



CITY OF HOUSTON

Public Works and Engineering
Department

Interoffice

Correspondence

To: Bill Zod, P.E.
Managing Engineer
Engineering Branch
Engineering and Construction
Division

From: Supervising Engineer
Geo-Environmental Branch
Engineering and Construction Division

Date: April 27, 2015

Subject: **SOUTHWEST WASTEWATER TREATMENT
PLANT
4211 BEECHNUT
WBS No. R-000265-0103-4**

Attached are two (2) copies of the asbestos survey reports for the subject property, prepared by Environmental Consultants & Management Services, Inc. (ECMS), the City's consultant for the subject project. The consultant's findings and recommendations are summarized below:

ASBESTOS

Findings:

A total of eighty five (85) bulk material samples (**19 equipment/flange gaskets, 3 ceiling panels, 20 control panel door seals, 30 floor tiles, 4 wall textures and 9 miscellaneous materials**) were taken with suspect Asbestos Containing Materials (ACM). The samples were collected from areas within the subject property and analyzed for asbestos content by using Polarized Light Microscopy Method (PLM).

- Analytical results indicated that **asbestos content was detected** above the regulatory level of one percent (>1%) from 12 x 12 medium grey floor tiles at the MCC-A building.
- The asbestos abatement specifications will be provided in a separate report.

Recommendations:

- ECMS recommends no action necessary unless renovation, remodeling or demolition is planned.

If you have any questions, please call me at 832-395-2260.

Maher Tanbouz, P.E.

MT:kd^{kd}

H:\constr\A-ENV-SBI\Environmental\Asbestos_&_Lead\A&L Assessments\2015\R-000265-0103-4_(Southwest_WWTP_at_4211 Beechnut).doc

Attachment: Two (2) Asbestos Survey Reports

ec: Daniel R. Menendez, P.E.
Ravi Kaleyatodi, P.E., CPM
Ebi Nassiri, P.E.
MP Mike Pezeshki, P.E.

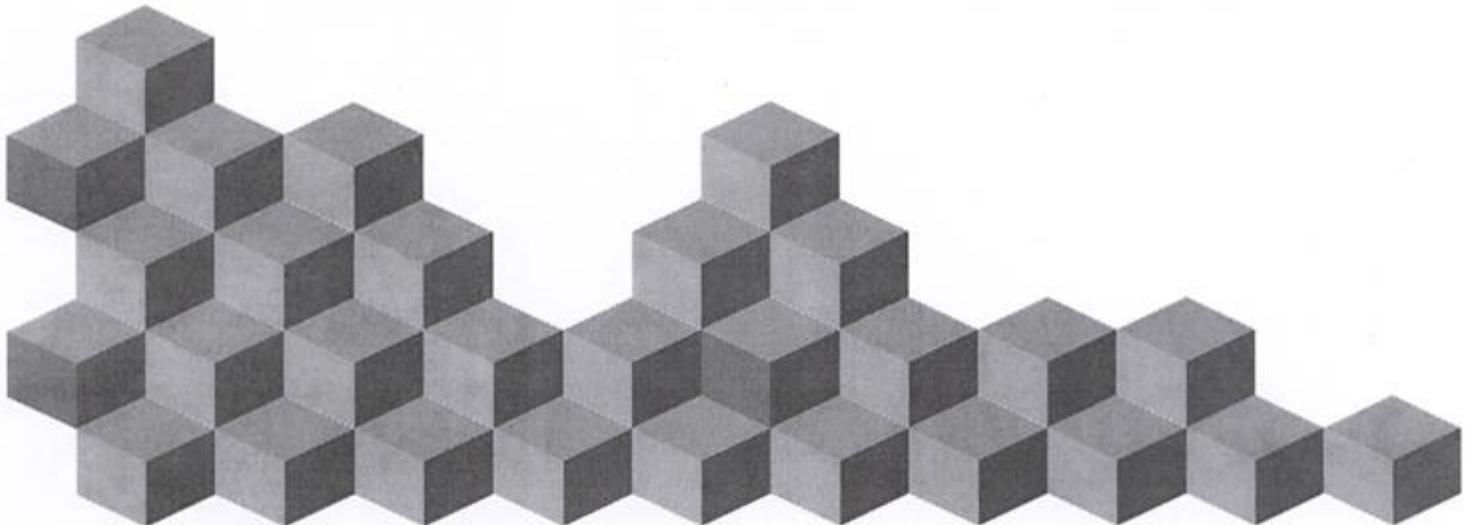
Environmental Consultants
&
Management Services

Asbestos Survey Report

Southwest Waste water Treatment Plant
4211 Beechnut
HOUSTON, TX

WBS No. R-000265-0103-4
Task Number 15-04
ECMS Project Number: 3830

Prepared for:
City of Houston
Public Works and Engineering Department
Engineering & Construction Division
Geo-Environmental Branch
611 Walker-14th Floor, Houston, Texas 77002



ASBESTOS SURVEY REPORT

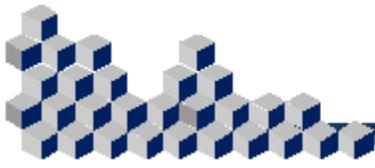
Southwest Waste water Treatment Plant
4211 Beechnut
HOUSTON, TX

WBS No. R-000265-0103-4
Task Number 15-04
ECMS Project Number: 3830

Prepared for:

City of Houston
Public Works & Engineering Department
Engineering & Construction Division
Geo-Environmental Branch
611 Walker -14th Floor, Houston, Texas 77002

April 21, 2015



ECMS, Inc.

Engineering Management, Construction Support & Environmental Services

April 21, 2015

Public Works & Engineering Department
Engineering & Construction Division
Geo-Environmental Branch
611 Walker -14th Floor, Houston, Texas 77002

Re: Asbestos Survey
Southwest Waste water Treatment Plant
4211 Beechnut
HOUSTON, TX

WBS No. R-000265-0103-4
Task Number 15-04
ECMS Project Number: 3830

Environmental Consulting & Management Services, Inc. (ECMS) is pleased to present the results of the asbestos survey conducted at the above referenced facility.

This report includes the results of our findings from visual reconnaissance, sampling and laboratory analysis. An assessment of the information was made to arrive at the conclusions stated and the recommendations presented.

We appreciate the opportunity to be of service to you and look forward to working on future assignments. Should you have any questions concerning this report or if we can assist you with any other matter, please feel free to contact us. ECMS personnel are available for your assistance around the clock.

Sincerely,
Environmental Consulting & Management Services, Inc. (ECMS)



Tyrone P. Dorian, P.E., P.G.
Individual Asbestos Consultant #10-5313

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Qualifications and Limitations

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This warranty is in lieu of all other warranties either expressed or implied. This company is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

The conclusions and recommendations describe only the conditions present at the time of our assessment, in areas that were observed. Opinions and recommendations presented herein apply to facility conditions existing at the time of our investigation and those reasonably foreseeable.

This report is prepared for the sole and exclusive use of the City of Houston, its contractors or agents. It is designed to aid the building owner, architect, construction manager, general contractor, and potential abatement contractor in locating Asbestos-Containing Materials (ACM).

Reasonable efforts were made to obtain representative samples of building materials and have those materials analyzed for asbestos content. Should suspect materials be discovered during building renovation/demolition that have not been addressed, samples of the materials should be collected and analyzed for asbestos content prior to renovation and/or demolition.

Notification to the Texas Department of State Health Services (DSHS) must be given prior to any renovations or demolition activities.

Executive Summary

Environmental Consultants & Management Services, Inc. (ECMS) conducted asbestos survey on April 7-8, 2015, at the Southwest Waste water Treatment Plant 4211 Beechnut Houston, TX. The WWTP is an isolated operating facility situated on approximately 50 + acres of land. Systems are located in buildings, below grade cast-in-place concrete structures and above grade at multiple levels. The interior of the facility contains pumping systems with distribution piping, valves, centrifuge pumps, electrical and control panels and lift stations. Paint deterioration was noted on painted equipment including, pumps, piping, pipe fittings, and pipe valves. An aeration – Mixer Deck is referenced as a wet pit facility with motors and monitors at grade level and huge pumping systems below grade to a depth of 50 feet or more. A great deal of work detail existed at this area during the two day sampling investigation.

Site inspections and bulk sample collections were conducted using standard protocols specified by the Texas Asbestos Health Protection Act (TAHPA). All accessible area of the facility was sampled as per design documents received. Inaccessible materials (gaskets, equipment and buried piping) are assumed to be asbestos containing materials until tested.

J3 Resources, Inc. Inc. is a State of Texas Licensed Asbestos Laboratory (PCM, PLM, TEM) and NVLAP and ELLAP Accredited and performed all asbestos analyses.

Asbestos Summary

Findings:

Eighty five (85) bulk material samples consisting of; 19 equipment/flange gaskets material (square/circular & large/small), 3 ceiling panels, 20 control panel door seals, 30 floor tiles, 4 wall textures and 9 miscellaneous materials.

Four 12 x 12 medium grey floor tiles at the MCC-A Building were collected, referenced in Table 2 on Page 6 tested positive for asbestos content.

Recommendations:

Based on the analytical findings and site observation; No action necessary unless renovation, remodeling, or demolition is planned. (City of Houston Hazard Category C-3)

Cost Estimate:

Estimated cost for floor tile abatement is \$7.00 per sq./ft. (including disposal cost).

COMPREHENSIVE ASBESTOS SURVEY

Environmental Consulting & Management Services, Inc. (ECMS) has completed a comprehensive asbestos survey at the Southwest WWTP located at 4211 Beechnut Houston, TX, and referred to as the "facility".

Scope of Services

This survey was performed to determine the presence, location, and condition of Asbestos-Containing Materials (ACM) at the referenced facilities. Site inspections and bulk sample collections were conducted using standard protocols for sampling and analysis specified by the Texas Asbestos Health Protection Act (TAHPA). All accessible areas of the facility were inspected and suspect materials sampled. Inaccessible materials were assumed to be asbestos-containing materials until available for testing (drop gaskets, equipment gaskets, and underground piping). Site records were available for use during the inspection.

Tyrone P. Dorian, an EPA-accredited/TDH-Licensed Asbestos Inspector with ECMS performed the facility inspection on April 7-8, 2015. The samples were collected in a manner that reduced potential for fiber and dust release and exposure using standard methods. All samples were deposited into secure containers and labeled for transport to the J3 Resources, Inc. in Houston, Texas. J3 Resources, Inc. is a State Licensed Asbestos Laboratory (PCM, PLM, TEM) and NVLAP Accredited.

Only materials accessible at the time of the survey were inspected. Underground components and equipment were not accessible.

The inspection consisted of the following:

- Sampling of suspect Asbestos-Containing Materials (ACMs).
- Quantifying and qualifying ACM.
- Locating ACM samples on computer generated maps.
- Preparing an inspection report.

Facility Description

The WWTP is an isolated operating facility situated on approximately 50 + acres of land. Systems are located in buildings, below grade cast-in-place concrete structures and above grade at multiple levels. The interior of the facility contains pumping systems with distribution piping, valves, centrifuge pumps, electrical and control panels and lift stations. Paint deterioration was noted on painted equipment including, pumps, piping, pipe fittings, and pipe valves. This lift station is referenced as a wet pit facility with motors at grade level and pumping systems. The facility consists of multiple control buildings.

Sampling Techniques and Laboratory Methods

This section details the sampling and laboratory methods used in the comprehensive asbestos survey to quantify and assess the condition of the confirmed ACM.

Survey Methods

This section addresses the criteria necessary for identifying, evaluating and assessing suspect Asbestos-Containing Materials (ACMs).

- a. Homogeneous Areas: Prior to collecting bulk samples of suspect ACM, distinct homogeneous sampling areas and specific sampling sites were defined based on building construction dates. A homogeneous sample area can be defined as a material that is similar in appearance, color, and generally having the same episode of installation as surrounding "like" material. Attempts were made in all cases to obtain representative samples of like materials, as this is the most cost-effective method for determination of ACM. It should be assumed by the building owner, contractor, and the abatement contractors that the composition of like materials in a single homogeneous area is the same. Homogeneous areas sampled as part of this survey include materials which have been identified by ECMS as ACM and have been classified as friable (material containing more than one-percent asbestos that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure) or non-friable (material containing more than one-percent asbestos that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure). Friable materials are more likely to become airborne, thereby increasing the potential for health hazards.
- b. Hazard Assessment: According to AHERA (December 30, 1986), verified friable or assumed ACM uncovered in an inspection or re-inspection of a facility shall be assessed in view of past, present, or future likelihood of disturbance and may include the following:
 1. Location of material present.
 2. Condition of material: type of damage, severity of damage, and the extent or spread of damage.
 3. Accessibility of the materials.
 4. Potential for disturbance of the material.
 5. Known or suspected causes of damage (i.e., air erosion, vandalism, service or repair, vibration, and water).
 6. Preventive measures which might eliminate the likelihood of undamaged ACM from becoming significantly damaged.
 7. Actions to be taken to protect human health.

The above hazard assessment factors will be discussed according to classifications of verified ACM. The ACM is usually examined and prioritized according to hazard categories based on condition, location, potential for damage and potential for fiber release. The asbestos hazard categories as defined by the City of Houston are presented in Table 1 as follows:

Hazard Category	Response Action
C-1: Asbestos Present	Serious health hazard, as defined by EPA, abatement should be a top priority
C-2: Asbestos Present	Health hazard, as defined by EPA, abatement should be planned
C-3: Asbestos Present	No action necessary unless renovation, remodeling, or demolition is planned
B-1: Asbestos Present	Contains 1% asbestos, or less, not regulated by TDH
B-2: Asbestos Present	Adequately enclosed
B-3: Asbestos Present	Adequately encapsulated
A: No asbestos found	N/A
A-1: Asbestos Abated	Once identified asbestos containing materials have been abated

- c. Field Methods: Accessible areas of the facility were inspected for the presence of suspect ACM. Based on visual surveillance, six (6) homogeneous areas were suspect of ACM at the subject site at the time of our site visit.

Laboratory Methods

The materials sampled were analyzed using the Polarized Light Microscopy (PLM) methods with dispersion-staining techniques according to US EPA Interim Method EPA 600/M4-82-020. This type of analysis requires the microscopist to take a portion of the bulk sample and treat it with a special light-refractive oil emulsion stain. The prepared slide is then subjected to a variety of tests while being viewed under varying polarization of light.

Each type of asbestos displays unique characteristics when subjected to these tests. Percentages of the identified types of asbestos are determined by visual estimation. Even though this is estimation, any material that contains over one percent (> 1%) of any type of asbestos using the PLM Method is considered an ACM and must be handled according to OSHA, EPA, and State regulations if disturbed.

J3 Resources, Inc. participates in the EPA Quality Assurance Program for Polarized Light Microscopy and is accredited by the EPA/NIST. This program helps ensure accurate repeatable results on the part of the analyst.

Field Sampling Verification and Assessment

ECMS has completed an asbestos survey at the Southwest WWTP located at 4211 Beechnut, in Houston, Texas. The scope of services was to inspect the facility for the presence of asbestos-containing materials. Only materials accessible at the time of the survey were inspected. Underground components and equipment were not accessible.

Eighty five (85) bulk material samples consisting of; 19 equipment/flange gaskets material (square/circular & large/small), 3 ceiling panels, 20 control panel door seals, 30 floor tiles, 4 wall textures and 9 miscellaneous materials were taken of suspect asbestos-containing materials (ACM). Four 12 x 12 medium grey floor tiles at the MCC-A Building were collected, referenced in Table 2 on Page 6 tested positive for asbestos content.

Hazard Assessment Results

The exact hazard ratings as defined by the City of Houston Hazard Category and Response Action (Table 1) are referenced in Table 2.

TABLE 2: ACM ANALYTICAL RESULTS						
Homogenous Area No.	Material	Location	Type*	Damaged*	Hazard Risk*	Asbestos Content (ND= None Detected)
1	Floor Tile 12 x 12	MCC-A Building	Non-friable	Fair Condition	C-3	3%

Findings and Recommendations

Findings

Eighty five (85) bulk material samples consisting of; 19 equipment/flange gaskets material (square/circular & large/small), 3 ceiling panels, 20 control panel door seals, 30 floor tiles, 4 wall textures and 9 miscellaneous materials.

Four 12 x 12 medium grey floor tiles at the MCC-A Building were collected, referenced in Table 2 above, tested positive for asbestos content.

Recommendations

Based on the analytical findings and site observation; No action necessary unless renovation, remodeling, or demolition is planned. (City of Houston Hazard Category C-3).

Cost Estimate:

Estimated cost for floor tile abatement is \$7.00 per sq./ft. (including disposal cost).

TABLE 2a: SUSPECT ACM ANALYTICAL RESULTS

Homogenous Area No.	Material	Location	Type*	Damaged*	Hazard Risk*	Asbestos Content (ND= None Detected)
1'	Floor Tiles	MCC-A, MCC-B, MCC-C, MCC-D, and Administration Bldgs.	12" x 12" Tiles 2' x 2' Tiles	Good Condition	A	ND
2	Equipment/Flange Gaskets Material	Aeration Mixer Deck	Non-friable Dark Rust/Black	Fair Condition	A	ND
3	2x4 Ceiling Panels	MCC-B Building	Friable White	Fair Condition	A	ND
4	Wall Textures	Admin Building and Compressor Area for MCC-D Bldg.	Friable White and Blue	Good Condition	A	ND
5	Control Panel Door Seals	Filter Gallery, Lift Station, Chlorination Facility, MCC-C, MCC-B, MCC-D Bldgs.	Non-friable Black	Fair Condition	A	ND
6	Miscellaneous Materials	Portable Water Bldg., Chlorination Facility, Compressor Room at MCC-D Bldg. and Administration Bldg.	Friable/Non-friable Black, Grey, Cream, Dark Grey, White	Good Condition	A	ND

CHECK LIST FOR ASBESTOS SURVEYS

NAME OF THE FACILITY: **Southwest Waste water Treatment Plant**

FACILITY ADDRESS: **4211 Beechnut, Houston, Texas**

DATE OF THE SURVEY: **04/7-8/2015**

CONSULTANT: **ECMS, Inc.**

INSPECTOR (S) NAME: **Tyrone P. Dorian**

Note: Items/information listed below must be included in the report. Use this checklist to ensure completeness of your report. Mark "X" or "check" in front of the information included in the report. *Submit completed check list with the report. If a facility is surveyed for asbestos, the survey reports shall be segregated in one binder or preferably two separate reports.*

1. ✓ Date and Contract number of the survey
2. ✓ Scope of work
3. ✓ Copy of the inspectors TDH license
4. ✓ Name and address of the facility
5. N/A Statement of building records were used in the inspection and if not, why?
6. N/A Date of construction and last renovation (if any) of the building.
7. ✓ Cover letter (in report) certain executive summary or executive summary begin the report format
8. ✓ List of areas that were not inspected. Explain.
9. ✓ Procedures and protocols used to collect bulk samples.
10. ✓ List of measures taken to prevent potential fiber release form locations where samples were extracted
11. ✓ Drawings and/or photographs with sample locations marked to facilitate future location of materials sampled.
12. ✓ Statement...if an accredited (NVLAP) laboratory was used for Sample Analysis.
13. ✓ Copy of the laboratory accreditation certificate.
14. ✓ Copy of the laboratory analysis results of the bulk samples.
15. ✓ Statement (by the laboratory) regarding Quality Assurance and Quality Control performed.
16. ✓ Copy of the chain of custody form for the bulk samples.
17. ✓ List of materials assumed to be containing asbestos.
18. ✓ City of Houston Asbestos Hazard Categorization (AHC) list and categorization of all the samples according to the AHC list included in the report.
19. N/A Condition of the building structure such as deterioration, structural problems, or other damages.

If Asbestos Present:

20. N/A Statement...if repeat analysis using point counting PLM was done as required by the city for the samples that show less than 5% asbestos.
21. ✓ Photographs of all Materials proven to be ACM are included.
22. ✓ All asbestos containing materials are classified as Friable or Non-Friable.
23. ✓ Recommendations are made for all Asbestos Containing Materials.
24. ✓ Reasonably accurate quantities of ACM's are estimated and given in the report.
25. ✓ Cost estimations are given for abatement.
26. N/A Operation and Maintenance Plans are recommended.

**APPENDIX A
FACILITY LOCATION PHOTO**



CITY OF HOUSTON

PROCESS OPERATIONS/WASTEWATER OPERATIONS

**SOUTHWEST WWTP
4211 BEECHNUT
HOUSTON, TX 77096**

([REDACTED]) CONTROL CENTER
832-395-4955
832-395-4956

APPENDIX B
SITE PHOTOGRAPHS

Chlorination Facility



Door Seal Gasket – Door Control Panel Portable Water Building



Loose Debris – Control Panel Cabinet



Pipe Coating Resin at PP5A2A Panel



Old Wire Insulation at IP5A2A Panel



Seal and Door at LPC 0760 Right Panel



Seal and Door at Control Panel LP5A2A CKT. 6



Pipe Coat Resin at base of Panel LP5A2A CKT. 6



Seal and Door at Control Panel LP5A2A CKT. 8



Pipe Coat Resin at base of panel LP5A2A CKT. 8

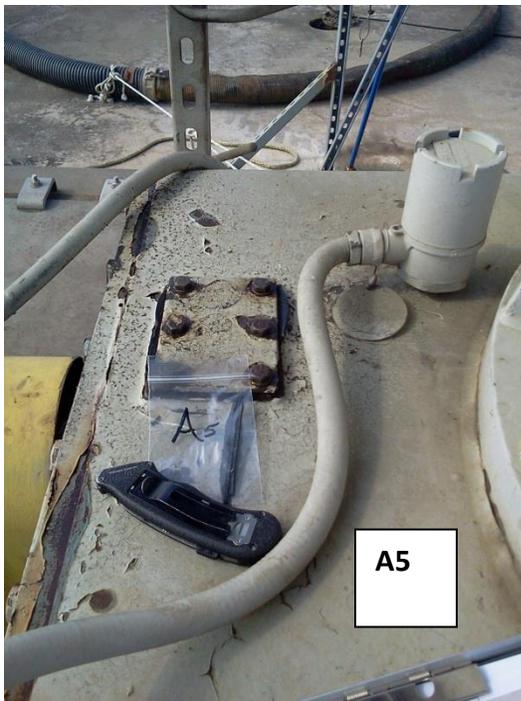
Aeriation-Mixer Deck



Gasket top Plate of Mixer #030253 NW



Gasket top Plate of Mixer #030230 S/SE



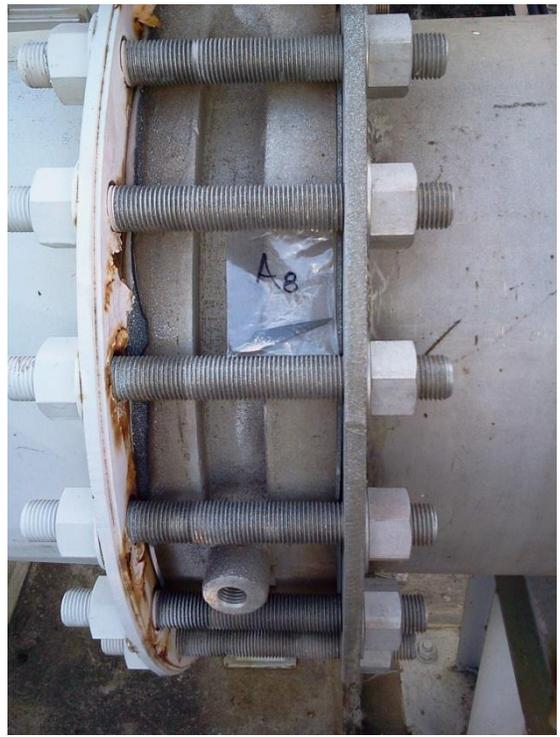
Gasket top Plate of Mixer #ECMS #5



Gasket top Plate of Mixer #118615 S Corner



Gasket top Plate of Mixer #117800 Extreme SW Corner



Large Flange Gasket Blower #030266 Extreme SE Corner



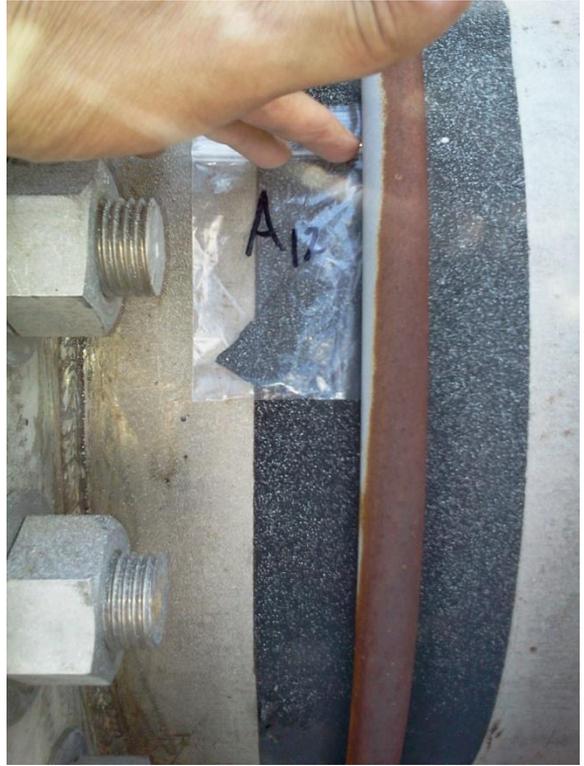
Large Pipe – Strap Band for Stabilizing Pipe
Blower #030266 Extreme SE Corner



Large Flange Gasket at Base of Blower
Blower #117539 N/NW Corner



Large Pipe – Strap Band for Stabilizing Pipe
Blower #306947 Extreme SE Corner



Large Flange Gasket Blower
Opposite of motor side #306947 SE Corner



Large Pipe – Strap Band for Stabilizing Pipe
Blower #030268 Extreme E\SE Area



Large Square Flange Connector
Blower #030268



Large Flange Gasket – Blower #117550



Large Flange Gasket Blower #116344



Large Square Flange Connector
Blower #116344



Large Flange Gasket at Blower Intake-Air
Blower #030266 SE Corner



Gasket Door Seal at Junction Box
Electrical #AIT-0233



Gasket Door Seal Junction Box
Electrical #AIT-0244



Small Flange Gasket
system 5 of Gas Sampling Station North



Door Seal at Upright Control Box
system 5 of Gas Sampling Station North



Small Flange Gasket
System 4 of Gas Sampling Station



Small Flange Gasket
System 3 of Gas Sampling Station



Door Seal at Upright Control Box



Small Flange Gasket at base of box
System 1 Gas Sampling Station



Large Circular Flange Gasket at Vent Intake
Blower #030269 Extreme E/SE Corner

MCC – C Building



12x12 floor tile SW Corner adjacent to exit door



12x12 floor tile SW Corner adjacent to exit door



12x12 floor tile NW Area adjacent to I/0270 Cabinet



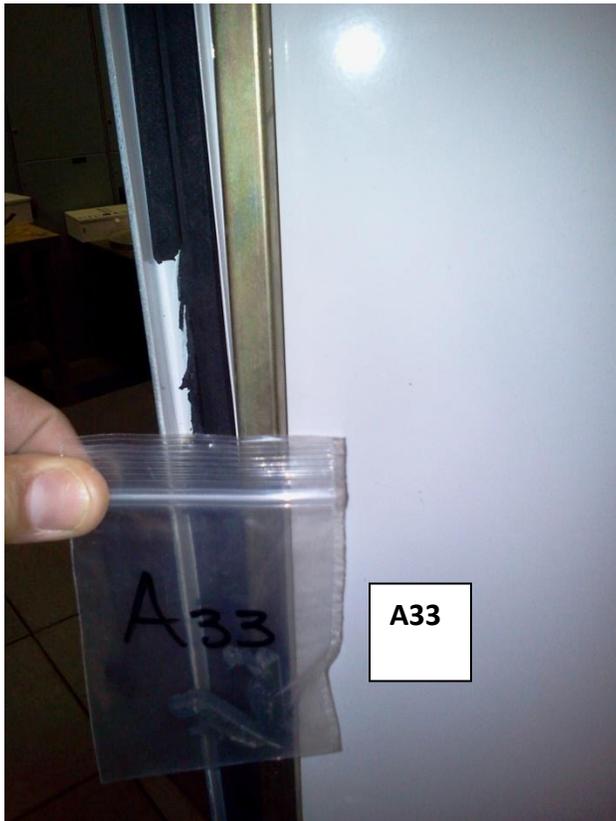
12x12 floor tile NE Corner area adjacent to MCC-7B2 Cabinet



12x12 floor tile NW Corner area adjacent to PC 270 Cabinet



12x12 floor tile SE Corner area adjacent to MCC-7A1 Cabinet



Seal and door of cabinet – Cabinet PC 170 Door



Seal and door of cabinet – Cabinet PC 270 Door

MCC-B Building



12x12 floor tile W/NW corner of building



12x12 floor tile North of floor adjacent to LPC-150 Cabinet



12x12 floor tile E/SE of building area



Door Seal Cabinet LPC-150



Door Seal Cabinet LPC-150



12x12 floor tile West area of building



12x12 floor tile South area of building



12x12 floor tile NE area adjacent to exit door



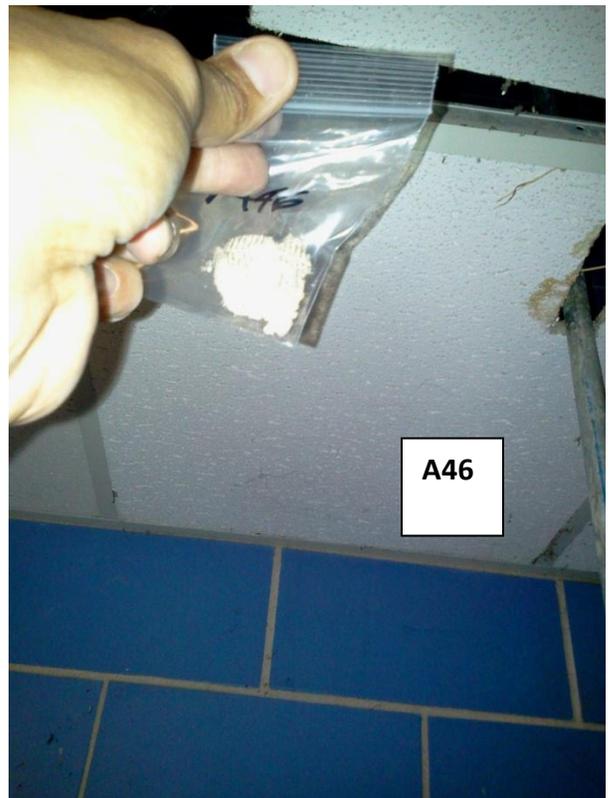
Door Seal Gaskets Electrical Panel I/O 290



Door Seal Gaskets Electrical Panel I/O 290



2x4 ceiling panels North/NW area of ceiling



2x4 ceiling panels East of ceiling



2x2 ceiling panels West/NW Area of ceiling

Lift Station



Door Seal Gasket Panel FIP-121A

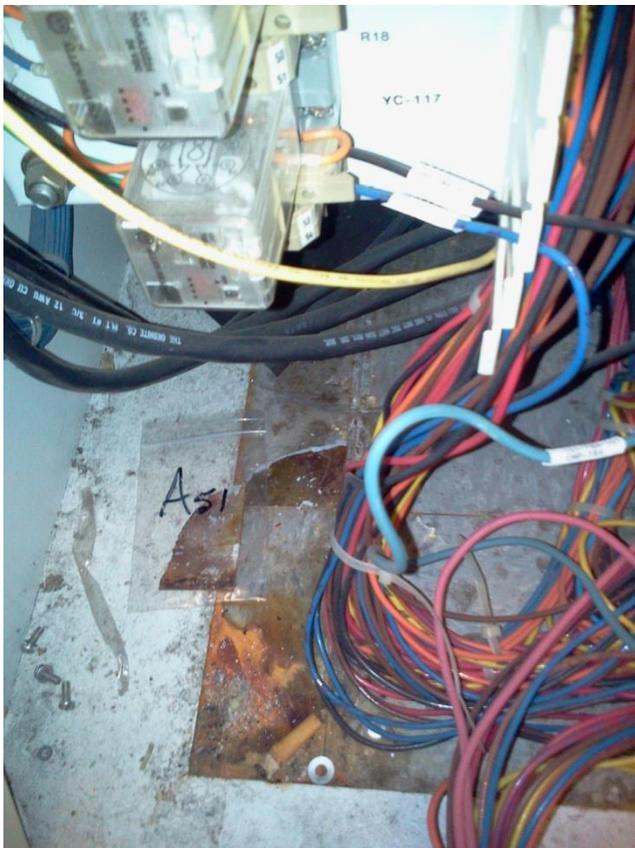
MCC-A Building



12x12 floor tile east area of bulidng under panel FIP-120-C



12x12 floor tile S/SW at door entrance



12x12 Dark Grey Tile floor area inside panel PS1&PS2



12x12 Dark Grey Tile floor area W/SW corner of building



2x2 floor tile E/NE area back door



2x2 floor tile S/SW area front door

MCC-D
Compressor Area



Wall Texture W/NW wall area



Insulation Material behind wall w/NW wall area



Expansion Joint Adjacent to wall and support column

MCC-D Building



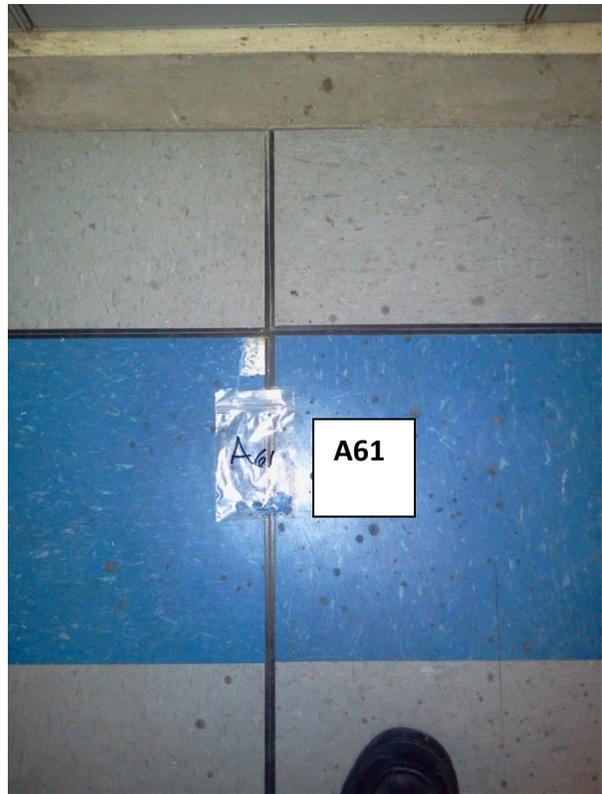
12x12 flooring SW corner of building interior



12x12 flooring East side of building interior



12x12 flooring NW corner of building interior



12x12 flooring West area of building interior



12x12 flooring East area of building & door entrance



12x12 flooring NW corner of building interior



Door Seal short blue cabinet LPC-0800



Door Seal Slim beige/brown cabinet E/C 0430

Effluent Pump Station
Filer Gallery Deck



Seal & Door at FIP-0820

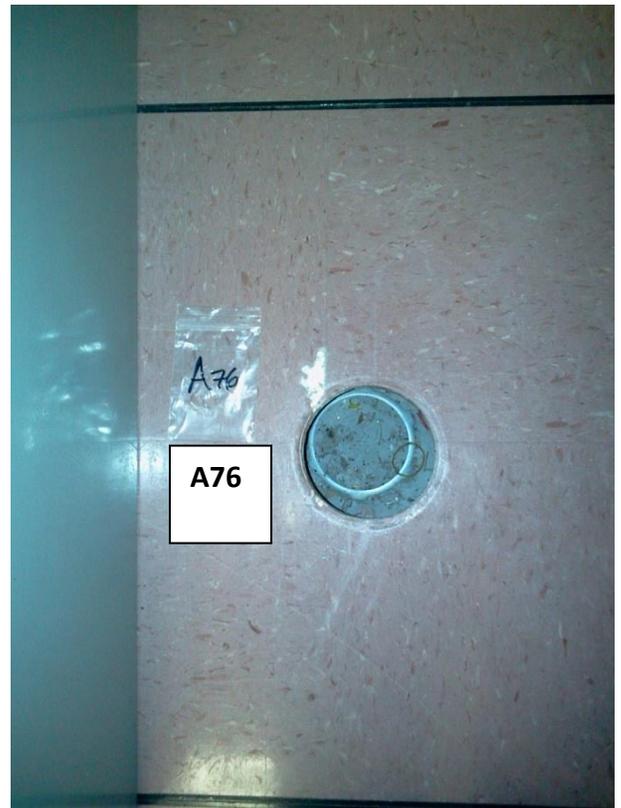


Seal & Door at FIP-0870

Administration building
2nd Floor Control Room



2x2 floor tile Control Room 2nd Level



2x2 floor tile Control Room 2nd Level



2x2 floor tile Control Room 2nd Level



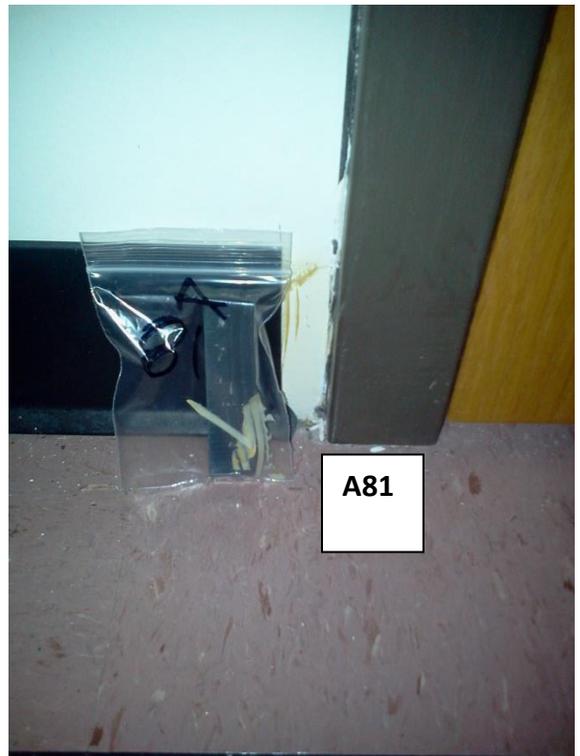
2x2 floor tile Control Room 2nd Level



2x2 floor tile Control Room 2nd Level



2x2 floor tile Control Room 2nd Level



Cove base with mastic Control Room 2nd level



Wall Texture Control Room 2nd level North Wall



Wall Texture Control Room 2nd level East Wall



Wall Texture Control Room 2nd level NW Wall

APPENDIX C

ASBESTOS ANALYTICAL RESULTS

J3 Resources, Inc.
 6110 W. 34th Street, Houston, Texas 77092
 Phone: (713) 290-0221 - Fax: (713) 290-0248
 J3Resources.com



Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
EPA 600/M4-82-020; 600/R-93/116

Tyrone Dorian
 ECMS, Inc.
 4911 Lyons Avenue
 Houston TX 77020

J3 Order #: JH1563856
Project #: 3830ECMS
Date Received: 09-Apr-2015
Date Analyzed: 15-Apr-2015
Date Reported: 16-Apr-2015

SWWWTP - C of H

Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	
A75	LAYER 1 Floor Tile, Pink/ Off White, Homogeneous	None Detected	Other Non-Fibrous Material	100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material	100%
A76	LAYER 1 Floor Tile, Pink/ Off White, Homogeneous	None Detected	Other Non-Fibrous Material	100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material	100%
A77	LAYER 1 Floor Tile, Pink/ Off White, Homogeneous	None Detected	Other Non-Fibrous Material	100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material	100%
A78	LAYER 1 Floor Tile, Off White/ Green, Homogeneous	None Detected	Other Non-Fibrous Material	100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material	100%
A79	LAYER 1 Floor Tile, Off White/ Green, Homogeneous	None Detected	Other Non-Fibrous Material	100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material	100%
A80	LAYER 1 Floor Tile, Off White/ Green, Homogeneous	None Detected	Other Non-Fibrous Material	100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material	100%


 Wanda Porch Analyst


 Lee W. Poye Lab Director

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 Phone: (713) 290-0221 - Fax: (713) 290-0248
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Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)

EPA 600/M4-82-020; 600/R-93/116

Tyrone Dorian
 ECMS, Inc.
 4911 Lyons Avenue
 Houston TX 77020

J3 Order #: JH1563856
 Project #: 3830ECMS
 Date Received: 09-Apr-2015
 Date Analyzed: 15-Apr-2015
 Date Reported: 16-Apr-2015

SWWWTP - C of H

Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents
A81	LAYER 1 Cove Base, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Beige/ Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A82	LAYER 1 Painted Texture, Off White/ White, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Wallboard, Brown/ White, Homogeneous	None Detected	Cellulose Fiber 10% Other Non-Fibrous Material 90%
A83	LAYER 1 Painted Texture, Off White/ White, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Tape, Beige, Homogeneous	None Detected	Cellulose Fiber 100%
	LAYER 3 Joint Compound, White, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 4 Wallboard, Brown/ White, Homogeneous	None Detected	Cellulose Fiber 10% Other Non-Fibrous Material 90%
A84	LAYER 1 Painted Texture, Off White/ White, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Wallboard, Brown/ White, Homogeneous	None Detected	Cellulose Fiber 10% Other Non-Fibrous Material 90%
A3	LAYER 1 Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Vinyl, Red, Homogeneous	None Detected	Other Non-Fibrous Material 100%

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NVLAP Lab Code: 200525-0; AIHA Lab ID: 157714; TDSHS License: 30-0273

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Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents
A4	Vinyl, Red, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A5	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A6	Vinyl, Red, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A7	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A8	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A9	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A10	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A11	Vinyl, Gray/ Red, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A12	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A13	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A14	Vinyl, Red, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A15	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%


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Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents
A16	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A17	Vinyl, Gray/ Red, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A18	Vinyl, Gray/ Red, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A19	Foam Insulation, Black, Homogeneous	None Detected	Cellulose Fiber 2% Other Non-Fibrous Material 98%
A20	Foam Insulation, Black, Homogeneous	None Detected	Cellulose Fiber 2% Other Non-Fibrous Material 98%
A21	Vinyl, Black, Homogeneous	None Detected	Cellulose Fiber 2% Other Non-Fibrous Material 98%
A22	Vinyl, Black, Homogeneous	None Detected	Cellulose Fiber 2% Other Non-Fibrous Material 98%
A23	Vinyl, Black, Homogeneous	None Detected	Cellulose Fiber 2% Other Non-Fibrous Material 98%
A24	Vinyl, Black, Homogeneous	None Detected	Cellulose Fiber 2% Other Non-Fibrous Material 98%
A25	Vinyl, Black, Homogeneous	None Detected	Cellulose Fiber 2% Other Non-Fibrous Material 98%


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SWWWTP - C of H

Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents
A26	Vinyl, Black, Homogeneous	None Detected	Cellulose Fiber 2% Other Non-Fibrous Material 98%
A85	Vinyl, Gray/ Red, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A35	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A36	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A37	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A38	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A39	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A40	LAYER 1 Floor Tile, Blue, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%

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Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents
A41	LAYER 1 Floor Tile, Blue, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A42	LAYER 1 Floor Tile, Blue, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A43	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A44	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A45	Ceiling Tile, White/ Gray, Homogeneous	None Detected	Cellulose Fiber 40% Cellulose Fiber 12% Other Non-Fibrous Material 48%
A46	Ceiling Tile, White/ Gray, Homogeneous	None Detected	Cellulose Fiber 40% Cellulose Fiber 12% Other Non-Fibrous Material 48%
A47	Ceiling Tile, White/ Gray, Homogeneous	None Detected	Fibrous Glass 55% Other Non-Fibrous Material 45%
A49	LAYER 1 Floor Tile, White, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%

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Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents
A50	LAYER 1 Floor Tile, White, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 3 Float, Gray, Homogeneous	None Detected	Cellulose Fiber <1% Other Non-Fibrous Material 100%
	LAYER 4 Mastic, Black, Homogeneous	Chrysotile 3%	Other Non-Fibrous Material 97%
A51	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A52	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A53	Laminare, White/ Gray, Homogeneous	None Detected	Cellulose Fiber 25% Other Non-Fibrous Material 75%
A54	Laminare, White/ Gray, Homogeneous	None Detected	Cellulose Fiber 25% Other Non-Fibrous Material 75%
A27	LAYER 1 Floor Tile, Cream, Homogeneous	None Detected	Synthetic Fiber <1% Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%

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Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents
A28	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A29	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A30	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A31	LAYER 1 Floor Tile, Blue, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A32	LAYER 1 Floor Tile, Blue, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A33	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A34	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A58	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%

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Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents
A59	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A60	LAYER 1 Floor Tile, Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A61	LAYER 1 Floor Tile, Blue, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A62	LAYER 1 Floor Tile, Blue, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A63	LAYER 1 Floor Tile, Blue, Homogeneous	None Detected	Other Non-Fibrous Material 100%
	LAYER 2 Mastic, Yellow, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A64	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A65	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A55	Paint/ Concrete, Blue/ Gray, Homogeneous	None Detected	Other Non-Fibrous Material 100%

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Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents
A56	Insulation, Dk. Gray, Homogeneous	None Detected	Fibrous Glass 90% Other Non-Fibrous Material 10%
A57	Expansion Joint, Off White, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A68	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A69	Vibration Damper, Black, Homogeneous	None Detected	Fibrous Glass 25% Other Non-Fibrous Material 75%
A70	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A71	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A72	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A73	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A74	Vinyl, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A1	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A2	Foam Insulation, White, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A66	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%

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A67	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%
A48	Foam Insulation, Black, Homogeneous	None Detected	Other Non-Fibrous Material 100%


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IH CHAIN OF CUSTODY



J3 Order # (to use only)
3850

Submitter Name: Tyrone P. Dorian		Bill to: ECMS, Inc.	
Company: ECMS, Inc.		Address: 4911 Lyons Avenue	
Address: 4911 Lyons Avenue			
		City/State: Houston, Texas	Zip: 77020
City/State: Houston, Texas	Zip: 77020	PO #:	

Project Information

Project Name: SW WWT - CoH	Project Manager: Tyrone P. Dorian
Project #: 3830 ECMS	Telephone - Office/Cell: 713-842-9896
Reports-Email Address: ecmsinc@ecmstx.com	
Invoices-Email Address: ecmsinc@ecmstx.com	Notification By: Email: <input checked="" type="checkbox"/> Verbal: <input type="checkbox"/> Text: <input type="checkbox"/>

Special Instructions:

Turnaround Times - Please Select One

Emergency* <input type="checkbox"/>	1 Day <input type="checkbox"/>	2 Day <input type="checkbox"/>	3 Day <input type="checkbox"/>	5 Day <input checked="" type="checkbox"/>
--	---------------------------------------	---------------------------------------	---------------------------------------	--

ASBESTOS

PLM - Bulk	PCM - Air	TEM - Air	TEM - Bulk	TEM - Water	TEM - Dust	TEM/PLM Soil/Vermiculite/Ore
<input checked="" type="checkbox"/> EPA 600/R-93/116 <input checked="" type="checkbox"/> Visual Estimation (<1%) <input type="checkbox"/> 400 Point Count 0.25% <input type="checkbox"/> 1,000 Point Count 0.1% <input type="checkbox"/> Gravimetric Reduction <input type="checkbox"/> Matrix Reduction (+/-) <input type="checkbox"/> NIOSH 9002 <input type="checkbox"/> OSHA ID-191	<input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> ASTM D7201 <input type="checkbox"/> ISO 8672 <input type="checkbox"/> OSHA ID-160	<input type="checkbox"/> AHERA <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> ASTM D6281 <input type="checkbox"/> ISO 10312 <input type="checkbox"/> ISO 13794	<input type="checkbox"/> Gravimetric Reduction (<1%) <input type="checkbox"/> Matrix Reduction (+/-) <input type="checkbox"/> Qualitative (+/-) <input type="checkbox"/> Drop Mount <input type="checkbox"/> Filtration	<input type="checkbox"/> EPA 100.2 Drinking Water <input type="checkbox"/> >10 µm fibers <input type="checkbox"/> ≥0.5 µm fibers <input type="checkbox"/> EPA 100.2 Effluent / WW	<input type="checkbox"/> ASTM D5755 Microvac <input type="checkbox"/> ASTM D6480 Wipe <input type="checkbox"/> 600/J-93/167 Carpet - EPA <input type="checkbox"/> Bulk Dust Qualitative	<input type="checkbox"/> ASTM 7521-TEM (+/-) <input type="checkbox"/> ASTM 7521-TEM (<1%) <input type="checkbox"/> CARB 435-Modified <input type="checkbox"/> Soil - PLM Only (+/-) <input type="checkbox"/> Vermiculite - TEM (+/-) <input type="checkbox"/> Vermiculite-Cincinnati <input type="checkbox"/> Erionite ID

METALS

PARTICULATES

Flame AA	Graphite Furnace AA - LEAD	ICP	Gravimetric
<input type="checkbox"/> Lead in Paint - SW846 7420/3050B	<input type="checkbox"/> Drinking Water - EPA 200.9	<input type="checkbox"/> Elements in Air - NIOSH 7300	<input type="checkbox"/> NIOSH 0500 - Total Particulates
<input type="checkbox"/> Lead in Air - NIOSH 7082	<input type="checkbox"/> Wastewater - SW846-7421	<input type="checkbox"/> Wipe/Soil - SW846-6010B	<input type="checkbox"/> NIOSH 0600 - Respirable Particulates
<input type="checkbox"/> Lead in Wipes - SW846 7420/3050B	<input type="checkbox"/> Soil/Sludge - SW846-7421	<input type="checkbox"/> Effluent - SW846-6010B	
<input type="checkbox"/> Lead in Soil - SW846 7420/3050B	<input type="checkbox"/> Air - NIOSH 7105	<input type="checkbox"/> Welding Fume - NIOSH 7300M	
		<input type="checkbox"/> TCLP - SW846-1311/6010B	

Total Number of Samples Submitted: **85** **Positive Stop:** YES NO

Signatures

Relinquished By:	Date: 4/8/15	Time: 6:30
Received By:	Date: 4-15-15	Time: 1:25
Relinquished By:	Date:	Time:
Received By:	Date:	Time:

*Emergency TAT requires prior lab notification. All samples analyzed outside normal business hours are charged at Emergency rate.
**TAT's are in Business Days rather than Hours (i.e. 1 Day TAT = End of Next Business Day)

1/2

APPENDIX D
LICENSE AND CERTIFICATION



TEXAS DEPARTMENT OF STATE HEALTH SERVICES

ENVIRONMENTAL CONSULTANT AND MANAGEMENT SERVICES

is certified to perform as a

Asbestos Consultant Agency

in the State of Texas within the purview of Texas Occupations Code, chapter 1954, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.

A handwritten signature in black ink that reads "David Lahey, M.D.".

DAVID LAKEY, M.D.
COMMISSIONER OF HEALTH

License Number: 100476

Expiration Date: 1/11/2016

Control Number: 96664

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE



**Texas Department of
State Health Services**

Asbestos Individual Consultant

TYRONE P DORIAN
License No. 105313
Control No. 96734
Expiration Date: 10/1/2016





www.natectx.com



Tyrone P. Dorian

Name
NPDR091614-7338

Certification #

Asbestos Project Designer Refresher

Approved Course

9/16/2014 9/16/2015 TX 10168136

Course Date Expiration Date DL#



www.natectx.com



Tyrone P. Dorian

Name
NMPR091714-7388

Certification #

Asbestos Management Planner Refresher

Approved Course

9/17/2014 9/17/2015 TX 10168136

Course Date Expiration Date DL#



www.natectx.com



Tyrone P. Dorian

Name
NIR082114-7388

Certification #

Asbestos Inspector Refresher

Approved Course

8/21/14 8/21/2015 TX 10168136

Course Date Expiration Date DL#



www.natectx.com



Tyrone P. Dorian

Name
NR082114-7388

Certification #

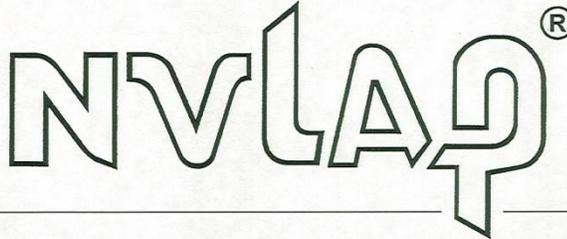
Air Monitoring Technician Refresher

Approved Course

8/21/2014 8/21/2015 TX 10168136

Course Date Expiration Date DL#

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200525-0

J3 Resources, Inc.
Houston, TX

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

BULK ASBESTOS FIBER ANALYSIS

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2014-04-01 through 2015-03-31

Effective dates



A handwritten signature in black ink, appearing to read "William R. M. L. D.", is written over a horizontal line.

For the National Institute of Standards and Technology



TEXAS DEPARTMENT OF STATE HEALTH SERVICES

J3 RESOURCES INC

is certified to perform as a

**Asbestos Laboratory
PCM, PLM, TEM**

in the State of Texas within the purview of Texas Occupations Code, chapter 1954, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.

A handwritten signature in cursive script, reading "David Lahey MD".

DAVID LAKEY, M.D.
COMMISSIONER OF HEALTH

License Number: 300273

Expiration Date: 3/15/2016

Control Number: 95940

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

J3 Resources, Inc.

6110 West 34th Street, Houston, TX 77092

Laboratory ID: 157714

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- | | |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> INDUSTRIAL HYGIENE | Accreditation Expires: 05/01/2016 |
| <input checked="" type="checkbox"/> ENVIRONMENTAL LEAD | Accreditation Expires: 05/01/2016 |
| <input checked="" type="checkbox"/> ENVIRONMENTAL MICROBIOLOGY | Accreditation Expires: 05/01/2016 |
| <input type="checkbox"/> FOOD | Accreditation Expires: |
| <input type="checkbox"/> UNIQUE SCOPES | Accreditation Expires: |

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Gerald R. Schultz

Gerald Schultz, CIH
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 14: 03/26/2014

Date Issued: 07/29/2014