

NorBay Consulting

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SOLUTIONS

*(415) 507-9786 Phone
(415) 507-9760 Fax*

*2400 Las Gallinas Avenue, Suite 110
San Rafael, California 94903*

December 17, 2014

Mr. Mark Takemoto
RMC Water & Environment
2175 North California Boulevard, Suite 315
Walnut Creek, CA 94596

**SUBJECT: HAZARDOUS MATERIAL PRE-DEMOLITION
INSPECTION AND BULK SAMPLING
VARIOUS STRUCTURES AT THE
SAUSALITO-MARIN CITY TREATMENT PLANT**

Dear Mr. Takemoto:

NorBay Consulting is pleased to provide the analytical results from the hazardous materials pre-demolition inspection of a limited number of structures scheduled to be demolished at the Sausalito-Marín City Treatment Plant.

The structures inspected included (1) Diesel Fill Station, (2) Influent Scrubber, (3) Filter Press Room, (4) Causeway Wall, (5) Plant Access Stairs, (6) Iron Sponge, (7) Sand Filters, (8) Sand Filter Pumps, (9) FFR Pumps and (10) FFR Reactor.

Our inspection included the visual observation of suspect asbestos containing building materials, the collection of suspect building materials to determine asbestos content, if any, laboratory analysis, the collection of lead in paint readings utilizing a RMD direct reading instrument, visual inspection for other hazardous materials and generation of a final report.

NorBay Consulting appreciates the opportunity to provide you with these services. If you have any questions regarding this report or if you require additional information please do not hesitate to contact me at (415) 507-9786.

Respectfully,
NORBAY CONSULTING

Bob Gerhold

Bob Gerhold
Certified Asbestos Consultant # 92-0157
CDPH Lead Inspector/Assessor I2108

EXECUTIVE SUMMARY

NorBay Consulting performed a pre-demolition hazardous materials inspection of various structures located at the Sausalito-Marín City Treatment Plant in Novato, California. It is our understanding that these structures are scheduled to be demolished thus the need for this inspection as per Bay Area Air Quality Management District (BAAQMD) and Cal-OSHA regulations. Mr. Bob Gerhold, Cal-OSHA Certified Asbestos Consultant #92-0157 and Certified Lead Inspector # 2108 performed the inspection on December 9, 2014.

The structures inspected included (1) Diesel Fill Station, (2) Influent Scrubber, (3) Filter Press Room, (4) Causeway Wall, (5) Plant Access Stairs, (6) Iron Sponge, (7) Sand Filters, (8) Sand Filter Pumps, (9) FFR Pumps and (10) FFR Reactor.

This Executive Summary is provided solely for the purpose of overview. Any party who relies on this report must read the entire report. The Executive Summary may have omitted important details, anyone of which could be crucial to the proper understanding and risk assessment of the subject matter.

A total of nine (9) samples of suspect asbestos containing materials were collected during the inspection. Upon analysis by Polarized Light Microscopy (PLM) the following material(s) were found to contain varying percentages of asbestiform minerals or are materials known to contain asbestos.

- ◆ Tan fibrous gaskets on Pump #1 in the FFR Pump Area and Pump Feed #1 in the Sand Filter Area;
- ◆ Exterior asbestos cement “transite” panels on the Filter Press Room Building;
- ◆ Drywall/taping mud in the Filter Press Room Building.

A total of seventy-three (73) readings were collected of exterior and interior painted/coated surfaces during the inspection. In addition, six (6) calibration readings were also collected. For this report lead based paint includes readings ≥ 1.0 mg/cm², lead-containing paint includes readings ≥ 0.1 to ≤ 1.0 mg/cm² and no lead detected includes readings of 0.0 mg/cm². It is extremely important to understand that XRF readings, which have a value of 0.0 mg/cm², do not necessarily mean there is “no lead present” but rather the level is below what the instrument can read.

The following components were found to contain lead in paint/coatings > 1.0 mg/cm².

- ◆ White metal I-beams at the bottom of the Filter Press Room Building;
- ◆ Gray metal stair stringer and railing posts on the Plant Access Stairs;
- ◆ Green metal valves and pumps in the Sand Filter Pump Area.

Light fixtures containing suspect mercury containing light tubes and suspect polychlorinated biphenyls (PCB’s) were also observed in the Filter Press Room Building.

A more detailed presentation of procedures and findings is presented in the body of this report. Also included is a discussion of recommendations and regulatory considerations.

ASBESTOS SURVEY PROCEDURES

NorBay Consulting identified homogeneous areas of materials, which were suspected of containing asbestos. A homogeneous area, for bulk sampling purposes, is one that seems by texture, color and wear to be uniform and applied during the same general time period. After the homogeneous areas had been identified, representative bulk sample(s) are collected for laboratory analysis. Because asbestos-containing building materials have compositional variability, it is possible to obtain different laboratory results for samples from the same homogeneous area. Therefore, a homogeneous area with at least one positive sample for will result in the entire homogeneous area being designated as an asbestos containing material.

The sampling strategy employed by NorBay Consulting was partially based on guidelines established by the Environmental Protection Agency (EPA) for school buildings (40 CFR Part 763, AHERA) which require that samples be collected from each homogeneous area of suspected ACM. Upon completion of the inspection and bulk sampling, the samples were delivered under chain of custody protocol to Forensic Analytical of Hayward, California for analysis by Polarized Light Microscopy (PLM).

SAMPLE ANALYSIS

Bulk samples were examined by Polarized Light Microscopy (PLM) in accordance with EPA Test Method 600/R-93/116, "Method for the Determination of Asbestos in Bulk Building Materials". The percentage of asbestos is determined by visual estimation. Laboratory results are reported based on the percentage of asbestiform minerals identified within each sample layer. The lower limit of reliable detection by PLM is 1% by volume. When asbestos or other minerals are observed in concentrations believed to be less than the reliable detection limit (less than 1%) the results are usually indicated as TRACE.

Upon analysis the analytical results are compared to government agency standards. Currently, both the California Occupational Safety and Health Administration (Cal-OSHA) and the Environmental Protection Agency (EPA) define material with contains more than one percent asbestos to be an asbestos containing material (ACM).

In addition, Cal-OSHA defines any manufactured construction material containing more than 0.1% by weight as asbestos containing construction materials (ACCM). Cal-OSHA also requires notification and registration of the contractor when disturbing materials with more than one-tenth of one percent and regulates worker protection whenever materials containing any detectable levels of asbestos are to be disturbed.

RESULTS

The results of the asbestos bulk sampling can be found in the following table:

Sample ID	Material	Location	Result
5376-PLM-1 & 2	Black non-fibrous gasket material	Iron Sponge	No Asbestos Detected

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Sample ID	Material	Location	Result
5376-PLM-3	Tan fibrous gasket	FFR Pump Area, Pump #1	90% asbestos
5376-PLM-4	Tan fibrous gasket	Sand Filter Area, Pump Feed #1	90% asbestos
5376-PLM-5	Exterior asbestos cement "transite" panels	Filter Press Building	15% asbestos
5376-PLM-6	Exterior window glazing	Filter Press Building	No Asbestos Detected
5376-PLM-7	Base coving and associated mastic	Filter Press Building	No Asbestos Detected
5376-PLM-8 & 9	Drywall/taping mud	Filter Press Building	< 1% asbestos

REGULATORY CONSIDERATIONS

Current EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations require that most ACM be removed prior to demolition or renovation activities. Other regulations apply to construction activities and notification requirements for projects involving ACM/ACCM. At both the federal and state levels, these include, but are not limited to Federal OSHA regulation 29 CFR 1910 and 1926, the California Health Code, California OSHA 8 CCR 1529 and Proposition 65 which requires the posting of notifications when a facility is known to contain toxic substances found on the governors list.

As previously mentioned in this report both the California Occupational Safety and Health Administration (Cal-OSHA) and the Environmental Protection Agency (EPA) define material with contains more than one percent asbestos to be an asbestos containing material (ACM). In addition, Cal-OSHA defines any manufactured construction material containing more than 0.1% by weight as asbestos containing construction materials (ACCM). Cal-OSHA also requires notification and registration of the contractor when disturbing materials with more than one-tenth of one percent and regulates worker protection whenever materials containing any detectable levels of asbestos are to be disturbed.

RECOMMENDATIONS

Bay Area Air Quality Management District (BAAQMD) Regulation 11-2-401.3 requires that for every demolition or renovation involving the removal of 100 square/linear feet or greater of Regulated Asbestos Containing material (RACM), a notification must be made to the BAAQMD at least ten working days prior to commencement of demolition/renovation activities. In addition, BAAQMD requires removal, prior to renovation and/or demolition of regulated asbestos-containing materials (RACM), i.e; materials with asbestos content of greater than 1% that are friable (can be crumbled, pulverized or reduced to powder by hand pressure) or may become friable during renovation or demolition. Non-friable asbestos containing materials containing greater than 1% asbestos are also considered to be RACM if they are subjected to sanding, drilling, grinding, cutting, abrading or may become friable during demolition/renovation activities.

NorBay Consulting recommends that the asbestos containing materials discovered as part of our inspection be removed by a licensed asbestos abatement contractor if they are to be impacted by demolition activities. The contractor selected must be familiar with and abide by the rules and regulations regarding the removal, packaging and disposal of asbestos containing materials and materials containing detectable levels of asbestos.

LEAD IN PAINT XRF SURVEY PROCEDURES

The sampling strategy employed by NorBay Consulting was performed as outlined in Title 17, California Code of Regulations, Division 1, Chapter 8 and in accordance with those survey procedures listed in the “Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing”, June 1995 by the U.S. Department of Housing and Urban Development (HUD). Our investigation included the collection of readings on similar painted surfaces (not every component in every room as dictated by HUD guidelines.)

Prior to data collection painted/coated surfaces were categorized into distinct areas of homogeneity, substrate material, building material and/or distinct paint type. After the items have been identified, a representative reading of the painted/coated surface is collected. Because painted/coated have compositional variability due to one or more paint layers, it is possible to obtain different readings for samples from the same homogeneous area. Therefore, a homogeneous area with at least one XRF reading of 1.0 mg/cm² or greater will result in the entire homogenous material, substrate and/or distinct paint type being designated as lead based paint. Each XRF reading along with the location, component, substrate, color and condition of the painted/coated surface are included in the XRF readings table located at the end of this report.

SAMPLE ANALYSIS

The XRF testing was performed in accordance with the aforementioned criteria, using an RMD-LPA-1 XRF Analyzer. Exposure times are internally determined by the instrument and are based on a number of factors including lead content, substrate and source strength. The instrument is calibrated to the manufacturer’s specifications and was periodically verified against known lead standards produced by the National Institute of Standards and Testing.

HUD defines action level as the hazard level for which a corrective response action will be required. Currently, the most widely used action level for lead-based paint (LBP) is 1.0 mg/cm² (as measured by an XRF) established by HUD and adopted by the U.S. Environmental Protection Agency. The action level is 5000 parts per million (ppm) or 0.5% by weight when collected paint chip samples are analyzed using atomic absorption spectroscopy (AAS).

HUD guidelines consider XRF findings of 1.0 mg/cm² or greater, as lead based paint, which may be a potential hazard. It is extremely important to understand that XRF readings, which have a value of 0.0 mg/cm², do not necessarily mean there is “no lead present”.

RESULTS

During our investigation a total of seventy-three (73) XRF readings were collected of various interior and exterior building components.

Of the seventy-three (73) readings, ten (10) resulted in levels considered to be lead based paint or glazing. These components included the following;

- ◆ White metal I-beams at the bottom of the Filter Press Room Building;
- ◆ Gray metal stair stringer and railing posts on the Plant Access Stairs;
- ◆ Green metal valves and pumps in the Sand Filter Pump Area.

In addition, certain components, both interior and exterior contained detectable levels of lead (not lead based) which would also subject the disturbance of these materials to Cal-OSHA regulations. (See Construction Work Standards Section.) For a complete listing of readings see the attached XRF Readings sheet.

REGULATORY CONSIDERATIONS / RECOMMENDATIONS

Current EPA and HUD guidelines recommend that surfaces containing lead based paint in damaged condition to be considered “lead-based paint hazards” and should be addressed through abatement (permanent removal) or interim controls (temporary). Surfaces containing lead based paints in intact condition should be monitored, but are not considered to be “lead based paint hazards”.

- ◆ Green metal paint on the valves of the Sand Filter Pumps.

Construction Work Standards

At present, there are no state or federal laws dealing with mandatory abatement following the identification of lead containing or lead based paints prior to disturbance. However, in 1993 the Occupational Safety and Health Administration promulgated legislation (29 CFR 1926.62 and 8 CCR 1532.1) entitled "Lead Exposure in the Construction Industry" which deals with worker exposure to lead.

It should be noted that aside from the HUD definition of lead-based paint (1.0 mg/cm²), OSHA regulates worker protection and work practices on building components containing any detectable amounts of lead. Therefore, components determined to contain less than 1.0 mg/cm² may still be subject to OSHA regulations, if these materials are to be disturbed. This standard essentially states that work, involving components containing any amount of lead must follow certain guidelines. These guidelines include but are not limited to training, personal protective equipment and specific work practices whenever workers disturb lead in any concentration because the disturbance may result in airborne exposures over action or permissible exposure limits.

This legislation requires that any task that may potentially expose workers to any concentration of lead be monitored to determine workers eight-hour time weighted average (TWA) exposure to lead. Prior to conduction of activities that may generate a lead exposure, such workers must be properly fitted with respiratory protection and protective clothing until personal eight-hour TWA results reveal exposures within acceptable levels.

Any proposed renovation/demolition, which may involve the removal of building materials with lead based and/or lead containing painted surfaces, should include provisions to minimize the potential for airborne release of lead contaminated dust. It is recommended, as a minimum, that

demolition of building materials which have lead-based and/or lead-containing paints be conducted with the materials kept in a wetted state and removed in sections, as feasible, to reduce the potential for airborne lead emissions.

OTHER SUSPECT HAZARDOUS MATERIALS

A limited number of suspect mercury containing fluorescent light tubes were observed in the Filter Press Room. In California, the Cal-EPA Department of Toxic Substances Control regulates the management of spent fluorescent light tubes and mercury vapor lamps destined for disposal because fluorescent lamps contain small quantities of mercury, cadmium and antimony. Fluorescent light bulbs/vapor lamps have been classified as a "Universal Waste" under the California "Universal Waste Rule". This rule became effective on February 8, 2002 and allows common, low hazard wastes to be managed under less stringent requirements than other hazardous wastes.

As of February 9, 2006 large and small quantity generators are required to ship their "Universal Waste" to either a universal waste transfer station, a recycling facility or a disposal facility (Title 22, Division 4.5, Chapter 23, Section 66273.8). If the fluorescent light tubes are not recycled, then they must be manifested and disposed of in a Class I landfill.

Prior to renovation of the structure, the light tubes should be removed as a separate item and/or concurrently with other hazardous materials removal. Precautions should be utilized to reduce the amount of light tube breakage due to the potential release of mercury containing particles.

In addition to mercury containing fluorescent light tubes/bulbs light fixture ballasts may contain polychlorinated biphenyls (PCB's). All ballasts manufactured through 1978 are magnetic ballasts that contain PCB's. Almost all older fluorescent light fixtures have PCB ballast because the use of PCB containing items was allowed to continue beyond the original 1978 TSCA ban. Since the supply of PCB containing ballasts likely lasted for several years after the ban took effect, any building/structure built before 1980, without a complete lighting retrofit, is likely to have PCB ballasts.

Magnetic ballasts manufactured after 1978 that do not contain PCB's are labeled "No PCB's" or "PCB Free". Electronic ballasts are PCB-free and should be clearly marked as electronic. If a ballast has no manufacture date or is not specifically labeled "No PCB's or PCB Free" it should be assumed to contain PCB's. NorBay Consulting recommends that all light fixture ballasts be removed and checked for PCB's prior to demolition of the building. Any PCB ballast located should be removed, packaged and disposed of as PCB containing waste.

LIMITATIONS

NorBay Consulting conducted this inspection and prepared this report for the sole and exclusive use of RMC Water & Environment the only intended beneficiary of our work. NorBay Consulting has performed this inspection in a substantial and workmanlike manner, in accordance with generally accepted methods and practices of the profession, and consistent with that level of care and skill ordinarily exercised by reputable environmental consultants under similar conditions and circumstances.

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Sausalito, California

Please note that no subsurface investigation was conducted to determine if asbestos cement “transite” electrical or water utilities were present.

Enclosed you will find the laboratory reports and chain of custody form for all asbestos bulk samples collected. In addition, a spread sheet of all XRF readings is also included.

If you have any questions regarding this report or if you require additional information please do not hesitate to contact me at (415) 507-9786.

Sincerely,
NORBAY CONSULTING

Bob Gerhold

Bob Gerhold
Certified Asbestos Consultant #92-0157
CDPH Certified Lead Inspector/Assessor I2108

HazMat Pre-Demolition Inspection
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**LABORATORY REPORTS AND
CHAIN OF CUSTODY FORMS**

POLARIZED LIGHT MICROSCOPY (PLM)

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XRF READINGS

Readings shaded in gray indicate lead based paint

Readings shaded in green indicate lead containing paint

Non-destructive Screening of Interior / Exterior Painted Surfaces

XRF Readings

Site Location: Sausalito-Marín City Treatment Plant, Sausalito, California

Building: Interior & Exterior

Inspector: Bob Gerhold

Date: December 9, 2014

Location	Component	Wall	Substrate	Color	Paint Condition	Reading (mg/cm ²)
Calibration 1						1.0
Calibration 2						1.0
Calibration 3						1.1
Diesel Fill Station	Door frame		Metal	Green	Intact	0.1
	Door frame		Metal	Green	Intact	0.2
Influent Scrubber	Tank		Metal	Green	Intact	0.0
	Tank supports		Metal	Green	Intact	0.0
	Lid		Metal	Green	Intact	0.0
Filter Press Room	Wall		Drywall	White	Intact	0.0
	Wall		Drywall	White	Damaged	0.0
	Window		Metal	White	Intact	0.0
	Windowsill		Wood	White	Intact	0.0
	Door		Metal	Green	Intact	0.0
	Door frame		Metal	Green	Intact	0.0
	Tank		Metal	Green	Intact	0.0
	Tank		Metal	Green	Intact	0.0
	Equipment		Metal	Blue	Intact	0.0
	Equipment		Metal	Beige	Intact	0.0
	Ceiling		Metal	White	Damaged	0.2
	Ceiling		Metal	White	Damaged	0.3
	Exterior wall		A/C	Green	Intact	0.0
	Exterior wall		A/C	Green	Intact	0.0
	Exterior handrail		Metal	Green	Intact	0.0
	Exterior handrail		Metal	Green	Intact	0.1
	Exterior stairs		Metal	Green	Intact	0.0
	Exterior stairs		Metal	Green	Intact	0.0
	Bottom I-beams		Metal	White	Intact	2.8
	Bottom columns		Metal	White	Intact	1.6
	Bottom walls		CMU	Green	Intact	0.2
	Bottom walls		CMU	Green	Intact	0.3
Causeway Wall	Wall		Concrete	Green	Intact	0.0
	Wall		Concrete	Green	Intact	0.0
	Wall		Concrete	Green	Intact	0.0
	Railing		Metal	Silver	Intact	0.0
	Railing		Metal	Silver	Intact	0.0
Plant Access Stairs	Railing		Metal	Brown	Intact	0.0
	Railing		Metal	Brown	Intact	0.0
	Stringer		Metal	Gray	Intact	1.8
	Stringer		Metal	Gray	Intact	1.8
	Railing post		Metal	Gray	Intact	1.4
	Railing post		Metal	Gray	Intact	1.8
Iron Sponge	Wall		Metal	Green	Intact	0.0
	Wall		Metal	Green	Intact	0.0
	Lid		Metal	Green	Intact	0.0
	Piping		Metal	Green	Intact	0.2
	Piping		Metal	Green	Intact	0.3

