AGENDA REPORT

Mayor's Office

DATE: April 23, 2019

TO: Members of the City Council

FROM: Mayor Tom Butt

SUBJECT: ZONING RESTRICTONS ON COAL, PETROLEUM COKE (PETCOKE) AND MINI-STORAGE (SELF-STORAGE) FACILITIES

STATEMENT OF THE ISSUE:

Storage and handling of coal and petroleum coke results in fugitive emissions of particulate matter that is hazardous to public health. The City of Richmond has the right and the duty to regulate stationary sources of harmful particulate matter, including coal and petroleum coke. Richmond has a plethora of self-storage facilities. These facilities are passive uses that employ few people, generate little retail sales activity and provide minimal cultural or commercial amenities to the community. Rather than continue proliferation of self-storage facilities, we want to encourage other uses that create more jobs, or possibly housing in appropriate locations, and result in higher and more diverse economic activity.

RECOMMENDED ACTION:

REQUEST the Planning Commission to review proposed amendments to the Zoning Ordinance to remove the storage and handling of coal and petroleum coke and self-storage facilities from uses allowable with a conditional use permit.

FINANCIAL IMPACT OF RECOMMENDATION:

There is no financial impact related to this item at this time.

DISCUSSION:

Coal and Petcoke

Although not specifically listed in the Zoning Ordinance, petroleum coke (petcoke) and coal storage and distribution are allowed in Table 15.04.204.020 with a conditional use permit under "Warehousing, Wholesaling, and Distribution – Chemical, Mineral and Explosive Storage."

TABLE 15.04.204.020: LAND USE REGULATIONS – INDUSTRIAL DISTRICTS						
Uses	*ILL*	*IB*	*IL*	*IG*	*IW*	*Additional Regulations*
Salvage and Wrecking	x	x	x	C	C	
Warehousing, Wholesaling, Storage, and Distribution	See subclassifications below					
Chemical, Mineral and Explosives Storage	x	x	C	C	C	See § 15.04.610.400 Storage Containers
Indoor Warehousing and Storage	P	LI	P	P	P	
Outdoor Storage	x	x	x	L4	L4	
Mini-Storage	x	C	C	C	x	
Wineries	See subclassifications below					See § 15.04.610.120 Breweries and Wineries
Winery, Large	C	x	C	x	C	
Winery, Small	A	A	A	x	A	

On May 19, 2015, the Richmond City Council adopted Resolution 48-15 that opposed the transportation, storage and handling of coal and petcoke in the City of Richmond and set the policy, "to not allow City property, including City-owned properties managed by the Port of Richmond to be used for the storage or export of coal or petcoke."

The resolution, however, did not include prohibitions of storage and handling of coal and petcoke on privately-owned property.

This oversite should be corrected by adding a footnote to the line "Chemical, Mineral and Explosive Storage," in Table 15.04.204.020 that states, "The storage, handling, or export of coal or petroleum coke is a prohibited use."

The only existing facility in Richmond which stores, handles, or exports coal or petcoke is the Levin Richmond Terminal located at 402 Wright Avenue. This change to the Zoning Ordinance would not immediately curtail the existing storage or export of coal or petcoke at Levin Terminal, but it would make it a legal nonconforming use and prohibit expansion.

The City knows more about coal dust in Richmond now than we did when the Zoning Ordinance was adopted. In 2018, Mayor Tom Butt conducted a study based on samples provided voluntarily by residents in the southwest part of Richmond. The samples were analyzed by The McCrone Group, an analytical laboratory in Illinois with special expertise in identifying particulate matter, including coal.

Of seven samples, five tested positive for coal dust. The results are:

Tested Positive:

- 28 Montana
- 133 Folett
- 148 Folett
- 233 West Chanslor
- 128 3rd Street

Tested Negative:

- 153 Lakeshore
- 120 Broadway

Coal dust is a health risk. There is no such thing as a safe health threshold for exposure to coal dust. This is confirmed by the World Health Organization, which states: “There may be no safe threshold for fine particulate matter and the effects are linearly related to concentration.” (World Health Organization & Australian National Pollution Inventory). Coal dust particulates (tiny pieces of coal) are of particular concern because they contain heavy metals which are toxic at low concentrations. They include lead, mercury, nickel, tin, cadmium, mercury, antimony, and arsenic, as well as radio isotopes of thorium and strontium. Coal dust, especially fine coal dust, has been identified by health professionals and doctors around the world as causing a range of diseases and health problems. Examples include an increased incidence of heart and respiratory diseases like asthma and lung cancer. Fine invisible coal dust particles less than 2.5 microns long lodge in the lungs and are not naturally expelled, so long-term exposure increases the risk of health problems.[1]

Uncovered coal and petroleum coke stockpiles emit fine particulate pollution, PM2.5 or smaller, when exposed to wind. When coal and petroleum coke are unloaded from trucks or railroad cars and transported to storage piles or transported from storage piles into ships, fugitive particulate emissions also occur.[2]

Exposure to fine particulate pollution has been linked to increased deaths and illnesses due to cardiovascular and respiratory conditions. Economists often are asked to place a dollar value on this pollution-induced increase in mortality rates. To do this, the Environmental Protection Agency (EPA) assigns a monetary value to a "statistical life." The agency typically uses this "value of statistical life" approach to quantify the benefits of the environmental regulations that reduce local air pollution.

For example, in 1990, Congress amended the Clean Air Act to limit emissions of sulfur dioxide and nitrogen oxides, which are major sources of fine particulates. The EPA estimates that these limits will prevent roughly 230,000 adult deaths due to fine particles just in the year 2020. Using a value of US$9.85 million per statistical life, this translates into $2.3 trillion in total benefits in 2020 just from reduced mortality from particles. Overall, EPA calculates that the total benefits from the 1990 Clean Air Act Amendments from 1990 through 2020 exceed the costs of complying with the law by a factor of more than 30 to 1.

[1] https://www.mackayconservationgroup.org.au/coal_dust
[2] https://content.sierraclub.org/creative-archive/sites/content.sierraclub.org.creative-archive/files/pdfs/100_306_LouisianaExports_FactSht-03_lowres.pdf

Using this same approach, Akshaya Jha of Carnegie Mellon University[3] found that in addition to the social costs of particulate pollution from burning coal, storage and handling creates PM2.5 pollution that generates additional local health costs of about $183 per ton of coal stored. For context, in 2017, 1,159,386 metric tons of coal was stored and transported via ship from Richmond. That's an adverse economic impact to Richmond residents valued at over $212 million.

The coal industry is subject to many environmental regulations. There are laws and rules that address the impacts of current mining operations and abandoned mine sites; air pollution from coal combustion; and disposal of the ash left over after coal is burned.

In contrast, there is no federal legislation explicitly targeting fine particulate emissions from coal storage and handling. However, since this air pollution is quite local, cities and counties can take action to mitigate it instead of relying on state or federal policy. In California, the South Coast Air Quality Management District adopted Rule 1158 – "Storage, Handling, and Transport of Coke, Coal and Sulfur," in 1983, and it has been amended several time since.

The Richmond City Council has already banned coal and petroleum coke export from City-owned marine terminal facilities, but there currently no local regulations for coal and petroleum coke storage and handling at privately-owned Richmond terminals.

To protect the health of people who live and work in Richmond, particularly those in disadvantaged communities, this proposed amendment to the Zoning Ordinance prohibits the development of new or expanded facilities which store, handle, or export coal and petroleum coke.

Mini-Storage (self-storage)

On November 27, 2007, the City Council considered an Urgency Ordinance Establishing a Temporary Moratorium on the Acceptance, Processing and Approval of Applications and Permits to Construct, Modify or Place Self Storage Facilities Within the City of Richmond for forty-five days to address residents' concerns about the impact that a proliferation of storage facilities within the City may have on the community as a whole. These concerns include safety, noise, lighting, visibility, adverse visual impacts and incompatibility issues with other uses in the zoning district.

Ultimately, the City Council adopted Ordinance 8-08 N.S. that required a conditional use permit for mini-storage (self-storage) facilities in industrial districts.

When the new Zoning Code was ultimately adopted, Table 15.04.204.020 allowed mini-storage (also known as self-storage) uses with a conditional use permit in IB, IL and IG districts with a conditional use permit.

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[3] http://www.chicagotribune.com/sns-even-when-its-sitting-in-storage-coal-threatens-human-health-80865-20170914-story.html; http://theconversation.com/even-when-its-sitting-in-storage-coal-threatens-human-health-80865; https://www.sciencedaily.com/releases/2017/07/170705133025.htm

Richmond is now saturated with self-storage facilities, and they should be curtailed completely. This should be accomplished by revising Table 15.04.204.020 under “Mini-Storage” to change the “C” (indicating Conditional Use Permit) in IB, IL and IG districts to an “X” (indicating a prohibited use).

ATTACHMENTS:

1. Resolution No. 48-15
2. Ordinance No. 8-08 N.S. adding Mini-Storage as a Conditional Use
3. 2018 McCrone Coal Dust Study

RESOLUTION NO. 48-15

A RESOLUTION BY THE CITY COUNCIL OF THE CITY OF RICHMOND OPPOSING THE MINING, EXPORT AND BURNING OF COAL, AND THE TRANSPORTATION OF COAL AND PETROLEUM COKE ("PETCOKE") ALONG CALIFORNIA WATERWAYS, AND THROUGH DENSELY POPULATED AREAS INCLUDING THE CITY OF RICHMOND

WHEREAS Richmond has roads, rail lines and marine shipping terminals capable of transporting large quantities of petcoke and coal materials; and

WHEREAS the California Assembly passed, and Governor Brown signed, Joint Assembly Resolution No. 35 in September 2012 urging the President and Congress to restrict the export of coal for electricity generation to any nation that fails to adopt regulations on greenhouse gas emissions or hazardous air emissions as restrictive as those adopted by the U.S.; and

WHEREAS in Washington and Oregon, 27 cities passed similar resolutions opposing coal transport and export, and hundreds of other public officials – including Governors Kitzhaber and Inslee, state and federal agencies, tribes, health entities, religious leaders and other community leaders, have recognized the harms of coal by making statements of concern about coal transport and export. The State of Washington Department of Ecology, through its SEPA process, is requiring a comprehensive cumulative impacts analysis of proposed coal export facilities and rail transport from mine to port to plant spanning the Powder River Basin to Asia for the proposed Longview and Bellingham coal export facilities; and

WHEREAS coal and petcoke are commonly transported via open-top rail cars and there is evidence that a large volume of those materials escape during transit. The Port of Oakland memo dated February 19, 2014, "Environmental Issues Associated With Handling Export Coal," estimates that even if a surfactant is applied, 6 tons of coal dust are still released by a 125-car train over the course of a 400-mile trip, or 12-18 tons over the course of a 800-1,200 mile trip. According to at least one report from the BNSF Railway, each coal car in a 125-car coal train loses, on average, 500 pounds of coal per car in transit, for a total of up to 60,000 lbs lost per train on an average trip. Uncovered rail cars could contaminate cities, towns, farmland, forestland, streams, and rivers across California with coal dust and chunks of coal; and

WHEREAS a federal Surface Transportations Board proceeding on coal by rail transportation found that coal dust is a "pernicious ballast foulant" that can destabilize rail tracks and contribute to train derailments. Between July 2012-2013 at least 40 coal trains in the U.S. derailed, causing four victims to lose their lives, large amounts of coal to spill, major delay to other rail users, and significant costs to repair the damage; and

WHEREAS , the transportation of coal in open rail cars and accumulation of coal on or near rail lines has been known to create public safety hazards, including train derailments, explosions and fires; and

WHEREAS new coal and petcoke export terminals are expected to result in an increase in train traffic in California, causing concerns about blocked roads, causing great inconvenience, increasing costs to business and commerce, inhibiting the travel of emergency vehicles, pedestrians, access to waterways near the rail lines for fishing and other recreational use, and other vehicle traffic, and potentially catastrophic train derailments; and

WHEREAS increased rail traffic in California from coal can lead to an increase in diesel emissions in communities along rail lines, and exposure to particulate matter from diesel engines has been linked to impaired pulmonary development in adolescents; increased cardiopulmonary mortality; measurable pulmonary inflammation; increased severity and frequency of asthma attacks, emergency room visits, and hospital admissions in children; increased rates of heart attacks and strokes in adults; increased risk of cancer; and increased asthma and lung disease in children; and

WHEREAS coal contains toxic heavy metals – including mercury, arsenic, and lead – and exposure to these toxic heavy metals in high concentrations is linked to cancer and birth defects; and

WHEREAS petroleum coke contains Polycyclic Aromatic Hydrocarbons (PAHs) and heavy metals – including arsenic, copper, mercury, nickel, and zinc – at levels that are harmful to fish and wildlife as well as humans; and

WHEREAS trains delivering coal traveling through the Bay Area will follow routes adjacent to the San Francisco Bay, Estuary, and its tributaries, and routes adjacent to the Sacramento River and Sacramento-San Joaquin Delta, Richmond Riviera, and Santa Fe Channel posing a serious threat to these ecosystems, and to California's agricultural irrigation and drinking water supplies; and

WHEREAS hauling coal into California involves traversing some of the most challenging mountain passes in the nation, areas with earthquake faults and numerous unsafe old steel and timber bridges over major waterways, increasing the probability of serious accidents; and

WHEREAS trains and/or trucks delivering coal and petcoke pass through densely populated neighborhoods in Richmond, North Richmond and neighboring communities, and the potential of a catastrophic accident involving the transportation of coal and petcoke products, such as a coal train derailment, is a real danger; and

WHEREAS the cumulative impacts of combined coal/petcoke train and truck traffic through Richmond and other parts of California, in addition to the cumulative upstream and downstream greenhouse gas impacts of these fossil fuels, must be analyzed.

NOW, THEREFORE, BE IT RESOLVED that the Richmond City Council opposes the mining, transport, burning, and export of coal in general; and

BE IT FURTHER RESOLVED that the Richmond City Council opposes the use of existing rail lines and roadways to transport coal and petcoke along California waterways, through densely populated areas, and through the City of Richmond; and

BE IT FURTHER RESOLVED that it is the policy of the City of Richmond to not allow city property, including city-owned properties managed by the Port of Richmond, to be used for the storage or export of coal or petcoke; and

BE IT FURTHER RESOLVED that the City Council shall direct staff to:

- Carefully evaluate CEQA documents and any draft permit approvals, such as air permits or zoning changes, for transport of coal and petcoke, for potential adverse impacts on public health, safety and the environment, and submit comments addressing any such adverse impacts, as well as any omissions or discrepancies;

- Include in all CEQA comments a request for a region-wide cumulative impacts analysis to fully account for the direct, indirect and cumulative impacts associated with multiple proposals for coal and petcoke transport and export in California communities;

- Submit a letter to Governor Jerry Brown requesting a cumulative impacts analysis similar to the Washington Department of Ecology for coal mining, transport and burning;

- Oppose coal and petroleum coke transport through the City of Richmond and support increased state and federal regulations regarding coal and petroleum coke transport through the City of Richmond by working with local stakeholders and other groups, including considering filing amicus briefs in support of public entities and environmental organizations that file lawsuits;

- Address impacts to public health, safety, property, air quality, and surface and groundwater caused by the transportation of coal and petcoke through Richmond by

actively enforcing and/or encouraging aggressive enforcement of all applicable local state and federal laws and regulations and engaging in state and federal regulatory processes;

- Alert and communicate with other cities along the transportation route, and support their opposition to coal and petcoke transport, as well as efforts for stronger regulation;

- Work through the California League of Cities, California League of Counties, and other relevant organizations to articulate opposition to coal and petcoke transport, as well as support for stronger regulations;

- Alert State legislative representatives and lobbyists in Sacramento and enlist their help;

- Lobby federal Senators and Representatives for help at the federal level

- Submit a letter to rail carriers involved in transport of coal and petroleum coke in Richmond requesting:

    - railroads involved in coal and/or petroleum coke proposals make public any plans for new or expanded rail facilities or significant rail traffic volume increases and that the railroad provide representatives to meet periodically with local citizen groups and local government officials from Richmond to seek mutually acceptable ways to address local concerns;

    - railroads immediately contact the Railroad Operations and Safety Branch of the California Public Utilities Commission to ensure the timely implementation of adequate and updated plans for investigation, inspection, infrastructure improvement, or any other mechanism available to the California Public Utilities Commission to improve and maintain safe operating practices and transport of materials by rail;

    - rail carriers conduct environmental monitoring in the City of Richmond, including but not limited to groundwater and air monitoring, and submit environmental monitoring and testing information to local government entities on an annual basis for 10 years or until the City of Richmond determines that there is no significant environmental impact from activities conducted by the railroad;

    - railroads take proactive measures to prevent rail accidents, offset congestion, and reduce community impacts by drafting road improvement plans for grading, widening, or otherwise providing crossings at intersections that would be impacted by rail traffic increases, and to pay in full for these upgrades;

BE IT FURTHER RESOLVED that the City Council will direct staff to expedite CEQA analysis and approve permits for projects designed solely to reduce harmful emissions or required to comply with environmental laws, including consideration of a negative declaration for proposed covered storage of fossil fuels.

I CERTIFY that the foregoing resolution was adopted at a regular meeting of the City Council on May 19, 2015, by the following vote:

AYES:	Councilmembers Beckles, Martinez, McLaughlin, Pimplé, Vice Mayor Myrick, and Mayor Butt.
NOES:	Councilmember Bates.
ABSTENTIONS:	None.
ABSENT:	None.

PAMELA CHRISTIAN
CLERK OF THE CITY OF RICHMOND
(SEAL)

Approved:

TOM BUTT
Mayor

Approved as to form:

BRUCE GOODMILLER
City Attorney

State of California }
County of Contra Costa : ss.
City of Richmond }

I certify that the foregoing is a true copy of **Resolution No. 48-15**, finally passed and adopted by the City Council of the City of Richmond at a regular meeting held on May 19, 2015.

ORDINANCE NO. 8-08 N.S.

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF RICHMOND AMENDING SECTIONS 15.04.020 DEFINITIONS, 15.04.310 M-1-INDUSTRIAL/OFFICE FLEX, 15.04.320 M-2-LIGHT INDUSTRIAL, 15.04.330 M-3-HEAVY INDUSTRIAL, AND 15.04.340 M-4-MARINE INDUSTRIAL DISTRICTS OF THE CITY OF RICHMOND MUNICIPAL CODE , CHAPTER 15.04 ZONING ORDINANCE, BY INCLUDING A DEFINITION FOR MINI-STORAGE WAREHOUSE AND ADDING MINI-STORAGE WAREHOUSE AS A CONDITIONAL USE IN INDUSTRIAL DISTRICTS

WHEREAS, the City's current self-storage facilities regulations are deficient in several areas, including, but not limited to the following: a) they do not address community concerns regarding location standards and design; b) they pose a crime and safety risk according to the Richmond Police Department; and, c) they allow permit applications in some zoning districts to be handled through a ministerial process that does not require a Conditional Use Permit, public notification or a public hearing.

WHEREAS, the proposed zoning ordinance text amendments are exempt from the California Environmental Quality Act (CEQA) per CEQA Guidelines Section 15061(b)(3), as the proposed amendments are consistent with the adopted general plan and will not lessen the regulations pertaining to mini-warehouse facilities.

WHEREAS, on February 7, 2008, at a duly noticed public hearing, the Planning Commission recommended adoption of the attached draft zoning ordinance text amendment to the City Council.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF RICHMOND does ordain as follows:

SECTION 1. Section 15.04.020, Definitions of Chapter 15.04 Zoning Ordinance of the City of Richmond Municipal Code is hereby amended by adding alphabetically the following to the list of definitions(~~strikeout text~~ indicates deletion; underline text indicates insertion):

Mini-storage warehouse means a storage facility that is characterized by individual separate spaces which are accessible by customers for the storing and retrieval of personal effects and household goods. In no case shall storage spaces be used for manufacturing, retail or wholesale selling, office or other business services, or human habitation.

SECTION 2. Section 15.04.310.040, **M-1-Industrial/Office Flex District Conditional Uses** of Chapter 15.04, Zoning Ordinance of the City of Richmond Municipal Code is hereby amended by modifying the Warehousing listing under Transportation, Communication, and Public Utilities use category as follows:

Warehousing ~~(including self-service storage and mini-warehouses)~~

Section 15.04.310.040, **M-1-Industrial/Office Flex District Conditional Uses** of Chapter 15.04, Zoning Ordinance of the City of Richmond Municipal Code is further hereby amended by adding the following listing under the Industrial Use category:

Mini-storage warehouse

SECTION 3. Section 15.04.320.040, **M-2-Light Industrial District Conditional Uses** of Chapter 15.04, Zoning Ordinance of the City of Richmond Municipal Code is hereby amended by adding the following listing under the Industrial Use category:

Mini-storage warehouse

SECTION 4. Section 15.04.330.040, **M-3-Heavy Industrial District Conditional Uses** of Chapter 15.04, Zoning Ordinance of the City of Richmond Municipal Code is hereby amended by adding the following listing under the Industrial Use category:

Mini-storage warehouse

SECTION 5. Section 15.04.340.040, **M-4-Marine Industrial District Conditional Uses** of Chapter 15.04, Zoning Ordinance of the City of Richmond Municipal Code is hereby amended by adding the following listing under the Industrial Use category as follows:

Mini-storage warehouse

SECTION 6. Severability.

If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or invalid, such a decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause or phrase of this ordinance irrespective of the unconstitutionality or invalidity of any section, subsection, subdivision, paragraph, sentence, clause or phrase.

SECTION 7. Effective Date.

This Ordinance becomes effective 30 days after its final passage and adoption.

First reading at a regular meeting of the Council of the City of Richmond held March 4, 2008 and finally passed and adopted at a regular meeting thereof held March 18, 2008, by the following vote:

AYES:	Councilmembers Bates, Butt, Lopez, Marquez, Rogers, Sandhu, Thurmond, Viramontes, and Mayor McLaughlin
NOES:	None
ABSTENTIONS:	None
ABSENT:	None

DIANE HOLMES
Clerk of the City of Richmond

[SEAL]

Approved:

GAYLE McLAUGHLIN
Mayor

Approved as to form:

LOUISE RENNE, Interim
City Attorney

State of California }
County of Contra Costa : ss.
City of Richmond }

I certify that the foregoing is a true copy of Ordinance No. 8-08 N.S., finally passed and adopted by the Council of the City of Richmond at a meeting held on March 18, 2008, and published in accordance with law.

McCRONE ASSOCIATES, INC.
850 Pasquinelli Drive • Westmont, Illinois 60559-5539
630-887-7100 • Fax: 630-887-7417

9 November 2018

Mr. Daniel Butt
Daniel Butt Law Office
111 Park Place, Suite 204
Richmond, CA 94801

Subject: Examination of Samples from Richmond, California for Coal Dust
Re: McCrone Associates Project MA63996

Dear Mr. Butt:

We have completed the above referenced analysis. The work will be billed against the credit card number supplied to us. This report summarizes our methodology and results.

SAMPLE RECEIPT

On 9 August 2018, we received a group of dust samples collected in the Richmond, California area, described as follows:

1. Glass jar containing dust collected from the formica top of an outdoor patio table on June 25, 2018, by Elizabeth Dupin, 153 Lakeshore Court, Richmond, Ca

2. Glass jar containing dust collected from 28 Montana, Richmond, CA (Decombe)

3. Glass jar containing dust collected from outdoor railing on 7/12, C Stough, 120 Broadway, Richmond, CA

4. Three glass jars containing dust collected 6/25/18 and 6/26/18 from Amy Kolman

    a. 133 Follett Street, Lemon tree in backyard
    b. 148 Follett Street, Outdoor window ledges
    c. 133 Follett Street, Indoor ledges

5. Envelope containing dust collected 7/23/18, 233 W. Chanslor, Richmond, CA Linda Ardakani, in two separate paper folds:

    a. From Garden Hose
    b. From Window Sill

6. One Envelope labeled "Coal Dust Test," containing dust samples collected by William Harrel, 128 South 3rd Street, Richmond, CA, comprised of four paper folds:

    a. 6-27-18 South Facing Living Room Window Sill
    b. 6-27-18 South Facing Kitchen Window Sill
    c. 6-28-18 Back door East Facing
    d. 6-29-18 South Facing Front Porch Window Sill

We were asked to examine the samples to determine their composition, particularly whether coal dust was present.

The samples were received intact, and were stored at ambient laboratory temperature.

ANALYSIS

Each sample was examined under a low power stereomicroscope, and some of the particulate was mounted in liquid for examination at higher magnifications by polarized light microscopy (PLM). Different particle types were identified based on their physical, morphological and optical properties. Coal dust, in particular, was recognized as black, opaque, angular and somewhat reflective particles, which had a dark orange-brown color when pressed out thin.

Particles seen in the samples were classified into the following general types:

- Mineral grains
- Pollen grains
- Mold
- Coal dust
- Polymeric material (paint, plastic)
- Black rubber
- Plant tissue material (leaves, stems, wood particles)
- Hairs/fibers
- Metal/corrosion particles
- Insect parts

A volume percentage was estimated for the different particle types in each sample, which were classified as major components (> 10%), minor components (1 to 10%) or trace components (< 1%). A summary of the sample compositions is provided in Table I.

Coal dust was identified in the following samples:

- #2 (trace)
- #4-148 Follett Street (major)
- #4-133 Follett Street (major)
- #5-Window Sill (minor)
- #6-All samples (major or minor)

Mr. Daniel Butt
MA63996

Your samples will be returned after issuance of this report.

Thank you for consulting McCrone Associates. If you have any questions about this report, please feel free to contact me by telephone or by e-mail at sstoeffler@mccrone.com.

Sincerely,

Scott Stoeffler
Senior Research Microscopist

SFS:jek
Enclosures
Ref: MA63996; Credit Card

McCrone Associates, Inc. conducts analysis in a laboratory accredited to ISO/IEC 17025: 2005 by the American Association for Laboratory Accreditation (A2LA) and in compliance with applicable current Good Manufacturing Practices and Good Laboratory Practices per sections 58, 210, 211 and 820 of the Federal Food, Drug, and Cosmetic Act. Please consult A2LA Certificate # 3631.01 for a list of accredited test technologies at www.a2la.org.

TABLE I - Composition of Dust Samples

Sample	Components - by Microscopical Examination
#1 Outdoor patio table 153 Lakeshore Court	Major Components: Plant tissue material, mineral material, hairs/fibers, mold Minor Components: polymeric material, metal/corrosion Trace Components: Insect parts, glass, pollen
#2 28 Montana	Major Components: Plant material, mold Minor Components: polymeric material, hairs/fibers, mineral material, pollen Trace Components: insect parts, coal dust, metal/corrosion
#3 Outdoor railing 120 Broadway	Major Components: Plant tissue material, mineral material, black rubber Minor Components: Mold Trace Components: Metal/corrosion, hairs/fibers, pollen
#4 Lemon tree in backyard 133 Follett Street	Major Components: Mold Minor Components: Plant material, polymeric particles, insect parts, fibers/hairs Trace Components: Pollen, metal/corrosion

TABLE I - Composition of Dust Samples

Sample	Components - by Microscopical Examination
#4 Outdoor window ledges 148 Follett Street	Major Components: Mineral material, plant material, fibers/hairs, coal dust Minor Components: Black rubber Trace Components: Pollen, mold, polymeric material, insect parts, metal/corrosion
#4 Indoor ledges 133 Follett Street	Major Components: Mineral material, plant material, fibers/hairs, coal dust Minor Components: Black rubber Trace Components: Pollen, mold, polymeric material, insect parts, metal/corrosion
#5 Garden Hose 233 W. Chanslor	Major Components: Mineral material, Sticky green lumps, possibly plant gum Minor Components: Plant tissue material, hairs and fibers Trace Components: Pollen, mold, metal/corrosion
#5 Window Sill 233 W. Chanslor	Major Components: Plant material, mineral material Minor Components: Coal dust, black rubber, polymeric material Trace Components: Fibers/hairs, metal/corrosion, mold, pollen

TABLE I - Composition of Dust Samples

Sample	Components - by Microscopical Examination
#6 South Facing Living Room Window Sill 128 S. 3rd Street	Major Components: Mineral material Minor Components: Plant tissue material, fibers/hairs, black rubber, coal dust Trace Components: Insect parts, metal/corrosion, pollen
#6 South Facing Kitchen Window Sill 128 S. 3rd Street	Major Components: Mineral material Minor Components: Plant tissue material, fibers/hairs, black rubber, coal dust Trace Components: Insect parts, metal/corrosion, pollen
#6 Back Door - East Facing 128 S. 3rd Street	Major Components: Fibers/hairs, mineral material, plant material Minor Components: Black rubber, polymeric material, coal dust Trace Components: Metal/corrosion, pollen
#6 South Facing Front Porch Window Sill 128 S. 3rd Street	Major Components: Mineral material, coal dust Minor Components: Metal/corrosion, fibers/hairs, plant material Trace Components: Black rubber, mold