URS

Memorandum

Date: September 29, 2004

To: Cecil Felix, RWQCB

From: Corinne De Voe Marks, URS Corporation
Kathleen Abbott, BBL
Anna Moore, EH&S, UC Berkeley

cc: Mike Hryciw, UC Berkeley Capital Projects; Christine Shaff, UC Berkeley; Karl Hans, UC Berkeley EH&S; Kathleen Kelly, UC Berkeley Capital Projects; Patrick Schlesinger, UC Berkeley; Bill Copeland, BBL; Gene Barry, 4LEAF; Matt Marks, Envirocon; James Beebe, Envirocon

Subject: RFS Remediation Project, Phase 3 Monitoring and Notification,
MSOU Subunit 2B
Richmond Field Station, Richmond, CA

The purpose of this memo is to summarize procedures addressing potential issues regarding public notification, site access, soil management, and air monitoring during Phase 3 construction activities of the Richmond Field Station (RFS) Remediation Project, Upland Portion of Subunit 2B, Meade Street Operable Unit (MSOU). The information summarized in this memo is discussed in more detail in the project Health and Safety Plan (HASP), the project plans and specifications, and the Storm Water Pollution Prevention Plan (SWPPP).

Public Notification

Information regarding Phase 3 activities has and will be distributed to the public by various means including:

- Weekly emails sent to RFS personnel, the Marina Bay Homeowners Association for information dissemination, CSV and surrounding neighbors, and other interested members of the public. The e-mails will outline current and upcoming activities, identify changes to planned activities and contact information for questions, comments, and/or complaints;
- E-mail alerts to RFS and neighbors as needed;
- Public meetings held with Marina Bay Homeowners Association members, RFS personnel, and the business neighbors east of Zeneca/CSV;
- Bay trail signage (being prepared) and signs posted at RFS gates and entrances;
- Daily phone calls/emails to the RWQCB identifying any complaints received;
- A project information page on the UCB Capital Projects web site (http://www.cp.berkeley.edu/RFS_MarshRR.html);
- Access to documents in project library or posted bulletins in RFS Building 175 for public review for those without internet access.

Complaint and Question Resolution

Anna Moore will be the primary point of contact for questions and issues received from RFS staff. She will work with UCB's construction manager (CM), Gene Barry of 4LEAF, Construction Quality Assurance (CQA) staff of URS/BBL, Christine Shaff (Facilities Services Campus Communications) and the EH&S Campus Office for resolution. Questions from the neighbors and public will be addressed by Christine Shaff who will work with the appropriate project staff. Contacts will be listed on all public notices.

Transmitted via email

Soil Management and Dust Control Measures

Appropriate dust control measures will be implemented to limit dust leaving the fenced work area. If dust is measured at the monitoring stations at levels greater than the action levels set forth in the project HASP and discussed in the "Action Levels" section below, then work will be stopped until the dust emissions can be properly abated and additional mitigation measures implemented if deemed necessary. Soil management and dust control measures include the following:

- Water all construction activities as needed to eliminate visible dust (a water truck will be available full time);
- Provide erosion control;
- Cover all import/export truck beds containing soil with tarps or maintain at least two feet of freeboard for import trucks;
- Schedule import/export of material over a condensed time period and enter/exit at one location rather than using several haul routes;
- Water unpaved roads and staging areas;
- Sweep paved RFS and public roads (including Meade Street) used by construction vehicles daily or as needed;
- Maintain South 46th Street as a clean road (truck tires will be cleaned or visually verified as clean prior to trucks using road);
- Enclose, cover, or water stockpiles as needed;
- Monitor wind direction and wind speed (visual using a wind sock, portable anemometer monitored and maintained by URS/BBL)
- Control traffic speed with flagmen and posted signage in work areas;
- Provide traffic control barriers and flagmen throughout the construction period;
- Use wheel washers or pressure wash stations to clean truck tires as necessary;
- Perform and document monthly SWPPP inspections in addition to pre and post-rain event inspections;
- Provide multiple layers of compliance oversight – EH&S, URS/BBL, and 4LEAF.

If dust is visible beyond the work zone, dust control measures will be immediately enhanced. URS/BBL staff will periodically check the dust monitoring station real-time displays and notify the CM if total dust action levels are exceeded. CM/CQA staff will also perform continuous visual monitoring of the work zone and will direct the remediation contractor to provide enhanced dust control measures when standard measures are not fully effective. Such measures will include additional spraying of water, and possibly binding agents, onto the material or area that is generating dust. Operations will be temporarily suspended until the enhanced dust control measures can be implemented.

A Bay Area Air Quality Management District (BAAQMD) weather station is located north of the EPA Laboratory. Various meteorological data are displayed and summarized hourly for a 24-hour period on the BAAQMD web site. Review of 2004 August/September wind speed data show typical wind speeds are 4-13 mph with highest readings in the afternoons; in no case were hourly averages greater than 17 mph. Access to the web site is by permission of BAAQMD.

Site Access

- Trucks will access the site from Meade Street using 46th and 47th Streets via the Regatta Blvd exit as the primary truck route to and from I-580;
- Limit pedestrian access by temporary and permanent fencing around site and work zones; and
- Provide signage along perimeter fencing.

Air Monitoring

- Real time air monitoring of total dust will be performed using Personal Data Rams (PDRs) with alarms; the lower limit for the operating range is 0.001 mg/m^3. The monitors will be read during the work day by the URS/BBL on site worker. Data will be downloaded daily into a computer. Weekly summaries will be prepared and posted on the CP information page.
- In addition to the total dust monitoring, chemical-specific laboratory analyses for metals will be performed as a quality control check. One full-day air sample will be collected during each AOC excavation. The air will be continuously sampled during the work day using a high volume sampling pump (Gilian AirCon 2 or equivalent). Any dust that is collected accumulates on a filter and is then submitted to a laboratory for analysis of target metals for the particular AOC (e.g. arsenic, cadmium, copper, chromium, lead, mercury, nickel, selenium, and zinc). The results will be compared against the calculated permissible exposure limits (PELs) and California Air Pollution Control Officers Association (CAPCOA) guidelines reference exposure levels (RELs).
- Analytical results will be reviewed by the project team and forwarded to the RWQCB as they become available and will be posted on the website.
- Proposed monitoring locations are shown in the HASP and will be modified according to site activity and wind conditions. There will also be at least one PDR placed along South 46th Street for the duration of the project. During excavation and backfill of each AOC, between two and four PDRs will be located around the perimeter of the work zone. Two PDRs will be located along the fence line around the asphalt pads while soil is being stockpiled prior to offsite shipment.
- Wind speed will be measured by an anemometer. URS/BBL on site person will notify the construction manager (CM) if there is visible dust or if wind gusts exceed 25 mph. The CM will make the call to stop work and when it is safe to restart work.
- Wind direction will be visually monitored by looking at the wind sock located on building 128. The position of the air monitoring units will be initially positioned and adjusted to best sample air flow towards the closest downwind receptors.

Action Levels

The URS and Envirocon project HASPs address project worker exposure and outline the action levels for protection of site workers. The URS HASP action levels were calculated using the U.S. Occupational Health and Safety Administration (OSHA) federally regulated PEL. The definitions and calculations presented in the URS HASP are summarized below for stop work action levels of 1.0 mg/m^3 for marsh work and 5.0 mg/m^3 for upland work.

Fence-line action levels for receptors outside the work area that are protective of children, elderly and the ill, which may have low susceptibility for chemical injury from adverse health effects were also evaluated. The fence-line perimeter monitoring analysis was based upon the CAPCOA guideline RELs. The analysis evaluated

the upland AOC potential dust concentrations. The analysis did not calculate action levels for the small volume of marsh M3 sediment because this material would be excavated, handled, and transported offsite wet and would not create dust. The analysis determined an upland AOCs perimeter monitoring action level of 1.738 mg/m^3.

The project HASP action levels are based on the OSHA federally regulated PEL. The PEL is the maximum amount or concentration of a chemical that a worker may be exposed to under OSHA regulations. OSHA PEL regulations are designed to save lives, limit potential exposure, prevent injuries, and protect the health of America's workers.

PEL's can be defined in two different ways as discussed in the OSHA regulations: (1) ceiling values - at no time should this exposure limit be exceeded and (2) 8-hour time weighted averages (TWA) - are an average value of exposure over the course of an 8-hour work shift. TWA levels are usually lower than ceiling values. Thus, a worker may be exposed to a level higher than the TWA for part of the day (but still lower than the ceiling value) as long as they are exposed to levels below the TWA for the rest of the day.

The HASP action levels are based on the TWA PELs since the level is lower than the ceiling value PEL and would be more protective. The action levels were calculated from the maximum detected chemical concentrations in the areas to be excavated. A total dust PEL was calculated from the maximum detected concentration for each chemical and a safety factor of 2.0 was also applied. The action level was then calculated by dividing the lowest total dust PEL of all the chemicals by approximately 2.0. The action level will be further reduced if work activities exceed 8 hours. For a 12-hour day, the upland AOC action level would remain at the dust action level of 5.0 mg/m^3 since it would still be lower than the chemical specific action level.

In addition to the PEL based action level, a dust action level was also calculated for sensitive receptors. The fence-line perimeter monitoring analysis was based upon the CAPCOA guidelines. The CAPCOA guidelines provide a list of pollutants and their associated RELs. RELs have recently been updated by the Office of Environmental Health Hazard Assessment. The CAPCOA guidelines are the methodology followed by the BAAQMD when assessing the potential for human health risk. RELs are intended to protect individuals such as children, elderly and the ill, which may have low susceptibility for chemical injury from adverse health effects. Because the project has an anticipated duration of only six weeks, adverse health effects of an acute (short-term exposure of hours or days) nature only were assessed. Chronic health effects (exposures typically of a year or longer) and carcinogenic effects (exposures of decades or more in some cases) are not applicable to this assessment. A dose-response assessment was performed to characterize the relationship between pollutant exposure and the incidence of an adverse health effect in exposed populations. The dose-response relationship is expressed in terms of potency values (i.e., RELs) for acute noncancer risks.

Because monitoring of the dust concentrations will occur at the fence line but the nearest potential public impact is located about 8 meters outside of the fence line, SCREEN3 computer modeling was conducted to assess dispersion downwind from the fence line. The model was set to analyze all possible combinations of wind speed and atmospheric stability class and report the combination of these two parameters that produced the worst-case ground level concentration. The corresponding dust concentration at the fenceline that was protective of a receptor 8 meters downwind was then calculated.

All metals with acute RELs that have been identified in the upland AOCs were included in the analysis. The individual hazard indices for each metal at the concentrations calculated from the SCREEN3 model were summed to obtain the total hazard index (THI). For noncarcinogenic health effects, an exposure is considered potentially significant when the THI exceeds a value of 1. The acute THI for the SCREEN3 model perimeter dust level of 1.738 mg/m^3 was less than 1. If dust is detected at the action level of 1.738 mg/m^3 along the work zone perimeter for 15 sustained minutes, project work generating dust will be stopped and additional dust control

measures implemented. In addition, if dust is visible within the work area, additional dust control measures will be implemented immediately.

Roles and Responsibilities

Due to the complex nature of this work, there are multiple entities with the following responsibilities:

- UC Berkeley Capital Projects – Project Management and overall responsibility. Contact Mike Hryciw – (510) 642-3057 or Christine Shaff (510) 643-4793 for Facilities Services Campus Communications;
- UC Berkeley Environment, Health &Safety (EH&S) – Monitoring for compliance with environmental regulations and University requirements. Contact Anna Moore – (510) 231-9584 or 812-0034 (cell);
- 4LEAF – Construction Management overseeing daily activities and monitoring contract compliance. Contact Gene Barry – (925) 383-4815 (cell);
- URS/BBL – Responsible for construction quality assurance, dust monitoring and sampling, and compliance with project plans and specifications. Contact Kathleen Abbott – (510) 501-7318 (cell) or Corinne De Voe Marks at (510) 874-3028.

CDM/KMA/AM

Transmitted via email

Hazard identification was performed to determine the potential health effects that may be associated with project emissions. The purpose was to identify whether pollutants emitted could be associated with adverse health effects. Because the project has an anticipated duration of only six weeks, adverse health effects of an acute (short-term exposure of hours or days) nature only were assessed. Chronic health effects (exposures typically of a year or longer) and carcinogenic effects (exposures of decades or more in some cases) are not applicable to this assessment.

A dose-response assessment was performed to characterize the relationship between pollutant exposure and the incidence of an adverse health effect in exposed populations. The dose-response relationship is expressed in terms of potency values (i.e., reference exposure levels (RELs)) for acute noncancer risks. The California Air Pollution Control Officers Association (CAPCOA) guidelines provide a list of pollutants and their associated RELs. RELs have recently been updated by the Office of Environmental Health Hazard Assessment (Cal-EPA, 1999). The CAPCOA guidelines are the methodology followed by the Bay Area Air Quality Management District (BAAQMD) when assessing the potential for human health risk. RELs are intended to protect individuals such as children, elderly and the ill, which may have low susceptibility for chemical injury from adverse health effects.

The project specific health and safety manual contains an action level of sediment soil concentration in ambient air of 1 mg/m3. Additional air pollution abatement will be applied if this level is exceeded. Therefore, as a worst-case assumption, offsite individuals could potentially be exposed to a concentration of as high as 1 mg/m3 for the duration of the project.

Monitoring of the dust concentrations in ambient will occur at the fence line but the nearest potential public impact is located about 8 meters outside of the fence line. SCREEN3 computer modeling was conducted to assess dispersion downwind from the fence line. Dust generating activities were approximated as a volume type source with dimensions of 3 meters square and 1 meter tall. The source was positioned 8 meters upwind of the fence reflecting the typical site condition. Dust emission rate was set to produce a fence line concentration of 1 mg/m3 (1000 ug/m3). The model was set to analyze all possible combinations of wind speed and atmospheric stability class and report the combination of these two parameters that produced the worst-case ground level concentration. The concentration 8 meters downwind from the fence dropped by about 35% (to 649 ug/m3) from the concentration at the fence due to the additional distance from the source. Output from the model is provided in Appendix A.

All metals with acute RELs that have been identified at the site were addressed. The individual hazard indices for each metal based on an ambient air concentration of dust of 649 ug/m3 were summed to obtain the total hazard index (THI). Hazard Indices were calculated for both sediment and upland dust types (Tables 1).

For noncarcinogenic health effects, an exposure is considered potentially significant when the THI exceeds a value of 1.

Reference:

California Environmental Protection Agency (Cal-EPA), 1999a. *Air Toxics Hot Spots Risk Assessment Guidelines, Part I. Technical Support Document for the Determination of Acute Reference Exposure Levels for Airborne Toxicants.*

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