, the Application fails to identify corrosive D002 waste as a category of waste that cannot be treated in a surface impoundment.

    CWMI should revise the Application to include corrosive D002 waste as a category of waste that cannot be treated in a surface impoundment.

39. Chapter 17 - Surface Impoundment Freeboard, Page 17-2: Pursuant to Cal. Code Regs., tit. 22, § 66270.17(b)(2), the Application must indicate how the surface impoundments are operated to prevent overtopping.

    The Application states that DTSC allows reduced freeboard to occur, down to a minimum of 1.5 feet, due to precipitation that falls directly into the impoundments. This statement is not correct. It is the responsibility of the operator to manage the liquid level in the impoundments to ensure that there is always adequate freeboard. Furthermore, the Waste Discharge Requirements (WDRs) issued by the Central Valley Regional Water Quality Control Board (RWQCB) require a minimum two (2) feet of freeboard. The WDRs issued by the RWQCB are incorporated into DTSC's permit by reference.

    DTSC suggests the following edits:

    > ~~*DTSC allows reduced freeboard to occur, down to a minimum of 1.5 feet, due to precipitation that falls directly into the impoundments. KHF may utilize this allowance for reduced freeboard, provided that pertinent conditions stipulated by the CVRWQCB are met.*~~

    In addition, CWMI should include a diagram in the Application explaining how to read/interpret the liquid level indicator.

40. Chapter 17 - Surface Impoundment Freeboard, Page 17-3: Pursuant to Cal. Code Regs., tit. 22, § 66264.226(b), while a surface impoundment is in operation, it must be inspected weekly and after storms.

    The Application should describe how the surface impoundments are designed to prevent surface water run-on during rainfall events. During a recent site visit on May 18, 2017, DTSC observed possible evidence of erosion from water flow on the south-westerly side of surface impoundment P-16.

    CWMI should revise the Application to include a discussion of inspection procedures and an approach to addressing run-on and/or erosion when it is found. In addition, CWMI should specifically address whether run-on to surface impoundment P-16 is occurring from the south-westerly side.

41. Chapter 17 - Surface Impoundment Integrity, No Page Reference: Pursuant to Cal. Code Regs., tit. 22, § 66270.17(b) the application must include detailed plans and an engineering report describing how the surface impoundment is designed and operated.

    Chapter 17 of the Application does not include basic information on the design and operation of the surface impoundments e.g. year constructed, surface-area, volume etc. In addition, the Application should include a discussion regarding the expected useful life of the liners, based on the date installed and manufacturer recommendations, focusing specifically on whether the liners are likely to require replacement during the next 10-year permit cycle. Finally, the Application should include information on the rate of leakage through the liners.

    CWMI should revise the Application to include the following:

    - Include a summary table with information on the surface impoundments like Table 42-1.
    - Include information on the expected useful life of the surface impoundment liners.
    - Provide a demonstration that the rate of leakage through the liners is stable and consistent. CWMI should provide a line-graph showing the total annual leachate removed from each surface impoundment as a function of time. The graph should include an explanation of any anomalies in the trend.

42. Chapter 17 – Treatment by Solar Evaporation, Page 17-1: Pursuant to Cal. Code Regs., tit. 22, § 66264.220, a surface impoundment may be used to treat, store, or dispose of hazardous waste.

    The Application describes the activity performed in the surface impoundments as treatment by solar evaporation. However, the surface impoundments are the final repository for wastes they receive and will be closed as landfills. Hence, the

activity performed in the surface impoundments is both treatment and disposal. The surface impoundments are not used for storage because waste is never removed.

CWMI should revise the Application to indicate that that the surface impoundments are used for treatment and disposal of hazardous waste.

43. Chapter 19 – Section 19.2(a)(2)(B), Landfilling of Containers, Page 19-3: Pursuant to Cal. Code. Regs., tit. 22, § 66264.315, containers must be at least 90% full when placed in the landfill or crushed, shredded, or similarly reduced in volume to the maximum practical extent before burial in the landfill.

    The text in the most recent version of the Application was changed from the prior version and the words "…prior to placement of daily cover" were deleted. DTSC believes that the placement of daily cover is "burial" and is hence relevant. The change should be reversed or an explanation for the change should be provided.

    CWMI should revise the Application to indicate that empty containers will be shredded at the FSU and/or crushed in the landfill prior to the placement of daily cover.

44. Chapter 19 – Section 19.2(a)(3), Daily Cover, Page 19-3: Pursuant to Cal. Code. Regs., tit. 22, § 66264.301(i), exposed waste containing particulate matter subject to wind dispersal must be covered.

    The Application states that daily cover is placed over deposited waste (except closed containers, treated waste, and waste materials not prone to wind erosion) to control wind dispersal of particulate matter. The exception for treated waste is not appropriate and should be removed. In addition, the determination of what types of waste are prone to wind erosion is subjective.

    CWMI should revise the Application to state that daily cover will be applied to any waste containing particulate matter which may be subject to wind dispersal. In addition, the exemption from applying daily cover to treated waste must be removed.

45. Chapter 19 – Section 19.2(a)(3), Daily Cover, Page 19-4: Pursuant to Cal. Code Regs., tit. 22, § 66270.14(b)(19), the application must contain any additional information related to the proposed activity or facility which is requested by DTSC.

    The daily cover requirements for Landfill B-18 are regulated by at least three agencies (DTSC, RWQCB, SJVAPCD) and each have different and overlapping requirements. The information in the Application concerning the selection and application of cover soil is not sufficient to understand what is required.

CWMI should revise the Application to summarize the daily cover requirements of each agency with jurisdiction over the operation of Landfill B-18 and provide an explanation for how those requirements are met.

46. Chapter 19 – Response Action Plan, Table 19-1: Pursuant to Cal. Code Regs., tit. 22, § 66264.304, the owner/operator of a landfill must have an approved response action plan prior to receipt of waste.

    Table 19-1 indicates that the response action plan for landfill B-18 was last revised in 1994, prior to the expansion and creation of landfill phase III.

    CWMI should review the existing response action plan for landfill B-18 and confirm that it is current and reflects the expansion and construction of landfill phase III.

47. Chapter 21 – Miscellaneous Units, No Page Reference: Pursuant to Cal. Code Regs., tit. 22, § 66270.23, the owner or operator of a facility that includes a miscellaneous unit must provide the information so specified.

    The proposed shredder at the FSU and the aerosol can puncture device(s) at the DSU are considered miscellaneous units.

    CWMI should revise the Application to describe the shredder puncture devices in greater detail including a description of the equipment and manner of operation.

48. Chapter 21 – Containment Buildings, No Page Reference: Pursuant to Cal. Code Regs., tit. 22, div. 4.5, chpt. 14, article 29, a containment building must comply with the specified design and operating standards.

    The design and use of the FSU structure is consistent with that of a containment building. However, the FSU structure is not consistently referred to as a containment building in the Application, and CWMI has not demonstrated that the requirements for operation of a containment building have been met.

    CWMI should revise the Application to include the information about the design and operation of the FSU containment building. The Application should clearly indicate which areas of the building are lined with steel plate and which areas of the building are managed as “wet” areas and considered to have secondary containment i.e. steel over concrete. Please expand on the information in Chapter 14, section 14.5(b). In addition, the Application should include information on the process for determining when the granular activated carbon associated with the FSU control room should be changed out.

49. Chapter 27 – Air Monitoring, No Page Reference: Pursuant to Cal. Code Regs., tit. 22, div. 4.5, chpt. 14, Article 17, certain air monitoring requirements exist for hazardous waste facilities.

The Application should include a brief description of the ambient air monitoring program so that the key details of all required programs are located in one document.

CWMI should revise the Application to include, at a minimum, the following:

- Number of air monitoring stations.
- Locations of air monitoring stations (can be added to an existing figure).
- Sampling analytes.
- Sampling frequency.
- Any other information necessary to provide an overview of air monitoring.

50. Chapter 31 – Waste Piles, Table 31-1: Pursuant to Cal. Code Regs., tit. 22, div. 4.5, chpt. 14, Article 12, certain requirements exist for the management of hazardous waste in waste piles.

    On April 11, 2014, U.S. EPA's Office of Solid Waste and Emergency Response issued an opinion memorandum concerning Land Disposal Restriction (LDR) requirements. EPA clarified that the placement of treated hazardous waste in a landfill pending receipt of results verifying that the treatment standard waste satisfied, would constitute a violation it is determined that the waste did not meet the treatment standard. Furthermore, there are no waste piles at the Facility.

    CWMI should delete the final row from Table 31-3 of the Application.

51. Chapter 31 – Tracking of Landfill Slopes, No Page Reference: Pursuant to Cal. Code Regs., tit. 22, § 66270.14(b)(19), the application must contain any additional information related to the proposed activity or facility which is requested by DTSC.

    DTSC understands that CWMI manages the formation of "rills" on the landfill slopes by tracking the slopes with suitable tracked equipment e.g dozer.

    CWMI should revise the Application to include information about the tracking of landfills slopes including the process for determining that tracking is necessary and how it is performed. This information should also be included in the post-closure plan.

52. Chapter 33 – Aisle Spacing, Page 33-7: Pursuant to Cal. Code Regs., tit. 22, 66264.35, the owner/operator must maintain aisle space to allow the unobstructed movement of personnel and equipment in an emergency.

    The Application states that "[t]he container storage configuration varies by waste management unit, but each has a minimum aisle space of approximately 24 inches." This language is vague and no justification has been provided for the

minimum aisle width. CWMI has previously indicated[2] that 30 inches aisles were appropriate at the Facility. DTSC's experience with other facilities is that a minimum of 30 inches is more common, especially for ignitable waste, when drums are stacked, and with long rows such as at the DSU.

DTSC suggests the following edits:

> *…The container storage configuration varies by waste management unit, but each ~~has a minimum aisle space of approximately 24 inches~~ row of containers accessible by a 30-inch wide aisle (i.e. an aisle on one side of the row is at least 30 inches) and all aisles are a minimum of 24 inches wide.*

53. Chapter 35 - Contingency Plan, Section 35.1(b), Page 35-2: Pursuant to Cal. Code Regs., tit. 22, § 66270.14(b)(19), the application must contain any additional information related to the proposed activity or facility which is requested by DTSC.

    The second to last bullet of Section 35.1(b) is confusing and unnecessary. The Contingency Plan is part of the Application and will be incorporated into the permit by reference.

    CWMI should delete the second to last bullet in Section 35.1(b).

54. Chapter 35 – Contingency Plan, Page 35-4: Pursuant to Cal. Code Regs., tit. 22, § 66264.51(b), the provisions of a contingency plan must be immediately carried out when there is a fire, explosion, or release which could threaten human health or the environment.

    The Application states that "…the Contingency Plan does not require formal implementation unless the particular incident could threaten human health or the environment." However, the Application does not provide guidance on how to determine if an incident could threaten human health or the environment.

    CWMI should revise the Application to indicate the type of incidents that could threaten human health or the environment. In addition, the revised Application should state that if there is any doubt as to the threat posed by an incident, the Emergency Coordinator should err on the side of implementing the Contingency Plan. DTSC would like to discuss this comment further during the meeting to be scheduled after the NOD is issued.

[2] For example, see Item III-5 (page III-3), of Chemical Waste Management, Inc.'s comments on the EPA/DHS Draft Part B Permits Noticed on 22 July 1987 and 24 July 1987, dated 4 September 1987.

55. Chapter 35 - section 35.10, Page 35-11. Pursuant to Cal. Code Regs., tit. 22, div. 4.5, chpt. 14, Article 19, structures meeting certain requirements that are used to store or treat hazardous waste may qualify as containment buildings.

    The language in section 35.10 indicates that both the FSU and the PCB buildings are containment buildings. The Application does not explain why or how the PCB building functions as a containment building.

    CWMI should either remove references to the PCB building as a containment building or otherwise explain why the PCB building is a containment building. If the PCB building is a containment building, CWMI must demonstrate that the requirements of Cal. Code Regs., tit. 22, div. 4.5, chpt. 14, article 29 are met.

56. Chapter 35 – Contingency Plan, Page 35-11: Pursuant to Cal. Code Regs., tit. 22, § 66263.41(h), a transporter must report any accidents that involve a spill or release of hazardous waste to the environment.

    The Application references 49 CFR 171.16 but does not also reference Cal. Code Regs., tit. 22, § 66263.41(h).

    CWMI should ensure that California regulations are cited when appropriate. Check the entire Chapter 35 of the Application for similar deficiencies.

57. Chapter 35, Reporting, Table 35-1: Pursuant to Cal. Code Regs., tit. 22, § 66264.56(j), the owner/operator must submit a written report to DTSC within 15-days after an incident that resulted in implementation of the Contingency Plan.

    The information in Table 35-1 of the Application suggests that notification to DTSC is only required for an event that triggered implementation of the Contingency Plan, and resulted in a risk to human health and the environment off-site. DTSC must be notified in writing of any incident that requires implementing of the Contingency Plan which includes incidents that may not have posed a risk to human health and the environment off-site. In addition, Table 35-1 contains undefined acronyms including “NNISW.”

    CWMI should revise the Application to indicate that DTSC will be notified any time the Contingency Plan is implemented. In addition, CWMI should ensure that all acronyms used in the Application are defined.

58. Chapter 35, Safety Showers, Figure 35-6: Pursuant to Cal. Code Regs., tit. 22, § 66264.32(c), all facilities must be equipped with spill control and decontamination equipment.

    The legend on Figure 35-6 of the Application fails to alert the reader that there is a safety shower on the front side of the FSU building.

CWMI should revise the legend on Figure 35-6 to make clear that the symbol "S" inside a heptagon marks the location of a safety shower.

59. Chapter 36 – Training, No Page Reference: Pursuant to Cal. Code Regs., tit. 8, § 5192(a)(D), and Code Fed. Regs., tit. 29, 1910.120, employees at a TSDF must have hazardous waste operations and emergency response (Hazwoper) training.

    Chapter 36 of the Application does not specifically mention Hazwoper training.

    CWMI should revise the Application to indicate that new employees will receive applicable Hazwoper training prior to beginning work at the Facility and that all employees will receive annual refresher training.

60. Chapter 48 - Landfill B-20, Page 48-5: Pursuant to Cal. Code Regs., tit. 22, div. 4.5, chpt. 20, article 2, an application to operate a hazardous waste landfill must contain certain specific information to be considered complete.

    CWMI has not requested authorization to construct landfill B-20 and therefore information related to B-20 is not relevant and should be removed.

    DTSC suggests the following edits:

    > *…and chronic risks for the B-18 Landfill ~~and B-20 Landfill~~ are…*
    >
    > *The results of the Health Risk Assessment (HRA) for the B-18~~/B-20~~ expansion project…*
    >
    > *Therefore, the health risks for the B-18 Landfill ~~and B-20 Landfill~~ do not…*

61. Chapter 51 – Exterior Storage, No Page Reference. Pursuant to Cal. Code Regs., tit. 22, § 66270.15(a), the applicant should include a description of the containment system to demonstrate compliance with section 66264.175.

    Regarding the PCB outdoor storage area, only the north side of the pad is available for storage because the south side contains ramps and is used to access the building. For the north side, it is not clear that the specified number of drums can physically fit while maintaining adequate aisle spacing, not covering the sump etc.

    CWMI should revise the Application to include a figure demonstrating that the specified number of drums can fit in the exterior storage area. For completeness, CWMI should also include a figure demonstrating how may drums can fit in the interior storage area.

**Missing Content from the Permit Application**

62. Mobile Equipment: Pursuant to Cal. Code Regs., tit. 22, § 66264.114, contaminated equipment must be decontaminated by removing all hazardous waste and residues.

The Application does not discuss the procedures that are used to ensure that Facility owned/operated mobile equipment used to manage hazardous waste is decontaminated when necessary. For example, the loaders, excavators, and dump trucks used at the Facility are not mentioned in the Application.

The Application should be revised to include the following information:

- Provide a description of all equipment that is used to directly manage hazardous waste i.e., that handles non-contained waste.
- Describe any controls placed on the movement of equipment within the Facility and whether it is appropriate to move equipment between hazardous, and non-hazardous, waste management units.
- Indicate the procedures that are followed when equipment is discarded or taken off-site for service or repair.
- Explain where and how decontamination of equipment is performed.

63. Treatment: Pursuant to Cal. Code Regs., tit. 22, § 66268.3(a), dilution must not be used to achieve a treatment standard.

The Application does not describe the forms of treatment performed at the FSU. For example, there is no mention in the Application of deactivation of cyanide using sodium hypochlorite, or of the use of calcium polysulfide. In addition, DTSC understands that many treatment recipes call for the addition of reagents on a one-to-one or greater ratio.

CWMI should include a new section in the Application describing each form of treatment performed at the FSU including discussion of the reagents used and the types of waste treated. In addition, please include an affirmative statement that dilution will not be used, alone or principally, to achieve a treatment standard.

64. Labelling: Pursuant to Cal. Code Regs., tit. 22, §§ 66262.32 and 66262.34, certain marking requirements apply to hazardous waste that will be transported.

The Application does not adequately describe the container labelling practices at the Facility. For example, the Application should describe the different types of labels appearing on containers at the Facility. The Application should include information on labels from the generator, labels applied by the Facility (barcode – top and side of container), labels for on-site generated waste, and labels for consolidated waste.

CWMI should revise the Application to include discussion on container labelling requirements and include photographs and explanation of label and marking types.

Attachment

# Attachment 1

# Second Notice of Deficiency

# Chemical Waste Management, Inc
# Kettleman Hills Facility

# November 6, 2017

## Used Oil Testing Language

1. Used Oil - Total Halogen Testing

(a) The Permittee shall determine, prior to accepting used oil, whether the used oil contains more than 1,000 ppm total halogens by testing each shipment of used oil for total halogens as specified in California Code of Regulations, title 22, section 66279.90(a) in accordance with California Code of Regulations, title 22, section 66279.10(a)(4).

(b) (1) When the Permittee has determined that a used oil shipment contains more than 1,000 ppm total halogens, the Permittee:

(A) shall reject the load pursuant to Health and Safety Code section 25160.6 and any other applicable requirements; or

(B) may seek to demonstrate that the rebuttable presumption under California Code of Regulations, title 22, section 66279.10(a), should be rebutted pursuant to California Code of Regulation, title 22, section 66279.10(b).

If the Permittee seeks to rebut the presumption by demonstrating that the used oil does not in fact contain halogenated hazardous waste pursuant to California Code of Regulations, title 22, section 66279.10(b), (b)(1) and (b)(2), the Permittee shall follow the applicable procedures in paragraph V.1(b)(3).

(2) The Permittee may only accept a used oil shipment containing more than 1000 ppm total halogens and manage it as used oil when the rebuttable presumption has been rebutted pursuant to California Code of Regulations, title 22, section 66279.10(b), (b)(1) and (b)(2) using the procedures in paragraph V.1(b)(3) or based on California Code of Regulations, title 22,section 66279.10(b)(3), (b)(4), or (b)(5).

(3) The Permittee shall use the following options for rebutting the rebuttable presumption pursuant to California Code of Regulations, title 22, section 66279.10(b), (b)(1) and (b)(2).

(A) Option 1. For used oil received from a single generator and when the generator provides a Waste Profile Sheet. The Permittee may not use this option when the generator is a commercial oil change operation, auto repair shop, or collection center where the used oil may have come from different sources.

(i) The Permittee may rebut the rebuttable presumption pursuant to California Code of Regulations, title 22, section 66279.10(b), (b)(1) and (b)(2) through analytical testing in accordance with the test methods specified in California Code of Regulations, title 22, section 66279.90(b), including updated and approved versions of the test methods specified in section 66279.90(b) which have been approved by EPA, or by complying with the procedures in paragraphs V.1(b)(3)(A)(ii) through (v), which are the only other means of demonstrating that the used oil does not contain halogenated hazardous waste for purposes of California Code of Regulations, title 22, section 66279.10(b), (b)(1) and (b)(2) and this Permit;

(ii) The Permittee may, pursuant to California Code of Regulations, title 22, section 66264.13, arrange with the generator to provide a copy of the Generator's Waste Profile Worksheet (GWPW) and the analytical results for the halogen content used to rebut the presumption. This information and the accompanying manifest shall be cross referenced to provide the necessary referencing and descriptive information to ensure that the appropriate analytical results are easily identified should the results become separated from the manifest and/or GWPW;

(iii) The Permittee shall review the information provided under paragraph V.1(b)(3)(A)(ii), pursuant to California Code of Regulations, title 22, section 66264.13(a)(2)(B) and verify and record in the operating record pursuant California Code of Regulations, title 22, section 66264.73, that the information provided is: i) less than 365 days old; ii) is based on a representative sample of the waste as determined through the inspection required in section 66264.13 (a)(5) and; iii) analytical test, data used to rebut the presumption was prepared and analyzed by a laboratory certified in accordance with the Environmental Laboratory Accreditation Program by using test methods specified, in California Code of Regulations, title 22, section 66279 .90(b);

(iv) The Permittee shall obtain for its review a written certification from the generator that the generator repeats the waste testing and certification process

outlined in paragraph V.1(b)(3)(A)(iii) at least every 365 days;

(v) After reviewing the documents obtained under paragraphs V.1(b)(3)(A)(ii) and (iv), the Permittee shall place the documents into its operating record. These documents shall demonstrate that the rebuttable presumption can be rebutted pursuant to California Code of Regulations, title 22, section 66279.10(b), (b)(1) and (2).

(B) Option 2. For used oil received from a single generator and when the generator does not provide a Waste Profile Sheet, the Permittee may rebut the presumption only through analytical testing in accordance with the test methods specified in California Code of Regulations, title 22, section 66279.90(b), including updated and approved versions of the test methods specified in section 66279.90(b) which have been approved by EPA, accompanied by a determination that the rebuttable presumption is rebutted pursuant to California Code of Regulations, title 22, section 66279.10(b), (b)(1) and (b)(2).

(C) Option 3. For used oil received from multiple generators and when the transporter provides fingerprint test data for each generator using EPA Test Method 9077.

(i) The Permittee may only rebut the rebuttable presumption through analytical testing in accordance with the test methods specified in California Code of Regulations, title 22, section 66279.90(b) or by demonstrating that the used oil does not contain halogenated hazardous waste by satisfying the requirement in paragraph V.1(b)(3)(C)(ii).

(ii) The Permittee shall obtain the fingerprint test data referenced in paragraph V.1(b)(3)(C) from the transporter; and

a) For any generator whose used oil has a concentration that exceeds 1000 ppm total halogens, the Permittee shall obtain and have on file proper documentation and follow the procedures in Option 1 above; and

b) The finger print test data shall demonstrate that the used oil collected from all the other generators has concentrations at or below

1000 ppm total halogens.

(D) Option 4. For used oil received from multiple generators and when the transporter cannot provide fingerprint data for each generator using EPA Test Method 9077, but the transporter has collected individual samples from each generator and retained the samples along with the load.

(i) The Permittee may rebut the rebuttable presumption only through analytical testing in accordance with the test methods specified in California Code of Regulations, title 22, section 66279.90(b) or by demonstrating that the used oil does not contain halogenated hazardous waste by satisfying the requirements in a) and b) below.

a) The Permittee shall obtain the individual retained samples from the transporter and test the retained samples using EPA Test Method 9077; and

b) For any generator whose used oil has a concentration that exceeds 1000 ppm total halogens, the Permittee shall obtain and have proper documentation prior to acceptance and follow the procedure in Option 1.

(E) Option 5. For used oil received from multiple generators and when the transporter cannot provide fingerprint data or retained samples as discussed in Options 3 and 4 above, the Permittee may rebut the presumption only through analytical testing in accordance with the test methods specified in California Code of Regulations, title 22, section 66279.90(b) to demonstrate that the rebuttable presumption is rebutted pursuant to California Code of Regulations, title 22, section 66279.10(b).

(c) Used oil shall not be intentionally mixed with other hazardous waste, including household hazardous waste and hazardous waste from a conditionally exempt small quantity generator.

2. <u>Used Oil - PCBs Testing</u>

(a) The Permittee shall collect and retain a representative sample from each truck unloading used oil at the Facility. The Permittee shall retain the sample until the PCBs testing specified below is completed and documented. Each retained sample shall identify the specific shipment of used oil it represents.

## Used Oil Testing Language

(b) All outgoing used oil shall be tested for PCBs to ensure that the used oil load does not contain PCBs at a concentration of 2 ppm or greater. The Permittee shall test the used oil from each storage tank for PCBs in accordance with the procedures in paragraph V.2(b)(1) or the Permittee shall comply with the requirements in paragraph V.2(b)(2), which provide for the receiving facility to test the used oil for PCBs.

(1) If the Permittee is performing the tests for PCBs in used oil, the Permittee shall test the used oil for PCBs using all of the following procedures:

(A) The Permittee shall obtain a representative sample of the used oil from the tank to be emptied using the sampling procedure specified in Section III of the DTSC-approved Standardized Permit Application. No additional loads of used oil shall be added to the storage tank once the sample is taken and used oil shall not be unloaded until the PCB test specified below is completed.

(B) The Permittee shall test the used oil sample for PCBs using EPA test method 8082 or other similar methods approved by the United States Environmental Protection Agency or DTSC.

(C) If the used oil does not contain PCBs at a concentration of greater than 2 ppm, the tank contents may be emptied and released for shipment. The used oil may then be delivered to an authorized used oil transfer (only if the used oil is to be tested for PCBs prior to offloading at the receiving transfer station) or treatment facility.

(D) If the used oil contains PCBs at a concentration of greater than 2ppm, a second sample shall be obtained and tested. The second sample shall be obtained using sampling equipment that is new or has been cleaned using (i) the permanganate cleanup procedure (EPA Method 3665A); or (ii) an appropriate decontamination procedure that has been approved in writing by DTSC for use at the Facility.

(E) If the second test result required in paragraph V.2(b)(1)(D) of the used oil in the storage tank confirms that the used oil contains PCBs at a concentration of 2 ppm or greater, the retained sample from each tanker truck that was unloaded into the storage tank shall be tested.

(F) If all the retained samples for shipments unloaded into the storage tank show less than 5 ppm of PCBs, the Permittee may manage the tank contents as used oil.

(G) If any retained sample is at or above the 5 ppm limit for PCBs, the entire contents of the storage tank shall be shipped to a facility permitted to accept PCBs-contaminated hazardous waste pursuant to all applicable requirements, including those of the Toxic Substances Control Act (TSCA, Public Law [Pub.L] 94-469). The storage tank shall be decontaminated to remove all PCBs residues prior to reuse. Any waste generated as a result of decontamination of the storage tank shall be managed as PCBs-contaminated hazardous waste.

(H) If any sample shows a PCB concentration of 5 ppm or greater, the Permittee shall provide the written test results to DTSC within seven days of obtaining the test results.

(I) The result of the PCB testing specified in this section shall be valid only if no additional loads of used oil are added to the storage tank from which the sample is taken.

(2) If the Permittee elects to have the receiving facility test the used oil for PCBs and the receiving facility agrees to test the used oil for PCBs in accordance with paragraph V.2, the Permittee shall provide written instructions to the receiving facility that directs it to test the used oil for PCBs to ensure that the used oil load does not contain PCBs at a concentration of 2 ppm or greater. The instructions shall, at a minimum, direct the receiving facility to do all the following:

(A) Take a sample for PCBs testing directly from the Permittee's used oil load and test the Permittee's used oil load separately from any other load.

(B) Do not unload the truck or commingle the Permittee's used oil load with any other used oil at the receiving facility until PCBs testing indicates that the Permittee's load does not contain PCBs at a concentration of 2 ppm or greater.

(C) Use EPA test method 8082 or other similar methods approved by the United States Environmental Protection Agency or DTSC to test the used oil.

(D) Write the manifest number on the written test results for the used oil load that was tested.

(E) Provide the Permittee with written test results within 24 hours after the test has been performed. The written test results shall clearly show whether or not the used oil load contains PCBs at a concentration of 2 ppm or greater.

(F) Reject the load if the test results show that the used oil contains PCBs at a concentration of 2 ppm or greater.

(G) Provide a signed certification, under penalty of perjury, for each set of test results, to the Permittee stating that the receiving facility has followed all of the Permittee's written instructions for each used oil load received from the Permittee.

(c) (1) If the load is rejected under paragraph V.2(b)(2)(F), the Permittee shall test, in accordance with paragraph V.2(b)(2)(C), each retained sample from each tanker truck that unloaded into the PCBs-contaminated storage tank that was subsequently emptied and transported to the receiving facility. If all the retained samples show less than 5 ppm of PCBs, the Permittee may manage the storage tank contents as used oil. If the Permittee sends this used oil back to the same receiving facility that previously tested and rejected the load, the Permittee is not required to direct the receiving facility to test the same load again in accordance with the above instructions.

(2) If any retained sample is at or above the 5 ppm limit for PCBs, the entire load from the PCB-contaminated transport vehicle (i.e., tanker trailer), any waste remaining in any other transport vehicle that transported the PCB-contaminated load, and any remaining waste in the PCBs-contaminated storage tank (including any subsequent loads placed into the storage tank) shall be shipped to a facility permitted to accept PCBs-contaminated hazardous waste pursuant to all applicable requirements, including those of the Toxic Substances Control Act (TSCA, Public Law [Pub. L.] 94-469). Any transport vehicles and the storage tank that held the PCBs-contaminated hazardous waste shall be decontaminated to remove all PCB residues prior to reuse. Any waste generated as a result of decontamination of the transport vehicles and storage tank shall be managed as a PCBs-contaminated waste.

(d) The Permittee shall immediately notify DTSC of any rejected load by e-mail and in writing and provide the written test results to DTSC within

seven days of obtaining the test results. The Permittee shall comply with the requirements of Health and Safety Code section 25160.6 for any rejected load.

(e) The Permittee shall keep all documentation for PCBs testing for at least three years, including but not limited to; (1) the written instructions to the receiving facility; (2) the written test results provided by the receiving facility that show that the used oil load has been tested for PCBs in accordance with paragraph V.2(b)(2) or test results obtained by the Permittee in accordance with paragraph V.2(b)(1); (3) test results for retained samples that were conducted in accordance with paragraph V.2(b)(1)(E) and paragraph V.2(c); and (4) the certifications required by paragraph V.2(b)(2)(G). The Permittee shall make the documentation available for inspection upon DTSC's request.

3. Used Oil - Flashpoint Testing

(a) The Permittee shall conduct flashpoint testing on each transport vehicle holding used oil using the Pensky-Martens or Setaflash Closed Cup Test.

(b) The Permittee may accept any shipment of used oil where the flashpoint of the used oil is equal to or greater than 100 $^{o}$F.

(c) The Permittee shall reject any shipment of used oil where the flashpoint of the used oil is less than 100 $^{o}$F.

Department of Toxic Substances Control

*Matthew Rodriquez*
Secretary for
Environmental Protection

Barbara A. Lee, Director
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*Edmund G. Brown Jr.*
Governor

# MEMORANDUM

REGISTERED PROFESSIONAL ENGINEER
WILLIAM H. KILGORE
C 56347
10/26/17
CIVIL
STATE OF CALIFORNIA

TO: Ryan Batty, P.E.
Project Manager
Permitting Division – Sacramento

FROM: William Kilgore, P.E.
Engineering and Special Projects Office – Sacramento

REVIEWER: Peter Gathungu, P.E., G.E. P.G.
Engineering and Special Projects Office - Sacramento

SUBJECT: REVIEW OF THE CLOSURE AND POST-CLOSURE COST ESTIMATE FOR FINANCIAL ASSURANCE, CHEMICAL WASTE MANAGEMENT KETTLEMAN HILLS FACILITY CAT000646117 (SITE CODE 100032-33)

DATE: October 26, 2017

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## Documents Reviewed

The result of this review is limited to the information related to the Closure and Post-Closure cost estimates in the following documents:

1. Closure and Post-Closure Plans, Kettleman Hills Facility, Kings County, California, July 13, 2017.
2. Hazardous Waste Facility Permit Renewal Application, Operation Plan, Chemical Waste Management, Inc., Kettleman Hills Facility, July 15, 2017

## Introduction

The Engineering and Special Projects Office of the Department of Toxic Substances Control (DTSC) provides this review of the cost estimates for Closure and Post-Closure that establishes the dollar amount required for financial assurance. The California Code of Regulations, Title 22, sections 66264.142 and 66264.144 require that the owner or operator of the facility prepare and submit to DTSC a detailed written estimate, in current dollars, of the cost of closing the facility in accordance with the requirements established in the approved closure plan and, if necessary, the post-closure plan.

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**Background**

The Kettleman Hills Facility (KHF) is a hazardous waste treatment, storage and disposal facility with a Hazardous Waste Facility Permit and is categorized as a large treatment, storage, and disposal facility for purposes of California Health and Safety Code (HSC) section 25209.19. The facility includes approximately 697 acres approved for hazardous waste activity. KHF conducts the following activities for hazardous wastes: disposal of hazardous wastes into one hazardous waste landfill; solar evaporation in three surface impoundments; PCB draining and flushing, storage and disposal; and bulk and drummed waste stabilization and solidification. Environmental monitoring at the facility includes monitoring of ambient air, surface water, groundwater, and the unsaturated (vadose) zone.

The closure and post-closure cost estimates are part of the facility's Hazardous Waste Facility Permit (Permit) renewal application submitted by KHF to DTSC for review.

**Comments and Recommendations**

**<u>Closure and Post-Closure</u>**

*General Comments*

1. It is recommended, in the interest of clarity, that the Permit include conditions requiring that the maximum allowed inventory quantities for each of the permitted units be equal to or less than the inventory quantities used in the closure and post-closure cost estimates. The Closure and Post-Closure Plan, Permit application Part A, and the Permit Operations Plan include various values for capacity or inventory and include capacities for units or portions of units not yet constructed. These alternative quantity descriptions include "working capacity", "maximum capacity", and "design capacity." For comparison see the following:

Operation Plan – Attachment 2 – Additional Information for Application Item 7, Process Codes and Design Capacities.

Closure and Post-Closure Plans – Appendix E- Table A-3 Maximum Quantity of Waste in Inventory for Containers and Tanks.

Operations Plan – Chapter 15 [e.g. sections 15.2(a), 15.3(a)(2), 15.3(b), 15.4].

2. Groundwater and soil gas monitoring and reporting during closure do not appear to be included in the cost estimate. It is recommended that the specific tasks and costs be included or information on how they are currently incorporated be provided.

3. The closure and post-closure cost estimates do not appear to include tasks and cost estimates for third-party general contractor costs or project management of the closure and post-closure. It is recommended that the associated tasks and costs be included or information on how they are currently incorporated be provided.

4. The closure and post-closure cost estimates do not appear to include costs for regulatory oversight of the closure and post-closure. It is recommended that an estimate of the regulatory oversight costs be included in the cost estimates or information on how they are currently incorporated be provided.

5. It does not appear that air monitoring and related reporting has been included in the closure or post-closure cost estimate. It is recommended that the specific tasks and associated costs be included in the cost estimates or detailed if they have been included.

6. It is recommended that additional substantiation for the assumptions of the quantity of waste transported to and incinerated at the Port Arthur, Texas treatment facility be included in the Closure and Post-Closure Plans. The closure and post-closure cost estimates include assumptions for the amount of waste to be transported off-site to Port Arthur, Texas for incineration. The cost of transportation and incineration are high and therefore can have a significant impact on the overall closure and post-closure cost. Cost estimate Table B-5, section I. Inventory Management, assumes that 15% of the 9,000 drum maximum capacity of the Drum Storage Unit will be sent for incineration. Section VI. Leachate Management of the Post-Closure cost estimate assumes that 25% of the 37,200 gallons of leachate generated per year is sent for incineration. The rationale for the assumption of 25% of post-closure leachate going to incineration is stated as being conservative and based on historical leachate testing but no other information to substantiate the assumptions were found in the document.

7. It is understood that all corrective actions will be implemented through future modifications to the facility Permit and therefore any costs for corrective action and regulatory oversight will be incorporated into the facility financial assurance at the time of any Permit modification.

8. It is recommended that KHF either include adequate substantiation of the internal facility disposal pricing for RCRA/TSCA solids or use the following inflation updated costs from the US EPA CostPro closure cost estimation software:

Solids – Hazardous Drummed - $286.49 per 55 gallon drum
Solids – Hazardous Bulk - $172.12 per ton

9. Table A-6, Closure Crew Production Rate Basis. It is recommended that further information be provided to substantiate the Cleansing/Treatment Rates listed in this table. I was unable to find support for the rates in the referenced document, "Guide for

Decontaminating Buildings, Structures, and Equipment at Superfund Sites" (EPA/600/2-85/028).

10. It is recommended that additional detailed information concerning the dimensions of the secondary containment structures for the Drum Storage Area, Final Stabilization Unit, and PCB Flushing/Storage Unit be included in the Closure Plan. The information provided in the Permit application or the Closure and Post-Closure Plan is not detailed enough to allow verification of the surface areas of these Units. See the following:

a) Table B-5-2, Closure Cost Estimate, Drum Storage Area, II. Decontamination, subsections 5 and 6;
b) Table B-6-2, Closure Cost Estimate, Final Stabilization Unit, II. Decontamination, subsections 4, 5, and 8;
c) Table B-7-2, Closure Cost Estimate, PCB Flushing/Storage Unit, II. Decontamination, subsections 5, and 8.

11. It is recommended that closure and any required post-closure procedures and cost estimate for decontaminating and decommissioning of the truck un-tarping rack be included in the Closure and Post-Closure Plans.

*Landfill B-18*

12. It is recommended that the amount of capacity estimated to be required to be reserved in landfill B-18 to accommodate the material generated by the closure of the facility be stated and supporting information be included in the Closure and Post-Closure Plan. In section 2.3.3 Primary Assumptions, the reservation of capacity in landfill B-18 is noted but no volume or supporting information is included.

*Landfill B-19*

13. It is recommended that tasks and estimated costs to address activities associated with closure of the municipal portion in Landfill B-19 that will affect the hazardous waste portion be included in the closure and post-closure cost estimate. Landfill B-19 contains an inactive hazardous waste portion and an open, but dormant, municipal waste portion.

14. It is recommended that the Permit include discussion describing the closure and post-closure financial assurance and supporting cost estimates for the municipal portion of the B-19 Landfill to enhance the understanding of entire B-19 Landfill financial responsibility requirements.

*Surface Impoundments P-9, P-14, P-15, and P-16*

15. It is recommended that estimates for the decontamination and demolition of unloading pads at the surface impoundments P-9, P-14, P-15, and P-16 be included in Closure cost estimate Tables B-3 and B-4 as applicable.

*Drum Storage Unit*

16. It is understood that the owner/operator has requested to add the activity of hazardous waste transfer to the Unit If this is the case, it is recommended that the closure cost estimate and any necessary costs for post-closure of this added activity be added to the current cost estimate and be submitted, approved by the Department, and included as part of the financial assurance for the facility.

*Final Stabilization Unit*

17. It is recommended that the Closure cost estimate for the Final Stabilization Unit be modified to account for costs to demolish the structure and fill the vault area with soil. The operations inside the building generate large amounts of particulate hazardous material requiring the filtration of air. It will be very difficult and thus costly to decontaminate the inside of the structure to an extent that will allow any standard re-use.

18. It is understood that shredding equipment is planned to be added to the Final Stabilization Unit as part of the Permit renewal. If so, it is recommended that estimates of the cost for closure of the additional equipment be added to the closure cost estimate.

*PCB Flushing/Storage Unit*

19. It is recommended that clarification of the extent of operations for the unit be provided in the closure plan and the associated costs be reflected in the closure and post-closure cost estimate. Section 51.2 of the Operations Plan discusses addition of the container storage and flushing operations on the exterior of the current building. Closure procedures and any necessary post-closure care requirements should be included in the Closure and Post-Closure Plan along with estimates of their costs.

*Bulk Storage Unit*

20. It is recommended that clarification and rationale be included in the Closure and Post-Closure Plans cost estimate concerning the area and volume of material intended to be excavated from the surface and subsurface of Bulk Storage Units (BSU) 1 and 2 for disposal in the B-18 landfill.

Table B-8-2, Closure Cost Estimate, Bulk Storage Units 1 and 2. It is unclear what the rationale is for using an area of 38,880 square feet and a volume of 2,880 cubic yards as the area and volume of material for removal presented in section III. Removal of Debris/Rubble/Soils and section IV. Verification of Clean Closure.

The closure plan and closure cost estimate describe the removal of base material, flexible membrane liner, and geocomposite drainage layer over an area of 38,880 square feet and its disposal in the B-18 landfill for BSU Units 1 and 2. Based on Table 42-1 of the Permit Renewal Application of July 2017, the surface area of BSU 1 equals 38,400 square feet and BSU II 40,800 square feet for a total of 79,200 square feet.

***Post-Closure***

21. It is recommended that the post-closure cost estimate include costs for continuation of security requirements of Chapter 30 of the KHF Permit Operations Plan. Continuation of security is required by California Code of Regulations section 66264.117(c).

It is recommended that in addition to the cost for security and facility inspections, costs for post-closure operations staffing be included in the post-closure cost estimate at the level of at least one person on-site eight hours per day, 5 days per week, during the entire post-closure period. The current post-closure cost estimate assumes a decreasing frequency of periodic site inspections by an engineer and technician with clerical support averaging 1.7 visits each by the engineer and technician per year. Each visit requiring 16 hours for each the engineer, technician and clerical support. No other provisions for on-site presence are included in the estimate.

22. Table C-1, Post-Closure Cost Estimate, II. Maintenance of Waste Management Area Boundaries. It does not appear that maintenance of the firebreaks has been included in the closure or post-closure cost estimate. It is recommended that the specific tasks and associated costs be added to the cost estimate or detailed if they have been included.

23. It is recommended that additional information be included in the Closure and Post-Closure Plans cost estimate Table C-1, Post-Closure Cost Estimate, III. Facility Inspection, to show how the costs for tasks described in Section 4.2 and Table 1 of the Closure and Post-Closure Plans document are estimated.

Table C-1, section III. Facility Inspection, item 1d, currently refers to the Certification of Post-Closure section for information on facility inspection reporting. The Certification of Post-Closure section describes a single final document. As stated in Section 4.2 and Table 1 of the Closure and Post-Closure Plans document, annual reports describing post-closure inspection results and maintenance activities will be submitted. The inspection, maintenance, and reporting requirements for post-closure are set forth in, but not limited to, 22 CCR 66264.117.

24. Table C-1 Post-Closure cost estimate. It is recommended that the post-closure cost estimate be modified to include an inventory of required reports to regulatory agencies. The cost should be estimated for gathering the necessary information and data, developing the reports, and obtaining regulatory approval.

25. It is recommended that survey of the location and elevation of various points at the facility either be included in the cost estimate or additional information be added to explain how it is included in the current estimate. The Closure and Post-Closure Plans, Table 1 includes the task of monitoring the location and elevation of various points at the facility as elements of the post-closure inspection activities. Section III of the post-closure cost estimate does not appear to include this activity and associated costs

26. Table C-1, Post-Closure Estimate, Section IV. Routine Maintenance and Repairs. It is recommended that the bases for the assumptions used in this section be provided. Specifically, the number of acres needing repair per visit in subsections 2d, 3d, 4b – soil loss per year, 4d – Area to be seeded, fertilized, and mulched, 7b – length of diversion ditch needing repair per visit, 7d – area to be seeded, fertilized, and mulched, and 7e – crushed stone required

27. Table C-1, Post-Closure Cost Estimate, Section V. Severe Erosion Damage Repair and Section 2.4.2.5 Soil Erosion. It is recommended that support be provided for the assumption that severe erosion will only occur during the first three years of the post-closure period and only at landfill B-18.

28. Table C-1, Post-Closure Cost Estimate, Section VII Groundwater Monitoring. It is recommended that the plans and cost estimate be revised to include or address the following:

a. KHF has communicated that the cost of installation of a monitoring well is between $250,000 and $300,000. The cost estimate unit cost for well replacement should be increased to this amount in the post-closure cost estimate. A similarly appropriate estimate of cost to abandon or seal a monitoring well should replace that unit price in the current version of the cost estimate. See item number 7 under section VII.

b. An estimate of the number of wells and the cost for abandonment of both groundwater and soil-gas monitoring wells should be included in the post-closure cost estimate. It is anticipated that as the post-closure period progresses some groundwater and soil-gas wells may no longer be needed. When DTSC agrees that certain wells are no longer necessary for the monitoring program, they will need to be properly abandoned.

c. An estimate of the number of and cost to abandon any groundwater or soil-gas monitoring wells remaining at the end of post-closure should be included in the post-closure plan and cost estimate.

Department of Toxic Substances Control

Barbara A. Lee, Director
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Sacramento, California 95826-3200

*Matthew Rodriquez*
Secretary for
Environmental Protection

*Edmund G. Brown Jr.*
Governor

# MEMORANDUM

TO: Ryan Batty, P.E.
Project Manager
Permitting Division, Sacramento

FROM: Peter Gathungu, P.E., G.E. 11/6/17
Senior Hazardous Substances Engineer
Engineering and Special Projects Office

REVIEWER: William Kilgore, P.E. WK
Senior Hazardous Substances Engineer
Engineering and Special Projects Office

SUBJECT: REVIEW OF HAZARDOUS WASTE FACILITY PERMIT RENEWAL APPLICATION OPERATION PLAN, AND CLOSURE AND POST-CLOSURE PLANS, KETTLEMAN HILLS FACILITY, KINGS COUNTY, CALIFORNIA (SITE CODE: DTSC100032-33)

DATE: NOVEMBER 6, 2017

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## DOCUMENTS REVIEWED

1. *Hazardous Waste Facility Permit Renewal Application, Operation Plan, Chemical Waste Management, Inc., Kettleman Hills Facility,* dated February 18, 2013 (Revision 1: May 15, 2013, Revision 2: July 15, 2017) (Operation Plan) .

2. *Closure and Post-Closure Plans, Kettleman Hills Facility, Kings County, California,* dated July 13, 2017submitted to Chemcial Waste Management, Inc., 35251 Old Skyline Road, Kettleman City, CA 93239 prepared by Golder Associates, Inc., 3 Corporate Park, Suite 200, Irvine, CA 92606.

## INTRODUCTION

The Engineering and Special Projects Office (ESPO) of the Department of Toxic Substances Control (DTSC) has completed its review of the above listed documents for the

Kettleman Hills Facility (KHF), in Kettleman City, Kings County, California. If you have any questions or comments regarding this memorandum, please contact me at (916) 255-6662 or via email at Peter.Gathungu@dtsc.ca.gov.

## PROJECT SUMMARY

The KHF is owned and operated by Chemical Waste Management, Inc. (CWMI) and is located on the north side of Highway 41 about 2.5 miles west of Interstate 5 and about 3.5 miles southwest of Kettleman City in Kings County, California. The KHF site is surrounded by cattle grazing and oil and gas production operations. The KHF was established in 1979 and encompasses about 1600 acres of which 696.5 acres are presently permitted for active hazardous and municipal solid waste management activities. However, the hazardous (Class I) and municipal solid waste (Class II/III) operations are managed separately. The facility, an active hazardous waste treatment, storage, and disposal facility (TSDF), consists of several active, inactive, and closed Class I hazardous waste management units. There is one active hazardous waste landfill (Unit B-18), one active municipal solid waste landfill unit (Units B-17), a polychlorinated biphenyl (PCB) flushing/storage unit, a final stabilization unit (FSU), two bulk storage units (BSU I and BSU II), a drum storage unit, four closed landfill units, one inactive landfill unit (B-19, which also contains municipal solid waste separated from the hazardous waste), and several active and inactive surface impoundments.

The Operation Plan was submitted to DTSC to satisfy California Code of Regulations (CCR) Title 22 Division 4.5 requirements for an operations plan for the Kettleman Hills Facility as part of the permit renewal application. The closure and post-closure plans address how and when closure of existing active and inactive hazardous waste management units and final closure of the facility will occur, post-closure monitoring and maintenance, and closure and post-closure cost estimates.

ESPO has the following comments and recommendations

## COMMENTS AND RECOMMENDATIONS

### Operation Plan

1. Exhibit 14-1, Containment Capacity Calculations for Containers. The seventh bullet in the Storage Bay Available Capacity uses the full two-foot depth over the entire 86-foot length of the trench. However, our review of Figure 14-1 Drum Storage Unit shows that the trench is sloped. In addition, the footnote in this section states that the facility configuration was based on as-built drawings from 1989. The calculations should be checked to see if the volume in the trench overlaps with the volume in the storage bay surface, and revisions made if necessary. Although it is fine to use the as-built drawings in determining facility configuration, the drawings should be used together with a current inspection/review of existing conditions. The

footnote should be augmented to include current conditions inspection verifying that as-built drawings still represent currently existing conditions.

2. Figure 14-1 Drum Storage Unit, Kettleman Hills Facility. This figure is not dated. We note that the other figures in this section also are not dated. The figures should be revised to include dates. We also noted that detail sections A-A' and B-B' are not to scale. It would be helpful to the reader to include a scale or dimensions with the details.

3. Section 15.2(c) New Installations (22 CCR 66270.16(f)). The last sentence lists the regulations that will be followed in installation of new tanks. In addition to following the listed regulations, the text should be revised/expanded to state that DTSC will be given an opportunity to review and approve any tank replacement.

4. Exhibit 15-3.2 Most Recent Tank Assessment and Certification Report for PCB Liquids Storage Tank. The last paragraph of the recertification dated July 11, 2017 is missing the word "be" in the portion of the second sentence after a comma and starting with the word "to". In addition, the certification is signed and stamped, but a signing and stamping date is not included. The text should be revised and a signing and stamping date should be included as required by Section 6735 of the California Business and Professions Code.

5. Exhibit 15-3.2 Most Recent Tank Assessment and Certification Report for PCB Liquids Storage Tank. Appendix 1—Field Inspection Recertification Report. An $S_{DS}$ value of 1.105 is used in calculating seismic loads. However, our review of the USGS website resulted in a slightly higher value of 1.116. In addition, the resisting moment calculation shows a value of 607,615 ft#, but our review of the data in the calculation resulted in a higher value of 729,138 which yields factor of safety of 2.9 instead of the 2.4 shown in the calculation. The calculations should be reviewed and corrections made as necessary.

6. Exhibit 15-3.2 Most Recent Tank Assessment and Certification Report for PCB Liquids Storage Tank. Appendix 2—tank Calculations and thickness Assessment. The Criteria subsection in the section titled Structural Calculations lists tank dimensions of 12-foot diameter and 7-foot height. However, the section title lists tank dimensions of 12-foot diameter and 12-foot height. The discrepancy should be removed. Also, see comment 5 above regarding the value of $S_{DS}$ used.

7. Exhibit 15-3.2 Most Recent Tank Assessment and Certification Report for PCB Liquids Storage Tank. Appendix 4 – Photographs. The photographs are not dated. A date when each photograph was taken should be added to the photo captions for clarity and completeness.

8. Exhibit 15-4 Tank Construction Material Compatibility Charts. The included compatibility chart is difficult to read or not legible. We also note that the chart is dated September 1974. A clear, legible and updated chart should be provided.

9. Exhibit 15-5 FSU Layout and Process Flow Diagrams. The included drawings are not dated. In addition, portions of the drawings and diagrams are difficult to read or not legible at all. All the drawings should be dated, and clear legible drawings and diagrams should be provided.

10. Exhibit 15-6 Most Recent Tank Assessment Certification Report for FSU Waste Processing Tanks. The first sentence in the first paragraph of the certification includes a description of the tank, but does not include the tank capacity and dimensions. The text should be revised clearly indicate the number of tanks being certified and the tank dimensions. We also note that the concrete secondary containment is part of the tank system and should be fully described.

11. Exhibit 15-6 Most Recent Tank Assessment Certification Report for FSU Waste Processing Tanks. The second sentence in the first paragraph of the certification refers to regulations for existing tanks, however, these tanks were installed in 1990 (as stated in the third paragraph) and therefore are considered new tanks. The text should be revised to reference regulations for new tanks and subsequent analysis should be revised accordingly.

12. Exhibit 15-6 Most Recent Tank Assessment Certification Report for FSU Waste Processing Tanks. The last paragraph of the recertification dated July 11, 2017 is missing the word "be" in the portion of the second sentence after a comma and starting with the word "to". In addition, the certification is signed and stamped, but a signing and stamping date is not included. The text should be revised and a signing and stamping date should be included as required by Section 6735 of California Business and Professions Code. In addition, the certification should include information/certification of the secondary containment system.

13. Exhibit 15-6 Most Recent Tank Assessment and Certification Report for FSU Waste Processing Tanks. Appendix 1 – Field Inspection/Certification Report. The information near the top of the first page references the correct regulation for new tank systems, however, item k(3) on the second page as well as items l and m on the third page reference existing tank systems. All references to existing tank systems should be revised to new tank systems.

14. Exhibit 15-6 Most Recent Tank Assessment Certification Report for FSU Waste Processing Tanks. Appendix 1 – Field Inspection/Certification Report. The note under the 66265.193(c)(2) section states that stamped and signed foundation design calculations and drawings are onsite. These calculations and drawings should be

updated to use the most current seismic design information/practice and should also be included in the certification report.

15. Exhibit 15-6 Most Recent Tank Assessment Certification Report for FSU Waste Processing Tanks. Appendix 4 –Photographs. The photographs are not dated. A date when each photograph was taken should be added to the photo captions for clarity and completeness.

16. Exhibit 17-1 Response Action Plan. The response action is dated October 1997. The response action plan should be updated to reflect current conditions at the facility, for example Landfill B-18 is not included in the current version.

17. Chapter 31.0 Inspection Program Plan. Table 31-2 Storage and Treatment Units Inspection, Kettleman Hills Facility. The inspection element and nature of inspection column in the table for Surface Impoundments should be revised to include leak detection and leachate collection systems.

18. Chapter 35.0 Contingency Plan. Table 35-1 Outside Entity Incident Notifications, Kettleman Hills Facility. The table should be revised to show that DTSC will be notified for incidents involving natural disasters.

19. Chapter 35.0 Contingency Plan. Section 35A.3 Bulk Storage Unit. The second sentence in the fourth bullet under the Spill or Material Release bullet states that large liquid spills would be absorbed by the aggregate liner protection layer and/or flow to the closed sumps. The text should be expanded to state if absorbent aggregate was installed, or the text should be revised if normal, generally non-absorbent aggregate was used.

20. Chapter 37 Closure and Post-Closure Plans. Section 37.1 Background and Scope. The first sentence in the third paragraph states that approved copies of the closure and post-closure plans will be maintained onsite until the post-closure period for the entire facility begins. However, we note that 22 CCR 66264.118(c) requires an updated and approved post-closure plan be maintained in accordance with 22 CCR 66264.118(b)(3) and the text should be expanded/revised accordingly.

**Closure and Post-Closure Report**

21. Section 1.2 Maintenance of Plans. The last sentence states that after final closure, a copy of the closure and post-closure plan will be maintained at the location specified in Section 5.1. However, we could not find Section 5.1 in the document. The text should be revised to reference the correct section, or Section 5.1 should be created and the information included therein.

22. Section 1.3.3 Existing Hazardous Waste Management Units. This section lists active, inactive, and closed hazardous waste management units at the facility. The text should be revised/expanded to include a detailed summary of the units at the facility. Unit details for all units, similar to those provided in the annual post-closure reports for closed units would be sufficient.

23. Section 2.3.2 Final Cover Design. The third sentence in the sixth paragraph lists final cover system and includes a 40-mil double sided textured high density polyethylene (HDPE) geomembrane. Please note that the recommended geomembrane thickness has changed to a minimum of 30 mil for flexible membrane liner and 60 mil for HDPE because of USEPA's concerns about seaming of polyethylene (HDPE, VLDPE, LLDPE) below 60 mil thickness (40CFR§258.40) (EPA 2001). All references to 40-mil HDPE should be revised to 60-mil HDPE throughout the entire document.

24. Section 2.3.4.2 Post-Closure Waste Settlement. The second sentence in the first paragraph states that it was assumed that primary consolidation of waste material will fully occur during placement. The text should be revised/expanded to include a basis/justification for the assumption.

25. Section 2.3.4.3 Slope stability. The first sentence in the fifth paragraph states that Peak Horizontal Ground Accelerations (PHGAs) and Maximum Credible Earthquake (MCE) discussed in a 2011 Golder report were used. We note that this was prior to the adoption UCERF 3, the current tectonic framework for California, and that 22 CCR 66264.228(m) requires landfills and surface impoundments be able to withstand the MCE without significant damage to foundations, structures, waste containment features and features which control leachate, surface drainage, erosion and gas. The seismic information should be updated and based on UCERF 3.

26. Section 2.3.4.3 Slope Stability. The third sentence in the 11$^{th}$ paragraph refers to compacted clay liner. However, we note that the current cover design does not include a compacted clay liner layer. The text should be revised to refer to the current final cover design.

27. Section 2.3.4.5 Surface Water Drainage. The third bullet in the first paragraph states that HEC-HMS version 3.1.0 developed by the United States Army Corps of Engineers was used to calculate peak storm run-offs. We note that the software version used is several versions behind the latest version issued in March 2017. The calculations should be evaluated against the newest or other newer versions and revisions made as necessary.

28. Section 2.3.4.7 Frost and Biotic Protection. The second sentence in the second paragraph states that burrowing animals will be confined to the vegetative cover

on the B-18 final cover system based on information presented in Appendix A.9. However, we note that the referenced information refers to a geonet which is not part of the final cover system. In addition, there is not supporting evidence on the use of a geomembrane or geonet as a biotic barrier layer. The text should be revised to include supporting evidence for use of geomembrane or geonet as a biotic barrier.

29. Section 2.7.2 Closure Procedures. The second sentence in the sixth paragraph states that all contaminated soils will be removed from the Bulk Storage Unit (BSU) areas. The second sentence in the seventh paragraph states that contamination above hazardous waste levels will be removed. The text should be revised to clearly indicate the level of contamination removal and remove the discrepancy.

30. Section 4.2 Inspection and Maintenance Activities and Schedule. The second sentence in the second paragraph refers to inspection requirements in 22 CCR 66264.228(k). We note that there are other inspection and maintenance requirements in both 66264.228 and 66264.310 and the text should be expanded/revised to include the other requirements.

31. Appendix A.2 Technical Specifications. The specifications are dated November 2008. It is likely that material and design changes may occur in the future prior to construction of features that are yet to be constructed at the facility. For this reason, the technical specifications should be revised/updated and submitted to DTSC for review and approval prior to construction of these features, and enough time should be allowed for the review and approval.

32. Appendix A.2 Technical Specifications. Section 4.2.4 Construction Testing. The first sentence in the subsection titled Destructive Seam Sampling Procedures and Field Testing states that destructive seam samples will be taken at intervals of at least one per 500 linear feet of geomembrane. The text should be expanded/revised to state that the samples will be random and dispersed so that they are representative of the entire geomembrane.

33. Appendix A.2 Technical Specifications. Section 7.4 Design and Specification Changes. The second sentence states that design and specification changes will only be made with the written agreement of the Design engineer, Owner, and Contractor. The text should be expanded to include DTSC as the regulatory oversight agency.

34. Appendix A.5 Slope Stability Analyses. The slope stability report is dated September 15, 2008. This report should be updated as required by 22 CCR 66264.25. In particular, the design ground motions as presented in Section 2.2.2 Design ground Motions, the final cover design, and all other information should

use existing conditions or approved revised design for features to be constructed in the future. See comment 25 above.

35. Appendix A.7 Surface Water Drainage Analyses. The table in the fourth bullet in the Assumptions section uses Mercey Loam in the soil type column. However, we noted that the table in the Soils subsection under the Assumptions section in Appendix A.6 Soil erosion Analyses uses Kettleman Loam in the soil property row. The basis for the use of different soil types in both sections should be included or the text should be revised to remove the discrepancy.

36. Appendix A.9 Frost and Biotic Protection. The text in the Biotic Protection section includes a conclusion that a 40-mil HDPE is expected to constrain any rodent burrowing to the overlying vegetative layer. This conclusion is based on an August 4, 1989 letter from Biosystems Analysis, Inc. We note that the letter referred to a geonet and compacted clay and that these materials are not part of the proposed Landfill B-18 final cover. In addition, we note that the letter is from about 28 years ago. The conclusion should be reviewed and updated based on current knowledge and information.

Department of Toxic Substances Control

*Matthew Rodriquez*
Secretary for
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*Edmund G. Brown Jr.*
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# MEMORANDUM

TO: Ryan Batty, CH #6508
Senior Hazardous Substances Engineer
Sacramento Permitting Division - Landfill Unit
Hazardous Waste Management Program

FROM: Matthew Farris, PG #8316
Engineering Geologist
Sacramento Geologic Services Branch
Brownfields and Environmental Restoration Program

Jeff Brown, PG #7757
Chief, Sacramento Geological Services Unit
Sacramento Geologic Services Branch
Brownfields and Environmental Restoration Program

PROFESSIONAL GEOLOGIST
JEFFREY D. BROWN
No. 7757
STATE OF CALIFORNIA

REVIEWER: Lora Jameson, PG #8134
Senior Engineering Geologist, Sacramento Geological Services Unit
Sacramento Geologic Services Branch
Brownfields and Environmental Restoration Program

DATE: November 6, 2017

SUBJECT: Part B Permit Renewal Application
Chemical Waste Management – Kettleman Hills Facility
Kings County, California
Project No. 25040/100032-33/20042986

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## DOCUMENTS REVIEWED

1. Revised Permit Renewal Application Part B, EPA No. CAT000646117, prepared jointly by Chemical Waste Management, Inc. and Golder and Associates, dated July 15, 2017.
2. Site-Specific Water Quality and Soil-Gas Monitoring Plan 2017, Class I Waste Management Units, Kettleman Hills Facility, Kings County, California; prepared by Amec Foster Wheeler Environment & Infrastructure, Incorporated, dated July 12, 2017.

The Sacramento Geological Services Unit (GSU) of the Department of Toxic Substances Control (DTSC) reviewed the above-referenced documents and prepared the following comments. If you have any questions regarding this memorandum, please contact me at (916) 255-3704 or matthew.farris@dtsc.ca.gov.

## SCOPE OF REVIEW

GSU was asked to conduct a technical review of selected sections of the revised Part B permit application for the Chemical Waste Management (CWM) Kettleman Facility including the site-specific monitoring plan (SSMP). This review was requested to determine the following:

1) If information in the revised permit application and SSMP adequately addressed comments previously submitted by GSU in a memorandum dated August 14, 2015 specific to GSU's review of the Part B permit application; and

2) If information in the revised permit application and SSMP is sufficient to comply with the following portions of Title 22 of the California Code of Regulations (CCR):

   - The water quality and unsaturated monitoring and response program requirements in §66264.90 et seq. (Article 6); and
   - The applicable air and soil-pore gas monitoring and response program requirements in §66264.700 et seq. (Article 17).

The comments provided herein address those areas of the revised permit application and SSMP which were not adequately addressed and/or do not satisfy the Title 22 requirements listed above.

## PREVIOUS GSU COMMENTS

1. **GSU General Comments (GCs) #1 through #3.** *Adequately Addressed.*

   Revisions made to the permit application and SSMP adequately address GSU GCs #1 through #3 provided to the facility in 2015. Documents such as the SSMP, are included as contents of the permit as required by Title 22. In addition, phrases which appeared to grant the facility the ability to make revisions without following Title 22 permit modification procedures, are no longer in the permit application.

2. **GSU Specific Comments (SCs) #1 through 5.** *Partially Addressed.*

   Comments #1a, #1b, #1c, #5a, and #5b, related to the groundwater and soil vapor monitoring well networks were not adequately addressed.

   - Section 8 still does not include a map or table identifying the point of compliance wells at the facility. In addition, text in sections 8 and 25 of the revised Part B permit application, suggest the facility believes they are not subject to point of compliance regulations in Title 22 on the suggestion

groundwater yields are too low to be considered an aquifer. See new GSU comment #5 for necessary revisions and new GSU comments #6 and #7 for additional supporting information.

- The soil vapor network, as currently proposed in the SSMP, may be complete if plume delineation can be shown by the results from new well installations and sampling. However, data from these new wells may trigger additional well installations to establish plume extents. See new GSU comment #10 for additional detail.
- The groundwater well network, as currently proposed in the SSMP, is inadequate to comply with Article 6. Additional wells are needed as described and supported in new GSU comments #6 and #7 provided below. The proposal to invoke §66264.90(e) to sample soil vapor, in lieu of installing and sampling new groundwater monitoring wells, is not supportable via title 22.

3. **GSU SC #6, Evaluation Monitoring Program (EMP).** *Partially Addressed.*

Text in the permit application no longer directly conflicts with the sampling plan; and groundwater monitoring wells previously assigned within the EMP are no longer designated to be within the EMP. An Engineering Feasibility Study (EFS) has been provided by the facility to DTSC for review. However:

- GSU will confirm discrepancies in monitoring program assignments are eliminated following the next permit application revision; and
- GSU has identified deficiencies in the EFS which are reflected in new GSU comments #9 and #10 provided below. These comments should be addressed to support the elimination of the EMP, to support the assignment of the detection monitoring program (DMP), and to support the establishment and operation of the proposed corrective action monitoring and response program (CAP) for groundwater as proposed in the SSMP.

4. **GSU SC #7, Corrective Action Programs for Groundwater and Soil Vapor.** *Partially Addressed.*

The permit application now includes a description of the groundwater corrective action remedy and program and a general time-period for completion of the remedy. In addition, the 2017 EFS now includes data and analysis which indicates soil vapor extraction (SVE) is supportable as the presumptive remedy. However outstanding issues remain unaddressed, as follows:

- Neither the permit application nor the SSMP includes performance metrics for the monitored natural attenuation (MNA) remedy for the groundwater CAP. See new GSU comments #9 and #10 for additional information.
- The proposed soil vapor monitoring network and soil vapor CAP for cells with soil vapor releases has not been established yet.
    - While SVE appears reasonable to address contamination in soil vapor, additional soil vapor wells still need to be installed and

sampled, and a pilot study conducted, to support the selection and proposed design and operational approach for an SVE system.

- In addition, remedial performance metrics for the soil vapor CAP have yet to be proposed. The adequacy of performance metrics will be dependent on the new soil vapor data obtained from new soil vapor well installations and pending pilot study. (See new GSU comment #13 for related information).

- The SSMP proposes to use exceedances of facility-derived risk-based screening levels (RSBLs) to trigger corrective action. GSU recommends the facility include indoor air threat evaluation (e.g. vapor intrusion modeling and/or indoor air sampling) as a second criterion to determine the need to transition from a soil vapor DMP program to a soil vapor CAP (see GSU SC #13 below for related information). GSU is available to discuss this approach in further detail with the facility, as needed.

**NEW GSU COMMENTS**

5. **Point of Compliance.** Sections 8 and 25 of the revised part B permit application need to be revised to remove language that suggests Title 22 point of compliance regulations described in §66264.95 are not applicable to the facility. To comply with this Article 6 regulation:

   - Section 8 should be revised to specify (in a figure and/or table) what the point of compliance wells are at the facility. Because sandstone units are hydraulically isolated from each other, GSU interprets each water bearing sandstone bed which underlies a regulated unit to be the uppermost water bearing unit or "aquifer."

   - Section 8 and 25 should be revised to remove statements which suggest the facility is not subject to compliance with §66264.95. DTSC has not agreed to these conclusions nor has the facility sought or applied for a waiver from EPA and from Article 6 groundwater monitoring regulations to recognize this position.

6. **Applicability of an Alternate Monitoring Program, §66264.90(e).** Conditions at the facility do not allow an alternative environmental compliance program to be implemented under §66264.90(e). For this regulation to be applicable, the following perquisites at the site must be present, or have occurred:

   - A release must have occurred at the unit where the alternate monitoring program is proposed (e.g. the unit or wells with releases would be in corrective action), and

   - This release should be shown to have commingled with a release from an adjacent solid waste management unit (SWMU) or area of concern (AOC).

However, facility documents, including recent and historical EFS reports provided by the facility, fail to demonstrate commingling has occurred, or is likely to have occurred, in wells or units with confirmed releases.

Furthermore, pursuant to the 2011 initial statement of reasons (page 4 of 15), even if such a commingling were to be demonstrated, the intent of the regulation is to eliminate potentially duplicative *water quality monitoring* requirements, not to replace the water quality program with sampling conducted in an alternate medium such as soil vapor well sampling.

If the facility remains convinced the conditions exist for an alternate program for releases that occurred in units under post closure care, the facility should be made aware that GSUs oversight in similar endeavors at other sites in California suggest the department would need to administer this alternate groundwater program via a corrective action consent agreement (CACA), outside of the title 22 permit authority.

If this pathway is pursued by the facility, the GSU recommends the facility initiate discussions with the DTSC's permitting project manager to determine specific requirements to allow a CACA to proceed.

*Conclusion and Revisions Needed:*

- GSU concludes all sandstone units underlying areas without releases (or units already in corrective action where the extent of the plumes may not yet be delineated) would need to be routinely monitored to comply with Article 6. For additional detail and support see new GSU comment #7 below.
- The sections titled "Alternative Monitoring" under Chapters 26, 27, and 29 of the revised permit application should each be deleted. Statements made in these sections pertaining to flexibility of Title 22 and what does, or does not, apply with respect to Title 22, are inaccurate. Moreover, the section appears to create alternative, and undefined, provisions to the facility for monitoring, which neither the facility has applied for nor DTSC has approved.

7. **Adequacy of the Groundwater Monitoring Well Network.** CWM has provided sufficient evidence that demonstrates the sandstone units beneath the facility are isolated from each other and are also low-yielding water bearing zones. Because of this condition, and pursuant to §66264.95(a) and §66264.97(b)(1)(B)(3), each sandstone unit is considered the uppermost aquifer and/or low-yielding water bearing zone which, in turn, requires point of compliance groundwater monitoring at a sufficient number of locations within each sandstone unit.

   Pursuant to §66264.97(b)(1), CWM could demonstrate compliance with Article 6 for currently unmonitored sandstone beds (that underlie one or more cells) through the installation of a groundwater well pair placed at the northwestern and southeastern limits of the sandstone bed exposures near the edges of the facility. This demonstration should be based on the infeasibility (e.g. inability to install wells due to access issues) to install monitoring wells at the point of compliance closest to the edge of a waste well. GSU is available to discuss this approach in further detail with

the facility as needed.

8. **Groundwater Sampling and Water Level Monitoring Frequencies.** The proposed monitoring well sampling frequencies appear sufficient for existing DMP wells and unaffected CAP wells. Existing DMP wells and unaffected CAP wells would be sampled semiannually and affected CAP wells would be sampled annually. Language should be included in Sections 6 and Appendix C of the SSMP to ensure monitoring events are spaced approximately 6 months apart.

   However, GSU analysis of the well sampling data and low groundwater flow rates and gradients indicate annual sampling frequencies for existing DMP wells and unaffected CAP wells would be technically supportable and allowable in §66264.97(e)(12)(B). Based on these site-specific and unique hydrogeologic conditions and the proximity of the releases (in the central portion of the facility), an annual monitoring frequency will provide sufficient data to ensure protectiveness of human health and the environment.

   If the facility wishes to pursue the implementation of annual sampling frequencies for existing DMP and CAP wells, a technical argument and basis for this decision should be provided in both the permit application and the SSMP.

9. **Groundwater Concentration Limits.** Section 4.2.4 of the SSMP and the EFS state that concentration limits (CL) are not calculated for affected CAP wells because there are no potential groundwater receptors. Instead, these sections go on to state concentration trends will be evaluated.

   GSU concurs with the use of concentration trends as one performance metric for the groundwater remedy, but does not concur with the statement that CLs should not be calculated because there are no receptors. Reference to the absence of receptors, as the basis for not calculating CLs, should be struck from the permit application and/or SSMP.

   Pursuant to Article 6, §66264.94, CLs are required and must be defined in the SSMP and permit application. CLs for released contaminants become relevant to performance in a CAP when the facility is making a determination to cease corrective action and return to detection monitoring.

   If the facility is not seeking this end-point, or is not near this end-point of cleanup, comparison of well data to CLs in routine monitoring reports is less useful. Performance metrics, which include concentration trends or concentration thresholds (those which are not to be exceeded by the affected CAP wells), should be defined in the permit application and the SSMP, in addition to CLs.

   Exceeding these concentration-based performance metrics could be used as the only trigger for additional corrective actions proposed by the facility to control groundwater contamination (see GSU comment #10 for additional performance metrics needs).

10. **MNA Performance Metrics for Groundwater CAPs.** The EFS currently recommends MNA as the preferred remedy for existing releases to groundwater. While GSU concurs with this recommendation for the groundwater remedy, the performance evaluation component of MNA in the CAP programs is incomplete.

    The SSMP should be revised to include additional performance metrics for the CAPs beyond that of evaluating the presence of increasing concentration trends and/or a remedy concentration threshold which is not to be exceeded.

    The SSMP should be revised to include plume stability as a primary metric of MNA performance because this is the substantive evidence the aquifer has an adequate capacity to attenuate contaminant mass in groundwater or actively being released to groundwater. Specifically, if concentrations increase in a CAP well and this increase leads to plume growth or migration, this would indicate remedy ineffectiveness and trigger a need to augment the corrective action.

11. **Adequacy of the Soil Pore Gas Monitoring Well Network.** GSU concurs with the proposed locations of new soil vapor monitoring wells. New soil vapor well installations are to be installed and monitored in each sandstone unit underlying regulated units whose waste includes a volatile component.

    However, GSU does not concur with the proposed well screen depths of 10 feet below ground surface (bgs). This depth is too shallow to either 1) eliminate the bias in the sampling results potentially introduced by atmospheric air mixing, and 2) to monitor for releases which may occur at or near the bottom of the waste cell. GSU recommends further discussion occur with the facility to determine the most appropriate well construction design.

    If the facility wishes to pursue the implementation of soil vapor sampling protocols based on potential threats to receptors as described above (be it human health or the environment) then a technical argument and basis for this decision should be provided in both the permit application and the SSMP.

12. **Soil Vapor Well Sampling Frequencies.** The proposed semiannual sampling frequency for the DMP and CAP soil-pore gas wells appear sufficient to address protection of human health and the environment. Language should be included in Sections 7 and Appendix D of the SSMP to ensure monitoring events are spaced approximately 6 months apart.

    However, GSU analysis indicates this relatively high sampling frequency may be most appropriate for only those soil vapor wells located adjacent to buildings which could be, or are currently, occupied by workers on-site. The primary purpose of soil vapor sampling on a semiannual basis would be ensure protection of workers from vapor intrusion inhalation. The secondary purpose of the soil vapor sampling programs, in general, would be to evaluate the potential flux of VOC contaminants to ambient air, threat and potential migration to groundwater, and as performance

evaluation tool for the CAP.

Accordingly, wells within a DMP and/or CAP that monitor waste cells positioned closest to on-site buildings could be sampled at a higher frequency (e.g. semiannual) than wells further from on-site buildings.

If the facility wishes to pursue the implementation of soil vapor sampling frequencies reflecting the logic described above for either the existing DMP and/or CAP wells, a technical argument and basis for this decision should be provided in the permit application and the SSMP.

13. **Soil-Pore Gas Concentration Limits.** For soil-pore gas, RBSLs are proposed as alternate CLs in accordance with §66264.704e. The RBSLs are considered conservative, and, if not exceeded, will not pose a substantial hazard to human health. The SSMP also states that exceedance of the RBSLs indicate additional evaluation would be warranted to determine if there is an actual health risk.

    However, the SSMP is not specific as to what the "additional evaluation" will be to trigger corrective action. GSU recommends using either vapor intrusion modeling (e.g. Johnson and Ettinger model) and/or a combination of modeling and indoor air sampling to be the determining factors as to whether soil CAP be initiated. Regardless, GSU cannot concur with the proposal until specificity is provided on what the "additional evaluation" will consist of.

    While GSU concurs with the concept of RBSLs as alternate CLs; the permit and the SSMP should be clarified to state that an exceedance of an RBSL would trigger corrective action. In addition, while the concept of applying RBSLs is reasonable and supportable within Article 17 regulations, we defer to DTSCs Human and Ecological Risk Office (HERO) as to the adequacy of the proposed RBSL numbers for use in the soil vapor DMP or CAP.

14. **SSMP Sampling Procedures.** Sampling procedures described in the SSMP specific to soil pore gas and groundwater monitoring wells are still under review by GSU. Any article 6 or 17 deficiencies in these procedures, or recommendations to revise language specific to these procedures, will be provided in a future memorandum.