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OFFICE OF ENVIRONMENT, HEALTH AND SAFETY
UNIVERSITY HALL, 3rd FLOOR

BERKELEY, CALIFORNIA 94720-1150

August 10, 2017

Sara Ziff
Project Manager
Corrective Action Section
U.S. EPA, Region 9
75 Hawthorne Street (LND-4-1)
San Francisco, CA 94105

**Subject: TSCA PCB Risk-based Disposal Approval Application
Corporation Yard and B150 Transformer Area Clean-up Sites
University of California, Berkeley, Richmond Field Station Site
Richmond, California**

Dear Ms. Nakashima:

Please find attached the application for a risk-based disposal approval for PCB cleanup is being submitted to address a planned soil excavation removal action in a portion of the Corporation Yard, and at one former PCB transformer location, at the University of California, Berkeley's Richmond Field Station, located along the City of Richmond Southeast Shoreline.

If you have any questions or need further information regarding this submittal, please call me at (ghaet@berkeley.edu, 510-642-4848) or Karl Hans (khans@berkeley.edu, 510-812-1537).

Sincerely,

Greg Haet, P.E.
EH&S Associate Director
Environmental Protection

Enclosure

cc: Bill Marsh, Edgcomb Law Group (email copy)
Lynn Nakashima, Department of Toxic Substances Control (email copy)

Toxic Substances Control Act (TSCA) Polychlorinated Biphenyls (PCBs)
Risk-based Disposal Approval Application
University of California, Berkeley
Richmond Field Station

Corporation Yard and B150 Transformer Cleanup Sites

August 10, 2017

Office of Environment, Health & Safety

Berkeley EH&S

Toxic Substances Control Act (TSCA) Polychlorinated Biphenyls (PCBs)
Risk-based Disposal Approval Application
University of California, Berkeley
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Corporation Yard and B150 Transformer Cleanup Sites

1. Executive Summary, Introduction, Certification

This application for a risk-based disposal approval for PCB cleanup is being submitted to address a planned soil excavation removal action in a portion of the Corporation Yard, and at one former PCB transformer location, at the University of California, Berkeley's Richmond Field Station, located along the City of Richmond Southeast Shoreline. This application is based on the EPA May 2017 Facility Approval Streamlining Toolbox (EPA530-F-17-002) Tool 4, TSCA Risk-Based PCB Cleanups Checklist to address the requirements of 40 CFR 761.61(c)(1).

Note the Certification follows at the end of the Checklist, after Section10 (page 33).

Site address:

University of California, Berkeley (UC Berkeley), Richmond Field Station (RFS), 1301 S. 46th St., Richmond, CA 94804

Owner and/or operator name and contact information:

Owner and operator:

Owner: The Regents of the University of California
Operator: University of California, Berkeley

Contact:

Greg Haet
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Office of Environment, Health, & Safety (EH&S)
University of California, Berkeley
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Brief Summary of PCB impacts (impacted media and maximum PCB levels)

PCBs have been found in soil at the Corporation Yard and adjacent to the B150 transformer pad in six planned small excavation areas. The impacted areas total approximately 1,350 square feet and it is estimated that 80 cubic yards of soil will need to be removed for off-site disposal. In five of the six excavation areas, PCB concentrations are below the TSCA bulk remediation waste level of 50 mg/kg, but exceed the proposed cleanup level of 1 mg/kg. PCB concentrations are present at greater than 50 mg/kg in one excavation area where the maximum concentration of PCBs found was 120 mg/kg.

PCBs in all of the samples from the Corporation Yard were identified as Aroclor 1254 PCBs in the samples at the B150 transformer were identified as Aroclor 1254 and 1260. There is no evidence of significant groundwater contamination based on historic (November 2010) and recent (June 2017) groundwater well sampling. A September 2010 groundwater sample collected at the B120 well contained a laboratory-estimated concentration below the laboratory quantitation limit of 0.09 µg/L Aroclor 1248 (below the California MCL of 0.5 µg/L). The B120 well and three other wells were resampled in June 2017 and all samples were reported as non-detect for all Aroclors.

Brief description of proposed cleanup option, cleanup schedule date by which cleanup needs to be completed, and reasons for schedule (e.g. redevelopment)

The proposed PCB cleanup option is hand-excavation in six areas with PCBs above the 1 mg/kg cleanup level. This action will be conducted concurrent with the excavation of four additional areas with other contaminants to be conducted as part of a removal action under the State of California Department of Toxic Substances Control's (DTSC's) oversight as a requirement of the State of California Department of Toxic Substances Control's (DTSC's) Site Investigation and Remediation Oder (I/SE-RAO 06/07-004 issued September 15, 2006). The removal actions are incorporated into the DTSC-approved *Removal Action Workplan, Richmond Bay Campus, Richmond, California, Research, Education, and Support Area and Groundwater within the Former Richmond Field Station (RAW),* dated July 18, 2014, with one new PCB area (B185 Storm Drain Inlet) identified during June 2017 supplemental sampling that was not identified in the RAW.

The University has contracted a hazardous materials contractor to excavate soil using shovels and demo-hammers. Soil will be placed into roll-off bins and/or cubic yard boxes for eventual off-site disposal at licensed disposal facilities approved for the PCB waste streams. It is estimated that the excavation work will take two weeks to complete and that containerized soil will remain on-site for up to a month to complete waste profiling and approval with disposal sites.

The RAW was developed in support of UC Berkeley's redevelopment of the RFS and adjacent 3200-3300 Regatta Blvd. properties as the commercial/institutional Richmond Bay Campus (RBC), currently known as the Berkeley Global Campus at Richmond Bay

(BGC). A Long Range Development Plan for the BGC was approved by The Regents in May 2014. Cleanup of the Corporation Yard, PCB transformer areas, mercury fulminate plant area, and groundwater monitoring addressed in the RAW are being conducted to support this BGC redevelopment.

Upon approval by EPA and DTSC, it is anticipated that the Corporation Yard and B150 PCB Transformer soil removal action can be conducted in September 2017. The University would prefer completing this work prior to the rainy season.

Brief discussion of state or local agency or community interests in the project, if applicable.

As described above, the RAW removal actions are being completed under the DTSC Order issued to UC Berkeley and according to an estimated three-year schedule approved by DTSC in November 2016. In addition to the PCB excavation areas in the Corporation Yard, DTSC is requiring excavation of four areas with non-PCB contamination for off-site disposal. DTSC addressed community interests through communications with the Richmond Southeast Shoreline Community Advisory Group which meets once per month and will issue a Work Notice at least one week ahead of mobilization for the project

2. Site Description

Surrounding land uses

The RFS is bounded to the north by Meade Street and Hoffman Boulevard, east by South 46^{th} St., south by the East Bay Regional Park District (EBRPD) Bay Trail and the San Francisco Bay, and west by Meeker Slough and Regatta Boulevard. See Figure 1 Site Location and Figure 2, Site Map.

Land uses immediately adjacent to the site are industrial, office, and transportation corridors, along with the Marina Bay single- and multi-family residential neighborhood immediately to the southwest.

Land uses to the west of the RFS include Bio-Rad Laboratories, a private research equipment manufacturing company located south of Regatta Boulevard, and the 24 acre UC Berkeley 3200-3300 Regatta property which is the location of campus museums storage, the UC Berkeley Property Surplus facility, and tenants Whole Harvest Baking, Oakland Packaging, and Loomis.

Businesses at the adjacent property to the northwest include the Safeway Bread Plant and otherwise are commercial warehousing and office space.

The adjacent property immediately to the northeast includes railways and the Meade Street and I 580 roadway corridors. Richmond residential neighborhoods and Booker T. Anderson Park are located across I 580, approximately 500 feet from the RFS.

The adjacent property to the east is the location of former Stauffer chemical production operations previously owned by Zeneca and currently owned by Cherokee Simeon Ventures, LLC. The currently vacant Campus Bay Business Park is located on part of this site, but the Richmond Bay Specific Plan, approved by the City of Richmond City Council in December 2016 anticipates property development as mixed-use commercial/residential.

The East Bay Regional Park District's (EBRPD) East Shore Park lies east and south of the RFS extending south and east along the Richmond Southeast Shoreline Area extending to the southern city limits and beyond. The EBRPD Bay Trail dissects UC Berkeley property at the southern boundary of the inboard marsh.

Current and proposed or planned future land uses

The RFS is currently an academic teaching and research facility that houses campus research and teaching programs, a cooperative library facility, and a number of non-University tenants with functions compatible with commercial/institutional land use, including the Federal EPA Region 9 Laboratory, the Watershed Project and Earth Team non-profit organizations, and a number of small private sector start-ups. Proposed future land use as presented the 2014 Berkeley Global Campus Long Range Development Plan anticipates continued similar commercial/institutional land use. The RFS property also includes a large area of natural open space consisting of rare remnant Bay edge Coastal Terrace Prairie, ruderal and restored marsh edge transitional habitat, tidal salt marsh, mud flats, and submerged SF Bay land.

The University owns 195.8 total acres along the Richmond Southeast Shoreline comprised of the portion of the Richmond Field Station covered by the DTSC Order (110.1 acres inboard of the EBRPD Bay Trail), adjacent 3200-3300 Regatta Property (24 acres, almost all hardscape), and the undevelopable tidal marsh, mudflats, and submerged lands outboard of the EBRPD Bay Trail (61.7 acres).

Onsite buildings, including age and use plans for the buildings

The RFS houses 80 buildings with approximately 500,000 square feet of space on the ~96 acre upland portion of the campus**.** See Figure 3, Richmond Field Station Physical Features. Buildings date from the late 1800s to 2005. Buildings were constructed in the 1800s to 1940s for the California Cap Company, a blasting cap and explosives manufacturer company that was one of the first industrial occupants of the Richmond Southeast Shoreline. The University purchased the property after 1950 and has constructed new buildings and research facilities with the most recent dating to 2005 with the construction of the third phase of the Northern Regional Library Facility. Current buildings use includes laboratory research space, offices, libraries, classrooms, conference rooms, facilities support storage and storage warehouses. There is one small café on site. One building housing the US EPA Region 9 laboratory, is owned and operated by a third party under a ground lease with the University. Anticipated use for the buildings under the Berkeley Global Campus Long Range Development Plan are the same or similar.

Buildings in the Corporation Yard cleanup site area include RFS Facilities Maintenance operations (B120, B117, and B197), storage (B185) and tenant office space (B178). Buildings in the vicinity of the B150 transformer site include B150 which is currently vacant, B175, the nearest occupied buildings in the vicinity, which houses the University's Library Bindery and number of small buildings used for research laboratory space and as art studios.

Hydrology and depth to groundwater

Surface and Storm Water

The RFS is located at the downstream base of a small watershed (~2,200 acres, 3.3 square miles) of a perennial creek draining from the North Richmond and El Cerrito East Bay Hills, extending to McBryde Avenue near Alvarado Park. The creek watershed is not formally named but is generally referred to as the Meeker Slough watershed, the tidally influenced water channel into which the creek drains. Meeker Slough courses through Western Stege Marsh, the delta of the creek, then to San Francisco Bay at the confluence with Baxter Creek, the adjacent creek watershed to the east of the RFS.

There is no dry season waterway in the upland portion of RFS as the uplands area is currently disconnected from surface water and storm water runoff from the watershed by the storm drain system which drains into Meeker Ditch and Meeker Tidal Creek and then to the marsh. Storm water runoff from most of the RFS flows from north to south by way of sheet flow, open swales, culverts and storm drains. The existing storm drain system consists of two main 24-inch storm drain lines- the Eastern Storm Drain and the Western Storm Drain- spanning the respective eastern and western edges of existing improvements. See Figure 4 RFS Hydrology.

It is believed that the Western Storm Drain was originally a sewer line draining to the San Francisco Bay mudflats that was placed along Syndicate Avenue prior to the establishment of the Richmond Publically Owned Treatment Works (POTW) and construction of the existing City of Richmond sewer mains traversing the north and south portions of the RFS. After construction of the Richmond POTW the Western Storm Drain remained connected as an overflow port to the for the City of Richmond sanitary sewer main traversing the northern portion of the RFS before the overflow was closed in 2004. The Western Storm Drain now conveys only runoff from the central and northeastern portions of the RFS, the NRLF (Building 400), eastern portions of the coastal-terrace prairie, and the asphalt pads to the east of Building 128.The Western Storm Drain discharges to Meeker Slough downstream of the confluence of Meeker Tidal Creek and Meeker Ditch.

The Eastern Storm Drain collects runoff from the southeast portion of the RFS (Building 180 and south), including the Corporation Yard and B150 Transformer Cleanup Sites, and discharges in the northeastern corner of Western Stege Marsh, which drains via slough channels to the west into Meeker Slough upstream of the Bay Trail bridge.

The former Zeneca site, now known as Campus Bay, is east of S. 46th Street. In the past, runoff from a portion of the former Zeneca Site drained into the RFS Eastern Storm Drain via an interconnecting storm drain originating on South 46th Street on the east side of RFS Building 185. Following 2002 and 2003 Zeneca site remediation activities, only a small amount of Zeneca site surface runoff now flows into the interconnecting and Eastern Storm Drain.

Ground Water Hydrology

Evaluation of historic research groundwater well installations and site contamination piezometer installations (site-wide 47 shallow and 4 deep, installed in 2010) have revealed three water-bearing zones within 100 feet below ground surface. These are:

- Shallow zone, 1.5 to 20 feet below the surface;
- Intermediate zone, 30 to 74 feet below the surface; and
- Deeper zone, 90 to 100 feet below the surface.

Depth to groundwater as measured within the RFS piezometer network over the past 7 years ranges from 1.5 feet below ground surface (bgs) in the southeastern portion of RFS to 16.5 feet bgs in the northern portion of RFS. Depth to groundwater in the Corporation Yard is approximately 4 to 6 feet bgs which varies seasonally. The shallow water-bearing zone spans the depth in which artificial fill, Quaternary alluvium, and young Bay sediments are found. Although the sediments are generally coarser in the upper 20 feet, clay content and sufficiently discontinuous permeable lenses slow groundwater flow such that the yield from shallow wells is low. Intermediate zone groundwater appears to flow through a relatively continuous, five-foot-thick sand stratum at a depth of about 30 to 35 feet. Groundwater may be under semi-confined conditions within this zone. The older Bay Mud acts as a confining layer or aquitard. The deeper groundwater zone is below or within the older Bay Mud.

The ground surface elevation slopes from about 30 feet National Geodetic Vertical Datum (NGVD) in the RFS site northeast corner and slopes down to the south and west. To the south, it slopes to about 15 to 20 feet NGVD in the site's central portion, down to about 2 feet along the edge of Meeker Slough.

Groundwater gradients vary somewhat seasonally and locally across the RFS site, probably due to differences in the amount of recharge and local differences in vertical permeability. The general direction of flow is toward the southwest, in the direction of Meeker Slough. In the late fall, groundwater elevations in the shallow zone are about 10 to 11 feet National Geodetic Vertical Datum (15 feet bgs) in the RFS site northeast corner, falling to about 6 feet National Geodetic Vertical Datum (10 feet bgs) in the RFS site central area, and dropping to about just below the ground surface along Meeker Slough. During groundwater monitoring rounds between November and April, groundwater elevations in the site's northeast corner increased about one foot in April wet season relative to November dry season, probably as a result of greater springtime recharge.

Proximity to surface water

As described in the Hydrology and Depth to Groundwater section above, there is no dry season waterway in the RFS uplands or Corporation Yard as perennial flow from the watershed is routed around the RFS through the City of Richmond storm drain system. The RFS storm drains and Meeker Slough drain to Western Stege Marsh. RFS property includes approximately 6.5 acres of inboard marsh and 62 acres of outboard area consisting of tidal salt marsh, mudflats, and submerged land. The Corporation Yard is approximately 375 feet from Western Stege Marsh at its nearest point.

Western Stege Marsh and Meeker Slough, in the southern portion of the RBC site, include high marsh, low marsh, tidal mudflat, and open water slough. They are all jurisdictional wetlands. The primary hydrologic feature in the area is the approximately 40- to 50-foot wide Meeker Slough. The high marsh is dominated by inland saltgrass and the low marsh is dominated by pacific cordgrass. Inland saltgrass is typically found in temperate grassland with sparse shrub layer. Habitats can be irregularly flooded or permanently saturated with shallow water table in haline or saline water chemistry. Western Stege Marsh is considered a sensitive natural community. The saltmarsh habitat provides high quality wildlife habitat for numerous special-status species including the federally endangered Ridgway's rail known to nest on site, and also functions to reduce erosion and sedimentation.

Storm water runoff and any collection system, and discharges to surface water and other areas

As described in the Hydrology and Depth to Groundwater section above, the RFS storm drain system consists of sheet flow, open swales, culverts and storm drains that discharge to Western Stege Marsh or Meeker Slough through two 24 inch culverts or by overland flow.

The two cleanup sites both drain to the marsh through the Eastern Storm Drain. The Corporation Yard stormwater tends to pond and infiltrate into gravel and dirt soils. During periods of heavy rainfall the runoff drains overland into a catch basin drop inlet to the southwest of B185 which connects diagonally to the Eastern Storm Drain on Egret Way. The B150 Transformer area drains overland to the south and east and eventually into the Eastern Storm Drain.

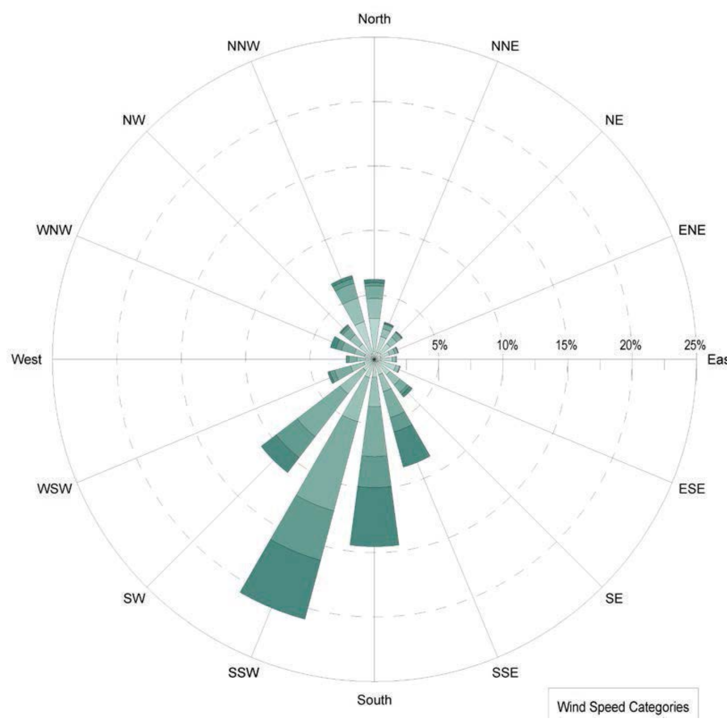
Typical weather patterns, climate, and wind rose depicting wind direction and speed

The Richmond South Shoreline Area enjoys a very mild Mediterranean climate year-round. The temperature is slightly warmer than in the coastal areas of San Francisco, the Peninsula, and Marin County. It is, however, more temperate than areas further inland. The average highs range from 57 to 73°F and the lows between 43 and 56°F year-round. September is, on average, the warmest month and January is, on average, the coldest month. The highest recorded temperature in Richmond was 107°F in September 1971 while the coldest was 24°F in January 1990.

The average annual wind speed is 6 to 9 miles per hour primarily from the direction of the San Francisco Bay. It is generally windier from March through August than in other months and the strongest winds typically occur in June. (See wind rose below.)

The rainy season typically begins in late October and ends in April with some showers in May. Most of the rain occurs during stronger storms in November through March when rainfall is usually three to five inches per month, and the seasonal average for downtown Richmond is 21.81 inches (Richmond City Hall DWR gauge). Most precipitation occurs during January and February. Seasonal wetlands are known to occur throughout the Richmond Bay Campus site during the rainy season. The area experiences no snowfall but has brief hail storms annually during the coldest months.

The City of Richmond experiences sunshine more than 80% of the day lit hours during seven months out of the year and there are ten months where 60% or more of the day lit hours experience sunshine. December and January are the darkest months with about 45% average brightness. The South Shoreline Area and the ridges of the East Bay hills experience more fog than do the northern areas of Richmond. Morning humidity is 75% to 92% year round. Afternoon humidity ranges from 20-40% May through October (the summer months) and from 40-70% during the winter.



Wind Speed Categories
(meters per second)

- > 0.5 - 2
- > 2 - 4
- > 4 - 6
- > 6 - 9
- > 9 - 11
- > 11

NOTES:
1) Orientation of wind rose is the same as the Richmond Bay Campus plans in this document
2) A wind rose is a graphical representation of the frequency of occurrence of wind speed ranges coming out of a given direction. Spikes indicate percent of time wind is blowing FROM the listed direction.
3) Average wind speed: 3.04 miles per hour
4) Maximum wind speed: 34.9 miles per hour ("maximum" represents greatest of the hourly averages; i.e., not a true wind gust)

Source: Bay Area Air Quality Management District (BAAQMD). Data from monitoring site at Richmond Field Station, 2000-2005.

Source: Richmond Bay Campus LRDP May 2014, Climate, page 2.15

Soil types and geological features and characteristic at the site

The RFS is at the distal end of an alluvial plain that slopes to the southwest. The Hayward Fault Zone transects the alluvial plain to the northeast, toward the Berkeley Hills. The alluvial plain consists of relatively recent Quaternary age deposits (less than 2 million years old).

The lithology of the alluvial plain is primarily consolidated to unconsolidated clay, silt, sand, and gravel, with organic-rich clay and silt bordering the San Francisco Bay. Total thickness of the deposits ranges from shallow surface deposits, where the alluvium thins against the Berkeley Hills, to a depth of approximately 300 feet. These deposits are underlain by bedrock of the Mesozoic Franciscan Formation. The Franciscan Formation is a complex assemblage of serpentinite, greenstone, greywacke, chert, shale, sandstone, and schist, found on many ridges and mountains of the San Francisco Bay region.

Four major hydrogeologic units were defined for the RFS area as:

- Artificial Fill
- Quaternary Alluvium
- Bay Sediments
- Yerba Buena Mud (Older Bay Mud)

The Artificial Fill at RFS predominantly consists of imported soils, including pyrite cinders that originated from adjacent properties, and on-site soils that were moved and re-deposited in upland area soils as part of construction activities. Most of the artificial fill that was historically and recently imported to the RFS was placed in the Transition Area and in the marsh and upland areas excavated during remedial activities in falls 2002 to 2004. The Transition Area formerly contained a large area of pyrite cinders that was excavated as part of remediation activities by UC Berkeley from 2002 to 2004. Excavated areas were backfilled with clean fill from sources outside of the RFS.

The RFS is a topographically flat area of an alluvial fan reflecting historical conditions. Pyrite cinders have been found in small patches around buildings. Pyrite cinders at RFS are managed according to the DTSC-approved Pyrite Cinder-containing Soils Management Plan. Imported clean upland soil was used for backfill in five areas excavated during Phase 3 of the remediation project in 2004 and in one area during the 2007 Forest Products Laboratory (FPL) Time Critical Removal Action (TCRA). Two areas of mounded soil, north and west of the EPA laboratory, are believed to be native soils deposited as part of grading activities during construction of the EPA Building 201 Laboratory in the early 1990s. Imported fill has also been used for road base and utility backfill.

The Quaternary Alluvium consists of fine- to coarse-grained sediments. The Bay Sediments consist of fine- to very fine-grained sediments, while the Yerba Buena Mud is a fine-grained unit that behaves as a regionally extensive aquitard.

The Corporation Yard is believed to consist of native soils covered with asphalt or concrete pavement. Much of the unpaved area is also covered with 3- 6 inches of gravel.

Sources of PCBs and historic operations

Development of the current location of the RFS for industrial, commercial, and institutional uses dates to the 1870s when the California Cap Company and associated industries began manufacturing explosives on site. The neighboring former Zeneca site was established as a sulfuric acid plant by Stauffer Chemical in 1897. The University of California purchased the California Cap Company in 1950 and undeveloped plots to the west through the 1950s.

The current understanding of potential sources of PCBs at the RFS includes:

- Electrical distribution transformers and other oil-filled devices. Electrical power distribution equipment currently present on the RFS contains only non-PCB dielectric fluids. Records showed that all PCB-containing electrical distribution system transformers were either removed for off-site disposal or retrofilled onsite with non-PCB oils in the late 1980s and early 1990s.During this time period, approximately 40 pieces of electrical equipment (mostly capacitors and some transformers) were temporarily placed on a concrete pad in the northern portion of Building 280B, as part of a campus-wide cleanout of PCB items. (Note: there are no records of spills in B280 and inspections have not found evidence of oil stains where the equipment was stored.) Records also show that oil filled transformers had been staged in the Corporation Yard in the 1980s. There are no records indicating that spills of PCB oils ever occurred, and former employees did not recall any leaks or spill associated with the transformers at the RFS.

- Building materials. Caulking and possibly other building materials, such as exterior paint may contain PCBs.

- Laboratory equipment. Historic laboratory research operations likely used oil-filled equipment such as power supplies with large PCB capacitors, diffusion pumps, and other devices. There is no known laboratory equipment currently on site that contains PCBs.

- PG&E Storage Yard to the north of RFS. The storage yard historically located immediately north of the Western Storm Drain is a possible source of PCBs in the storm drain and Western Stege Marsh.

- Western Storm Drain overflows. Storm drainage from northern off-site properties entered RFS through underground culverts and open ditches. Prior to the construction of the City of Richmond's publicly owned treatment works in the early 1950s, sewage and industrial wastes were discharged directly to the San Francisco Bay through a system of combined sanitary sewer and storm drains. The RFS Western Storm Drain line was one of a number of wastewater and stormwater conveyance pipes located on and around the RFS. The date of construction of RFS's Western Storm Drain line is unknown. It is believed to have served as a combined sewer through the 1900s until the early 1950s, draining industrial and residential wastewater and stormwater from a portion of the City of Richmond upstream of the California Cap Company and from portions of the RFS site itself. Sometime in the late 1940s or early 1950s, the City of Richmond wastewater treatment plant was constructed and historic sewers were routed to newly constructed sanitary sewer lines. The northern sewer line was constructed with an overflow into the Western Storm Drain and therefore possibly served as a source of PCBs until the overflow was plugged in 2004.

- Former Stauffer Chemical/Zeneca Site. Aerial photos dating from the 1940's show a line of manholes on the tidal flat south of the Zeneca and RFS sites indication a sanitary sewer system running approximately east/west. This system is believed to have flowed directly to the Bay prior to the construction of the City of Richmond wastewater treatment plant in the early 1950's. During Phase 2 remediation, the pipe was exposed in Area 4 or Subunit 2A and removed. On October 3, 2003 a hotspot of volatile organic compounds was encountered in soil that apparently leaked from the pipe. This soil was analyzed and contained 63 mg/kg total PCBs. This result suggests that the Zeneca site or another site upstream along this pipe may be a source of PCBs in the marsh.

PCB Sources for the Corporation Yard and B150 Cleanup Sites

There are no records of spills of PCB oils at the two currently proposed cleanup sites, but it is likely that the B150 transformer area contamination resulted from either transformer seepage or spills during maintenance.

The possible sources of PCBs in the Corporation Yard are unknown. The Corporation Yard has been used for facilities maintenance equipment storage, including transformers, and a staging area for dumpsters used for equipment and trash recycling and disposal, from the 1980s, possible earlier, to the present. It is possible that leaks from one or more of these facilities maintenance activities resulted in PCBs in soils in the Corporation Yard. In addition, the University incinerated trash at B120 in the late 1960s and early 1970s and there may have been sources of PCBs in the materials delivered to B120 for incineration.

Other contaminants present such as volatile organic compounds (VOCs), total petroleum hydrocarbons (TPH), or metals including a list of those that can enhance mobility of PCBs.

Other RFS site-wide contaminants that have been addressed through remediation actions or continue be addressed in field investigation and planned removal include:

- Mercury, primarily from former mercury fulminate manufacturing at the California Cap Company
- Arsenic, primarily from pyrite cinders deposited from sulfuric acid manufacturing at the Stauffer Chemical/ former Zeneca site
- Other pyrite cinder related metals (lead, copper, zinc)
- Polyaromatic hydrocarbons, believed to have originated from legacy industrial emissions and/ or spills of petroleum compounds
- Dioxins, at the Corporation Yard due to historic trash incineration
- Volatile organic compounds (VOCs, particularly PCE, TCE, and breakdown products), carbon tetrachloride, and other solvents in groundwater.

VOCs are present in groundwater along the eastern property boundary of the RFS and adjacent areas of the former Zeneca site. UC Berkeley concludes that the source of known TCE and related chlorinated hydrocarbons in groundwater is legacy industrial activities at the former Zeneca site, based on (1) the measured groundwater gradient from the former Zeneca site to RFS, (2) known historical TCE sources and groundwater contamination at the upgradient former Zeneca site, and (3) lack of measured or identified TCE sources within the RFS property.

Cleanup sites other contaminants that can affect mobility of PCBs
VOCs in groundwater could affect mobility of PCBs, however the VOCs of concern along the property boundary, PCE, TCE and vinyl chloride, have been found at relatively low concentrations.

Current site environmental conditions including extent of PCB contamination onsite and beyond the property boundary

Detailed current site environmental conditions at the RFS are presented in the 2013 Site Characterization Report, the 2014 RBC Long Range Development Plan EIR, the 2014 Removal Action Workplan, the 2016 Field Sampling Plan Phase IV Results Technical Memorandum, the 2016 Groundwater Sampling Results Technical Memorandum, the 2017 Soil Management Plan Revision 1, and the Draft 2017 Phase V Results Technical Results Memorandum; all documents are available on the Technical Documents page of the RFS Environmental Website at http://rfs-env.berkeley.edu/tech_doc.html.

The RFS is currently undergoing continued site assessment under the DTSC Order. In summary three soil removal actions (Corporation Yard, Former PCB Transformer areas at B150 and B112, and the Mercury Fulminate Plant Area), and one groundwater investigation action have been identified.

The extent of PCBs on site is undergoing continued evaluation. The 2005 Summary of PCB Results Richmond Field Station (July 8, 2005, BBL, http://rfs-env.berkeley.edu/documents/2005.07.08.RFSPCBsBBL.pdf) provides a site-wide summary of PCB contamination up to that date. Additional sampling conducted since 2005 under the FSW has increased knowledge of site PCB conditions in the Corporation Yard and at PCB transformers. In addition, PCBs were found in the EPA North Meadow soil piles during FSP IV implementation with a maximum concentration of 38 mg/kg total Aroclors. (See the May 16, 2016 Final Phase IV Sampling Results Technical Memorandum on the RFS Environmental Website at http://rfs-env.berkeley.edu/tech_doc.html).

The current PCB site conditions reported in the 2017 Draft Phase V Results Technical Memorandum, the September 30, 2010 Year 5 Monitoring Report for the Western Stege Marsh Restoration Project (http://rfs-env.berkeley.edu/documents/2010.10.06.RFS.Year5MonitoringReportWSM.pdf), and 2005 BBL report are generally representative of current conditions in Western Stege Marsh. Follow-up sampling of the EPA North Meadow is planned for fall 2017.

Other Site Conditions including:

- **Identification of threatened or endangered species (Endangered Species Act)**
- **Identification of any historic or culturally sensitive landmarks (National Historic Preservation Act)**
- **Identification of any potentially impacted environments and receptors**

The RFS contains natural open space consisting of rare coastal terrace prairie, seasonal wet meadows, and tidal salt marsh. One federally listed endangered species, the Ridgway's rail (formerly called the California Clapper Rail), has been sighted in Western Stege Marsh. The natural open space is home to other special status plants and animals. There are no sensitive natural areas or habitats for special status species in the vicinity of the Corporation Yard and B150 Transformer cleanup sites.

The RFS contains or potentially contains cultural resources, both prehistoric Native American archaeological resources and historic buildings and objects associated with the California Cap Company that are subject to the requirements of the National Historic Preservation Act. The BGC Long Range Development Plan addresses these cultural resources through required mitigation measures that must be implemented for all projects. The current proposed excavations at the cleanup sites will not affect NHPA resources. However, any excavation could potentially uncover unexpected archaeological resources or historic resources associated with the California Cap Company, and contractors will be instructed to stop work in the event that a potential cultural resource is uncovered for evaluation by an archaeologist.

Sensitive environments such as crops, livestock, wetlands, waterways

The RFS contains natural open space consisting of rare coastal terrace prairie, seasonal wet meadows, and tidal salt marsh. There are no sensitive natural areas in the vicinity of the Corporation Yard and B150 Transformer cleanup sites.

Sensitive receptors such as children

There are no sensitive receptors at RFS or in the vicinity of the Corporation Yard and B150 Transformer cleanup sites.

Brief summary of Comprehensive Site-Specific Conceptual Site Model and Data Quality Objectives included under Site Characterization and Data Gaps in Item 5 below

The 2013 *Site Characterization Report Proposed Richmond Bay Campus (RBC) Research, Education, and Support Area and Groundwater within the Richmond Field Station* (May 28, 2013 Tetra Tech, "Site Characterization Report" or "SCR", http://rfs-env.berkeley.edu/documents/2013.05.28.RFS.SCR.FINAL.pdf) contains an updated comprehensive Conceptual Site Model (CSM) for the RBC including the RFS, based on the 2008 Current Conditions Report for the RFS. The CSM describes possible migration of potential contaminants through the primary pathways in soil, water, and utilities. The

CSM identifies the B120 Area and RFS Corporation Yard as potential sources of PCBs, and PAHs, based on sampling conducted during the Field Sampling Plan Phase II Investigations. Dioxins were also identified as a chemical of concern for fate and transport at B120 in the Corporation Yard due to the historic presence of a trash incinerator at this location.

3. Description of PCB "Cleanup Site"

Define and describe the "cleanup site" being addressed in the Application

There are two cleanup sites proposed for this current removal action, the Corporation Yard and the B150 Transformer Area.

The Corporation Yard is defined as the fenced area extending south to north from B163 in the south to the paved area north of B197, and from west to east from the eucalyptus trees along Egret Way to the property boundary fence line. The Corporation Yard is approximately two acres in size. It contains five numbered buildings, B185, B178, B120, B117, and B197 as well as a number of out buildings (a storage container, mower storage shed, above ground gasoline tank shed, and revetments). Approximately half of the area is paved or covered by buildings making that area generally inaccessible for sampling easily. The remainder of the area is soil covered with gravel, with ruderal, grassy habitat on the edges. Portions of the Corporation Yard previously used for storage of materials were covered by buildings in the early 1990s. B185 and B178 were relocated to their current locations in 1993 along with B163 to the south of the Corporation Yard.

The B150 transformer pad at the southeast corner of B150 is an approximately 1,000 square foot concrete pad surrounded by fencing.

Describe the need for access for investigation/cleanup beyond impacted property boundary, if applicable

Not applicable. There is no need for access beyond the property boundary at this time for the proposed excavations at the two cleanup sites.

4. Proposed Risk-Based PCB Cleanup Levels

Description and justification of PCB cleanup goals to be applied. Cleanup goals that may be applied include:

- **EPA risk-based Regional Screening Levels**
- **Site-specific risk-assessment derived values, or**
- **State and County agency established PCB cleanup levels- EPA's agreement is needed for us of such levels**

The 2014 Removal Action Workplan identified the TSCA 761.61(a) cleanup level of 1 mg/kg for PCB contaminated soil in the Corporation Yard and PCB Transformer Areas.

The risk-based concentration for cleanup is the USEPA Region 9 Industrial Regional Screening Levels (RSL) for Aroclors 1254 and 1260 (0.97 mg/kg and 0.99 mg/kg) will therefore be used as the current proposed risk-based cleanup level for these two planned cleanup sites.

5. Site Characterization and Data Gaps

Detailed Comprehensive Site-Specific Conceptual Site Model and Data Quality Objectives

The 2013 *Site Characterization Report Proposed Richmond Bay Campus (RBC) Research, Education, and Support Area and Groundwater within the Richmond Field Station* (May 28, 2013 Tetra Tech, “Site Characterization Report” or “SCR”, http://rfs-env.berkeley.edu/documents/2013.05.28.RFS.SCR.FINAL.pdf) contains an updated comprehensive Conceptual Site Model (CSM) for the RBC including the RFS, based on the 2008 Current Conditions Report (CCR) for the RFS. The CSM describes possible migration of potential contaminants through the primary pathways in soil, water, and utilities.

The CSM identifies the B120 Area and RFS Corporation Yard as potential sources of PCBs and PAHs due to possible releases. Dioxins were also identified as a chemical of concern for fate and transport at B120 due to the historic present of a trash incinerator at this location. The CSM identifies Former Transformer Storage Areas as potential sources of PCBs due to possible direct disposals or releases. The conditions in soil and groundwater at the Corporation Yard and Transformer Areas were also identified in the CCR as data gaps and therefore were subject to field investigations under the Field Sampling Workplan with implementation beginning in 2010 with site-wide groundwater monitoring.

The data quality objectives copied below for the Corporation Yard and Former PCB Transformer areas were presented in the 2011 Phase II Field Sampling Plan (September 12, 2011 Tetra Tech, http://rfs-env.berkeley.edu/documents/FINAL_FSW_PhaseII_Sept12.pdf)

Field Sampling Plan Phase II (September 12, 2011)
3.2 DATA QUALITY OBJECTIVES

DQOs are intended to help ensure collection of data appropriate for support of defensible decisions. The DQO process is a seven-step iterative approach to prepare plans for environmental data collection activities. It is a systematic approach for defining the criteria that a data collection design should satisfy, including when, where, and how to collect samples or measurements; determining tolerable decision error rates; and identifying the number of samples or measurements that should be collected. The seven steps for DQO development are defined in the QAPP. The DQOs for the Phase II FSP are outlined below.

Step 1: State the Problem.

- No site-specific soil sampling data are available for historic transformer locations, the Corporation Yard, and current ASTs at the site; all of which have been identified as data gaps in need of additional characterization to assess whether historic activities have impacted soil conditions at the RFS.
- Additional characterization is needed to improve understanding of soil quality for specific locations of known or possible contamination, such as the Building 128 transformer location, the area surrounding Building 120, and the soil beneath the hydraulic fluid pipeline at the EERC.
- If contaminants are present in soil, exposure to human and ecological receptors is possible.

Step 2: Identify the Goals of the Study

- Characterize soil conditions at the historic transformer locations, Corporation Yard, and EERC AST piping.
- Determine if metals, PCBs, VOCs, semivolatile organic compounds (SVOC), polycyclic aromatic hydrocarbons (PAH), pesticides, or other contaminants are present within the study area(s) in quantities or concentrations that would require inclusion of the area into the remedial investigation/feasibility study (RI/FS), evaluation of remedial action, or require an immediate response.

Step 3: Identify Information Inputs

- Information provided within historical documents including the CCR and FSW.
- Interviews of current and former employees.
- Previously conducted sampling locations and concentrations.
- Findings and observations identified during the May 12, 2011 site reconnaissance with DTSC.

Step 4: Define the Boundaries of the Study

- The Phase II FSP study area includes locations
- The Phase II FSP study area includes locations of historically oil-filled transformers, the Corporation Yard, and the EERC courtyard where the hydraulic fluid pipelines are located. Specific sampling locations are included on Figure 4 and Figure 5.
- For the historic transformer locations, the soil from 0-2 feet below ground surface (bgs) will be investigated since PCBs are readily sorbed to soil and are most likely to stay in the shallow horizon from a surface spill. Vertical or horizontal expansion of the study area may be necessary if elevated concentrations of PCBs are detected in the shallow soil sampling.
- For the Corporation Yard, all soil above the groundwater table is of interest; soil samples will be collected at 2-foot intervals down to the elevation where groundwater is encountered. Vertical or horizontal expansion of the study area

may be necessary if elevated concentrations of contamination are detected in the shallow soil sampling.
- For the hydraulic fluid pipeline at the EERC, soil from 0-2 feet bgs will be sampled to assess potential contamination in stained soil. Vertical expansion of the study area may be necessary if elevated concentrations of contamination are detected in the shallow soil sampling.
- No temporal boundaries are imposed upon this investigation.

Step 5: Develop the Decision Rules
- The data provided by this investigation will be reviewed by UC Berkeley and DTSC and screened against applicable screening levels, including the California Human Health Screening Levels (CHHSL), U.S. Environmental Protection Agency Regional Screening Levels (RSL), and the Oak Ridge National Laboratory plant screening benchmark and EPA Toxic Substances Control Act (TSCA) specifically for PCBs.
- If an area is recommended for further investigation, one or several of the following may occur: further data evaluation or data gap sampling (by expansion of the lateral or vertical boundary of the study area to subsurface or surface soils), inclusion in the RI/FS, or immediate consideration for remedial or response action.

Step 6: Specify Performance or Acceptance Criteria
- The specific screening levels for each constituent will be established after data have been received and reviewed by UC Berkeley and DTSC. The screening levels will be developed through evaluation of several sets of values, including but not limited to, CHHSLs, RSLs, and TSCA values. For metal constituents, concentrations expected from background considerations will be evaluated.

Step 7: Optimize Design for Obtaining Data
- Soil sampling locations are based on best available current and historic information presented in the CCR, in addition to the site reconnaissance conducted with DTSC on May 12, 2011.
- Following receipt and review of the laboratory results from this soil investigation, any additional sampling, if deemed necessary, will proceed following discussion with UC Berkeley and DTSC.

Corporation Yard and Transformer sampling soil sampling was conducted in October 2011. Sampling results indicated that additional step-out sampling was needed in some locations. The sampling plan for these step-outs was presented in Field Sampling Plan III (http://rfs-env.berkeley.edu/documents/FinalFSP_PhaseIII_81012.pdf) along with the following DQOs.

Field Sampling Plan III August 2012
3.2.4 DQOs for the Phase II Step-out Soil Samples

Step 1: State the Problem.

- Some soil samples collected as part of the Phase II investigation of historic transformer locations and the Corporation Yard had COPCs concentrations that exceeded commercial/industrial CHHSLs.
- A soil gas sample collected at SG-121 merits placement of one borehole to identify potential TCE contamination.
- Additional data is needed to help determine if soil COPC concentrations increase dramatically laterally or horizontally from the original sample locations.
- If elevated concentrations of COPCs are present in soil, exposures to human and ecological receptors are possible.

Step 2: Identify the Goals of the Study

- What are the concentrations of chemicals in soil from soil collected at 5-foot step-outs from historic transformer locations which exceeded the commercial/industrial CHHSL for PCBs and PAHs?
- What are the concentrations of chemicals in soil collected at 15-foot step-outs at the Corporation Yard sampling locations which exceeded the commercial/industrial CHHSLs for PCBs, lead, PAHs, and dioxins?
- Is TCE present in soil samples near boring SG-121 which could indicate a source for the soil vapor TCE result?
- Are COPCs present within the extent of the historic transformer locations and the corporation yard at concentrations requiring an immediate response?
- Are COPCs present within the extent of the historic transformer locations and the corporation yard at concentrations requiring inclusion of the area into the RI/FS?

Step 3: Identify Information Inputs

- Information provided within historical documents including the CCR, FSW, and Phase I and II FSPs, Sampling Results Technical Memoranda, and the Campus Bay Lot 3 Treatability Study.
- Interviews of current and former employees.
- Previously conducted sampling locations and concentrations.

Step 4: Define the Boundaries of the Study

- The sampling area includes Phase II sampling locations at historically oil-filled transformers locations and the Corporation Yard where COPC concentrations exceeded a commercial/industrial CHHSL.
- For the historic transformer locations, the soil from 0 to 2 feet bgs will be investigated since PCBs are readily sorbed to soil and are most likely to stay in the shallow horizon from a surface spill. The sample collected from 1.5 to 2 feet bgs at location B 11202 exceeded the CHHSL; therefore, additional samples will be collected from 3 to 3.5 feet bgs at these step-out locations.
- For the Corporation Yard, all samples exceeding the CHHSL were surface samples; therefore, the step-out samples will be collected from 0 to 0.5 feet bgs and 2 to 2.5 feet bgs. At sampling location CY19, which is intended to investigate the TCE soil-vapor concentration at SG-121, samples will be collected from 0 to 0.5 feet bgs, 2 to 2.5 feet bgs, 4 to 4.5 feet bgs, and 6 to 6.5 ft bgs. Vertical or

horizontal expansion of the extent of the historic transformer locations and the corporation yard may be necessary if elevated concentrations of contamination are detected in the shallow soil sampling.
- No temporal boundaries are imposed upon this investigation.

Step 5: Develop the Decision Rules
- The data provided by this investigation will be reviewed by UC Berkeley and DTSC and screened against the commercial/industrial CHHSLs.
- If an area is recommended for further investigation, one or several of the following may occur: further data evaluation or data gap sampling (by expansion of the lateral or vertical boundary of the extent of the historic transformer locations and the corporation yard in surface or subsurface soils), inclusion in the RI/FS, or immediate consideration for remedial or response action.

Step 6: Specify Performance or Acceptance Criteria
- The Phase II and III step-out soil sampling data will be screened against commercial/industrial CHHSLs, U.S. EPA Regional Screening Levels, and other relevant screening levels, as appropriate.

Step 7: Optimize Design for Obtaining Data
- Soil sampling locations are based on best available current and historic information presented in the CCR, FSW, Phase II Technical Memorandum, and Campus Bay Lot 3 Pilot Study.
- Following receipt and review of the laboratory results from this soil investigation, any additional sampling, if deemed necessary, will proceed following discussion with UC Berkeley and DTSC.

FSP III step-out samples were collected in August 2012 with some follow-up step-out sampling collected in October 2012. Data were reported in the 2013 Site Characterization Report (http://rfs-env.berkeley.edu/documents/2013.05.28.RFS.SCR.FINAL.pdf).

Sampling and Analysis Plan (SAP) developed using a site-specific comprehensive conceptual site model and data quality objectives

The July 2014 Removal Action Workplan provides a comprehensive description of the sampling completed in the Corporation Yard during implementation of Phases II and III of the Field Sampling Plan. The summary of Corporation Yard and PCBs results is copied below from RAW Section 2.4 Nature and Extent of Contamination (pages 13 and 14).

Corporation Yard
Soil samples collected in the Corporation Yard during the FSW Phase II investigation were analyzed for metals, volatile organic compounds (VOC), semivolatile organic compounds (SVOC), PCBs, pesticides, and total petroleum hydrocarbons (TPH). Selected step-out samples were collected during the FSW

Phase III investigation from locations where the Phase II results exceeded human health screening criteria; these samples were analyzed for arsenic, lead, PAHs, or PCBs, depending on which chemical results exceeded criteria during the Phase II investigation. Additionally, 10 samples collected from 0 to 0.5 and 2 to 2.5 feet bgs at the center of the Corporation Yard during the FSW Phase III investigation were analyzed for dioxins.

Arsenic and lead, likely associated with observed cinders, were the only metals detected at concentrations exceeding commercial worker risk-based concentrations. Arsenic was reported at concentrations greater than the commercial worker risk-based concentrations in all samples analyzed for metals, and exceeded the background level of 16 mg/kg in five of the 49 samples. Lead exceeded the commercial worker risk-based concentration in two of the 71 samples.

VOCs were detected infrequently in the Corporation Yard soil samples. None of the VOCs was detected at concentrations exceeding commercial worker risk-based concentrations.

Except for 4-methylphenol and carbazole, PAHs were the only SVOCs detected in soil samples collected in the Corporation Yard. A BAP (EQ) value was calculated for the 40 samples with detections of carcinogenic PAHs. All individual carcinogenic PAHs included in the calculation of the BAP (EQ) were detected at concentrations exceeding their respective commercial risk-based concentrations. BAP (EQ) is widespread at relatively low concentrations around the Corporation Yard, indicating that BAP (EQ) levels can be attributed to anthropogenic sources including vehicle emissions, refineries, or other off-site sources. The elevated concentrations of BAP (EQ) in this area may be attributable to the incinerator formerly present in Building 120, incinerator ash disposal in the vicinity, or other nearby or adjacent industrial activities.

Total PCB concentrations exceeding the TSCA high occupancy without further conditions threshold criterion of 1 mg/kg (40 Code of Federal Regulations [CFR] 761.61(a)(4)(i)(A)) in the Corporation Yard are delineated vertically, except in the area around CY26, but are not delineated laterally at multiple locations. Soil samples with detected concentrations of PCBs contained either Aroclor-1254 or Aroclor-1260, but not both.

Of the 12 pesticides detected in the Corporation Yard, no pesticide soil concentrations exceeded commercial risk-based concentrations.

Three TPH compounds, diesel-, gasoline-, and motor oil-range, were detected in samples collected in the Corporation Yard. Two results for diesel range organics exceeded the RWQCB environmental screening level (ESL) of 500 mg/kg (RWQCB 2013). Samples exceeding the ESL were collected from the 0 to 0.5 feet bgs interval and are bound vertically by samples with concentrations less than the ESL collected at 2 to 2.5 feet bgs; however, none of the samples are bound laterally by samples with TPH concentrations less than the ESL. None of the results for gasoline range organics or motor oil range organics exceed the ESL

Dioxin toxic equivalence quotient (TEQ) concentrations in the Corporation Yard exceed the commercial worker risk-based concentration of 1.64E-05 mg/kg in two soil samples collected at two adjacent shallow sample locations. All sample concentrations exceeding the commercial worker risk-based concentration are bounded vertically by samples collected at 2 to 2.5 feet bgs, and the elevated concentrations at CY06 are bounded laterally to the north, west, and east by samples that do not exceed the commercial worker risk-based concentration. The highest dioxin concentration was reported at location CY26 with a TEQ of 1.02E-04 mg/kg at near surface (0.0 – 0.5 feet bgs). This exceedance is bounded laterally only to the north. Soil concentrations exceeding the commercial worker risk-based concentration for dioxin TEQ in the Corporation Yard are likely localized within an area of contamination limited to surface soil; however, the dioxin TEQ is not bounded laterally to the south in soil.

PCB Areas
Concentrations of total PCBs exceed the EPA industrial RSLscriterion of ~1 mg/kg at both the Building 112 and 150 transformer areas, but not at the Building 474 transformer area. Remediation of the B112 transformer area will be incorporated into excavation planned at the Mercury Fulminate Area, tentatively scheduled for summer 2018.

Vertical and horizontal extent of PCB contamination

There are six areas currently planned for excavation of soils that have been sampled and found to contain PCBs. See Figure 5 which provides the location along with the estimated volumes of anticipated soil removal and the maximum concentration of various chemicals of concern. A brief description of these areas follows.

Excavation Area 3. B120
The B120 area is located along the south and west edge of storage building 120 which was the former location of a trash incinerator from the late 1960s into the mid-1970s. No records have been found that describe the dates of construction and demolition of the incinerator but records show that it was used to reduce volumes of University generated trash in the late 1960s and aerial photos show it appears to be present in the mid-1970s but gone by 1979. It is possible that contamination in this area was associated with the trash delivery and incineration. Characterization sampling found PCB up to 120 mg/kg with PCBs found at the highest concentration in shallow and to a depth of to 2.5 feet bgs in an approximately 900 square feet area. The B120 area is the only area with PCBs as found at concentrations exceeding the TSCA remediation waste concentration of 50 mg/kg and all of the soil from this area will be disposed of at TSCA remediation waste. Excavation depths will vary from 1 foot to 3 feet bgs.

The five remaining areas are all much smaller that the B120 area and all were found to contain PCB concentrations in soil less than the TSCA remediation waste concentration of 50 mg/kg and all of the soil from this area will be disposed of as Class II alternative landfill cover, or as California or RCRA hazardous waste, depending on the results of the waste characterization of contaminants other than PCBs. Briefly, the location are as follows:

Excavation Area 4 B120 East
This small area, approximately 25 square feet, was found with PCBs at 5.5 mg/kg in shallow soils. Excavation will be to a depth of 1.5 feet with an estimated 1.4 cubic yards of soil removed. The extent of the excavation in this area is constrained by pavement and building foundations.

Excavation Area 5 B185 Storm Drain Inlet
The area, approximately 200 square feet, is the decision unit of upgradient soil that was sampled using incremental sampling methodology. Duplicate ISM samples found a maximum of 2.4 mg/kg PCBs. The area will be excavated to six inches bgs.

Excavation Area 8 B197 North
This small area, approximately 100 square feet, was found with PCBs at 4.3 mg/kg in shallow soils. Excavation will be to a depth of 1.5 feet with an estimated 3.7 cubic yards of soil removed.

Excavation Area 9 Corporation Yard entrance NW
This small area, approximately 25 square feet amongst the eucalyptus trees at the northwest corner of the Corporation Yard entrance, was found with PCBs at 2.3 mg/kg. Excavation will be to a depth of 1.5 feet with an estimated 0.9 cubic yards of soil removed. The volume of soil may be affected by the ability to excavate around the tree roots, which could be a limiting factor for excavation depth and width.

Excavation Area 10 B150 Transformer
This small area, approximately 100 square feet, is located at a downgradient southeast corner of the B150 transformer pad where PCBs were found at a maximum concentration of 8.6 mg/kg at a shallow depth. Excavation will be to a depth of 1.5 feet with an estimated 5.6 cubic yards of soil removed.

Figures and tables

Figures provided include a site location map, site map, physical features map, RFS hydrology, summary of PCB results at the Corporation Yard and B150, and the six PCB excavation areas. Table 1 provides a comprehensive summary of all PCB results, including non-detects, at the Corporation Yard and B150.

Identification and Description of Data Gaps

Excavation Areas Delineation

As described in section 6.1.d below, if total PCBs are present at concentrations greater than 1 mg/kg, excavations will be expanded 3 feet laterally, as long as the excavation does not threaten to undermine buildings or utility pipelines not scheduled for removal, and expanded one foot vertically unless groundwater prevents the expansion of the excavation to a deeper depth. It is expected that current funding for the project will not allow more than two step-out excavations. UC will consult with DTSC and EPA regarding the temporary site backfill and controls and the schedule for completing additional field sampling to better define the areas needing further excavation in the future.

Where contamination is left in place temporarily, it will be fenced and follow-up site evaluation will be completed in 2019 as a follow-up to completion of the MFA excavation and Field Sampling Plan Phase V to address any continuing data gaps in the Corporation Yard and other areas of the RFS.

Corporation Yard PCB Delineation (Beyond Excavation Areas)

Based on supplemental sampling conducted in June 2017, the extent of PCBs in the Corporation Yard outside of the excavation areas has not been completely characterized. Follow-up site investigation will be completed for PCBs in accessible, unpaved areas of the Corpoaration Yard in 2019 as a follow-up to completion of the MFA excavation and Field Sampling Plan Phase V to address any continuing data gaps in the Corporation Yard and other areas of the RFS. Locations were PCB may be present that are inaccessible because they are under pavement or building structures will be documented in the Soils Management Plan as areas that require investigation when projects may remove pavement or buildings. Also these area will be incorporated into the DTSC Five-Year review of the Order implementation.

6. Application and Cleanup Plan

Inclusion of the Notification of PCB Activity Form required in 40 CFR 761, Subpart K

Notification of PCB Activity Form is attached.

Description of storage for disposal activities that will be carried out, including waste containers that will be used, marking, labeling, and manifesting.

Excavated soils will be containerized in roll-off bins and/or cubic yard (or cubic meter) boxes and kept on-site pending waste characterization and profiling. Containers of PCB remediation waste with PCBs > 50 mg/kg will be marked with large PCB mark- ML labels are required by 40 CFR 761.45 and identified as remediation derived waste soil pending analysis. Soils containing PCBs < 50 mg/kg and other chemical constituents will be identified as remediation derived waste soil pending analysis.

Description of disposal methods that will be used

PCB remediation wastes containing > 50 mg/kg PCBs will be transported to a TSCA approved landfill, either Kettleman Hills Landfill or the Buttonwillow Landfill Facility.

Soils containing PCBs at concentrations < 50 mg/kg will be transported to Potrero Hills Landfill, Altamont Landfill or a similar facility as Class II waste to be disposed of as alternative landfill cover. If any container of soil is profiled as California or RCRA hazardous waste due to other chemical constituents, the soils will be profiled for disposal at a hazardous waste landfill, likely Kettleman Hills Landfill or the Buttonwillow Landfill Facility.

Description and evaluation of cleanup alternatives

1. Soils

a. Identify, evaluate, and justify cleanup alternatives in addition to excavation and onsite disposal. Among other factors, the evaluation should consider investigation data, risk-based cleanup levels, receptors, sensitive habitats and/or environments, presence of other contaminants that may enhance PCB solubility and/or mobility (PCB co-solvency), and depth to ground water and flow direction

Remedial action alternatives were evaluated in completing the July 2014 Removal Action Workplan (RAW, http://rfs-env.berkeley.edu/documents/Final_RAW_RichmondBayCampus_071814.pdf).

RAW Sections 3 and 4 provide remedial alternative evaluations for the Corporation Yard, Mercury Fulminate Plant Area, PCB Areas, groundwater contaminated with carbon tetrachloride, and the remainder of the RFS. In general five soil alternatives were evaluated for non-PCB soil contamination and areas with co-mingled PCB and other chemicals of concern (RAW Section 3.3.l): 1) S-1 No action, 2) S-2 Excavation to unrestricted reuse and off-site disposal, 3) S-3 Excavation to commercial reuse, off-site disposal, Land Use Controls, and a Soil Management Plan, 4) S-4 Land Use Controls, and 5) S-5 for the MFA area only, Asphalt Cap, Land Use Controls, and a Soil Management Plan. For areas assessed exclusively for PCBs, TSCA section 40 CFR 761.61 (a)(4)(i)(A) was selected for removal of PCB contaminated soils found at concentrations greater than the cleanup level of 1 mg/kg (RAW Section 4.1). For the Corporation Yard soils, alternative S-3 3 Excavation to commercial reuse, off-site disposal, Land Use Controls (RAW Section 4.5.4), and a Soil Management Plan was selected as the recommended alternative along with PCB cleanup to 1 mg/kg.

The current planned removal action excavations are being completed to remove soil containing PCBs and other chemicals of concern from areas that could become sources for runoff to the marsh or be an exposure risk to future construction and maintenance workers. Because there is no current redevelopment plan for the Corporation Yard, alternatives, such as re-use of soils on site with capping with pavement or a foundation were not considered feasible.

b. Identify and justify preferred cleanup alternative

See 6.1.a. immediately above.

c. Describe cleanup verification sampling methods and include a SAP for this purpose

Confirmation sampling for soil excavations is presented in RAW Section 5.1.3 with the PCB confirmation sampling summarized below to include the new option of incremental sampling methodology as an alternative to discrete of TSCA Subpart M composite sampling.

The Sampling and Analysis plan for all RFS soil management including this current removal action excavation is contained in the Soil Management Plan, RAW Appendix C, as revised in April 2017 as Soil Management Plan, Revision 1 Removal Action Workplan, Attachment C (April 12, 2017 Tetra Tech http://rfs-env.berkeley.edu/documents/RFSFinalSMPRev104.12.2017.pdf)

For PCBs the RAW (Section 5.1.3.1) provides for a confirmation sample from each side wall and the bottom of each excavation. The RAW directs that samples be collected according to 40 CFR 761.280, with samples collected on a 1.5 meter grid basis and a not-to-exceed concentration of 1 mg/kg. Per current EPA guidance, confirmation samples will be collected either as a single grab sample, on a 1.5 meter grid basis, or as a ISM sample with a minimum of 75 increments.

d. Describe methods for evaluating cleanup verification sample results

If total PCBs are present at concentrations greater than 1 mg/kg, the excavation will be expanded 3 feet laterally, as long as the excavation does not threaten to undermine buildings or utility pipelines not scheduled for removal, and expanded one foot vertically unless groundwater prevents the expansion of the excavation to a deeper depth. It is expected that current funding for the project will not allow more than two step-out excavations. UC will consult with DTSC and EPA regarding the temporary site backfill and controls and the schedule for completing additional field sampling to better define the areas needing further excavation in the future.

e. Describe methods for demonstrating compliance with cleanup goals (e.g., statistical methods)

As described in d. above, compliance with the cleanup goal will be demonstrated through confirmation samples.

f. Describe any capping, long-term inspection, maintenance, and repairs expected to occur at the site

If the planned removal action excavations are successful in removing contamination as planned in each area, including over-excavation as needed demonstrated on confirmation sampling, then no long-term inspection or maintenance will be required.

If for a variety of factors, including potential for undermining building structures or utilities, or exhausting the current project funding, excavation is not successful in removing all of the contamination, then a long-term inspection and maintenance plan will be developed in consultation with EPA. This plan may include a combination of exclusion fencing and signage, capping, and Land Use Controls to document the presence of contamination so that it can be addressed through the Soil Management Plan when the soil is accessed in the future, for example when an existing building is to be demolished.

Where contamination is left in place temporarily, it will be fenced and follow-up site evaluation will be completed in 2019 as a follow-up to completion of the MFA excavation and Field Sampling Plan Phase V to address any continuing data gaps in the Corporation Yard and other areas of the RFS. PCBs and other contaminants that are inaccessible because they are under pavement or building structures will be documented and incorporated into the DTSC Five-Year review of the Order implementation.

g. **Describe any land use covenants that will be used for caps or fences; or when caps and fences are not used and the site is not cleaned up to risk-based unrestricted land use levels**

   See Section 10 below. A Land Use Control in the form of a deed restriction is expected to be implemented as part of the 2014 Removal Action Workplan to prohibit residential use consisting of a residence, mobile home, or factory-built housing constructed or installed for use as residential human habitation. certain commercial uses defined as "sensitive uses" will also be prohibited. Sensitive uses consist of (a) a hospital for humans, (b) a public or private school for persons less than 18 years of age, (c) a day care center for children, or (d) any permanently occupied habitation other than those used for industrial purposes.

h. **If ISM is used, provide the information described in 1.a through 1.g above for each decision unit**

   For the current scope of removal action excavations ISM was used for only one decision unit, soil upstream of the storm drain inlet, and the information in 6.1.a through 6.1.g above apply to this unit. The B185 storm drain inlet will be excavated to one-half foot depth and confirmation samples will be collected as described above, with over-excavation completed as necessary.

2. Storm water runoff collection systems, piping, and impacted receiving areas

a. **Identify, evaluate, and justify cleanup alternatives. Among other factors consider human and ecological receptors, surface water impacts, and recreational use**
b. **Describe and justify preferred cleanup alternative**
c. **Describe methods for debris/sediment removal**
d. **Describe post-removal sampling methods**
e. **Describe methods for demonstrating compliance with cleanup level**
f. **Describe methods for post-cleanup monitoring with routine sediment removal depending on PCB levels**
g. **Describe land use restrictions expected to be used at the site, as applicable**

   The current planned removal action excavations contain contaminants mostly at depth that are not accessible to stormwater runoff and therefore they do not pose a significant risk of affecting ecological receptors. The removal actions are being completed primarily to protect current and future maintenance and construction workers from exposure to contamination during soil excavation. One exception may be the low level (2.4 mg/kg) near – surface PCB contamination adjacent and upgradient of the B185 storm drain inlet. This area is to be excavated with further evaluation of runoff potential, as described in 3.a below.

3. **Surface Water**
   a. If applicable, include measures for surface water protection

   The planned removal action will include removal of PCB contaminated soils adjacent to and upstream of the B185 storm drain inlet. The initial area of removal will be the foot print of the decision unit sampled in June 2017 with at PCB concentration of 2.4 mg/kg. Excavation will be extended if necessary based on confirmation sampling.

   After completion of the planned removal action excavations, a filter will be placed over the storm drain inlet. During the rainy season straw wattles will be staked around the inlet to reduce inflow of sediment from the Corporation Yard. The inlet will be monitored to prevent clogging of the filter and once a sufficient amount of sediment has accumulated on the filter for a PCB sample analysis, a sample will be collected to determine if the Corporation Yard contains a continuing source of PCBs to the inlet.

4. Buildings and non-Building structures

a. Describe risk-based cleanup goals for on-site buildings and structures
b. Describe decontamination methods for on-site buildings and structures
c. Describe verification sampling that will be used for non-building structures
d. Describe verification sampling that will be used for building structures that will remain in use
  1. Description of sampling and analysis methods for substrates
  2. Description of indoor air, bulk dust, and surface wipe sampling and analytical methods
  3. Descriptions of methods that will be used to demonstrate achievement of air target levels
e. Description of BMPs to be used
f. Description of land use covenants to be used, if applicable
g. Description of any contingencies that may apply (e.g., tenant protection in occupied buildings)

There are currently no anticipated building or non-building structures included in the planned removal action excavations. If any PCB contaminated soil is left in place for further evaluation and future excavation, the areas will be fenced with a locked 6 foot high chain link fence and posted with PCB markings and a Hazardous Substances Keep Out warning sign.

7. Decontamination of Tools, Equipment, and Movable Equipment

Description of applicable decontamination standards and procedures to be applied (410 CFR 761.79).

It is anticipated that the only equipment that will require decontamination from contact with PCB remediation waste (soil containing > 50 mg/kg PCBs) will be shovels and demo-hammer bits. Because it is anticipated that the PCBs will be adhered to the soil, the equipment will first be dry brushed into soil waste containers, followed by a double wash/rinse with Alconox or an alternative detergent and wet-wiped clean. Water, detergent, wipes and PPE will be disposed of in the waste soil containers. Complete decontamination procedures are included in the 2014 Final RAW.

8. Waste Disposal – PCB Remediation Waste and Cleanup Wastes

Description of applicable disposal procedures for bulk, porous, non-porous, and liquid PCB remediation wastes that will be implemented.

All wastes generated from the planned removal action excavations will be non-liquid soil with small amounts of miscellaneous debris (rags, PPE, etc.). Soil will be contained in roll-off bins and cubic yard (or cubic meter) boxes. Containerized soils will be kept on site for final profiling and disposal site approval. Equipment will be decontaminated with wet wipes and a minimal amount of liquid detergent as necessary with wipes and rinsate placed into soil containers.

PCB remediation wastes containing > 50 mg/kg PCBs will be transported to a TSCA approved landfill, either Kettleman Hills Landfill or the Buttonwillow Landfill Facility.

Soils containing PCBs at concentrations < 50 mg/kg will be transported to Potero Hills Landfill, Altamont Landfill or a similar facility as Class II waste to be disposed of as alternative landfill cover. If any container of soil is profiled as California or RCRA hazardous waste due to other chemical constituents, the soils will be profiled for disposal at a hazardous waste landfill, likely Kettleman Hills Landfill or the Buttonwillow Landfill Facility.

Complete waste disposal procedures are included in the 2014 Final RAW.

Description of applicable disposal procedures for cleanup wastes that will be implemented.

See above.

9. PCB Cleanup Completion Report

Descriptive Outline of the PCB cleanup report that covers all the PCB cleanup activities completed for the site such as removal of PCB remediation wastes, removal of other PCB containing wastes, cleanup verification sampling and results, data evaluation including statistics, waste storage (as applicable), and waste disposal. EPA may recommend additional information that should be included in the PCB cleanup completion report.

The implementation summary report will be organized in the same manner as previous removal action implementation reports conducted at the RFS and contain the data and information listed below. It will be comprehensive for both PCB and non-PCB contaminant removal actions and activities. An anticipated table of contents appears below (based on the Implementation Summary Report for a Time Critical Removal Action at the Former Forest Products Laboratory Wood Treatment Laboratory available at http://rfs-env.berkeley.edu/documents/TCRA_Final_03_14_08.pdf):

ACRONYMS AND ABBREVIATIONS
1.0 INTRODUCTION
2.0 SITE BACKGROUND
3.0 REMOVAL ACTION ACTIVITIES AND RESULTS
3.1 SITE PREPARATION
3.2 SOIL EXCAVATION
3.3 CONFIRMATION SAMPLING
3.4 AIR MONITORING
3.5 BACKFILLING
3.6 WASTE CHARACTERIZATION AND DISPOSAL
3.7 WASTE DISPOSAL
4.0 SUMMARY
5.0 REFERENCES

FIGURES
1 SITE LOCATION MAP
2 RAW PROPOSED AND ACTUAL EXCAVATION AREAS
3 RAW EXCAVATIONS AND CONFIRMATION SAMPLING LOCATIONS

APPENDICES
DEPARTMENT OF TOXIC SUBSTANCE CONTROL APPROVALS (SOIL CONFIRMATION AND PERIMETER AIR MONITORING PLAN, CRT SOIL BACKFILL USE)
B USEPA APPROVALS (TSCA PCB RISK BASED CLEANUP, OTHER)
C RAW EXCAVATION FIELD NOTES
D RAW EXCAVATION PHOTO LOG
E CONFIRMATION SAMPLING RESULTS
F OVER-EXCAVATION AND CONFIRMATION SAMPLING RESULTS
G CONFIRMATION SAMPLING DATA VALIDATION RESULTS
H PERIMETER AIR MONITORING RESULTS
I OCCUPATIONAL EXPOSURE MONITORING REPORT
J SOIL BIN AND BOX CONTENTS CONFIRMATION SAMPLING RESULTS
K WASTE PROFILE SHEETS
L WASTE MANIFESTS- HAZARDOUS, TSCA, NON-HAZARDOUS

10. Land Use Restrictions

A Land Use Control in the form of a deed restriction is expected to be implemented as part of the 2014 Removal Action Workplan to prohibit residential use consisting of a residence, mobile home, or factory-built housing constructed or installed for use as residential human habitation. In addition, certain commercial uses defined as “sensitive uses” will also be prohibited. Sensitive uses consist of (a) a hospital for humans, (b) a public or private school for persons less than 18 years of age, (c) a day care center for children, or (d) any permanently occupied habitation other than those used for industrial purposes. This LUC will be issued upon completion of RAW activities and approval by DTSC.

Certification

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.

Signed by:

Brandon DeFrancisci, Brandon DeFrancisci________________, as Interim Director of UC Berkeley's Office of Environment, Health & Safety and representing the Owner where the site is located (Richmond Field Station) and the Party Conducting the Cleanup (UC Berkeley).

UC Berkeley
Office of Environment, Health & Safety317 University Hall, MC 1170
Berkeley, CA 94720

Figures, Tables, and Attachments

Figures:

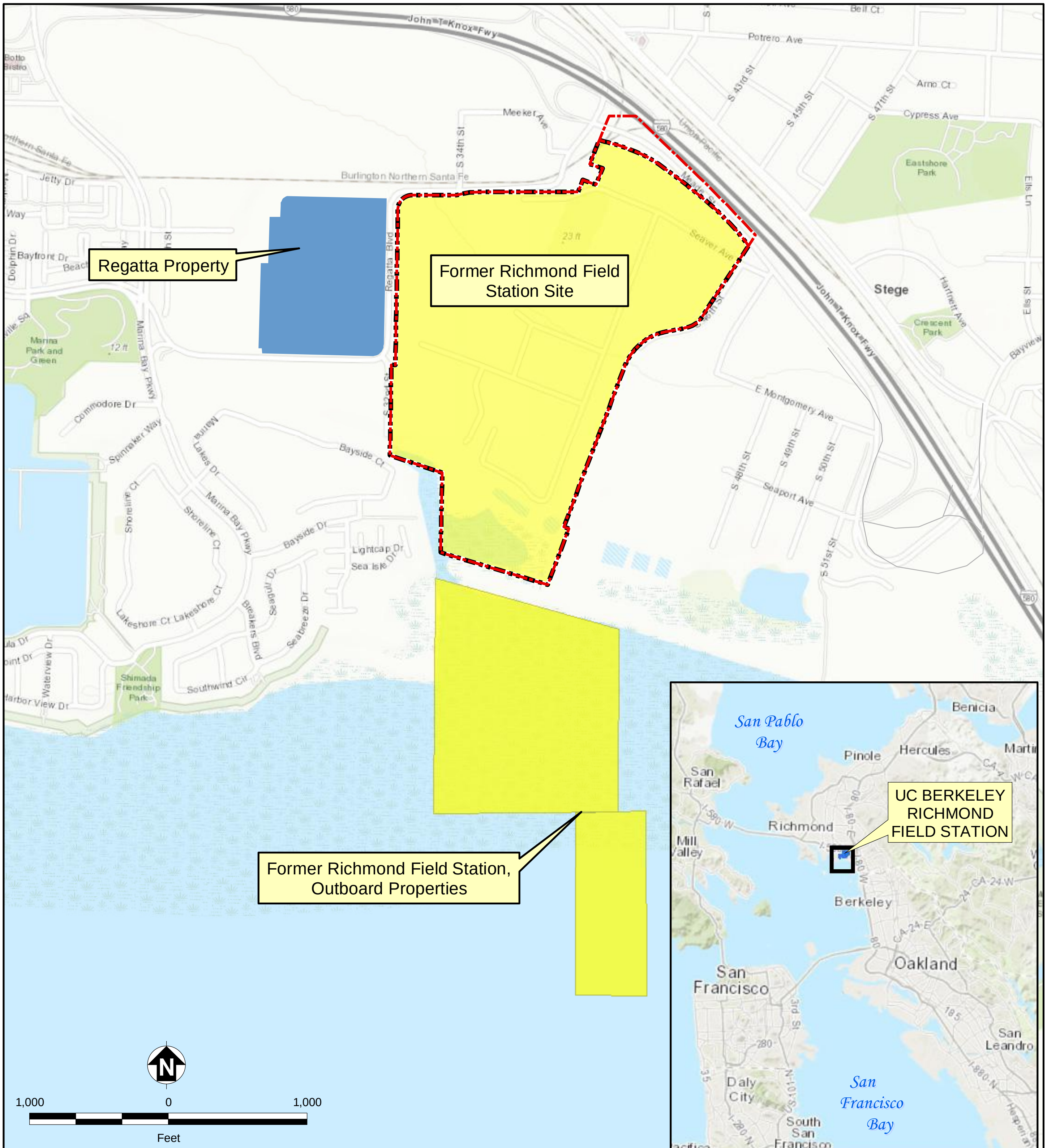
1. Site location
2. Site Map
3. RFS Physical Features4
4. RFS Hydrology
5. 5A- PCB Results at Corporation Yard, and 5B- B150 Transformer Area
6. Corporation Yard and B150 Transformer Removal Areas

Table:

Table 1 PCB Sampling Results at Corporation Yard, B150 Transformer

Attachment:

Notification of PCB Activity Form required in 40 CFR 761, Subpart K



RFS DTSC Order Boundary

Former Richmond Field Station Properties

Former Richmond Field Station Site Boundary

Regatta Property

TETRA TECH

Richmond Field Station Site
University of California, Berkeley

FIGURE 1
SITE LOCATION MAP

Phase IV Sampling Results Technical Memorandum

2017-07-26 C:\misc_GIS\Richmond_Field_Station\Projects\013_Phase_V_Report\altSITE LOCATION MAP_.mxd TtEMI-OAK michelle.handley.

Notes:
EBRPD East Bay Regional Park District
EERC Earthquake Engineering Research Center
EPA Environmental Protection Agency
NRLF Northern Regional Library Facility
RFS Richmond Field Station

TETRA TECH

Richmond Field Station Site
University of California, Berkeley

FIGURE 2
SITE MAP

Phase V Sampling Results Technical Memorandum

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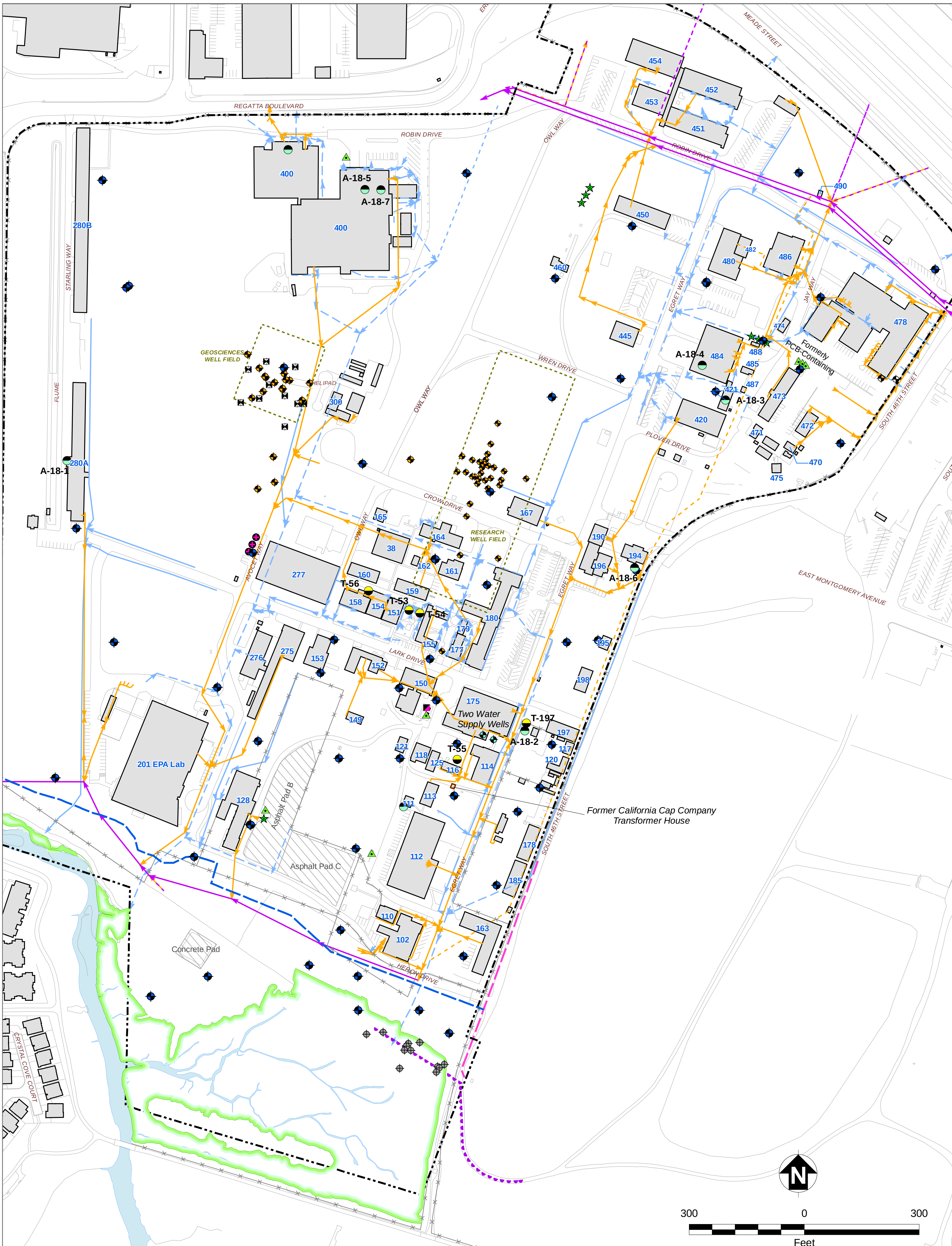


Existing Building (Building Numbers Shown in Blue)
Marsh Boundary
Surface Water
Asphalt/Concrete Pads
Well Field Boundary
Portion of RFS Property Subject to DTSC order, Defined as "Site"
Fenceline
Biologically Active Permeable Barrier Wall
Former Seawall
Slurry Wall
Aboveground Storage Tank (AST)
Former Underground Storage Tank (UST)

Open Well (Not in Use)
Closed Well (Pressure Grouted)
Open Piezometer
Open Geosciences Well
BAPB Wells on RFS Property
Zeneca Wells on RFS Property

Transformer Locations:

Pad-Supported, Non PCB-Containing
Pad-Supported, Former PCB-Containing (Removed)
Pole-Mounted, Non PCB-Containing
Pole-Mounted, Former PCB-Containing (Removed)

City Sanitary Sewer Lines:

Existing City of Richmond Sewer
Abandoned City of Richmond Sewer
Existing RFS Sewer
Abandoned RFS Sewer

Storm Drain Lines:

Open Swale
Underground Culvert
Gutters
Underground Culvert, Abandoned (Grouted at Manholes)

Note:

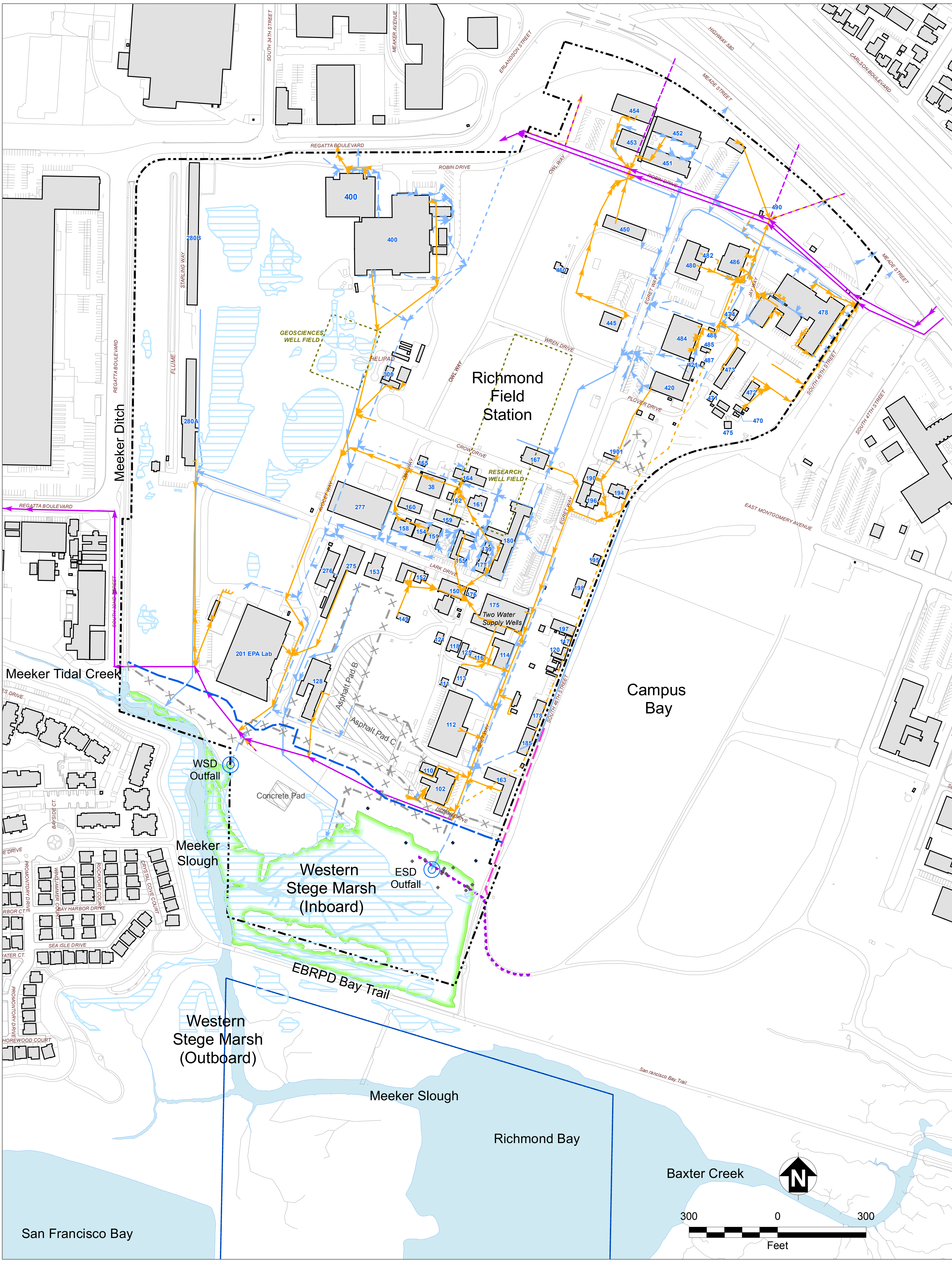
BAPB	Biologically Active Permeable Barrier
DTSC	Department of Toxic Substances Control
EBRPD	East Bay Reagional Parks District
EPA	Evironmental Protection Agency
PCB	Polychlorinated biphenyls
RFS	Richmond Field Station

TETRA TECH

Berkeley Global Campus at Richmond Bay

FIGURE 3 PHYSICAL FEATURES

Soil Management Plan



Existing Building (Building Numbers Shown in Blue)
Marsh Boundary
Surface Water
Asphalt/Concrete Pads
Well Field Boundary
Portion of RFS Property Subject to DTSC order, Defined as "Site"
Biologically Active Permeable Barrier Wall
Former Seawall
Slurry Wall
Transition Area wells
BAPB Wells on RFS Property

City Sanitary Sewer Lines:

Existing City of Richmond Sewer
Abandoned City of Richmond Sewer
Existing RFS Sewer
Abandoned RFS Sewer
Underground Culvert
Gutters
Underground Culvert, Abandoned (Grouted at Manholes)
Storm Drain Outfalls
Wetlands
UC outboard parcels

Berkeley EH&S

University of California, Berkeley
Richmond Field Station

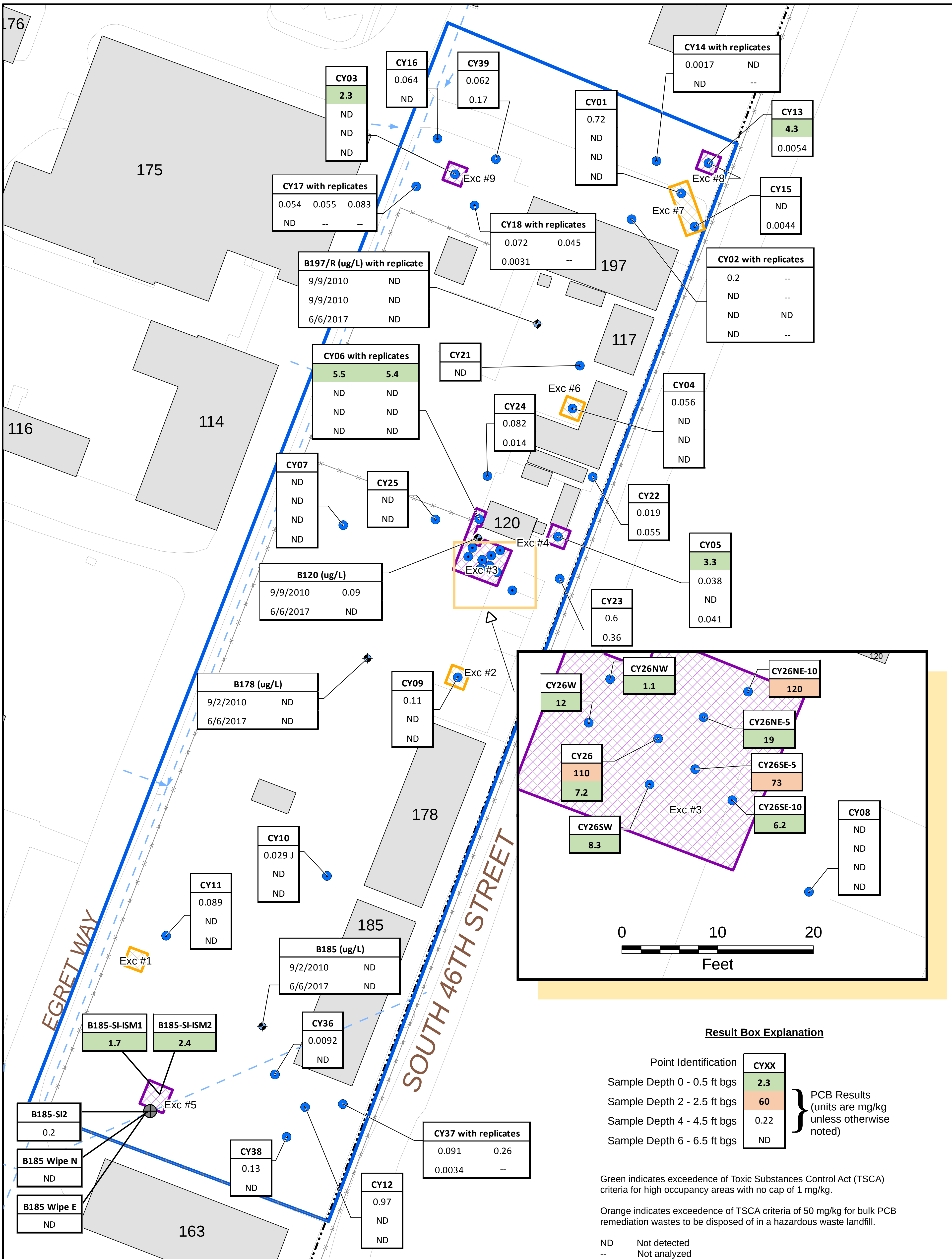
FIGURE 4 **RFS Hydrology**

Richmond, CA Southeast Shoreline

Note:

BAPB	Biologically Active Permeable Barrier
DTSC	Department of Toxic Substances Control
EBRPD	East Bay Reagional Parks District
EPA	Evironmental Protection Agency
PCB	Polychlorinated biphenyls
RFS	Richmond Field Station

2017.07.28 UC Berkeley EH&S KEH



Discrete Soil Sample
Piezometer
Storm Drain Inlet
Excavations with PCBs (Excavations 3, 4, 5, 8, 9, 10)
Excavations without PCBs (Excavations 1, 2, 6, 7)
Corporation Yard
Portion of RFS Property Subject to DTSC Order
Fenceline
Roads and other Landscape Features
Buildings

0 50 100
Feet

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Richmond Field Station Site
University of California, Berkeley

FIGURE 5A
PCB RESULTS AT CORPORATION YARD

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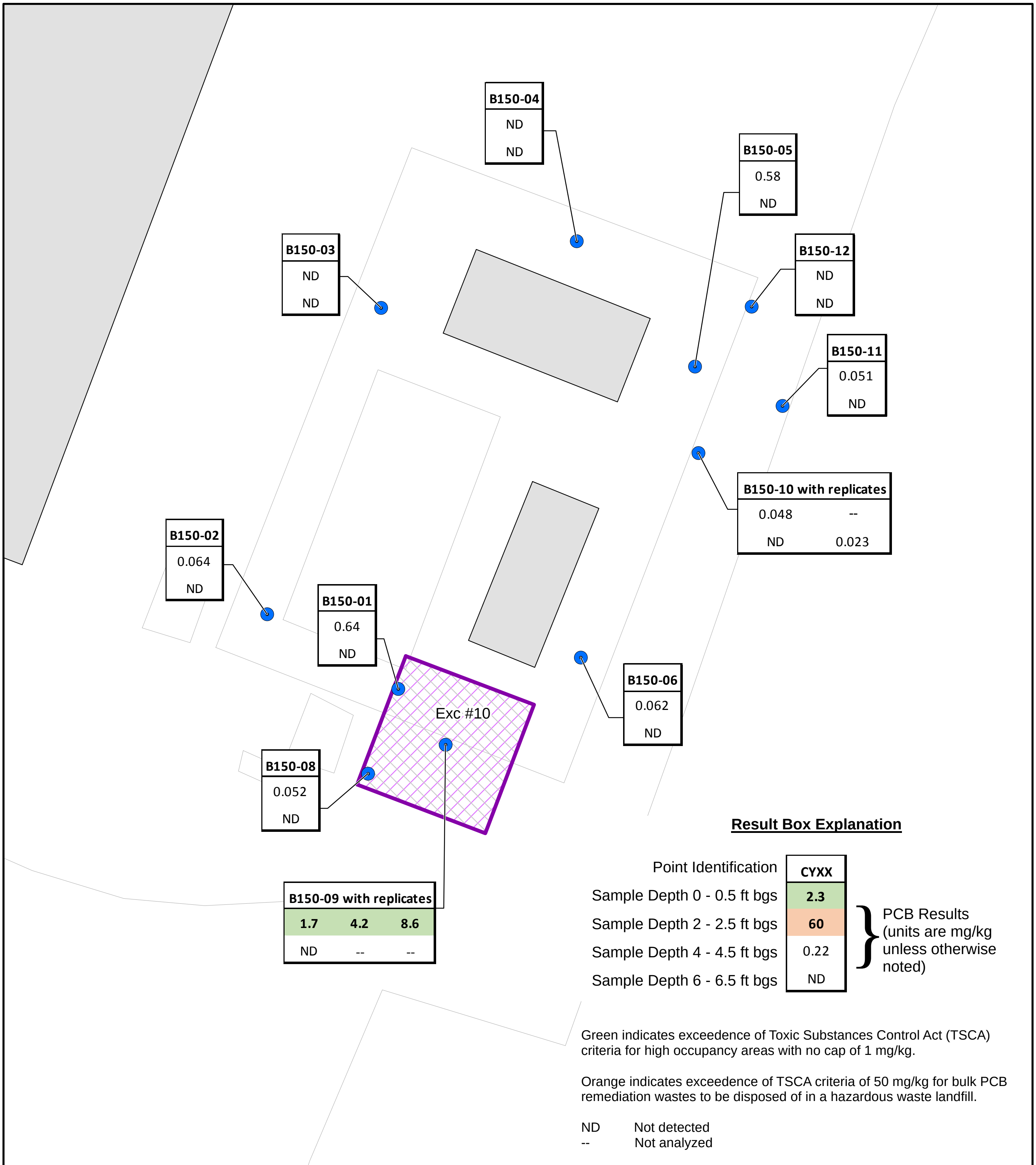

Result Box Explanation

Point Identification	CYXX
Sample Depth 0 - 0.5 ft bgs	2.3
Sample Depth 2 - 2.5 ft bgs	60
Sample Depth 4 - 4.5 ft bgs	0.22
Sample Depth 6 - 6.5 ft bgs	ND

} PCB Results (units are mg/kg unless otherwise noted)

Green indicates exceedence of Toxic Substances Control Act (TSCA) criteria for high occupancy areas with no cap of 1 mg/kg.

Orange indicates exceedence of TSCA criteria of 50 mg/kg for bulk PCB remediation wastes to be disposed of in a hazardous waste landfill.

ND Not detected
-- Not analyzed

Discrete Soil Sample
Excavations with PCBs (Excavations 3, 4, 5, 8, 9, 10)
Roads and other Landscape Features
Buildings

N

0 10 20
Feet

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Richmond Field Station Site
University of California, Berkeley

FIGURE 5B
PCB RESULTS AT
B150 TRANSFORMER AREA

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Excavations with PCBs (Excavations 3, 4, 5, 8, 9, 10)

Excavations without PCBs (Excavations 1, 2, 6, 7)

Fenceline

Asphalt/Concrete Pads

Buildings

Portion of RFS Property Subject to DTSC Order

Richmond Bay Campus

Roads and other Landscape Features

Corporation Yard

Ex. #	RAW#	COCs	Max C. (mg/kg)/ depth	Sample ID	Area (ft²)	Top Grade Depth (ft)	Soil Ex Depth (ft)	Total Depth (ft)	Vol. (CY)
1	CY4	PAH	0.55	CY34	100	0.25	0.25	1.0	3.7
2	CY3	PAH As Pb	0.7 31.7 571	CY09	100	0.25	0.75	1.0	3.7
3	PCB 6A PCB 6B PCB 7	PCBs Dioxins	120 (0- 0.5 ft, PCBs to 2.5 ft) 101.7 ng/kg dioxin	CY26 CY26 CY06	700 100 100	0.25 0.25 0.25	0.75 2.75 0.75	1.0 3.0 1.0	25.9 11.1 3.7
4	PCB 5	PCBs As	5.5 (0- 0.5 ft.) 40.1	CY05 CY05	25	0.5	1.0	1.5	1.4
5	N/A	PCBs	2.4	B185-SI-ISM2	200	0.25	0.75	1.0	7.4
6	CY 2	PAH	0.51	CY04	100	0.5	1.0	1.5	5.6
7	CY 1	PAH	0.79 1.6	CY01 CY15	300	0.5	1.0	1.5	16.7
8	PCB 4	PCBs	4.3 (0- 0.5 ft.)	CY13	100	0.25	0.75	1.0	3.7
9	PCB 3	PCBs PAH	2.3 15.49	CY03 CY03	25	0.0	1.0	1.0	0.9
10	PCB2	PCBs	8.6 (0- 0.5 ft.)	B15009	100	0.5	1.0	1.5	5.6

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Richmond Field Station Site
University of California, Berkeley

FIGURE 6
CORPORATION YARD AND B150 TRANSFORMER REMOVAL AREAS

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TABLE 1
PCB SAMPLING RESULTS
CORPORATION YARD, B150 TRANSFORMER

Sample ID	Depth (ft bgs)	Date	PCBs							
			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
Discrete Soil Sampling (mg/kg)										
B150-01	0-0.5	10-26-11	0.037 U	0.037 U	0.037 U	0.037 U	0.64	0.037 U	0.037 U	0.64
	2-2.5	10-26-11	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	NA
B150-02	0-0.5	10-26-11	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.028 J	0.036 J	0.064
	2-2.5	10-26-11	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA
B150-03	0-0.5	10-26-11	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	NA
	2-2.5	10-26-11	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	NA
B150-04	0-0.5	10-26-11	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	NA
	2-2.5	10-26-11	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA
B150-05	0-0.5	10-26-11	0.035 U	0.035 U	0.035 U	0.035 U	0.31 J	0.49	0.085	0.58
	2-2.5	10-26-11	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA
B150-06	0-0.5	10-26-11	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.028 J	0.034 J	.062
	2-2.5	10-26-11	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA
B150-08	0-0.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.052	0.0022 U	0.052
	2-2.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.018	0.0022 U	NA
B150-09	0-0.5	08/17/12	0.074 U	0.14 U	0.033 U	0.045 U	0.033 U	0.021 U	**1.7**	**1.7**
	0-0.5	08/17/12	0.068 U	0.12 U	0.03 U	0.04 U	0.03 U	**4.2**	0.055 U	**4.2**
	0-0.5	08/17/12	0.27 U	0.5 U	0.12 U	0.16 U	0.12 U	**8.6**	0.22 U	**8.6**
	2-2.5	08/17/12	0.0027 UJ	0.005 UJ	0.0012 UJ	0.0016 UJ	0.0012 UJ	0.14 J	0.0022 UJ	0.14
B150-10	0-0.5	08/17/12	0.0076 U	0.014 U	0.0034 U	0.0045 U	0.0034 U	0.048	0.0062 U	0.048
	2-2.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.024	0.0022 U	NA
	2-2.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.023	0.0022 U	0.023
B150-11	0-0.5	08/17/12	0.0053 U	0.0099 U	0.0024 U	0.0032 U	0.0024 U	0.051	0.0043 U	0.051
	2-2.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.00078 U	0.0022 U	NA
B150-12	0-0.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.055	0.0022 U	0.055
	2-2.5	08/17/12	0.0027 UJ	0.005 UJ	0.0012 UJ	0.0016 UJ	0.0012 UJ	0.00078 UJ	0.0022 UJ	NA
CY01	0-0.5	10/27/11	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.72	0.035 U	0.72
	2-2.5	10/27/11	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	NA
	4-4.5	10/27/11	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	NA
	6-6.5	10/27/11	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	NA
CY02	0-0.5	10/27/11	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.2	0.035 U	0.2

TABLE 1
PCB SAMPLING RESULTS
CORPORATION YARD, B150 TRANSFORMER

Sample ID	Depth (ft bgs)	Date	PCBs							
			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
	2-2.5	10/27/11	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	NA
	4-4.5	10/27/11	*0.042 U*	*0.042 U*	*0.042 U*	*0.042 U*	*0.042 U*	*0.042 U*	*0.042 U*	NA
	4-4.5	10/27/11	*0.043 U*	*0.043 U*	*0.043 U*	*0.043 U*	*0.043 U*	*0.043 U*	*0.043 U*	NA
	6-6.5	10/27/11	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	NA
CY03	0-0.5	10/27/11	*0.036 U*	*0.036 U*	*0.036 U*	*0.036 U*	*0.036 U*	**2.3**	*0.036 U*	**2.3**
	2-2.5	10/27/11	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	NA
	4-4.5	10/27/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
	6-6.5	10/27/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
CY04	0-0.5	10/27/11	*0.035 U*	*0.035 U*	*0.035 U*	*0.035 U*	*0.035 U*	0.056	*0.035 U*	0.056
	2-2.5	10/27/11	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	NA
	4-4.5	10/27/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
	6-6.5	10/27/11	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	NA
CY05	0-0.5	10/27/11	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	**3.3**	*0.037 U*	**3.3**
	2-2.5	10/27/11	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	0.038 J	*0.038 U*	0.038
	4-4.5	10/27/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
	6-6.5	10/27/11	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	*0.038 U*	0.041	*0.038 U*	0.041
CY06	0-0.5	10/27/11	*0.18 U*	*0.18 U*	*0.18 U*	*0.18 U*	*0.18 U*	**5.5**	*0.18 U*	**5.5**
	0-0.5	10/27/11	*0.18 U*	*0.18 U*	*0.18 U*	*0.18 U*	*0.18 U*	**5.4**	*0.18 U*	**5.4**
	2-2.5	10/27/11	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	NA
	2-2.5	10/27/11	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	NA
	4-4.5	10/27/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
	4-4.5	10/27/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
	6-6.5	10/27/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
	6-6.5	10/27/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
CY07	0-0.5	10/28/11	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	NA
	2-2.5	10/28/11	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	NA
	4-4.5	10/28/11	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	NA
	6-6.5	10/28/11	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	NA
CY08	0-0.5	10/27/11	*0.035 U*	*0.035 U*	*0.035 U*	*0.035 U*	*0.035 U*	*0.035 U*	*0.033 J*	NA
	2-2.5	10/27/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
	4-4.5	10/27/11	*0.042 U*	*0.042 U*	*0.042 U*	*0.042 U*	*0.042 U*	*0.042 U*	*0.042 U*	NA

TABLE 1
PCB SAMPLING RESULTS
CORPORATION YARD, B150 TRANSFORMER

Sample ID	Depth (ft bgs)	Date	PCBs							
			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
	6-6.5	10/27/11	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	NA
CY09	0-0.5	10/28/11	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	0.11	*0.041 U*	0.11
	2-2.5	10/28/11	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	NA
	4-4.5	10/28/11	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	NA
CY10	0-0.5	10/28/11	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	*0.039 U*	0.029 J	*0.039 U*	0.029 J
	2-2.5	10/28/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
	4-4.5	10/28/11	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	NA
CY11	0-0.5	10/28/11	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	*0.037 U*	0.089	*0.037 U*	0.089
	2-2.5	10/28/11	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	*0.04 U*	NA
	4-4.5	10/28/11	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	NA
CY12	0-0.5	10/28/11	*0.036 U*	*0.036 U*	*0.036 U*	*0.036 U*	*0.036 U*	0.97	*0.036 U*	0.97
	2-2.5	10/28/11	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	NA
	4-4.5	10/28/11	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	*0.041 U*	NA
CY13	0-0.5	08/17/12	*0.0053 U*	*0.0099 U*	*0.0024 U*	*0.0032 U*	*0.0024 U*	**4.3**	*0.0043 U*	**4.3**
	2-2.5	08/17/12	*0.0027 UJ*	*0.005 UJ*	*0.0012 UJ*	*0.0016 UJ*	*0.0012 UJ*	0.0054 J	*0.0022 UJ*	0.0054
CY14	0-0.5	08/17/12	*0.0027 U*	*0.005 U*	*0.0012 U*	*0.0016 U*	*0.0012 U*	0.0017 J	*0.0022 U*	0.0017
	0-0.5	08/17/12	*0.0027 UJ*	*0.005 UJ*	*0.0012 UJ*	*0.0016 UJ*	*0.0012 UJ*	*0.00078 UJ*	*0.0022 UJ*	NA
	2-2.5	08/17/12	*0.0027 UJ*	*0.005 UJ*	*0.0012 UJ*	*0.0016 UJ*	*0.0012 UJ*	*0.00078 UJ*	*0.0022 UJ*	NA
CY15	0-0.5	08/17/12	*0.074 U*	*0.14 U*	*0.033 U*	*0.045 U*	*0.033 U*	*0.021 U*	*0.8*	NA
	2-2.5	08/17/12	*0.0027 UJ*	*0.005 UJ*	*0.0012 UJ*	*0.0016 UJ*	*0.0012 UJ*	0.0044 J	*0.0022 UJ*	0.0044
CY16	0-0.5	08/17/12	*0.0053 U*	*0.0099 U*	*0.0024 U*	*0.0032 U*	*0.0024 U*	0.064	*0.0043 U*	0.064
	2-2.5	08/17/12	*0.0027 UJ*	*0.005 UJ*	*0.0012 UJ*	*0.0016 UJ*	*0.0012 UJ*	*0.00078 UJ*	*0.0022 UJ*	NA
CY17	0-0.5	08/17/12	*0.0027 UJ*	*0.005 UJ*	*0.0012 UJ*	*0.0016 UJ*	*0.0012 UJ*	0.054 J	*0.0022 UJ*	0.054
	0-0.5	08/17/12	*0.0027 U*	*0.005 U*	*0.0012 U*	*0.0016 U*	*0.0012 U*	0.055	*0.0022 U*	0.055
	0-0.5	08/17/12	*0.016 UJ*	*0.029 UJ*	*0.0069 UJ*	*0.0093 UJ*	*0.0069 UJ*	0.083 J	*0.013 UJ*	0.083
	2-2.5	08/17/12	*0.0027 UJ*	*0.005 UJ*	*0.0012 UJ*	*0.0016 UJ*	*0.0012 UJ*	*0.00078 UJ*	*0.0022 UJ*	NA
CY18	0-0.5	08/17/12	*0.0027 UJ*	*0.005 UJ*	*0.0012 UJ*	*0.0016 UJ*	*0.0012 UJ*	0.072 J	*0.0022 UJ*	0.072
	0-0.5	08/17/12	*0.0027 UJ*	*0.005 UJ*	*0.0012 UJ*	*0.0016 UJ*	*0.0012 UJ*	0.045 J	*0.0022 UJ*	0.045
	2-2.5	08/17/12	*0.0027 UJ*	*0.005 UJ*	*0.0012 UJ*	*0.0016 UJ*	*0.0012 UJ*	0.0031 J	*0.0022 UJ*	0.0031
CY21	0-0.5	08/17/12	*0.0027 U*	*0.005 U*	*0.0012 U*	*0.0016 U*	*0.0012 U*	*0.00078 U*	*0.0022 U*	NA

TABLE 1
PCB SAMPLING RESULTS
CORPORATION YARD, B150 TRANSFORMER

Sample ID	Depth (ft bgs)	Date	PCBs							
			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
CY22	0-0.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.019	0.0022 U	0.019
	2-2.5	08/17/12	0.0027 UJ	0.005 UJ	0.0012 UJ	0.0016 UJ	0.0012 UJ	0.055 J	0.0022 UJ	0.055
CY23	0-0.5	08/17/12	0.068 UJ	0.12 UJ	0.03 UJ	0.04 UJ	0.03 UJ	0.6 J	0.055 UJ	0.6
	2-2.5	08/17/12	0.068 U	0.12 U	0.03 U	0.04 U	0.03 U	0.36	0.055 U	0.36
CY24	0-0.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.082	0.0022 U	0.082
	2-2.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.014	0.0022 U	0.014
CY25	0-0.5	08/15/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.00078 U	0.0022 U	NA
	2-2.5	08/15/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.00078 U	0.0022 U	NA
CY26	0-0.5	08/15/12	2.7 U	5 U	1.2 U	1.6 U	1.2 U	**110**	2.2 U	**110**
	2-2.5	08/15/12	0.27 U	0.5 U	0.12 U	0.16 U	0.12 U	**7.2**	0.22 U	**7.2**
CY26NE-5	0-0.25	06/06/17	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	**19**	4.0 U	**19**
CY26NE-10	0-0.25	06/06/17	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**120**	2.0 U	**120**
CY26SE-5	0-0.25	06/06/17	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**73**	2.0 U	**73**
CY26SE-10	0-0.25	06/06/17	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**6.2**	2.0 U	**6.2**
CY26NW	0-0.5	10/19/12	0.027 U	0.05 U	0.012 U	0.016 U	0.012 U	**1.1**	0.022 U	**1.1**
CY26SW	0-0.5	10/19/12	0.27 U	0.5 U	0.12 U	0.16 U	0.12 U	**8.3**	0.22 U	**8.3**
CY26W	0-0.5	10/19/12	0.27 U	0.5 U	0.12 U	0.16 U	0.12 U	**12**	0.22 U	**12**
CY36	0-0.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.0092 J	0.0022 U	0.0092
	2-2.5	08/17/12	0.0027 UJ	0.005 UJ	0.0012 UJ	0.0016 UJ	0.0012 UJ	0.00078 UJ	0.0022 UJ	NA
CY37	0-0.5	08/17/12	0.007 U	0.013 U	0.0031 U	0.0042 U	0.0031 U	0.091	0.0057 U	0.091
	0-0.5	08/17/12	0.007 U	0.013 U	0.0031 U	0.0042 U	0.0031 U	0.26	0.0057 U	0.26
	2-2.5	08/17/12	0.0027 UJ	0.005 UJ	0.0012 UJ	0.0016 UJ	0.0012 UJ	0.0034 J	0.0022 UJ	0.0034
CY38	0-0.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.13	0.0022 U	0.13
	2-2.5	08/17/12	0.0027 UJ	0.005 UJ	0.0012 UJ	0.0016 UJ	0.0012 UJ	0.00078 UJ	0.0022 UJ	NA
CY39	0-0.5	08/17/12	0.0027 U	0.005 U	0.0012 U	0.0016 U	0.0012 U	0.062	0.0022 U	0.062
	2-2.5	08/17/12	0.0027 UJ	0.005 UJ	0.0012 UJ	0.0016 UJ	0.0012 UJ	0.17 J	0.0022 UJ	0.17
Groundwater: Piezometers within Corporation Yard (µg/L)										
B120	NA	09/09/10	0.19 U	0.38 U	0.19 U	0.19 U	0.09 J	0.19 U	0.19 U	0.09
	NA	06/06/17	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	NA
B178	NA	09/02/10	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA
	NA	06/06/17	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	NA

TABLE 1
PCB SAMPLING RESULTS
CORPORATION YARD, B150 TRANSFORMER

Sample ID	Depth (ft bgs)	Date	PCBs							
			Aroclor 1016	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
B185	NA	09/02/10	*0.19 U*	*0.38 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.19 U*	NA
	NA	06/06/17	*0.19 U*	*0.38 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.19 U*	NA
B197/R	NA	09/09/10	*0.19 U*	*0.38 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.19 U*	NA
	NA	09/09/10	*0.19 U*	*0.38 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.19 U*	NA
	NA	06/06/17	*0.19 U*	*0.38 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.19 U*	NA
Incremental Soil Sampling (mg/kg)										
B185-SI-ISM1	0-0.25	06/06/17	*0.020 U*	*0.040 U*	*0.020 U*	*0.020 U*	*0.020 U*	**1.7**	*0.020 U*	**1.7**
B185-SI-ISM2	0-0.25	06/06/17	*0.100 U*	*0.200 U*	*0.100 U*	*0.100 U*	*0.100 U*	**2.4**	*0.100 U*	**2.4**
Dry Sediment Sampling (mg/kg)										
B185-SI2	1.5	06/21/17	*0.0096 U*	*0.019 U*	*0.0096 U*	*0.0096 U*	*0.0096 U*	0.200	*0.0096 U*	0.200
Concrete Wipe Samples (µg/s)										
B185 Wipe E	1.0	06/21/17	*0.25 U*	*0.50 U*	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*	NA
B185 Wipe N	1.0	06/21/17	*0.25 U*	*0.50 U*	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*	NA

Notes:

0.25 U Italicized, gray results are nondetect with laboratory reporting limits listed

2.4 **Bold** indicates exceedence of Toxic Substances Control Act (TSCA) criteria for high occupancy areas with no cap of 1 mg/kg, per 40 CFR 761.61 (a)(4)(i)(A).

120 **Bold Underline** indicates exceedence of TSCA criteria of 50 mg/kg for bulk PCB remediation wastes to be disposed of in a hazardous waste landfill permitted under Section 3004 or 3006 of Resources, Conservation, and Recovery Act (RCRA), per 40 CFR 761.61 (a)(5)(i)(B)(2)(iii).

µg/s Micrograms per 100 square centimeters
µg/L Micrograms per liter
mg/kg Milligrams per kilogram
NA Not applicable. PCBs not totaled if all aroclors were nondetect

Total PCBs do not include nondetect results

USEPA

United States
Environmental Protection Agency
Washington, DC 20460

Form Approved
OMB No. 2070-0112

Notification of PCB Activity

For Official Use Only

Return To:

Document Control Officer (5305P)
Office of Solid Waste
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460-0001

1. Name of Facility	Name of Owner Facility	2. EPA Identification Number (if already assigned under RCRA)
University of California, Berkeley	**The Regents of the University of California**	CAD983669268

3. Facility Mailing Address (Street or PO Box, City, State, & Zip Code)

Office of Environment, Health & Safety
University Hall, 3rd Fl. #1150
Berkeley, CA 94720

4. Location of Facility (No. Street, City, State, & Zip Code)

Richmond Field Station
1301 S. 46th St.
Richmond, CA 94804

5. Installation Contact (Name and Title)

Greg Haet
EH&S Associate Director, Environmental Protection

Telephone Number (Area Code and Number)
(510) 642-4848

6. Type of PCB Activity (Mark 'X' in appropriate box. See Instructions.)

- [x] A. Generator w/onsite storage facility
- [ ] B. Storer (Commercial)
- [ ] C. Transporter
- [ ] D. R&D/Treatability
- [ ] E. Approved Disposer
- [ ] F. Scrap Metal Recovery Oven/Smelter, High Efficiency Boilers

7. Certification

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as a company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.

Signature	Name and Official Title (Type of Print)	Date Signed
Brandon DeFrancisci	Brandon DeFrancisci Interim Director	7/31/17

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