



October 26, 2005

Mr. Stephan Rosen
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Rodeo, California 94572

**Subject: Response to Comments - DTSC's August 5, 2005 Letter
September 30, 2004 Closure Report, Bulk/Container Storage Unit
San Francisco Refinery, Rodeo, California
EPA ID Number CAD009108705**

Dear Mr. Rosen:

This letter has been prepared to respond to Department of Toxic Substances Control (DTSC) comments on the September 30, 2004 Closure Report for the Bulk/Container Storage Unit (BCSU) (MWH, 2004). The BCSU is located at the ConocoPhillips San Francisco Refinery (SFR) in Rodeo, California. The DTSC comments, submitted to ConocoPhillips on August 5, 2005 (DTSC, 2005), consisted of separate comment memoranda prepared by the DTSC Geologic Services Unit (GSU) on April 6, 2005, and by the DTSC Human and Ecological Risk Division (HERD) on June 1, 2005. DTSC comments are presented below, followed by our response.

**RESPONSE-TO-COMMENTS
DTSC GSU COMMENT MEMORANDUM, APRIL 6, 2005**

Note: The responses presented below are for the numbered items presented in the "Conclusions" section of the GSU comments that begin on Page 4 of the memorandum. The comments preceding this section appear to be a summary of the findings of the BCSU Closure Investigation. MWH concurs with the summarized findings listed by the DTSC, and as such, is not presenting responses to these items.

Comment 1. *Review of the PRGs and ESLs for Closure Screening. DTSC's Human and Ecological Risk Division should be consulted to determine the appropriateness of using PRGs and ESLs as a mechanism to evaluate human health exposure at the BCSU.*

Response: The DTSC HERD has provided comments on the subject report, which are presented below.

Comment 2. *Occurrence of Metals in the Wipe Samples. The wipe samples indicate that low concentrations of metals are on the tanks, the associated tank piping, the stairway structure, and the sewer grates. The appropriateness of leaving this residual metal contamination on these structures warrants further justification by ConocoPhillips.*

Response: Our response (by structure) is provided below:

Tanks and Tank Piping. MWH does not agree with DTSC's summary of residual metals on the tanks and tank piping. Metals detected on the surface of the tanks and tank piping were (*in all cases*) either not detected, or were detected at concentrations below or similar to results from background wipe samples (See Tables 6 and 7).

Stairways. Residual metals on the stairway structures are possible, but not considered pervasive or significant. The two wipe samples from these structures (samples WP-13 and WP-14) each included only one result that could be considered out of background ranges:

- Lead in sample WP-13 at 5.1 ug/L (as opposed to background lead results of 1.7 and 0.42 ug/L), and
- Vanadium in sample WP-14 at 3.6 ug/L (as opposed the one background vanadium result of 0.57 ug/L).

In each case, the result was not duplicated in the other stairway sample, and was not accompanied by other metals as would be expected if it was a pervasive issue.

Drop Inlet and Collection Trench Grates. The wipe samples from the drop inlets and collection trench grates (samples WP-16, WP-17, and WP-19) revealed the presence of several metals above background levels. These results were interpreted as potentially low concentrations of residual waste on the interior surfaces of the grates as discussed in Section 4.2.3 of the September 30, 2004 Closure Report. The residual metals were likely associated with the difficulty of cleaning the interior surfaces of the grates. To resolve this issue, ConocoPhillips performed addition cleaning of the grates in October 2004. The grates were removed and taken to the SFR Steam Wash Pad for cleaning with pressurized steam water and detergent. The cleaning was directed at the difficult, hard to reach interior surfaces of the grate, and yielded visually cleaner steel structures. ConocoPhillips and MWH propose that the additional cleaning resolved the issue of residual metals on the grates.

Also, we submit that it is unlikely that the results are indicative of metals that would pose additional, appreciable risks to current and future site workers for several reasons:

- (1) The potentially complete exposure pathways between the compounds and site workers/visitors are dermal contact and incidental ingestion. Given that the compounds are not readily mobile or bioavailable, it is highly unlikely that they would result in significant exposures.
- (2) All workers in the area are required to wear personal protective equipment (including gloves and coveralls) that reduce the likelihood of dermal contact and incidental ingestion pathways.

Comment 3. *Vapor Intrusion Exposure Pathway. Soil gas testing at Area B was inconclusive due to ambient air breakthrough on the air samples. Hence, the potential for vapor intrusion into indoor air cannot be evaluated for future buildings on the BCSU site. To grant clean closure by DTSC, this exposure pathway warrants further evaluation or the property should be restricted to prevent the construction of future buildings.*

Response: The BCSU is a site that is designed for hazardous waste handling and will be used after closure as a 90-day accumulation area. ConocoPhillips has no intention of constructing buildings on the site, and proposes that the results of the risk assessment completed as part of the Revised Closure Report support a clean closure scenario.

Comment 4. *(General) Please note that the concentrations of subsurface contamination at the BCSU above the PRGs and ESLs are associated with activities at former disposal area IWS-6C. GSU assumes that pre-existing contamination under a RCRA unit will not limit DTSC's ability to grant Clean Closure. The mitigation and monitoring of IWS-6C is administered by the RWQCB under Waste Discharge Requirements Order No. 97-027.*

Response: Comment noted. This issue is also addressed by the DTSC HERD comments, and is addressed in the response to HERD Comment 10 included below. Please also note that Waste Discharge Requirements (WDR) Order No. 97-027 was superceded by a new WDR Order, No. R2-2005-0026, in June 2005. WDR Order No R2-2005-0026 lists IWS-6C as an inactive waste management unit (WMU) and requires the continuation of the detection monitoring program.

RESPONSE- TO-COMMENTS
DTSC HERD MEMORANDUM, JUNE 1, 2005

General Comments.

The Closure Report contains many significant problems and does not meet the procedural criteria for RCRA risk assessment work. Most importantly, the overall approach to achieving cleanup standards is flawed. Clean closure standards are proposed based on Preliminary Remediation goals (PRG's) and California Regional Water Quality Board Environmental Screening Levels (ESL's). Closure using PRG's has only been approved for military facilities, private facilities must be closed using risk based values and risks must be evaluated cumulatively. Neither PRG's or ESL's are ARAR's and must not be used for closure of the Bulk/Container Storage Unit (BCSU). Please refer to the October 38, 1994 DTSC Memorandum to Ken Smith, Chief Office of Military Facilities (See enclosure).

Response:

The Closure Report has been revised to include screening and baseline human health risk assessments (HHRAs) for the site. The HHRA, presented in Section 5.0, provides a quantitative and qualitative evaluation of potential human health risks associated with site-related contaminants detected in soil, soil vapor, and groundwater beneath the BCSU. In addition, the HHRA assesses risks posed by soils at the BCSU and IWS-6C combined. Carcinogenic and non-carcinogenic effects of exposure to COPCs were quantified using current State and Federal guidance for conducting risk assessments. PRGs and ESLs were not used in the baseline risk assessment.

Because the HHRA provides qualitative and quantitative evaluations of site data that support clean closure of the BCSU, Section 5.0 of the 2004 Closure Report, Rationale for Closure, has largely been rendered moot. Appropriate information from former Section 5.0 has been included in the Conclusions (Section 6.0) of the Revised Closure Report.

Specific Comments.

Comment 1. *Page 1-1, 1-2. The report indicates that following closure of the Bulk/Container Storage Unit (BCSU), the BCSU area will be utilized as a 90-day accumulation unit. However, the report does not provide a definition of a 90-day accumulation unit. This should be rectified in the report.*

Response: The following text has been added as the last sentence of the opening paragraph of Section 1.0: "A 90-day accumulation unit is an established

facility for the accumulation of regulated hazardous waste for a period of no greater than 90 days.”

Comment 2. *Page 1-3, Final Paragraph. The report indicates that no RCRA hazardous waste was spilled at the site but the report fails to identify the nature of the wastes stored at the BCSU. The report needs to identify wastes that were stored at the BCSU.*

Response: The nature of the hazardous waste stored at the BCSU was presented in Section 2.0 and Table 1 of the BCSU Closure Plan (MWH, 2003). For the sake of reporting conciseness, these issues were not revisited in the Closure Report. To facilitate Dr. Eichelberger’s review of this information, these items and portions of the Closure Plan text that discuss proposed analytical test methods, have been included as a new Appendix (Appendix F) in the revised Closure Report.

Comment 3. *Page 1-4, First Paragraph. The report describes a spill containing spent Stretford solution. The report needs to identify the purpose of Stretford Solution and include a description of its use in the refinery process and any potentially toxic constituents of the solution such as vanadium or residual compounds from the oil such as polycyclic aromatic hydrocarbons (PAHs) that may be found in spilled, spent solution.*

Response: Stretford desulfurization processes have historically been used at SFR to remove hydrogen sulfide from gas streams. Stretford solution, the treatment chemical used in Stretford process, uses Vanadium as a catalyst. Spent Stretford solution typically contains hazardous concentrations of Vanadium. The revised Closure Report presents and discusses this information in the last paragraph of Section 1.3.1.

Comment 4. *Page 2.2, Second Bullet. The location of the BCSU is situated on a portion of the project that contained a landfill site known as Inactive Waste Site 6C (IWS-6C). Sub surface sampling of the area was performed and the report states “Chemical test of the materials indicates that constituents of potential concern (COPCs) are non-hazardous concentrations of heavy-end petroleum hydrocarbons, semi volatile organics, lead, and mercury.” Please explain what constitutes “non-hazardous” concentrations of the specified COPCs.*

Response: The term non-hazardous should only be applied to lead and mercury, which, unlike PAHs and petroleum hydrocarbon fractions, have hazardous waste thresholds. In this case, non-hazardous concentrations

of lead and mercury would be concentrations that are less than the Total Threshold Limit Concentrations (TTLCs) for non-RCRA waste. Section 2.2 of the revised Closure Report has been augmented and now states that (1) lead and mercury were detected at concentrations that were less than the TTLC for non-RCRA waste, (2) TPH was detected at concentrations up to 11,000 mg/kg, and (3) PAHs were detected at concentrations up to 46 mg/kg.

Comment 5. *Page 3-1, Bullet One. The report describes BCSU closure activities during Phase I. Bullet one indicates that stored waste at the BCSU was removed and disposed but the report provides no information on where the wastes were treated and ultimately disposed. Section 3.1 on page 3-2 states “All BCSU wastes were handled following SFR waste management practices, including proper packaging, labeling, manifesting, transportation, and disposal” but the manifests were not included in the report for our review.*

Response: Disposal of the waste at the BCSU during the closure activities was conducted as part of the regular SFR waste disposal process. As discussed in Section 3.1 of the revised Closure Report, the waste was moved to an interim location while the BCSU was being decontaminated. During the time that the interim waste management facility was in use, some waste (including that formerly located at the BCSU) was being shipped off-site, while other new waste was being delivered and readied for shipment. Because the disposal of wastes that had been contained at the BCSU prior to decontamination was essentially part of the regular, ongoing waste disposal process at SFR, an itemization of the specific “closure” wastes did not seem pertinent. Records of the waste removed from the BCSU and its ultimate disposition are retained under SFR’s regular waste management program. This program is overseen and periodically audited by the EPA and DTSC.

Comment 6. *Page 3-3, Paragraph One. The report states that “wash and rinse water were chemically tested to evaluate its quality relative to hazardous waste criteria and then discharged to the SFR process water sewer system for treatment at the SFR Waste Water Treatment Plant (WWTP).” But the text does not reference where the results are presented in the report. TABLE 13 lists sampling results from “washwater” and sumps but the TABLE does not describe if they represent the results referred to in the text on page 3-3. In the body of*

the text, wherever results are quoted, the text needs to reference the table or the figure where the results are presented.

Response: The sample identified in Table 13 as “washwater” is the sample of accumulated BCSU decontamination rinsate. Section 3.2 of the revised Closure Report has been amended to discuss the sample, the chemical testing performed, chemistry results, and the location of the tabularized data.

Comment 7. *Page 5-3, Paragraph 1. Please clarify the following sentence. “We believe the statistical excellence of beryllium and mercury in the asphalt is principally because of higher concentrations of these compounds in sample ASPH-2, which was collected from new asphalt recently placed at the BCSI that contained these metals at concentrations that are higher and not representative of the original BCSU asphalt batch.” What is meant by statistical “excellence?”*

Response: This word “excellence” was intended to be “exceedance”. The section of text in which this typographical error was located is not included in the Revised Closure Report.

Comment 8. *Page 6-1, First Sentence. Each of the bullets requires further clarification. Please provide the information to the following.*

Response: Sections 5.0 and 6.0 of the September 2004 Closure Report have been reworked substantially with the completion of the screening and baseline HHRA. Answers to the specific comments HERD put forth regarding individual bullets are addressed below, but are not necessarily directly applicable to the Revised Closure Report.

8a. *Bullet 1, Identify the wastes that were removed. Sampling should have been conducted based on the nature of the wastes that were stored on site. The report does not discuss the nature of the wastes that were stored at the facility and it is therefore difficult to determine if a complete and reasonable suite of COPC’s were looked for during sampling.*

Response: As discussed in the response to HERD Comment No. 2, the nature of the hazardous waste historically stored at the BCSU was presented in the BCSU Closure Plan (MWH, 2003). The sampling and analytical program for the closure investigation was developed in conjunction with DTSC and the objective of assessing potential contamination from the wastes that were stored at the facility. Because the sampling and

analytical program was approved by the DTSC, and for the sake of reporting conciseness, these issues were not revisited in the Closure Report. To facilitate Dr. Eichelberger's review of this information, the portion of the text from the Closure Plan that discusses the proposed analytical test methods has been included as a new appendix (Appendix F) in the Revised Closure Report.

8b. *Bullet 2. The statement "Surfaces, equipment, and structures were decontaminated such that waste residue is not present or below reasonable performance standards" is not clear. Does the sentence say that waste residue is not present or does it say waste residue is not below reasonable performance standards.*

Response: The HHRA completed for the Revised Closure Report addresses the risks associated with the residual chemicals on the surfaces, equipment, and structures. Also, as discussed in an earlier response above, additional cleaning of the collection trench and storm grates was completed to reduce the waste residue on the steel grates.

8c. *Bullet 4. "Non IWS-6C soil beneath the facility does not contain the COPCs above established risk screening criteria (residential PRGs and ESLs) or background concentrations" is misleading. Area C lies directly on top of the IWS 6C Fill (Refer to cross section "C," Figure 7). Cleanup to PRG's and ESL's are not appropriate for the BCSU.*

Response: This section was intended to distinguish between IWS 6C fill that predated the BCSU, and fill later placed atop the IWS 6C fill for construction of the BCSU. The issues is addressed more completely in the revised Closure Report by the completed HHRA.

8d. *Bullet 5. The statement "Groundwater beneath the BCSU has not been affected by the operation of the BCSU" does not indicate that the BCSU is "clean closed."*

Response: The intent of this comment is unclear. Groundwater not being impacted by site activities is one of the criteria for clean closure. As such the content of this statement, and its use to support clean closure seem appropriate.

8e. *Bullet 6. The statement "COPC's that are present in the fill material beneath the Middle Terrace are representative of IWS06C and not from*

operation of (or releases from) the BCSU” overlooks the premise of the clean closure. The purpose of clean-closing the facility is to provide a safe working environment for employees, contractors and visitors who may frequent the site following closure. Ignoring potential exposure from COPC’s from the underlying IWS-6C defeats the intent of the cleanup. Potential exposure from the IWC-6C needs to be included in the cumulative risk associated with the facility.

Response: This issue has been discussed with the DTSC project manager on several occasions. The DTSC has given permission to ConocoPhillips to pursue closure of the BCSU separate from the management of IWS-6C as a WMU regulated under the RWQCB WDR Order. Sections 2.6, 6.1 and 6.2 of the Revised Closure Report include additional text on the status of IWS-6C relative to the closure process at the BCSU.

Comment 8f. *Bullet 7. Although the IWS-6C fill is being “monitored and mitigated under the ongoing SFR remedial programs, as administered by the RWQCB under a WDR order,” this is not a premise for basing clean-closure of the BCSU.*

Response: Please refer to the Response to HERD Comment 8e.

Comment 9. *TABLE 15, “Proposed closure Performance Standards Bulk Container Storage Unit Closure San Francisco Refinery, Rodeo, California.” The table is broken into columns with potential COPC’s on the left and proposed potential sources of contamination across the top. The regulatory standard along with the standards source is provided for each contaminant source/COPC combination. Asphalt/Concrete/Soil is one of the four contaminant source types presented. Others include “Equipment Surfaces/Structures, Groundwater, and Soil Vapor. The sources of the regulatory standards are PRG’s and ESL’s. The table is flawed since the PRG’s and ESL’s were never intended for asphalt, concrete and equipment structures. Even if PRG’s and ESL’s were appropriate as clean up standards (which they are not) they could not be applied to anything other than the source media they were intended for. Media in the context of risk assessment includes, soil, water and air. Media does not include asphalt and concrete.*

Response: Table 15 has been removed from the revised Closure Report with the completion of the HHRA. For reference, the HHRA concluded that the exposure pathway from site concrete and asphalt to human receptors is incomplete, and therefore, did not include a quantitative evaluation of potential exposures to these site media. The risk of exposure to COPCs

in concrete and asphalt was evaluated qualitatively, and is included in the HHRA.

Comment 10. *Conclusions. The report needs to be modified to address chemical contamination of the facility based on a risk based assessment rather than comparison to screening levels as a means of achieving a clean up goal. Evaluation of risk to workers and visitors to the facility cannot be complete without consideration of potential exposure from COPC's beneath the facility, particularly from the IWS-6C underlying Area C. Consideration must be given to the use of appropriate risk based ARAR's when evaluating risk at the BCSU. Comparison of contaminant concentrations in asphalt and concrete to PRG's and ESL's developed for soil and water contaminants are not appropriate and should not be applied to the BCSU. The report does not currently meet the requirements of a RCRA environmental assessment and should be resubmitted once those requirements are met.*

Response: As discussed in the response to the HERD General Comment, a HHRA (Section 5.0) has been included in the revised Closure Report. The HHRA addresses risks posed by the BCSU and the combined BCSU/IWS-6C soils. As discussed in the response to HERD Comment No. 9, the baseline risk assessment included in the HHRA does not address COPCs in asphalt and concrete, because DTSC and MWH have discussed the issue and agreed that the exposure pathway to human receptors is incomplete. The concentrations of compounds in asphalt and concrete are instead addressed qualitatively in a screening risk evaluation (see Section 5.3).

CLOSING

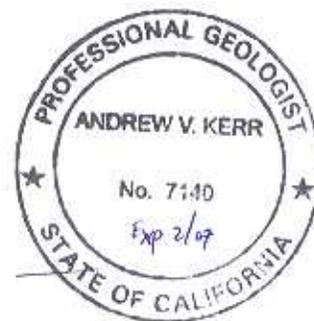
If you have questions or comments to the technical issues presented in this letter, please contact either of the undersigned at (925) 975-3400.

Yours Sincerely,

MWH Americas, Inc. /

// Original Signed By //

John Dowdakin
Senior Environmental Scientist



// Original Signed By //

Andrew Kerr, P.G.
Supervising Hydrogeologist

References

DTSC, 2005. Letter from Mr. Sal Ciriello to Mr. Stephan Rosen, ConocoPhillips Company, "Comments on the Draft Closure Report for the Bulk / Container Storage Unit, ConocoPhillips Company, Rodeo California, EPA ID No. CAD009108705". August 5.

MWH, 2003. Phase I Closure Work Plan, Bulk/Container Storage Unit, San Francisco Refinery, Rodeo, California. ConocoPhillips Company. August.

MWH, 2004. Closure Report, Bulk/Container Storage Unit, San Francisco Refinery, Rodeo, California. ConocoPhillips Company. September 30.