



San Francisco Department of Public Health

Grant Colfax, MD
Director of Health

City and County of San Francisco
London N. Breed
Mayor

Date: June 17, 2019

To: Assistant Chief Robert Moser
Deputy Chief Gregory Yee
Administration Bureau, San Francisco Police Department

From: Kevin Milani, MPH, CIH
Industrial Hygienist

A handwritten signature in black ink that appears to read "Kevin Milani".

Subject: Comprehensive Health & Safety Site Assessment Report – Crime Lab & Property Control Warehouse (Building 606)
San Francisco Police Department Facility, Hunters Point Naval Shipyard (HPNS), San Francisco, California.

Attached, please find the San Francisco Department of Public Health Occupational Safety and Health Division Comprehensive Sampling report for Hunters Point Naval Shipyard Building 606.

If you have any questions, or require additional information, please do not hesitate to contact me at 415-554-2760.

cc: Edward Ochi, Director, SFDPH OSH,
Mark Matyjas, Senior Industrial Hygienist, SFDPH OSH,
John Sanchez, Forensic Services Director, SFPD,
Mark Powell, Crime Laboratory Manager, SFPD,
Anthony Tave, Facilities, SFPD,
Dr. Richard Martin, Physician, SFPD



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Executive summary:

In response to San Francisco Police Department (SFPD) Crime Lab and Property Control employee concerns, the San Francisco Department of Public Health (SFDPH) Occupational Safety and Health Division (DPH OSH) conducted and/or oversaw a series of safety and health evaluations at the SFPD's Hunter's Point Naval Shipyard (HPNS) Building 606 (Bldg. 606) facility. Based on input from Bldg. 606 employees, the evaluation involved the SFPD, SFDPH, the San Francisco Public Utilities Commission (SFPUC), and independent consulting companies specializing in environmental engineering and health physics (radiation assessment) who worked under the oversight of the SFDPH.

The report is organized as follows:

<u>Employee Concerns</u>	<u>Report Section</u>
Indoor Air Quality/HVAC operation	Indoor Air Quality/ HVAC Operation
Airborne asbestos & lead	Air Sampling Assessment (Airborne Asbestos & Lead)
Drinking water quality	SFPUC Drinking Water Quality
Crawl space standing water characterization	Crawl space Standing Water Characterization
Waste characterization of soil pile (for disposal)	Disposal Characterization of Soil Pile
Radiological screening survey (while at work & traveling through HPNS to and from Bldg. 606).	Radiological Screening Survey

Key Findings:

1. Lead was detected in two samples collected from faucets in Bldg. 606, with one of the faucets, located in the 1st Floor Men's Shower Room exceeding the Action Level. While low levels of lead were also detected in the water samples collected outside the building, sink fixtures inside Bldg. 606 and/or building plumbing components (i.e., soldered joints) may have contributed to the elevated levels. As bottled drinking water has historically been provided, and continues to be provided, this result is not considered to require immediate action.
2. No airborne asbestos or lead was detected.
3. Building ventilation systems effectively filtered outside air and conditioned the air to meet comfort parameters.
4. Soil in a pile stored behind Bldg. 606, meets general landfill disposal criteria and does not require special handling or controls
5. There is no indication of radiological contamination or other radiation concerns within or in the immediate vicinity of Bldg. 606.

Based on the assessments conducted, there is no evidence of potential health hazards in Building 606 associated with the Hunters Point Naval Shipyard.

Introduction

San Francisco Police Department (SFPD) Crime Lab employees stationed at Building 606 (Bldg. 606) expressed concerns about occupational exposure to hazards while working at Hunters Point Naval Shipyard (HPNS). Most of these concerns are attributed to the ongoing and historical cleanup activities at HPNS. In July 2018, employee concerns increased stemming from media coverage of HPNS cleanup, and specific coverage of Bldg. 606 and the history of SFPD occupancy.

Site Background

The SFPD Crime Lab is housed at 606 Manseau Street, located on HPNS, in San Francisco's Bayview District. SFPD has occupied this building continuously, in varying capacities since 1997. Bldg. 606 was erected in the late 1980's. It is situated in the same location as historic Navy Building 503 – a Navy facility for laundering clothing worn during radiological research. When building 503 was demolished, associated sewer piping and some of the underlying soil was also removed from the site. New fill was brought in to accommodate the construction of the new building, Bldg. 606.

Bldg. 606 is an approximately 80,000 square foot building comprised of a 2-story lab/office space in the front (North Section) and a large open-platformed, high-ceilinged warehouse in the rear. Currently Bldg. 606 houses the SFPD Crime Lab and SFPD Property Control Division. Historically, the number of SFPD occupants at Bldg. 606 exceeded 100 employees when the Honda Unit, Tactical Unit and Bomb Squad/EOD units were housed here. They have since been relocated to the SFPD DeHaro site. Currently, there are roughly 44 full-time SFPD employees who work at this site, between the Crime Lab and Property Control. No other units are currently housed at Bldg. 606.

Bldg. 606 Health & Safety Assessment

On July 27, 2018, SFPD command staff, DPH-OSH, and DPH Environmental Health, held a meeting with current Bldg. 606 employees. Employees expressed health & safety concerns due to HPNS cleanup activities and recent media attention. During this meeting, updates on the status of the HPNS cleanup were presented by DPH Environmental Health. Employees were asked to present their specific concerns and what types of testing they would like to have conducted.

SFPD command staff requested that DPH-OSH develop a comprehensive sampling plan to address the following Bldg. 606 employee concerns:

- Indoor Air Quality/HVAC Operation,
- Airborne asbestos & lead,
- Drinking water quality
- Crawlspace standing water characterization
- Waste characterization of soil pile (for disposal), and
- Radiological screening survey (while at work & traveling through HPNS to and from Bldg. 606).

Additionally, SFPD command staff requested that DPH-OSH present preliminary results/findings, to Bldg. 606 occupants, prior to release of the comprehensive final report. The results/findings were presented to staff in two separate presentations: September 28, 2018 and December 10, 2018.

Report Format

This report is divided into sections to address each of the employee concerns:

<u>Employee Concern</u>	<u>Report Section</u>
Indoor Air Quality/HVAC operation	Indoor Air Quality/ HVAC Operation
Airborne asbestos & lead	Air Sampling Assessment (Airborne Asbestos & Lead)
Drinking water quality	SFPUC Drinking Water Quality
Crawlspace standing water characterization	Crawlspace Standing Water Characterization
Waste characterization of soil pile (for disposal)	Waste characterization of soil pile
Radiological screening survey (while at work & traveling through HPNS to and from Bldg. 606).	Radiological Screening Survey

Each section is laid out as a stand-alone document, providing:

- Background,
- Methods of assessment,
- Applicable standards and guidelines,
- Findings,
- Discussion of findings and conclusions, and
- Recommendations (if applicable)

Following the six sections are a series of attachments of supporting documents, laboratory reports, and in the case of the radiological assessment, the complete Radiological Screening Survey report with its attachments. In the interest of providing an easy to read comprehensive report, the attachments were placed at the end of the written report so that the sections could be read sequentially.

Indoor Air Quality/ HVAC Operation

Introduction

An indoor air quality assessment (IAQ) was conducted at Bldg. 606 to address employee concerns for potential airborne particulate contaminants associated with shipyard remediation and construction being brought inside the building by the heating, ventilation, and air conditioning (HVAC) system. In addition to airborne particulates, employees expressed concerns that settled dust within the warehouse area could pose an occupational health concern. To address concerns an indoor air quality assessment and settled dust sampling was conducted by DPH-OSH.

Bldg. 606 is equipped with mechanical (fan-driven) ventilation systems. Air handlers (fans) are housed on the mezzanine level above the property warehouse. These fans draw outside air from intake vents located around the perimeter of the building. Air is drawn through filters, passed across heat exchangers to heat or cool the air to meet building occupant needs, and then delivered to various rooms and spaces via ducting. Air is extracted (exhausted) from rooms using a separate set of fans which vent the air out of the building via exhaust stacks. Unlike many commercial buildings exhausted air is not partially mixed with intake air and recirculated; this “single pass” arrangement would typically be expected to provide better quality air to building occupants.

Methods:

IAQ sampling was conducted on August 24, 2018 using two direct reading instruments, a TSI 7575 Indoor Air Quality meter and a Lighthouse 3016 IAQ Particle Counter. The instruments were used to collect spot measurements from various locations within Bldg. 606, as well as outside the building for samples to serve as reference (comparison) points. Instruments were manufacturer calibrated with certifications valid through June 2019.

The TSI 7575 measures temperature, relative humidity, carbon monoxide (CO) and carbon dioxide (CO₂). Carbon monoxide is used as a possible indicator of combustion product entrainment. Carbon dioxide is a component of exhaled breath and is measured as an indicator as to whether ventilation systems are adequately purging rooms or areas.

Particle counting was conducted using the Lighthouse 3016 IAQ to assess the efficacy of the building air filters and to identify if significant outdoor air infiltration was occurring. The Lighthouse 3016 IAQ uses a laser assembly to count particles in air drawn into the instrument with a sampling pump; the optics within the instrument allows particle counts to be divided into size ranges from 0.3 microns to 10.0 microns. The instrument uses this particle size data to estimate particulate matter (PM) concentrations. PM 10 and PM 2.5 concentrations which are commonly used as air quality indicators. PM10 is particulate matter that is 10 microns in diameter or smaller. PM 2.5 is particulate matter that is 2.5 microns in diameter or smaller.

Settled dust sampling was conducted using visual assessment and bulk sampling techniques to collect materials present on horizontal surfaces within the warehouse. Sampling locations were selected to be representative of the space and conditions. Dust samples were collected using nitrile gloves, clean, blank cardstock (as a scrapping tool) and centrifuge tubes. Approximately 5"x5" areas were selected and all dust within that area was collected with the cardstock and placed into the centrifuge tube. Used gloves and sampling items were discarded in between sampling locations to prevent cross contamination. Settled dust samples were analyzed using Polarized Light Microscopy

(PLM). Samples were analyzed by Forensic Analytical Laboratories located in Hayward, CA. Forensic Analytical is a National Voluntary Laboratory Accreditation Program (NVLAP) and American Industrial Hygiene Association (AIHA) accredited laboratory.

All laboratory areas were omitted from sampling due to potential issues of contaminating active lab work areas or crime scene samples. Comparison or reference area samples were collected in Room 109, the Conference Room/Library since it is supplied with air from the same HEPA filtered air handler as the 1st floor lab spaces.

Standards & Guidelines:

American National Standards Institute/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ANSI/ASHRAE) Standard 55 specifies conditions for acceptable thermal environments and is intended for use in design, operation, and commissioning of buildings and other occupied spaces. ANSI/ASHRAE Guidelines 62.1 and 62.2 are the recognized guidelines for ventilation system design and acceptable IAQ.

Table 1: Indoor Air Quality Parameters – ASHRAE guidelines

Variable	ASHRAE Recommended Guidelines
Carbon Dioxide (CO ₂) ppm*	700 ppm over outdoor ambient
Temperature (°F)	73-79°F (Summer)
Humidity (%RH)	<65% - to prevent fungal growth
Carbon Monoxide (CO) ppm*	No more than 3 ppm over outdoor ambient

*PPM = Parts Per Million

Findings:

Visual inspection of the interior of Bldg. 606 office/lab spaces did not reveal any observable settled dust/particulate. Some settled dust was observed on the tops of file cabinets, larger furniture items and on top of lockers in the men's and women's locker rooms. Visible dust and debris were present throughout the warehouse area. No notable odors were observed inside Bldg. 606.

The indoor air quality measurements, overall, were found to be equal to or lower than comparison outdoor levels. Measured indoor air quality parameters were within the normal ranges according the ANSI/ASHRAE guidelines pertaining to temperature, %RH, CO and CO₂. Indoor air quality data can be found in Attachment 1.

Particulate readings indoors were generally an order of magnitude lower than outdoor comparison readings. Inside Crime Lab/office areas, particle readings are ≤25% of outdoor particle levels. The areas/rooms supplied by HEPA filtered air were roughly ≤5% of outside comparison readings. The HVAC function and efficacy of filtration was confirmed with particle counts and compared to outside samples pre and post sampling. Property Control Warehouse particle readings were, on average, ≤50% of outdoor particle levels.

Tabular data of particulate results, as well a raw particle count data can be found in Attachment 2.

Settled dust samples analyzed by PLM were unremarkable. Results were reported to be indicative of general settled dust and can be found below in Table 2. Settled dust analytical data can be found in Attachment 3.

Table 2: Settled Dust Constituents – Bldg. 606

Settled Dust	Fibrous		Non-Fibrous	
Major (>10%)	Cotton Cellulose	Plant detritus Paper fibers	Iron Oxide Plastic Chips Epithelial Cells	Quartz Feldspars Metal chips
Minor (1-10%)	Mineral Wool Trichomes Paper fibers	Cotton Cellulose Hair	Epithelial Cells Other soil minerals Clear isotropics* Carbonate minerals Rubber (tire wear)	Paint chips Glass chips Insect parts Plant detritus Soot
Trace (<1%)	Synthetics Hair Pet Hair Leather	Mineral Wool Cotton Cellulose	Starch Iron Oxide Pollen Fungal Spores Plastic Chips Paint Chips Foam fragments Soot Mica Insect parts	Hornblende Diatoms Plant detritus Metal chips Quartz Feldspars Flyash Feathers Trichomes

* Clear isotropics may be glass chips or aluminum corrosion products.

IAQ Discussion & Conclusions:

The IAQ investigation did not identify site conditions, specific work activities or sources of contaminants. HVAC function was determined to be adequate.

There was one Particulate Material (PM) grab sample, in the property warehouse area, that was elevated. The reading was 141.63 µg/m³, on the PM 10.0 scale, which was 142% higher than outside concentrations (Particulate Material sample data is in Attachment 2). This elevation is most likely attributed to dry sweeping (general housekeeping activity) that was occurring in the vicinity, at the time the sample was collected. While this is an elevated reading, this is a spot or “grab sample” which is a snapshot in time, it is not representative of the “normal” or average PM levels throughout the space. This is evident by the remainder of the PM readings collected throughout the warehouse area.

Lab areas were not tested during this assessment due to risk of contamination of Crime Lab activities/evidence. Surrogate areas supplied with filtered air (HEPA) from the same air handler are represented by data collected in Room 109, the Conference Room/Library area. These particulate concentrations are representative of conditions inside the clean, lab space(s).

IAQ Recommendations

HVAC maintenance, inspections and routine filter changes should continue at regularly scheduled intervals.

Air Sampling Assessment (Airborne Asbestos & Lead)

Introduction

Air sampling was conducted at Bldg. 606 to address employee concerns about possible exposures to asbestos and lead. Sampling was conducted by DPH OSH with sample analyses performed by an accredited independent laboratory.

Methods

For the assessment two types of air samples were collected:

- Personal samples were collected from the “breathing zones” of employees who volunteered to wear sampling equipment throughout their workday. The breathing zone is defined to be within a one-foot radius of the sampling equipment wearer’s nose and mouth.
- Area samples which were collected at fixed locations selected to represent common or likely employee exposures. Area samples were collected at a height of 4.5-5.5 feet above floor level, at the height of the noses and mouths of most employees.

For the sampling, Bldg. 606 was split into two separate areas: the rear property warehouse area and the front crime lab area (2 floors). Each of these areas was sampled separately, for a period of three days, on August 28th-31st 2018, and again on September 4th-7th 2018, with sampling for asbestos and lead conducted on separate days due to differences in the sampling equipment and methods used.

One Bldg. 606 employee volunteered to wear the personal sampling equipment. On all days where personal monitoring occurred, the employee was given the air sampler in the morning. During lunch and breaks the sampler was left running and remained onsite in the employee’s office. The sampler was collected at the end of each work day. This individual did not leave the site during monitoring.

For asbestos, personal samples were analyzed in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7400, which uses Phase Contrast Microscopy (PCM) for analysis. The NIOSH 7400 method, which can be used to determine compliance with Cal/OSHA regulations for asbestos exposure, counts all fibers meeting defined dimensional requirements without differentiating between asbestos and non-asbestos fibers. Area samples were analyzed in accordance with the US Environmental Protection Agency (EPA) method defined in 40 CFR Part 763, commonly referred to as the AHERA (Asbestos Hazard Emergency Response Act) regulations method, which makes use of Transmission Electron Microscopy (TEM) with a combination of Selective Area Electron Diffraction and Energy Dispersive X-Ray Analysis to specifically identify asbestos structures.

Samples for lead were collected and analyzed in accordance with NIOSH Method 7082, which is commonly used to determine compliance with Cal/OSHA regulations for lead exposure. The NIOSH 7082 makes use of Flame Atomic Absorption Spectroscopy (AAS) to quantitate lead in samples.

Air samples for asbestos were collected on analytical laboratory-supplied 25-millimeter diameter, 0.45µM porosity mixed cellulose ester (MCE) filters mounted into three-part static-conductive polypropylene filter cassettes. Lead air samples were collected on analytical laboratory-supplied 37-millimeter diameter, 0.8µM porosity mixed cellulose ester (MCE) filters mounted into two-section polystyrene filter cassettes. Personal samples were collected by drawing air through the filters using SKC AirCheck 2000 Model 210-2002 battery powered personal sampling pumps. Static or “fixed location” samples were collected using a combination of SKC Air check battery operated pumps and

air sampling pumps powered by 110v outlets. Sampling pump airflow rates were measured before and after sample collection using a Bios Dry Cal DC-Lite Flow Meter which is classified to be a primary calibration method. During sampling pump flow rates were field verified using a calibrated rotameter, a secondary standard.

Samples were uniquely labeled, sealed in polyethylene bags, and sent to Forensic Analytical Laboratories located in Hayward, CA. Forensic Analytical is a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory for asbestos analysis and an American Industrial Hygiene Association (AIHA) accredited laboratory for lead analysis.

Standards and Guidelines

Cal-OSHA establishes 8-hour “Permissible Exposure Limits” (PELs) for lead (8 CCR 5198) and asbestos (8 CCR 5208). The PEL for lead is 50 $\mu\text{g}/\text{M}^3$ of air, with an Action Level of 30 $\mu\text{g}/\text{M}^3$. The PEL for personal samples for asbestos is 0.1 fibers/cubic centimeter (f/cc) of air with no Action Level. For area samples for asbestos the EPA uses a limit of 70 asbestos structures/square millimeter of sample filter area to determine when asbestos remediation is complete, and the area is safe for uncontrolled occupancy (“Clearance Limit”).

Findings

Personal and area samples for both lead and asbestos were below the standards and guidelines defined above. All samples were below the laboratory detection limits which are typically at least 4-10 times lower than the reference standards and guidelines.

Asbestos and lead sample results are provided in the tables located in Attachment 4. A copy of the Forensic Analytical Laboratory Reports and associated chains of custody are provided in Attachment 5 of this report. Sample location maps are provided in Attachment 6 of this report.

Discussion and Conclusions

As no asbestos or lead were detected in any of the samples collected, Bldg. 606 occupants are not at risk of exposures to either lead or asbestos during normal building operations and conditions.

Recommendations

None.

SFPUC Drinking Water Quality

Introduction

San Francisco Public Utilities Commission (SFPUC) was retained by SFPD to conduct water sampling and water chemistry analysis of the domestic water being supplied to Bldg. 606. At the request of SFPD, DPH-OSH and DPH Environmental Health worked collaboratively with SFPUC to develop an appropriate sampling strategy to address Bldg. 606 employee concerns about domestic (“drinking”) water quality and efficacy of exterior building water supply filter.

Methods

SFPUC assessed the existing piping diagrams of the city-wide water supply and its distribution through HPNS. SFPUC determined that Bldg. 606 is located at the terminus of the domestic water supply network. The closest SFPUC serviced water main is located at the intersection of Crisp Road and Palou Street, roughly 1-mile northwest of Bldg. 606, at the entry point to HPNS. The SFPUC water supply enters HPNS through HPNS/Navy domestic water supply systems. SFPUC also reviewed the Bldg. 606 as-built plumbing drawings to determine interior sampling locations.

The preliminary sampling was conducted on August 2, 2018 at three interior kitchen sinks and one at the point of entry to Bldg. 606. The SFPUC performed water chemistry and water quality assessment by collecting samples and analyzing them for:

- Iron,
- Copper,
- Microbial: E. Coli + Total Coliform,
- Turbidity,
- Conductivity,
- pH,
- Chlorine residual

Based on the preliminary sampling results, a comprehensive drinking water sampling plan was developed collaboratively by SFPUC, DPH Environmental Health and DPH-OSH. The interior sampling locations selected were based on Bldg. 606 staff concerns and SFPUC determinations of interior plumbing system layout. Along with water chemistry, testing was conducted for the following analytes:

- Pesticides/herbicides
- Metals (including Lead)
- Radionuclides
- Total Petroleum Hydrocarbon (TPH)
- Trihalomethanes (THM)
- Volatile Organic Compounds (VOCs)
- Semi-Volatile Organic Compounds (SVOCs)
- Total Organic Carbon (TOC)
- General Water Quality parameters (e.g., Temperature, pH, turbidity, Conductivity, Conductance, Alkalinity)
- Chlorine residual
- Silica

On September 26, 2018, samples were collected at two locations within Bldg. 606: the 1st floor men’s locker room commonly used for handwashing and showering (especially by employees of property control division), and the 2nd floor common area kitchenette, used for hand washing and washing of dishes/cutlery. The 2nd floor location was determined by SFPUC to be furthest location from the domestic water point of entry for Bldg. 606.

An additional two samples were collected outside: Bldg. 606 exterior building supply (Point of Entry) before building filter (also sampled during preliminary sampling), and the SFPUC water main located at Crisp Road and Palou Street.

Sample collection, processing, chain of custody and transportation to the laboratory were performed by SFPUC. Analysis was performed by SFPUC in accordance with EPA methods at their laboratory located in San Bruno, CA. The SFPUC Water Laboratory is accredited by Environmental Laboratory Accreditation Program (ELAP).

Standards and Guidelines

The water sample results were compared to federal and state water quality standards and goals used by SFPUC. Drinking water standards and goals are established by the US EPA and California State Water Resources Board. The standards and goals of particular interest include the Maximum Contaminant Levels (MCLs) and Action Levels (ALs).

Findings

The SFPUC domestic water sampling results identified the following:

- Lead (Pb):
 - At 31 µg/L, the 1st floor Men's shower room sink faucet had lead detected and was above the AL of 15 ppb.
 - At 11 µg/L, the 2nd floor kitchen faucet sample had lead detected, but was below the AL of 15 ppb.
 - At 8.1 µg/L, the Bldg. 606 Point of Entry, lead was detected, below the AL of 15 ppb
 - At 3.0 µg/L, the Crisp Road Main, lead was detected, below the AL of 15 ppb.
- Iron (Fe) – Above the MCL at Crisp Road and at Bldg. 606 point of entry.
- Manganese (Mn) & Aluminum (Al) – Above the MCL at Crisp Road

Additionally, chlorine residual (Cl₂) was only detected at Crisp main only.

The following analytes were below MCL in all samples collected:

- | | |
|--|---|
| <ul style="list-style-type: none">• Pesticides/herbicides• Metals (<u>except</u> as listed above)• Radionuclides• Total Petroleum Hydrocarbon (TPH)• Trihalomethanes (THM) | <ul style="list-style-type: none">• Volatile Organic Compounds (VOCs)• Semi-Volatile Organic Compounds (SVOCs)• Total Organic Carbon (TOC)• Fecal Coliform bacteria• Silica |
|--|---|

General water quality parameters (e.g., Temperature, pH, Turbidity, Conductivity, Conductance, Alkalinity) were found to all be acceptable. A copy of the SFPUC Laboratory Analytical Reports are provided in Attachment 7 of this report.

Discussion and Conclusions

Lead was detected in two samples collected from faucets in Bldg. 606, with one of the faucets, located in the 1st Floor Men's Shower Room exceeding the AL. While low levels of lead were also detected in the water samples collected outside the building, sink fixtures inside Bldg. 606 and/or building plumbing components (i.e., soldered joints) may have contributed to the elevated levels. As

bottled drinking water has historically been provided, and continues to be provided, this result is not considered to require immediate action.

The sampling results indicated a lack of chlorine residual within Bldg. 606 when compared to SFPUC supply. Chlorine residual prevents microbial growth. According to SFPUC, the lack of chlorine residual is likely due to low water usage and the water in the piping system stagnating. This lack of chlorine residual does not in and of itself indicate a public health risk.

Iron, manganese and aluminum were detected in the domestic water supply above the MCLs in samples collected outside of Bldg. 606. Samples collected from the interior of Bldg. 606 did not indicate MCL exceedances for these metals. The water filtration system in place on the exterior of Bldg. 606 is effectively reducing levels of iron, manganese, and aluminum in the water, before the water enters the building.

Except for the previously discussed analytes, water sample results did not identify any additional exceedances of regulatory levels, in the domestic drinking water samples collected at Bldg. 606.

Recommendations

1. Based on the drinking water lead results, DPH-OSH and SFPUC recommend the development and implementation of a Flushing Program. Flushing may eliminate lead that is introduced at the fixture or the internal plumbing by discarding any water that has been in close contact with sources of lead. A flushing plan would include running water at faucets for a minimum of 30 seconds (prior to use) until the water runs cold.
2. SFPD should consider periodic testing to confirm the water supply free of microbial presence. DPH-OSH recommends the development of a water management plan to assess chlorine residual and microbial activity in the water supply. Such a plan would dictate sampling frequency, types of samples to be collected, specific analytes and response actions should a positive result be found.
3. It is recommended that the use of the exterior building water supply filter be continued. Water filters should be changed on regular intervals to avoid breakthrough of contaminants (e.g., iron, manganese, aluminum).

Crawlspace Standing Water Characterization

Introduction

Bldg. 606 Property control and engineering employees expressed concerns for occupational exposure to standing water in the crawlspace. Standing water may collect in the crawlspace below the warehouse area during heavy seasonal rains.

Recommendations

All crawlspace sump pumps were functioning normally. No standing water was present in the crawlspace between August 2018 and May 2019. Should standing water return, SFPD should coordinate with DPH-OSH to facilitate access so sampling of standing water can be performed.

Disposal Characterization of Soil Pile

Introduction

In the July 2018 meeting, employees presented concerns regarding the status of the soil pile behind Bldg. 606 and the timeline for disposal. SFPD Facilities retained Engineering/Remediation Resources Group, Inc. (ERRG) to characterize the soil pile for removal and disposal. While this waste characterization was originally tasked to SFPD Facilities, it was requested of DPH-OSH to present the findings as part of the Bldg. 606 comprehensive report so it would be accessible to concerned employees. DPH-OSH did not develop the sampling plan, conduct or oversee sample collection, nor review the results of analysis.

Background

As part of Navy clean-up activity at HPNS, all sewer piping was removed, including the sewer piping servicing the occupied Bldg. 606. As a result, a storage tank for waste water was installed to service Bldg. 606. Installation of this tank required excavation of soil in the rear of Bldg. 606. Soil from the excavation was piled at the southwest corner of the building exterior in the rear laydown area. The soil pile has been covered with a tarp to prevent erosion of the pile due to weather. The perimeter of the pile is loaded with sandbags and erosion control hay berms.

Methods

The soil was sampled by Engineering/Remediation Resources Group, Inc. (ERRG) on September 18, 2018. EERG Regional Manager, Tyson Appel, oversaw the work order between ERRG and SFPD, as well as contacting the designated waste facility that would be accepting the waste soil pile. A 4-point composite sample was collected and analyzed to profile the waste soil for proper disposal and meet landfill criteria. Based on disposal site requirements, the following analysis was performed:

- Fecal coliform
- California Administrative Manual (CAM) 17 metals
- Waste Extraction Test (WET) for Soluble Threshold Limit Concentration (STLC) comparison for CAM 17 metals
- Asbestos by Polarized Light Microscopy (PLM)
- Diesel and motor oil range compounds,
- Volatile organic compounds (VOCs),
- Semi-volatile organic compounds (SVOCs),
- Organochlorine pesticides,
- Polychlorinated biphenyls (PCBs),
- Radionuclides,

Standards and Guidelines

ERRG cost proposal and waste profile documentation are provided for reference in Attachment 8.

Findings

Analytical results indicated that the soil was acceptable for unrestricted disposal at the selected landfill facility (Potrero Hill Landfill – Class A). Soil characterization data and supporting documentation can be found in Attachment 8.

Radiological Screening Survey

Introduction

A radiological screening survey of Bldg. 606 and its immediate vicinity was conducted in response to employee concerns about potential radiation exposures when working onsite at HPNS. The survey was performed on January 15 and 16, 2019 by Mr. Robert “Bob” Burns, Jr. of NGTS, Inc., a Certified Health Physicist (CHP). This consisted of the use of direct read instrumentation and the collection of swipe samples (settled dust/particulate) for the detection of possible radiological material(s). DPH-OSH conducted technical oversight throughout the duration of the radiological site assessment.

Prior to commencing his radiological screening, Mr. Burns provided time for a question and answer session with Bldg. 606 employees, SFPD command staff, as well a member of the SF Police Commission (Ms. Petra DeJesus). During this session, Mr. Burns presented the general procedures of the screening survey, the types of equipment that he would be using and responded to employee questions and concerns. Some employees expressed concerns about potential radiation exposure when driving to and from Bldg. 606 and potential radiological contamination of vehicles and vehicle tires. Based on these concerns, Mr. Burns included the screening of employee driving route, employee personal vehicles: wheels, tires and wheel wells in his radiological survey.

Methods

Direct reading scan and static gamma radiation measurements were conducted around the entirety of the Bldg.606 exterior (including soils and paved areas) and at numerous locations within the building interior. Swipe sample measurements were collected to screen for radioactive material on interior surfaces that could have been deposited from airborne dusts or otherwise tracked in from outside. Swipe samples were also collected from two pre-filters recently removed from air handing units that serve the first-floor crime labs and from downstream of the High Efficiency Particulate Air (HEPA) filters in air handler number AHU1. The purpose of the swipe samples was to screen for the presence of radioactive materials drawn into the building via airborne transport or otherwise tracked in from outside.

Mr. Burns utilized several pieces of direct reading instrumentation while conducting the radiological screening at Bldg. 606:

- Ludlum Model 19 microR Survey Meter
 - Features: High Sensitivity to Gamma, Range: 0 to 5000 $\mu\text{R}/\text{hr.}$,
This unit was used to conduct the site Gamma screening: interior, exterior and crawlspace.
- Ludlum Model 2224 Rate Meter Scaler w/43-93 Dual Alpha/Beta Probe Geiger Radiation
 - Features: Alpha-Beta Scaler-Ratemeter
 - Ludlum Model 2224 used the attached Ludlum Model 43-93 Dual phosphor scintillator Alpha/Beta detector
This unit was used for additional screening (post gamma survey) in areas of concern identified by Bldg. 606 (i.e., vehicle tires in parking lot, interior stairwells, and inside HVAC units in the mezzanine and HVAC ducts).
- Ludlum Model 3030 Alpha/Beta Sample Counter
 - Features: Alpha-Beta Scaler-Ratemeter

This unit was housed in Cummings, GA (not used onsite at Bldg. 606) and was used for analyzing swipe samples collected at Bldg. 606 and 129 establishing Alpha/Beta activity.

All field equipment utilized held current calibration from RSCS, Inc. Calibrated in August 2018 and valid through August 2019.

Findings/Conclusions

The radiological screening survey report concludes that the alpha/beta scans, the gamma scans, and swipe samples collected showed no indication of radiological contamination or other radiological concerns at Bldg. 606. The report indicated that from an occupational health perspective, the working environments at Bldg. 606 are no different than any other publicly-accessible location in the SF Bay Area.

NGTS, Inc. generated the findings and conclusions. These can be found in their entirety in the Interim Summary of Findings (issued February 15, 2019) and FINAL report (issued May 30, 2019). These documents can be found in Attachment 9.

Recommendations

None

Attachment 1
Building 606: Outdoor and Indoor Air Quality Parameters
(RAW Data)
August 24, 2018

Attachment 2

Building 606: Outdoor and Indoor Particle Count Data (PM)
Table and RAW Data
August 24, 2018

Particle Count Data (PM) – Bldg. 606

Time Stamp	Location	PM 2.5 ($\mu\text{g}/\text{m}^3$)	PM 10.0 ($\mu\text{g}/\text{m}^3$)
8/24/2018 10:21:14	Outside Air Pre @ Main Entrance	41.70	125.14
8/24/2018 10:23:48	Outside Air Pre @ N.E Rollup door	42.54	102.85
8/24/2018 10:26:41	Bruce Office	9.33	20.11
8/24/2018 10:29:01	Warehouse Corridor	14.48	26.40
8/24/2018 10:31:00	Adjacent to Flame Cabinet*	18.81	141.63*
8/24/2018 10:32:58	Rear rollup door area	24.27	56.21
8/24/2018 10:35:11	Bike Section	19.75	71.62
8/24/2018 10:38:31	N.W. Rollup door (inside)	15.45	32.46
8/24/2018 10:41:13	1st floor warehouse men's locker room	9.13	33.12
8/24/2018 10:50:45	Rm 219 Firearm & Toolmark Unit	8.07	17.70
8/24/2018 10:52:58	Rm 220 Firearm & Toolmark Unit	8.51	10.00
8/24/2018 10:54:58	Rm 201A Facility Coordinator Office	7.63	25.30
8/24/2018 10:58:32	Rm 201B Firearm & Toolmark Supervisor Office	8.14	18.09
8/24/2018 11:00:44	Rm 201 Common Area	7.05	43.04
8/24/2018 11:22:25	Rm 202A Firearm tool Microscope Lab	5.51	15.39
8/24/2018 11:24:46	Rm 205 Common Area	7.84	11.74
8/24/2018 11:25:56	Rm 205A Quality Assurance Mgr. Office	7.92	28.35
8/24/2018 11:28:29	Rm 208 Crime Lab Staff	7.84	12.11
8/24/2018 11:29:50	Rm 210	7.89	41.53
8/24/2018 11:32:06	Rm 204	7.90	12.04
8/24/2018 11:33:51	Rm 203	8.41	11.34
8/24/2018 11:35:32	Rm 202	6.29	14.75
8/24/2018 11:37:46	Rm 109 Conference Room/library 1	0.19	4.40
8/24/2018 11:39:01	Rm 109 Conference Room/library 2	0.15	0.49
8/24/2018 11:41:02	1st Floor Reception	5.64	11.18
8/24/2018 11:42:47	Outside Air Post @ Main entrance	36.68	71.18

* See discussion section.

Attachment 3

Building 606: Warehouse and Crime Lab
Settled Dust Sample Results
Analytical Lab Reports and Chain of Custody

Attachment 4

Building 606: Warehouse and Crime Lab
Personal air monitoring results table (Asbestos & Lead)
Area air monitoring results table (Asbestos & Lead)

Bldg. 606 Personal Air sampling (Asbestos & Lead)			Analytical Methods		
Sample No.	Sample location	Date	NIOSH 7400 (Asbestos) 8hr TWA	EPA TEM (Asbestos)	Flame AA (Lead)
180828-PL01	Personal: Employee @ lapel	8/28/18	-	-	<6 µg /m³
180830-PA01	Personal: Employee @ lapel	8/30/18	0.010 f/cc (PCM)	<0.0048 s/cc (TEM) <16.7 s/mm² (TEM) (Non-Detect)	-
180831-PL01	Personal: Employee @ lapel	8/31/18	-	-	<4 µg /m³
180904-PA01	Personal: Employee @ lapel	9/4/18	<0.002 f/cc (PCM)	<0.0048 s/cc (TEM) <16.7 s/mm² (TEM) (Non-Detect)	-

Note: Lead PEL = 50 µg/m³, Asbestos PEL = 0.1 fibers/cc (8-hour Time weighted average)

PCM = Phase Contrast Microscopy, TEM = Transmission Electron Microscopy

Bldg. 606 Air sampling (Asbestos & Lead)			Analytical Methods	
Sample No.	Sample location	Date	EPA TEM (Asbestos)	Flame AA (Lead)
180828-L01	Warehouse: Fixed Location 1	8/28/18	-	<6 µg /m³
180828-L02	Warehouse: Fixed Location 2	8/28/18	-	<6 µg /m³
180828-L03	Warehouse: Fixed Location 3	8/28/18	-	<6 µg /m³
180828-L04	Warehouse: Fixed Location 4	8/28/18	-	<6 µg /m³
180828-L05	Warehouse: Fixed Location 5	8/28/18	-	<6 µg /m³
180828-L06	Warehouse: Fixed Location 6	8/28/18	-	<6 µg /m³
180828-L07	Field Blank	8/28/18	-	<5 µg
180828-L08	Box Blank	8/28/18	-	<5 µg
180830-A01	Warehouse: Fixed Location 1	8/30/18	<0.0048 s/cc (TEM) <16.7 s/mm² (TEM) (Non-Detect)	-
180830-A02	Warehouse: Fixed Location 2	8/30/18	<0.0048 s/cc (TEM) <16.7 s/mm² (TEM) (Non-Detect)	-
180830-A03	Warehouse: Fixed Location 3	8/30/18	<0.0048 s/cc (TEM) <16.7 s/mm² (TEM) (Non-Detect)	-
180830-A04	Warehouse: Fixed Location 4	8/30/18	<0.0048 s/cc (TEM) <11.9 s/mm² (TEM) (Non-Detect)	-

Bldg. 606 Air sampling (Asbestos & Lead)			Analytical Methods	
Sample No.	Sample location	Date	EPA TEM (Asbestos)	Flame AA (Lead)
180830-A05	Warehouse: Fixed Location 5	8/30/18	<0.0042 s/cc (TEM) <13.9 s/mm ² (TEM) (Non-Detect)	-
180830-A06	Warehouse: Fixed Location 6	8/30/18	<0.0042 s/cc (TEM) <13.9 s/mm ² (TEM) (Non-Detect)	-
180830-A07	Field Blank	8/30/18	BL, NA	-
180830-A08	Box Blank	8/30/18	BL, NA	-
180831-L01	Warehouse: Fixed Location 1	8/31/18	-	<4 µg /m ³
180831-L02	Warehouse: Fixed Location 2	8/31/18	-	<4 µg /m ³
180831-L03	Warehouse: Fixed Location 3	8/31/18	-	<4 µg /m ³
180831-L04	Warehouse: Fixed Location 4	8/31/18	-	<4 µg /m ³
180831-L05	Warehouse: Fixed Location 5	8/31/18	-	<4 µg /m ³
180831-L06	Warehouse: Fixed Location 6	8/31/18	-	<4 µg /m ³
180831-L07	Field Blank	8/31/18	-	<5 µg
180831-L08	Box Blank	8/31/18	-	<5 µg
180904-A01	Warehouse: Fixed Location 1	9/4/18	<0.0045 s/cc (TEM) <16.7 s/mm ² (TEM) (Non-Detect)	-
180904-A02	Warehouse: Fixed Location 2	9/4/18	<0.0045 s/cc (TEM) <16.7 s/mm ² (TEM) (Non-Detect)	-
180904-A03	Warehouse: Fixed Location 3	9/4/18	<0.0042 s/cc (TEM) <15.4 s/mm ² (TEM) (Non-Detect)	-
180904-A04	Warehouse: Fixed Location 4	9/4/18	<0.0044 s/cc (TEM) <15.4 s/mm ² (TEM) (Non-Detect)	-
180904-A05	Warehouse: Fixed Location 5	9/4/18	<0.0044 s/cc (TEM) <15.4 s/mm ² (TEM) (Non-Detect)	-
180904-A06	Warehouse: Fixed Location 6	9/4/18	<0.0047 s/cc (TEM) <15.4 s/mm ² (TEM) (Non-Detect)	-
180904-A07	Field Blank	9/4/18	BL, NA	-
180904-A08	Box Blank	9/4/18	BL, NA	-

Bldg. 606 Air sampling (Asbestos & Lead)			Analytical Methods	
Sample No.	Sample location	Date	EPA TEM (Asbestos)	Flame AA (Lead)
180905-A01	Crime Lab: Fixed Location 1	9/5/18	<0.0046 s/cc (TEM) <16.7 s/mm ² (TEM) (Non-Detect)	-
180905-A02	Crime Lab: Fixed Location 2	9/5/18	<0.0046 s/cc (TEM) <16.7 s/mm ² (TEM) (Non-Detect)	-
180905-A03	Crime Lab: Fixed Location 3	9/5/18	<0.0047 s/cc (TEM) <16.7 s/mm ² (TEM) (Non-Detect)	-
180905-A04	Crime Lab: Fixed Location 4	9/5/18	<0.0048 s/cc (TEM) <16.7 s/mm ² (TEM) (Non-Detect)	-
180905-A05	Crime Lab: Fixed Location 5	9/5/18	<0.0049 s/cc (TEM) <16.7 s/mm ² (TEM) (Non-Detect)	-
180905-A06	Crime Lab: Fixed Location 6	9/5/18	<0.0049 s/cc (TEM) <16.7 s/mm ² (TEM) (Non-Detect)	-
180906-L01	Crime Lab: Fixed Location 1	9/6/18	-	<4 µg /m ³
180906-L02	Crime Lab: Fixed Location 2	9/6/18	-	<4 µg /m ³
180906-L03	Crime Lab: Fixed Location 3	9/6/18	-	<4 µg /m ³
180906-L04	Crime Lab: Fixed Location 4	9/6/18	-	<4 µg /m ³
180906-L05	Crime Lab: Fixed Location 5	9/6/18	-	<4 µg /m ³
180906-L06	Crime Lab: Fixed Location 6	9/6/18	-	<4 µg /m ³
180907-L01	Crime Lab: Fixed Location 1	9/7/18	-	<4 µg /m ³
180907-A02	Crime Lab: Fixed Location 2	9/7/18	<0.0045 s/cc (TEM) <16.7 s/mm ² (TEM) (Non-Detect)	-
180907-L03	Crime Lab: Fixed Location 3	9/7/18	-	<4 µg /m ³
180907-A04	Crime Lab: Fixed Location 4	9/7/18	<0.0041 s/cc (TEM) <15.4 s/mm ² (TEM) (Non-Detect)	-
180907-L05	Crime Lab: Fixed Location 5	9/7/18	-	<4 µg /m ³
180907-A06	Crime Lab: Fixed Location 6	9/7/18	<0.0041 s/cc (TEM) <15.4 s/mm ² (TEM) (Non-Detect)	-

Bldg. 606 Air sampling (Asbestos & Lead)			Analytical Methods	
Sample No.	Sample location	Date	EPA TEM (Asbestos)	Flame AA (Lead)
180907-L07	Box Blank (37mm)	9/7/18	-	<5 µg
180907-L08	Field Blank (37mm)	9/7/18	-	<5 µg
180907-A09	Box Blank (TEM)	9/7/18	BL, NA	-
180907-A10	Field Blank (TEM)	9/7/18	BL, NA	-

Attachment 5

Building 606: Warehouse and Crime Lab Air Sampling
Analytical Lab Reports and Chain of Custody
(Asbestos air & Lead air)

Attachment 6

Building 606: Warehouse and Crime Lab
Air and Settled Dust Sampling Location Figures

Figure 1 – 1st floor Crime Lab &
Warehouse

Figure 2 – 2nd floor Crime Lab &
Warehouse Mezzanine

Attachment 7

Building 606: Warehouse and Crime Lab Water Quality Sampling
SFPUC Water sampling Analytical Lab Report and Methods
SFPUC Annual Water Quality report: 2018

Attachment 8

Building 606: Warehouse and Crime Lab Soil Pile
EERG Cost proposal (August 2, 2018)
Waste Connections Inc. Soil Waste Profile (November 6, 2018)
Test America Analytical Lab Results & Analytical Methods

Attachment 9

Building 606: Warehouse and Crime Lab Radiological Screening Survey
NGTS, Inc. Interim Summary of Findings (February 15, 2019)
and
NGTS, Inc. FINAL report (May 30, 2019)