APPENDIX F: HAZARDS AND HAZARDOUS MATERIALS

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DRAFT PHASE I ENVIRONMENTAL SITE ASSESSMENT

Pier 70 Waterfront Site
San Francisco, California

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Project Number WR1518

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Table 1
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Eastern Portion of Site

This area is comprised of historical Buildings 11 and 21, a yard area used by Somarts, and parking areas used by Affordable Self-Storage and Auto Return. Sims Metal is located in the northern portion of this area and a radio tower is present to the west of Sims Metal. This was the first area of the Site to be to be developed, in 1866, by Pacific Rolling Mills followed by The Risdon Iron & Locomotive Company (1900 – 1911), a subsidiary of the U. S. Steel Corporation /Union Iron Works purchased the Site in 1912 and leased the area to the government who built and operated a United States destroyer plant. In approximately 1940, the U.S Navy purchased the plant and built an entirely new shipyard. Many of these structures were demolished between 1977 and 1982.

Note: Current Buildings/Areas are provided in bold; former buildings/ areas are not bold.

Building/Area	Location	Description	Historical Use (per Port Historical Nomination unless otherwise specified)	Historical Details (per 1944 Bethlehem As-Builts unless otherwise specified)	Current use/ Reconnaissance observations.
Building 21 (Substation#5) and former Building 55 (Marine Machinist)	Located just west of Building 11, surrounded by two paved roads, to the north and west, and a paved lot to the south and southeast.	Two-story structure measuring 101'-2" long by 75'-6" wide by 44' high. It is a steel frame structure with corrugated metal cladding and contains 10,172 square-feet. A shed-roofed building attaches to this elevation at the southeast corner (former Building 55)	This building dates to the Risdon Iron Works period (c. 1900). Sanborn Maps through 1975 are labeled as a machine shop and transformer house. A 1945 Bethlehem Steel Company describes Building 21 as sub-station no. 5 and electric shop no.2. It is described as a government owned building; the owner prior to 1941 is shown as Columbia Steel Co. (U. S. Steel Corp.) In 1945, the western half of the building had a compressor, small electric parts room, and transformers with the eastern portion used as an electrical shop, with a small office in the northeast part of the floor. The second floor housed a shop in the	Shed on southeastern corner labeled as Marine Machinist. Forges were present in this area from 1887-1900 (1). 1981 cleanup of PCBs at the Building. Old leaking transformers containing PCBs were removed (referred to as operational area 1) Walls, floors, and asphalt driveways were sampled with wipes. PCB (Arochlor 1260) results before cleanup ranged from 17 to 5,888 ug/wipe in operational area 1, Samples taken from the floor area (asphalt floor) ranged from non-detect to 62 parts per million (ppm). After	Building 21 now functions as an electrical substation for the Pier 70 site and for the transmitter and storage for the radio tower. A utility trench is present to the north of the Building and is covered with steel plates. Door to shed-roofed building is labeled "Convoy Company"

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			north portion and a store room in the south.	decontamination, confirmation samples were taken in operational area 1 ranged from 4 to 80 ug/wipe, and. The asphalt confirmation samples were all within residential cleanup levels (Aroclor 1260 was 220 ug/wipe area for residential 1,000 ug/wipe area for industrial) In 2001, east wing was used for furniture manufacturing operation and moving van storage and west side was used for storage of electrical supplies. (3) A SCA Report Summary dated May, 2008 compiled available information on asbestos containing building materials (ACMs), lead based paint, PCBs and mercury switches indicated that Building 21 contained both ACMs and lead based paint.	
Somarts Area and area directly south of Somarts area	Located to the south of Building 21	Former Building 20 was present in this location in 1944 and was labeled as a locker room. A canteen was located	--	Furnaces were present in this area from 1887-1900 (1)	Somarts has small quantities of paints and cleaners stored in a flammable storage

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		to the west of the locker room and a welding platform was adjacent to the south.			cabinet and work-shop container.
Building 11 (Tool Room and Office/Noonan Building)	Building 11 stands just east of Building 21and west of a paved parking lot.	Located on the location of the Pacific Rolling Mills sheet and tin plate warehouse, Building 11 was built in 1941 by the Navy as part of the New Yard to aid in production related to World War II. A three-story, rectangular wood frame structure is 156' long by 72' wide by 38' high, and contains a total of 32,664 square-feet. It is clad with horizontal wood siding.	Building 11 provided support for hull construction at the Building 12 Complex.	The first floor originally contained a tool room, temporary lights department, and "burner department, as well as offices. The two upper floors were devoted to office space. 1959 Sanborn shows first floor was a cafeteria. Housed artists and photographers studios in 2001 A SCA Report Summary dated May, 2008 compiled available information on asbestos containing building materials (ACMs), lead based paint, PCBs and mercury switches indicated that building 11 contained both ACMs and lead based paint.	Currently, artist studios and offices occupy the Building. A utility trench is present to the north of the Building and is covered with steel plates.
Radio Tower Area	On the northern portion of the area to the east of the 20th Street access	Approximately one acre with exposed surface soil and small areas of asphalt parking lot.	This area was occupied by former Buildings 4 and 7 (see discussion below). Radio station KEST, 1450 AM, tower is now present. The antenna is	The southern portion of historic Buildings 4 and 7 (see below) were present in this area.	This area was unpaved with piles of concrete debris. Dirt was mounded in the area. There was an empty roll-off bin

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			located on an unpaved open area and the transmitter is located nearby in a room within Building 21. The transmission line feed goes underground from the room to the 180 foot tower. KEST moved to the site in 1997. (2)		present along the western border.
Former Building No. 4 – Sheet Metal Shop and Welding Shed	Was located in the now vacant radio tower lot to the north of Building 21.	Measured 307'-6" long by 116' wide by 51' tall and totaled 27,235 square feet. Wood and steel building with bitumuls flooring constructed in 1900 and altered in 1917, 1942, and 1943. It was demolished sometime between 1977 and 1982.	Metal bending and machining	Listed as government owned in 1941. A mezzanine was located within the building. Machining equipment included bending rolls, drills, grinders, shears, spot welders, nibblers, and hack saws. An electric muffle furnace was located along the western wall of the mezzanine. The sanitary sewer drain ran along the southern wall. Rail spurs were located directly adjacent to the east and west.	Not applicable – historic
Former Building 7 – Light Warehouse No. 7, Office Annex, and Plastic Annex	Was located in the now vacant radio tower lot to the north of Building 11.	Warehouse No. 7 and Office Annex: Measured 309'-8" long by 81-6' wide by 58' tall and totaled 25,240 square feet. Main Building: Steel and concrete building with concrete flooring constructed in 1926	Warehouse No. 7 and Office Annex: Metal-working mill with office. Plastic Shop: Plastic-working	Warehouse No.7 and Office Annex: Listed as government owned in 1941. Machining equipment included rolling mill and power hack saw. Sewer grating	Not applicable – historic

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		and altered in 1941. Office Annex: Part concrete foundation with wood floor on timber mud sills constructed in 1926 and altered in 1941 Plastic Shop Annex: Measured 31'-3" long by 20'-11" wide by 22' tall and totaled 654 square feet. Wood building with concrete flooring constructed in 1943. It was demolished sometime between 1977 and 1982.		was located near the north-eastern corner. Rail spurs were located within the main building along the eastern edge and directly adjacent to the east and west. Plastic Shop Annex: Sewer grating was located in the center of the shop.	
Sims Metal Area	Located directly to the east of the Radio Tower lot.	Approximately one acre.	This area was occupied by former Buildings 8 and 10 (see discussion below).	Oil storage was present on the southern use boundary in 1914-1950 (1) 2003 Phase 1 by Iris stated that soils excavated during installation of a pump Station and installation of sewer piping adjacent to this area in the late 80s and early 90s were found to contain elevated levels of metals, particularly copper and lead. The report referenced an internal memo on the storage of excavated fill at Pier 70 dated August 24, 1990 that the fill had	Area is all paved and surrounded by a concrete berm to prevent surface water flow off of the site. The facility and operation was orderly and well managed. The facility receives various types of metal debris (cars, appliances, demolition debris, construction waste), sorts the debris according to metal type (e.g., aluminum vs. steel) and then loads the sorted scrap into trucks for further

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				levels of methylene chloride at 88 mg/kg and TPH at 10 mg/kg.	processing at other Sims facilities.
Former Building 8 – Riggers Carpentry and Paint Shop and Former Building 10 – Pipe Rack and Locker Room	Was located to the southwest of Building 6	Built in 1941 and government owned. Measured 152-2' long by 92-6' wide by 51' tall and totaled 11,032 square feet. Was constructed of steel wood and concrete and listed as government owned. It was demolished sometime between 1977 and 1982.		Northeast corner of Building contained a varnish room, spray room and mixing area	Not applicable – historic building
Former Building 9 – Pipe Shop No. 2	Was located to the south of Buildings 6 and former Building 57, adjacent to the Bay	Measured 272' long by 92-1' high by 56" tall and totaled 25,014 square feet. Steel and concrete building with concrete flooring constructed in 1941. Stood on redwood and treated Douglas fir pilings. It was demolished sometime between 1977 and 1982.	Metal pipe shop	A brazing area was present along the eastern wall. A magnaflux tester was present on the western wall	Not applicable – historic building. The area is now vacant land with exposed soil at ground surface.
Parking lots south and east of Somarts area and the western Auto Return Parking Lot	Slip 5, 6, 7, and 8 were present on the east and southeast portion of the Site.	Slips 5 and 8 were 400-feet long and Slips 6 and 7 were 660-feet long descending from the shoreline into San Francisco Bay. All were oriented east-west.	Slips 5, 6, 7, and 8 were built in 1941 as part of the Building 12 Complex designed and built by the U. S. Navy. All slips were infilled after 1964 and the associated platforms and cranes were removed. The subsurface portions of the ways may be preserved under an asphalt parking lot. The crane ways and the edge of the ways are visible	1900 Sanborn map shows an 8,000 barrel crude oil tank was located in the current Auto Return eastern parking lot. Historical use in the area prior to 1901 included gas producers, steel works, foundries, squeezers and hammers, crude oil tanks (in	This area is currently used for storage by Affordable Self-Storage and Auto Return. Small leaks from automobiles were present in the Auto Return area; most had been treated with absorbent. Housekeeping was very good.

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			along the shoreline. Two former head house buildings, Buildings 34 and 35, sat at the head of Slips 6 and 7. Rail lines and a semi-gantry crane moved plates and materials from the Building 12 Complex to the slips	addition to the one mentioned above,) a coal shed, coal burner, a blacksmith shop and scrap iron warehouse, and a horse shoe factory. 1959 Sanborn has the southeast corner of the slip area labeled as the sandblast area. Adjacent to the north of Slip No. 5 was the Acetylene Building and Boiler House Building 63 below) Historical use by City Tow/Pick your Part. Area was repaved in when Auto return took over Site. According to the 1990 ERM-West Hazardous Materials Investigation of the Mariposa Facilities, a single boring (B-2) was advanced in this area in support of planned installation of a storm drain line. The boring was located	The terminus end of three steel pipes (approximately 10 inches in diameter) were visible adjacent to the Former Pier 70. The pipes appear to be outfall points for the historic storm water system although their use is unknown.

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				approximately 300 feet west of the Bay and along the southern property boundary. Detections of TPH and metals were within the range of concentrations found in other site investigations.	
Former Building 63 – Steam Generating Plant and Welding Platform	Was located north of former slipway 5. Welding platforms were located to the east and west of the building.	49-4" by 40-4' wide by 33' high. 1,990 square feet. Government owned building erected in 1945. Constructed of steel and concrete. It was demolished between 1963 and 1977.	Boiler House	The building housed pumps, a de-aerating heater and an oil pump. An existing steam boiler tank and the planned location of a future tank are pictured to the east of Building 63.	Not applicable – historic building
Former Building 57 – central kitchen	Was located to the southeast of Building 6, adjacent to the Bay and in the area where the new stormwater pump station was constructed.	4,400 square foot wood and concrete building measuring 91" x 66" one story building that was 10-8" high. Erected in 1944. Owned by Bethlehem Steel. It was demolished sometime between 1977 and 1982.	Kitchen	2003 Phase 1 by Iris stated that soils excavated during installation of a pump Station and installation of sewer piping adjacent this area in the late 80s and early 90s were found to contain elevated levels of metals, particularly copper and lead. The report referenced an internal memo on the storage of excavated fill at Pier 70 dated August 24, 1990 that the fill had levels of methylene	Not applicable – historic building. The area is now vacant land with exposed soil at ground surface.

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				chloride at 88 mg/kg and TPH at 10 mg/kg.	
Adjacent Area					
Building 6 (Light Warehouse)	Light Warehouse No. 6 stands in a northwest-southeast orientation along the waterfront at the northeast Site boundary	Built in 1941, on vacant Land and tidal flats, it Was likely designed and built by government personnel as part of the WWII effort. This is a 512' long, 72' wide, 52' high, industrial-vernacular, pile-supported rectangular steel warehouse which occupies 37,128 square-feet. A loading dock covered by a corrugated metal awning spans the western side of the Building.	Warehouse use.	Listed on 1900 Sanborn map as Pacific Rolling Mills Iron storage yard. Rail lines were present near this area as per 1914 Sanborn Map. In 1986, lead and cadmium were found in heavy dust deposits on wall beams and the floor of building 6. Before the 1986 cleanup, composite samples were taken of the floor and wall beam dust. Results showed up to 7,900 mg/kg lead, 21,000 mg/kg zinc, 47 mg/kg cadmium, and 1,300 mg/kg copper. Only lead was above the EPA) Region 9 residential and industrial PRGs of 400 mg/kg and 750 mg/kg, respectively. The dust was removed and the building was decontaminated by high-pressure water scrubbing of the walls, floor, and ceiling.	Building 6 is currently abandoned and vacant. The building was vacant. A BAE Systems materials layout and storage yard is adjacent to the west of the Building
Building 19 (Garage #1)	This building stands	Built in 1941, this is a one-	Garage	Used as a bus	Building contained a

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	at the end of 20th Street, which was closed during WWII. It is surrounded by open space on the east, west and south elevations.	story, rectangular-plan gable-roofed warehouse with corrugated, galvanized steel roofing and cladding. It measures 50'-8" x 24'-6" in plan and 31'-6" tall, and contains a total of 6,152 square-feet. Rolling metal doors are present on the west, east and south elevations. The north elevation is board-formed concrete and stands higher than the adjacent east and west. A small metal shed attaches to the west elevation.		maintenance and storage yard in 2001 (3) Agency and Port correspondence in 2006 concerning issues with sandblast waste storage and handling. Waste was reportedly hazardous for copper. PCB-Containing transformer storage noted in 1988 Tetra Tech Phase 1.	sifter/conveyor, a bulldozer, and the building stores sandblast grit/waste, used to sandblast ships prior to painting. Ponding was present inside building. A drum next to a secondary containment pallet were present adjacent to the east of the building.
Western Portion of Site					
This area is comprised of historical Buildings 2, the Building 12 Complex, Building 60/ 66/31, a Courtyard area (created by Buildings 113/114, 115/116 and 117, together with Building 14), and a parking area to the west of the Building 12 Complex. Historical Building 2 is currently leased by Paul's Cost Less Warehouse, the Building 12 complex and western parking lot is currently used by Auto Return. The area was first used by the Union Iron Works in 1884. In this area, the steep cliffs of Irish Hill originally created a physical boundary to the south, east and west. The machine, erecting, and smith shops, and the pattern house stood to the south of 20th Street. Of these, only the Pattern House was on-Site. Buildings 113 and 114 (adjacent to the Site) are the only remaining buildings of this original complex. In approximately 1941, the Building 12 Complex, comprising Buildings 12, 15, 16, 25, 32, and 66, was constructed as the central building of the New shipbuilding Yard. The building was designed and built by government (Navy) personnel as part of the joint WWII public-private shipbuilding effort. Note: Current Buildings/Areas are provided in bold; former buildings/ areas are not bold.					
Building/Area	**Location**	**Description**	**Historical Use**	**Additional Details per Historical Information (Information per 1944 As-Builts unless otherwise specified)**	**Current use/ Reconnaissance observations.**
Courtyard area southwest and south of Building 14	Northwest portion of Site.	Courtyard area created by Buildings 113/114, 115/116 and 117, together with	Former Building 112-Pattern Warehouse (below) was present in this area.	Adjacent area to the north was the Building 113 steam-clean area**.**	Currently used for storage. Area to west of Building 14 had

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		Building 14. The Courtyard is completely paved.		Four USTs were reportedly located east of building 116 and 117, as reported in the TetraTech 1998 Phase I. The first two, a 5,000 gallon and 2,500 gallon tank, were removed in 1990. While analytical data was not found, SFDPH inspector notes indicated a hydrocarbon odor. The second two tanks, a 2,160 gallon and a 576 gallon tank, were closed in place by first cleaning them and then filling them with sand. Except for acetone and methylene chloride, soil samples did not contain detectable levels of TPH, volatile organic compounds, semi-volatile organic compounds or metals.	fenced, bermed, concrete area labeled hazardous waste storage. Treated wood beams were in stockpiles. Racking held lumber and other materials. The adjacent area to the north (adjacent to the south of Building 113) had a dip tank. A small out-of-use tank was present on racking in the area.
Former Building 112 – Pattern House	Was located in the Courtyard area and was oriented in a north-south direction immediately west of Building 14.	Constructed in 1885, demolished in the late 60s or early 70s. Four story industrial loft was 199' long, 49 feet wide and 62" high. Building was constructed of brick walls with a heavy timber frame.	Workers produced patterns or forms for shaping molds used to produce metal castings for machine parts. Pattern makers utilized motorized tools run by a wire line connected to the boiler house in adjacent	A laboratory was present in the southern portion and oil Storage was present to adjacent to the northwest section of the building. 1914 Sanborn map shows a bathroom to the east of the building.	Not applicable – historical structure The area is currently used for storage.

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			Building 14. Materials for the machine shops and foundries were also stored here.		
Area east of Building 113 and Building 14 and parking lot north of Building 12 complex.	This area consists of the access road to the Courtyard, Building 14 and Building 2 area as well as the Auto Return parking lot located north of Building 21.	Former Building 18, the Accounting Office was present in this area.	--	1914 Sanborn map shows 4,000 barrel fuel oil tank enclosed in 8'brick wall in Building 14 or in this area. Both a TetraTech report from December 1997 and Port records indicate that four underground storage tanks were removed from this area. USTs 104 and 105 were 11,280 gallon USTs that held heating oil. These tanks were removed in 1988 and received closure from the SFDPH in December 2000. Tanks "3" and "4" were reportedly located in the area of Central Plaza Park, were 5,000 single walled steel tanks that held gasoline and diesel. The Port removed the tanks in 1990 in conjunction with the installation of a sewer force main within the 20th Street corridor. The	Access Road and auto storage.

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				regulatory status of this removal effort is unknown.	
Building 2 (Warehouse No. 2)	Building 2 stands east of the Courtyard and directly north of Building 12	Six-story, board-formed concrete warehouse, constructed in 1941 and 1944, rectangular in plan with a flat roof. The building measures 256' long, 76'-9" wide and 79'-6" high. It contains a total of 98,804 square feet and runs north-south, with a large freight elevator along the west wall. The floor is exposed concrete slab.	Constructed for WWII. Originally functioned as a warehouse to support hull construction at the Building 12 complex. The sixth floor contained a drafting room, and offices were located on the first and second floors. A bridge connected the fourth floor to the mold loft in Building 12, to the south.	Was used by non-profit for storage of clothing and furniture in 2001. Steel Storage was pictured to the west of the Building in the 1959 Sanborn map. A SCA Report Summary dated May, 2008 compiled available information on ACMs, lead based paint, PCBs and mercury switches indicated that Building 2 contained ACMs.	Building 2 is now used as a warehouse by Paul's Cost Less Storage. Port recently removed waste of unknown origin from building. Waste characterized as four drums non-hazardous waste solid (light fixtures, empty fuel cans, empty containers of elevator lubrication, etc.), one drum non-hazardous liquid (soapy material), seven drums corrosive waste liquid, three drums waste paint related material, one drum organic material solid waste, and three drums non-RCRA hazardous waste liquid (oil and water).
Building 12 complex (Plate Shop No. 2)	Located near the southwest portion of	Building 12 measures 248'-2" x 242'-2" in by 59'-6" tall, and	The Building 12 Complex, comprising Buildings 12,	In 1981, Old leaking transformers containing	Used for impounded vehicle storage by

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	the Site at the terminus of 22nd Street.	contains a total of 118,890 square-feet spread across two floors. Construction is steel and wood with corrugated steel cladding. Asphalt paves the ground floor.	15, 16, 25, 32, and 66, was constructed mainly in 1941 as the central building of the New shipbuilding Yard. The building was designed and built by government (Navy) personnel as part of the joint WWII public-private shipbuilding effort. It housed the plate shop and mold loft and was central to hull construction at Slips 5-8. The plates were moved from the yard to Building 12 and from Building 15 to the welding platforms and slips via U. S. Navy-owned rail lines	PCBs were removed (referred to as operational area 2 in Envirostor Database). Walls, floors, and asphalt driveways were wipe sampled. Arochlor 1260 results before cleanup ranged, from 3 to 229 ug/wipe in Samples taken from the floor area (asphalt floor) ranged from non-detect to 62 parts ppm per million. After decontamination, confirmation samples ranged from less than 1 ug/wipe to 32. The asphalt confirmation samples were all within residential cleanup levels. (Aroclor 1260 was 220 ug/wipe area for residential, 1,000 ug/wipe area for industrial) Was used by City Tow for damaged auto storage in 2001. A hydraulic accumulator and 4’ x 16’ return tank were located on the northwest corner of the	Auto Return. Utility room housing a PCB-containing-transformer is present along the northern exterior wall of the building.

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				building.	
Building 15 (Layout Yard)	Building 15 stands at the south end of and is part of the Building 12 Complex	Constructed in 1944. Measures 242' 8" x 71' 7", with an interior area of 17,134 square-feet. flat roof of wood	The Layout Yard was intermediate staging area for the steel plates of a vessel's hull used for hull construction in Slips 5-8. As the plates left Building 12 adjacent to the north, they were arranged, numbered, and checked against the molds and plans.	Was used by City Tow for Auto Storage in 2001. Large "burning tables" were present in 1944 in this building	The building is used by Auto Return for the storage of oily-waste drums.
Building 16 (Stress Relieving Building)	This Building is south of Building 15.	This two-story gabled warehouse measures 50'-10" by 152'-2" in plan and 45'7" in height. It contains a total of 7,588 square-feet. There is a large industrial furnace along the western side of the hydraulic actuators to tightly seal the furnace wrap around the door's perimeter. A chimney stands along the southern side, and numerous exposed mechanical systems envelop the north and south elevations of the furnace.	It was constructed in 1941 specifically for the WWII effort. The Stress Relieving Building was used for hull construction at the Building 12 Complex. Stress relieving involved re-heating the bond juncture, burning the ridge and inserting a splint or "strong back" mechanically and re-welding the joint in a controlled environment.	Building had two furnaces along the western portion of the building and two pre-heat rooms on the north.	The building is currently unused and vacant.
Building 25 (Washroom and Locker Room)	Building 25 stands stood in a courtyard created by three other buildings (15, 16, and 32,). The northern end attached to Building	This single-story, steel-frame, gable-roofed industrial building with corrugated metal-clad walls measures 51'-6" long by 29' wide by 19' tall, and contains1,407 square-feet. Built in 1941.	Bathroom, wash facilities and a locker room.	This building contains shower, bathroom, and locker facilities	The building is unused.

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	15.				
Building 32 (Template Warehouse, 1941)	To the west of Building 25, its northern end attaches to Building 15.	Constructed in 1941, this single-story, semi-attached, rectangular warehouse with a gable roof is of steel frame construction with corrugated metal-clad walls. It measures 100' long by 50' wide by 32' high, and contains 4,900 square-feet. The interior ground floor has been repaved with asphalt.	The Template Warehouse, Building 32, stored wooden templates used in shaping steel hull plates at the Building 12 Complex.	-	Auto-Return company currently, leases the area.
Former Building 48 – (Boiler House and Pickling Plant)	This former building was east of Building 16.	Erected in 1941. It measures 28' long by 12' wide by 11-10' high, and contains 336 square-feet.	This was the Boiler House and Pickling Plant	In the southern portion of the building, a boiler was present along the western wall followed by six pickling tanks. Two are labeled as containing water. The others contained lye, hydrochloric acid, sulfuric acid, and lime. Adjacent to the tanks was a spray gun painting area and two welding platforms.	Not applicable – historic building. The area is currently a parking lot.
Lot west of Building 12 Complex	Paved parking area to the west of Building 12 Complex	-		The plate house office was west of Building 12 in 1944. Steel Storage was pictured to the west of the Building in the 1959 Sanborn map.	Used for vehicle parking by Auto Return

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Building/Area	Location	Description	Historical Use (per Port Historical Nomination unless otherwise specified)	Historical Details (per 1944 Bethlehem As-Builts unless otherwise specified)	Current use/ Reconnaissance observations.
				PG&E parcel known as the Hoedown Yard is adjacent. Elevated levels of arsenic have been documented in near surface soils to a maximum concentration of 530 mg/kg at 2.8 feet bgs. Concentrations decrease with depth and drop to background levels or non-detect by approximately 5 feet bgs. According to the RWQCB, the source of the arsenic is unknown. The area is currently paved and bermed, limiting surface water flow to the Site.	
Building 66/60/31 (Welding Shed)	To the northeast of Building 12	Constructed in 1945 on land that was formerly part of the Pacific Rolling Mills lands. Large, rectangular plan, two-story, steel frame shed with corrugated metal siding measures approximately 220' long by 105' wide and covers 23,100 square-feet. Along the west elevation, an attached men's locker room, measuring approximately 15' x 60', sits outside the main bay of Building 66.	Building 66 was used for welding pre-assemblies and other hull components during hull construction at the Building 12 Complex and Slips 5-8. Most of the yard was used for the production of war vessels. This open building sheltered outdoor activities so that the welding work would not have to depend on good weather.	Small aboveground tank was present along western elevation. Building formerly housed car crusher. Remediation of area occurred in 2000-2004. Used by City Tow as car-crushing, scrap metal storage with subsurface fluid drainage areas in 2001. Two above-ground	This structure is currently used for vehicle storage by Auto Return, the city's towing contractor.

Table 1
Historical Summary and Key Environmental Data
Pier 70 Phase 1 Environmental Site Assessment

Building/Area	Location	Description	Historical Use (per Port Historical Nomination unless otherwise specified)	Historical Details (per 1944 Bethlehem As-Builts unless otherwise specified)	Current use/ Reconnaissance observations.
				storage tanks were present in 2001 Phase 1.	
Former Building 3 - Machine Shop #2	This former building was in the area between Buildings 2 and 66	Steel and wood building measured 310-6'-8" long by 132'-6" wide by 77" tall, and contains 42,271 square-feet.	Listed as government owned in 1944 and constructed in 1884, 1901, 1941. It was demolished between 1963 and 1977.	Building 3 held typical machine shop equipment. Cranes, an elevator, and transformers were present.	Not applicable – historic structure. The area is currently occupied by a parking lot.
Adjacent Areas					
Building 23 Boiler House Testing	Three small structures abut the eastern end of Building 113 – and are (from north to south) Buildings 118, 23, and 24.	Building 23 is a corrugated sheet metal-clad shed addition to Building 113.	Constructed in 1941	Listed as "government owned" in 1941. Prior owned listed as Columbia Steel Company. Steam boiler on southwest corner. Two storm drains to sewer.	No access during Site visit. Crane and steel plates were visible.
Building 24 (Bethlehem Steel Co. Washroom and Locker Room)	Building 24 stands at the east end of Building 113 and shares its western wall with Building 23	This one-story, exposed concrete building measures 38'-8" long by 15'-6" wide by11'-6" tall, and contains 519 square-feet.	This building originally functioned as a washroom and locker room for the Building 113. It was first installed in 1914 and upgraded in 1936 and 1941.	-	This building is currently unused. Reportedly there was a fire in this building.
Building/ Location 118	Oil Tanks		Listed as owned by Bethlehem Steel in 1937	Both a TetraTech report from December 1997 and Port records indicate that four underground storage tanks were removed from this area. USTs 104 and 105 were 11,280 gallon USTs that held heating oil. These tanks were removed in 1988 and received closure from the	Concrete foundation was present. Grass and weeds covered the area.

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Historical Summary and Key Environmental Data
Pier 70 Phase 1 Environmental Site Assessment

Building/Area	Location	Description	Historical Use (per Port Historical Nomination unless otherwise specified)	Historical Details (per 1944 Bethlehem As-Builts unless otherwise specified)	Current use/ Reconnaissance observations.
				SFDPH in December 2000.	
Building 14 – Boiler shop and Heavy Warehouse	Building 14 stands east of the complex created by Buildings 113/114, 115/116 and	Built in 1941, Building 14 is a double-gable metal structure measuring 140' x 116'-6" in plan by 66" tall, containing 15,969 square-feet. Walls are corrugated metal, and the floor is asphalt. A 20-ton crane with cab runs along the south side.	Historically functioned as a Heavy Warehouse where equipment was stored for work on heavy machinery in Building 113 and for outfitting ships with mechanical and propulsion systems. A U. S. Navy-owned rail line transported materials from the warehouse to Slips 5-8.	Gun test base was present in the northeastern portion of the building. A transformer platform was located on the northeastern portion of the building. Was used by a moving and storage building for furniture storage in 2001. Hazardous waste storage for San Francisco Drydocks was located to the open area west of Building 14. 1914 Sanborn map shows 4,000 barrel fuel oil tank enclosed in 8'brick wall in Building 14 area or adjacent roadway to the east. Agency document indicate leaking transformer were stored in the building. San Francisco Drydock used the building for hazardous waste and material storage.	The building is currently used for storage by the Port's maintenance division.
Building 113 (Machine Shop No. 1)	South of 20th Street	The eastern portion was completed in 1885, and the	The eastern portion originally housed the	Building 113 was used by San Francisco	Some equipment was still present in the

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Historical Summary and Key Environmental Data
Pier 70 Phase 1 Environmental Site Assessment

Building/Area	Location	Description	Historical Use (per Port Historical Nomination unless otherwise specified)	Historical Details (per 1944 Bethlehem As-Builts unless otherwise specified)	Current use/ Reconnaissance observations.
		western in 1886. The two structures were joined by a connector in 1914. Two-block long industrial structure consists of the two original unreinforced brick buildings, and the central reinforced concrete connector. It measures 492' long by 175'-6" wide by 62' tall, and contains 89,686 square-feet of floor space.	blacksmith and boiler shop and the western portion originally housed the machine shop. End-grain wood blocks, roughly six inches square and covered with asphalt, pave the floor. By 1945, the entire Building 113 served as a Machine Shop Some shipyard offices were located in the basement of the Boiler Shop in the eastern portion of the building. The southwest corner of the Machine Shop had a brass foundry, copper shop, and tool room. An engine room was at the southeast corner of the machine shop.	Drydock as a machine shop in 2001.	building. Small oily areas were present on the floor in many areas of the building. A work pit was present on the eastern portion of the building.
Building 114 (Foundry and Foundry Furnace)	South of the western portion of Building 113. The interior of Building 114 is separated from that of 113 by a brick wall.	Building 114 measures 200' long by 40'-6" wide and contains approximately 8,000 square-feet of floor space. The floor is asphalt-paved. Rail lines run across the center of the building transversely, connecting to both Buildings 113 and 115. There are also 10 ton cranes, and several curbs and platforms that once held ovens, and furnaces.	Workers used large cranes and cupolas (round furnaces) capable of melting tons of iron, and used large core ovens, and pits for making castings of molten iron or steel. The main molding pit for making the largest metal castings was 14 feet in diameter and 14 feet deep. A second pit was 9 feet in	Building 114 was storing the foundry furnace in 2001. The 1886 Sanborn Map shows that the south end of the foundry had several functional features: a core room with core ovens at the southwest corner, three cupolas (round furnaces) on an iron floor in the center of the south end,	Used for storage by Port Maintenance.

Table 1
Historical Summary and Key Environmental Data
Pier 70 Phase 1 Environmental Site Assessment

Building/Area	Location	Description	Historical Use (per Port Historical Nomination unless otherwise specified)	Historical Details (per 1944 Bethlehem As-Builts unless otherwise specified)	Current use/ Reconnaissance observations.
			diameter and 10 feet deep.	and a coke shed at the southeast corner. From 1899-1905, however, the open space south of the foundry had a rail line, a Flask Storage Yard behind the Foundry's western portion, and a scrap iron yard behind its eastern portion.	
Building 115 (Foundry)	Located in between Buildings 114 and 117.	Constructed in 1916/1917, building 115 is one story tall and measures approximately 60' wide by 200' long.	Building 115 was constructed as a new foundry, adjacent to the original shipyard foundry, Building 114.	Building 115 is identified on the 1945 Bethlehem Steel General Plan as a foundry mold room building, in contrast to Building 114, which is identified as a foundry furnace building. Pouring pit in northeast corner. The 1959 Sanborn identifies this as a maintenance building. Was used by San Francisco Drydock as a foundry, molding room, and storage area for sandblast waste from operations during 2001 Phase 1	Used for Port Maintenance.
Building 116 (Warehouse and	South of Building115	Building 116 is a double-bay building measuring 120' by	1n 1945 Building 116 served a dual function: an	Was used by City Tow as a storage area in 2001	Used for Port Maintenance.

Table 1
Historical Summary and Key Environmental Data
Pier 70 Phase 1 Environmental Site Assessment

Building/Area	Location	Description	Historical Use (per Port Historical Nomination unless otherwise specified)	Historical Details (per 1944 Bethlehem As-Builts unless otherwise specified)	Current use/ Reconnaissance observations.
Ordnance Repair)		200'. With a total of 22,408 square feet.	ordnance repair shop in the northern half and a warehouse in the southern half.		
Building 117 (SF Shipyard Training Center – Warehouse No. 9)	Located between the remnants of Irish Hill to the south and Building 116	Constructed in 1937/41, Building 117 is a wide, one-story warehouse. It measures 240' long, by 131' wide, by 45'-6" high at the gable, and contains 30,940 square-feet .	Used as a warehouse.	The 1959 Sanborn identifies this as wire rope storage. Used by San Francisco Drydock as a sandblast pit. Port Plumbing supervisor stated that a septic tank had been installed lately prior to fixing the sewer lines. On former location of Coke Pile. Four USTs were reportedly located east of Buildings 116 and 117, as reported in the 1998 Phase I. The first two, a 5,000 gallon and 2,500 gallon tank, were removed in 1990. While analytical data was not found, SFDPH inspector notes indicated a hydrocarbon odor. The second two, a 2,160 gallon and a 576 gallon tank, were closed in	Currently used by Delancey Street foundation as a warehouse

Table 1
Historical Summary and Key Environmental Data
Pier 70 Phase 1 Environmental Site Assessment

Building/Area	Location	Description	Historical Use (per Port Historical Nomination unless otherwise specified)	Historical Details (per 1944 Bethlehem As-Builts unless otherwise specified)	Current use/ Reconnaissance observations.
				place. Except for acetone and methylene chloride, soil samples did not contain detectable levels of TPH, volatile organic compounds, semi-volatile organic compounds or metals.	

(1) Amec, 2011
(2) http://pier70sf.org
(3) E&E, 2001

PIER 70 RISK MANAGEMENT PLAN
Pier 70 Master Plan Area
San Francisco, California

Prepared For:
Port of San Francisco
San Francisco, California

25 July 2013
Project No. 730496301

Treadwell&Rollo
A LANGAN COMPANY

Table 1
Cleanup Levels for Soil Gas
Pier 70 Master Plan Area
Risk Management Plan
San Francisco, California

Chemical	Vapor Pressure Limit (µg/L)	Cleanup Level for a Resident (µg/L)	Cleanup Level for a Commercial Worker (µg/L)	Cleanup Level for a Recreational User (µg/L)
Volatile Organic Compounds (VOCs)				
Acetone	1.6E+09	2.5E+04	2.6E+05	1.7E+07
Benzene	4.1E+08	8.3E-02	1.0E+00	6.4E+01
2-Butanone	5.1E+08	5.2E+03	5.3E+04	4.3E+06
Carbon Disulfide	1.5E+09	7.5E+02	7.7E+03	5.4E+05
Chloroform	1.2E+09	4.1E-01	5.1E+00	2.9E+02
Dichlorodifluoromethane	3.9E+09	2.4E+02	2.5E+03	2.1E+05
1,1-Difluoroethane	2.7E+09	3.8E+04	3.9E+05	2.8E+07
Ethanol	2.0E+08	4.6E+03	4.7E+04	3.0E+06
Ethylbenzene	5.4E+07	1.1E+00	1.3E+01	8.7E+02
4-Ethyltoluene	1.5E+07	5.0E+02	5.1E+03	4.3E+05
Tetrachloroethene	1.5E+08	4.6E-01	5.7E+00	3.8E+02
Toluene	1.4E+08	3.1E+02	3.2E+03	2.4E+05
1,1,1-Trichloroethane	9.4E+08	1.1E+03	1.1E+04	8.9E+05
Trichloroethene	6.2E+08	1.3E+00	1.6E+01	1.0E+03
Trichlorofluoromethane	4.4E+09	7.2E+02	7.5E+03	5.6E+05
1,2,4-Trimethylbenzene	1.4E+07	9.1E+00	9.4E+01	8.0E+03
1,3,5-Trimethylbenzene	4.8E+05	9.1E+00	9.4E+01	8.1E+03
Vinyl Acetate	4.2E+08	2.1E+02	2.2E+03	1.6E+05
m,p-Xylene	5.8E+07	7.8E+02	8.0E+03	6.3E+05
o-Xylene	3.8E+07	7.2E+02	7.5E+03	5.6E+05
Semi-Volatile Organic Compounds (SVOCs)				
Naphthalene	6.1E+05	9.0E-02	1.1E+00	8.1E+01
Total Petroleum Hydrocarbons (TPH)				
TPH-Gasoline	----	4.9E+02	5.1E+03	Unlimited

Notes:

---- = Value not calculated: vapor pressures for individual fractions are presented in Table C-23 of Remedial Action Plan (T&R, 2012).

When RBTC is listed as Unlimited, the Hazard Index is less than 1 even when the vapor concentrations of all hydrocarbon fractions are at their maximum levels.

Values are the lower of the cancer or noncancer endpoint for each population evaluated.

Exposure pathways for soil gas Cleanup Levels include vapor migration to indoor air for residents and workers, and vapor migration to ambient air for the recreational scenario.

Table 2
Cleanup Levels for Groundwater
Pier 70 Master Plan Area
Risk Management Plan
San Francisco, California

Chemical	Water Solubility Limit (µg/L)	Cleanup Level for a Resident (µg/L)		Cleanup Level for a Commercial Worker (µg/L)		Cleanup Level for a Recreational User (µg/L)	
Volatile Organic Compounds (VOCs)							
Acetone	1.0E+09	4.4E+07		4.6E+08		1.7E+11	a
Benzene	1.8E+06	1.4E+00		1.7E+01		6.6E+03	
Bromobenzene	4.5E+05	2.2E+03		2.3E+04		1.1E+07	a
2-Butanone	2.2E+08	7.3E+06		7.5E+07		3.2E+10	a
sec-Butylbenzene	3.9E+03	5.4E+05	a	5.6E+06	a	2.5E+09	a
tert-Butylbenzene	3.0E+04	2.0E+03		2.1E+04		1.0E+07	a
Carbon Disulfide	1.2E+06	2.0E+03		2.1E+04		9.4E+06	a
Chloroform	7.9E+06	9.5E+00		1.2E+02		4.5E+04	
Chloromethane	5.3E+06	6.0E+02		6.2E+03		2.7E+06	
Cumene	6.1E+04	4.3E+03		4.4E+04		2.2E+07	a
p-Cymene	2.3E+04	3.2E+03		3.3E+04	a	1.6E+07	a
1,1-Dichloroethane	5.1E+06	2.7E+01		3.4E+02		1.3E+05	
1,1-Dichloroethene	2.2E+06	2.3E+02		2.3E+03		1.1E+06	
Ethylbenzene	1.7E+05	1.4E+01		1.8E+02		7.0E+04	
Methyl tert-butyl ether	5.1E+07	1.1E+03		1.4E+04		5.2E+06	
Methylene Chloride	1.3E+07	8.4E+01		1.0E+03		3.9E+05	
n-Propylbenzene	6.0E+04	4.4E+03		4.5E+04		2.2E+07	a
Toluene	5.3E+05	4.5E+03		4.7E+04		2.2E+07	a
1,2,4-Trimethylbenzene	5.7E+04	1.8E+02		1.8E+03		9.1E+05	a
m,p-Xylene	1.8E+05	1.1E+04		1.1E+05		5.3E+07	a
o-Xylene	1.8E+05	1.5E+04		1.5E+05		7.0E+07	a
Xylenes (total)	1.8E+05	1.1E+04		1.1E+05		5.3E+07	a
Semi-Volatile Organic Compounds (SVOCs)							
Acenaphthylene	1.6E+04	7.8E+03		8.1E+04	a	3.9E+07	a
Naphthalene	3.1E+04	2.3E+01		2.9E+02		1.2E+05	a
Phenanthrene	1.2E+03	2.2E+04	a	2.3E+05	a	1.1E+08	a
Total Petroleum Hydrocarbons (TPH)							
TPH-Diesel	----	Unlimited		Unlimited		Unlimited	
TPH-Gasoline	----	2.0E+02		3.0E+04		Unlimited	
TPH-Residual (Oil and Grease)	----	Unlimited		Unlimited		Unlimited	

Notes:
a - The Cleanup Level is greater than the water solubility limit, therefore it should not be possible to have cancer risks greater than 1x10-6, or non-cancer hazards greater 1.
---- = Value not calculated: vapor pressures for individual fractions are presented in Tables C-25 to C-27 of the Remedial Action Plan (T&R, 2012).
When RBTC is listed as Unlimited, the Hazard Index is less than 1 even when the dissolved concentrations of all hydrocarbon fractions are at their maximum levels.
Values are the lower of the cancer or noncancer endpoint for each population evaluated.
Exposure pathways for groundwater Cleanup Levels include vapor migration to indoor air for residents and workers, and vapor migration to ambient air for the recreational scenario.

Table 4
Soil Import Criteria
Pier 70 Master Plan Area
Risk Management Plan
San Francisco, California

Chemical	Environmental Screening Levels[1]	Background Concentrations Soil	Background Concentrations Serpentinite Rock
Volatile Organic Compounds (VOCs)	**(mg/kg)**	**(mg/kg)**	**(mg/kg)**
Acetone	60,000		
Benzene	0.74		
2-Butanone	--		
Butylbenzene	--		
Carbon Disulfide	82		
Carbon Tetrachloride	0.12		
Chloroform	1.1		
p-Cymene	--		
1,2-Dichloroethane	0.44		
trans-1,3-Dichloropropene	0.27		
Ethylbenzene	4.8		
2-Hexanone	21		
Methyl Acetate	7,800		
4-Methyl-2-pentanone	530		
Methylene Chloride	9.9		
n-Propylbenzene	340		
Tetrachloroethene	0.55		
Toluene	1,000		
1,1,1-Trichloroethane	11,000		
Trichloroethene	1.7		
Trichlorofluoromethane	79		
Vinyl Acetate	97		
m,p-Xylene	600		
o-Xylene	600		
Xylenes (total)	600		
Semi-Volatile Organic Compounds (SVOCs)			
Acenaphthene	3,400		
Acenaphthylene	--		
Anthracene	23,000		
Benzo(a)anthracene	0.38		
Benzo(a)pyrene	0.038		
Benzo(b)fluoranthene	0.38		
Benzo(g,h,i)perylene	--		
Benzo(k)fluoranthene	0.38		
bis(2-Ethylhexyl)phthalate	160		
Butylbenzylphthalate	260		
Chrysene	3.8		
Dibenz(a,h)anthracene	0.11		
Fluoranthene	2,300		
Fluorene	3,100		
Indeno(1,2,3-cd)pyrene	0.38		
2-Methylnaphthalene	230		
Naphthalene	3.1		
Phenanthrene	--		
Pyrene	3,400		
Pesticides/Polychlorinated Biphenyls			
Polychlorinated biphenyls	0.22		
gamma-Chlordane (chlordane ESL)	0.44		
2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.0000045		
Endosulfan I (Endosulfan ESL)	470		
Heptachlor epoxide	0.061		
beta-Hexachlorocyclohexane	0.27		
Metals			
Aluminum	7,700	9.05 [2]	12- 14[6]
Antimony	30		
Arsenic *	9.5	11.5 [3]	0.8- 10[6]
Barium	5,200	314.4 [2]	0.9- 11.4[6]
Beryllium	150	0.71 [2]	0.5 [6]
Cadmium	1.7	2.2 [2]-3.14[5]	0.5 [6]
Chromium (total)	--	81 [4]	1,300 [4]
Chromium VI	17	NA	NA
Cobalt	660	11 [4]	140 [4]
Copper	3,000	124 [2]-175 [5]	5- 16.6 [6]
Cyanide (total)	37		
Lead	150	8.99 [2]	0.2- 36.1[6]
Manganese	180		
Mercury	18	2.28 [2]	0.1[6]- 0.2[6]
Molybdenum	380	2.68 [2]	5 [6]
Nickel	1,600	50 - 2,930[5]	499- 1910[6]
Selenium	380	0.5 [4]	5 [6]
Silver	380	1.43 [2]	5 [6]
Thallium	5	1 [4]	1.6 - 3 [6]
Vanadium	530	83[2]-117[5]	5.0- 15.6[6]
Zinc	23,000	110[2]-423[5]	20.8- 51.7[6]
Total Petroleum Hydrocarbons (TPH)			
TPH-Diesel	240		
TPH-Gasoline	490		
TPH-Residual (Oil and Grease)	10,000		

Notes:
mg/kg - milligrams per kilogram
Values are the lower of the cancer or noncancer endpoint for each population evaluated.
Exposure pathways for soil Cleanup Levels include dermal contact with soil, ingestion of soil, and inhalation of wind-blown particulates.
***** As presented in the Remedial Action Plan (T&R, 2012), the background arsenic level is 9.5 mg/kg.
-- - Not Established

USEPA Regional Screening Levels for Residential Land Use, May 2013. Available Online at: http://www.epa.gov/region9/superfund/prg/
California EPA Human Health Screening Levels for Residential Land Use, January 2005

[1] - Water Board Environmental Screening Level from Regional Water Quality Control Board Screening for Environmental Concerns at Contaminated Sites (Table K-1 - Soil Direct Contact Residential Land Use) May 2013.

[2] - Background concentrations from *Draft Final Remedial Investigation/Feasibility Study Report for Parcel E-2, Hunters Point Shipyard, San Francisco, California*. Engineering Remediation Resource Group (ERRG), February 2009.

[3] - Arsenic background concentration from *Addendum - Work Plan for Additional Soil Investigation, Hoe Down Yard Pacific Gas and Electric Company, Potrero Power Plant Site, San Francisco, California*. AMEC Geomatrix, 9 July 2009.

[4] - Background concentrations from *Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water. Presidio of San Francisco, California*, Presidio Trust, October 2002. Soil background concentrations from Beach Dune Sand.

[5] - Background concentrations from *Memorandum regarding Comparison of Ambient Levels of Arsenic, Cadmium, Copper, Manganese, Nickel, Vanadium, and Zinc Present at Parcel A with Four Non-HPS Sites.* T&R, 12 October 2004.

[6] - Background concentrations from *Metals Concentrations in Franciscan Bedrock Outcrops, Hunters Point Shipyard, San Francisco, California.* Tetra Tech, Inc. 17 March 2004.
* Represents background concentration presented in the RAP (Treadwell & Rollo 2012)
-- Not Established
EPA - United States Environmental Protection Agency