Mercury Fulminate Area
Draft Removal Action Implementation Summary Report
September 30, 2020

Response to Comments from
Department of Toxic Substances Control
October 27, 2020

DTSC Comment No.	Comment	UC Berkeley Response
1	Section 2.2.1, Background, page 4: The second to the last paragraph in this section states that mercury was found under Building 125 (former California Cap Company Building 24, west of Building 110) in the 1950's. The building was later moved to its current location between Buildings 116 and 118. The paragraph also states that UC Berkeley has "identified this area for potential future remediation to remove residual mercury-affected soil." It appears from the figures that the original building location was remediated as part of the MFA removal action. However, this paragraph needs to be revised to specify the area requiring remediation in order to remove ambiguity, i.e., the original location of Building 125 or its current location.	Text has been amended to clarify that the soil beneath the original location of Building 125, located southwest of Building 110, had been identified for future remediation in previous documents, and that the footprint of the former Building 125 location is included within the excavation boundaries of this cleanup action. The former and current Building 125 locations are shown on Figure 3.
2	Section 3.3., Pilot Study 2: a. Vapor Emissions Evaluation: This section discusses "Excavation A", which is not depicted on Figure 5. Indicate the proposed location of Excavation A and include an identifier that it was not included in the pilot study.	Figure 5 has been updated to include the location of Excavation A and notes that it was not included in the pilot study.
	b. Field Conditions: Clarify that mercury vapors increased as the air temperature increased.	Text has been updated to note that generally observed mercury vapors increased as the air temperature increased during the day. Text also indicates that a controlled study regarding air temperature and vapor concentrations was not required for the intended purpose of the pilot study which was qualitative in nature.
3	Section 3.4, Updated Removal Action Approach, page 10: a. State in the text the type of mean (e.g., arithmetic) that was used to calculate the 95% UCL.	Text has been updated to clarify that the 95%UCL used for exposure point concentrations was calculated on the arithmetic mean for data sets with all detected results. For data sets with non-detected results, the Kaplan-Meier (KM) method (Kapler et al. 1958) in ProUCL was used to calculate the sample mean to account for the non-detected results as recommended by EPA guidance (EPA 2006, EPA 2015, EPA 2016).
	b. Include in the text that the cleanup goal in the RAW is based on the calculated 95% UCL value of the samples representing soil remaining in place and the rationale for leaving soils in place also considered the potential exposure to receptors. Also state whether elemental mercury was observed in any of the samples representing those areas where soils were left in place.	Text has been updated to indicate that the cleanup goal presented in the RAW was based on a calculated 95% UCL value of the samples representing soil remaining in place, and that the rationale for leaving soils in place, which is that the remedial objectives did not require all soil above the cleanup level be removed, was considered when calculating the potential for exposure to future receptors. Text also indicates that no elemental mercury was observed in excavation confirmation samples remaining in place.

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4	Section 4.3.2, Excavation, page 16: This section states that a storage tank constructed of steel-reinforced redwood beams was found at the bottom of Cells 7 and 8, and investigation found that the interior appeared to be backfilled with native materials and no evidence of stored mercury fulminate was found. Describe what was done with the tank (e.g., left in place, removed, etc.) and how it was determined that no mercury fulminate was present in the soils.	Text was amended to clarify that the material observed under the top was fill material consistent with fill material surrounding and above the storage tank, and that no evidence of stored mercury fulminate, consisting of burlap bags or white substance, was observed at the top of the tank. Text indicates that no additional excavation or soil samples were collected from within the tank since the total target excavation depth was met and groundwater was entering the excavation. Text also clarifies that investigation or potential removal of the structure is not within the remedial objectives given the depth of the tank is greater than 5 feet bgs.
5	Section 4.12, Deviations, first bullet, page 22: a. Clarify the deviation to the excavation cells near the new truck ramp. The text states changed boundaries for Cells 1, 6, 7, 8, 10, 12 and 21 were made and Cell 9 was eliminated due to the truck ramp. For example, were the boundaries changed to accommodate early installation of the ramp, but the extent of the excavation remained consistent with the RAW as modified by the pre-excavation sampling? In addition, include on one of the figures the location of the truck ramp.	Text has been amended to clarify that changes to the proposed cells were a result of the construction of the truck ramp and resulting partial excavations until the ramp was removed. Text clarifies that the changes in cell boundaries did not affect the intended excavation objectives or extent of excavations proposed. A new Figure 6 has been added to include the original cell boundaries, truck ramp, and new lateral cell boundaries, in addition to the figure which shows the final excavation boundaries.
	b. Page 23, third bullet: Briefly explain the rational for increasing the stop work criteria for wind speed from 15 mph to 25 mph.	Text has been amended to clarify that the intent of the stop work criteria at 15 mph was to mitigate against airborne particulates, but given the wet soil conditions, the increase to 25 mph did not change the protectiveness of the original 15 mph criteria.
6	Section 6.1, Particulate Monitoring, Appendix B, Hourly Monitoring Logs for 01.15.2020 show that monitor N.PDR2 had elevated particulate readings while the other monitors did not, including N.PDR2(spare). The readings and any actions taken should be discussed in the text of Section 6.1.	Section 6.1 has been edited to clarify that elevated readings were recorded at the N.PDR2 monitor during the first hourly reading on January 15, 2020; however, no observable conditions merited the elevated readings. As a result, a spare monitor (N.PDR2 spare) was placed adjacent to the N.PDR2 monitor to evaluate the effectiveness of the original monitor. Given that site conditions did not indicate any dust or particulate matter generated during excavation activities, and that all monitors except N.PDR2 read normal particulate conditions, the readings from the original monitor at N.PDR2 were not considered viable. That monitor was eliminated from the program and the spare monitor used in its replacement for the duration of the field activities.

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7	Section 6.2, Mercury Vapor Monitoring: a. Add to the comments section of the table in this section the excavation area identifier.	The table within Section 6.2 has been amended to include the cells excavated during each day identified. Text has also been clarified that a direct correlation between wind direction, excavation activities, and mercury monitors cannot be assigned since the 8-hour REL averages concentrations were measured throughout the workday, and wind directions were never consistent throughout the workdays.
	b. State whether the vapor monitor alarm only sounded on January 17, 2020.	Text has been clarified that vapor monitoring alarm was only sounded on January 17, 2020.
8	Section 8.3, Results and Section 9.2, Confirmation Sampling and Results: Clarify in these sections that while the 95% UCL concentration was calculated for arsenic, the comparator for meeting the remedial goal is based on the background value. The soil samples that exceed the background concentration should be identified along with the location and depth of the sample. Multiple lines of evidence should be used to determine whether the remedial goal was achieved and discussed in the text.	Text has been amended to clarify that the screening level applied to arsenic results is the background concentration of 16 mg/kg. Elevated concentrations of arsenic detected in the MFA area are attributed to historic observations of pyrite cinders within the area, and there are no other known sources of arsenic associated with any Former California Cap Company or MFA operations. Arsenic is not identified as a chemical of concern within the cleanup objectives of the RAW for the MFA. Elevated arsenic concentrations associated with cinders are not required for excavation, and are to be managed consistent with the approved soil management plan included as Attachment 2. Text has also been updated to replace "cleanup goals" with "screening levels" when referring to all constituents other than mercury. Arsenic concentrations and depths are presented on Table 7. A new Figure 16 has been created to include the locations of arsenic samples exceeding the background levels. This figure also includes the metals cadmium and lead as noted in DTSC Comment 13. Note that samples B2-MF-2-91-1.5, B2-MF-2-91-4, and B3-MF-2-91-1.3 are not shown on Figure 16 and have been removed from Table 7 since the sample locations were excavated during this removal action.
9	Figure 3, Mercury Fulminate Area: As Former California Cap Company Building 24 is discussed in Section 2.2.1, indicate its location on this figure.	Figure 3 has been updated to include the former and current location of Former California Cap Company Building 24/Current UC Building 125.
10	Figure 4, Proposed Excavation Boundaries: Indicate on this figure the original cell numbers as they are discussed in the text.	A new Figure 6 has been included indicating the original and final cell numbers and configuration.

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11	Figure 13, Locations of Samples Above Cleanup Goals and Figure 14, Locations of Samples Above Cleanup Goals Below Excavation Area: Specify in the legend or title what chemical is represented on the figure.	Current Figures 14 and 15 titles have been amended to clarify that sample results are for mercury.
12	Table 6, Post-Removal Action Soil Sampling-Statistical Summary: This table includes among other data, the 95UCL calculation. Include on the table or another table the statistic that were used to calculate the values.	Table 6 note (a) references that the methods to calculate the 95UCLs are presented in Section 8.
13	Table 7, Post-Removal Action Soil Sampling – Metals Summary: As the samples included in this table are identified on figures found in several different reports, include a figure(s) that identifies the location of these samples.	Table 7 provides results for arsenic, cadmium, lead, and mercury, as all other metals detected are below screening levels, per footnote on Table 7. A new Figure 16 has been included which indicates the locations of exceedances of screening levels for arsenic, cadmium, and lead. Locations of mercury exceedances are presented on previous Figures 13 and 15. Consistent with the RAW cleanup objectives, the evaluation of metals concentrations is solely to document in-place concentrations of metals, and metals results are not intended to evaluate the cleanup objectives for the MFA.
14	Table 10, Post-Removal Action Soil Samples Above Mercury Cleanup Goal: The headers on two of the columns on this table are "Outside MFA Excavation" and "Beneath MFA Excavation in Groundwater". Sample locations, such as MFA- CELL03-W1B-R1B are identified as Outside MFA Excavation. DTSC recommends that samples that are side-wall confirmation samples should be identified either by a footnote or adding an additional column to the table.	Table 10 footnotes have been amended to clarify that any sample result with the identifier "…CELLXX-…W" within the sample number are sidewall samples, and that "…CELLXX-…B" are bottom of excavation samples.
15	Appendix A – Photolog: The photographs provided document the excavation work that was conducted at the site. Please add the excavation cell number where appropriate in each of the photographs provided where not previously identified.	Appendix A has been amended to include, where appropriate, excavation cell numbers.
16	Appendix D: clarify why there are two spreadsheets calculating the 95% UCL for BAP EQ (EPA). [Page 778 and 812 of the PDF file].	The draft document includes results from initial EPC calculations and updated calculations including triplicate values for sample B128601. The final EPC calculation includes the highest concentration of the triplicate results, so the initial EPC calculation has been removed and only one BAP(EQ) calculation remains.
17	Attachment 3, Piezometer MFA Abandonment and Replacement: Please ensure that the final/signed Contra Costa County Environmental Health Division Well Permits are provided in the revised document.	Attachment 3 includes final documentation provided by Contra Costa County regarding the demolition of piezometer MFA and installation of piezometer MFA-R.

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18	Attachment 7: Waste Manifests: a. Please provide new copies of manifest numbers 020083562 JJK and 020083565 JJK. Both manifests appear on page 2870 of the PDF file and the bottom portions of the manifests are missing.	Attachment 7 has been amended to include complete copies of manifests 020083562 JJK and 020083565 JJK.
	b. Page 2973 of the PDF file includes a letter from Waste Management stating a change was made to a manifest. Please identify the manifest number.	The letter from Waste Management is in reference to manifest 014565782 FLE which has been included immediately following the letter in Attachment 7. The change consisted of the waste code was changed from D009 611 to D009 135.