ASBESTOS ABATEMENT MONITORING
CLARK COUNTY CENTENNIAL BUILDING
310 SOUTH THIRD STREET
LAS VEGAS, NEVADA
NOVEMBER 27, 1991
PREPARED FOR: CLARK COUNTY GENERAL SERVICES
PROJECT NO. 7471K206

WT Environmental
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WT Environmental
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Las Vegas, Nevada 89103
702 795 2828 • fax 795 7709

November 27, 1991

Clark County General Services Department
Facilities Services Division
401 South Fourth Street
Las Vegas, Nevada 89101

Attention: Mr. James Novak

Project No. 7471K206

Reference: Asbestos Abatement Monitoring
Clark County Centennial Building
310 South Third Street
Las Vegas, Nevada

Dear Mr. Novak:

WT Environmental Consultants, Inc. (WTEC) is pleased to provide this report on the air monitoring services performed during the asbestos abatement activities at the Clark County Centennial Building located in Las Vegas, Nevada.

Abatement contract oversight, air sampling and associated documentation services were performed as identified in WTEC Proposal No. 7471A204, dated August 14, 1991. These services were performed before, during, and after asbestos removal activities conducted by Superior Systems/ AC & C, from August 22 through September 16, 1991.

Based on information obtained as part of this project, WTEC has determined that the materials identified in the job specifications were removed, handled, and transported appropriately. The contractor's operations appear to have been conducted in compliance with Federal, State and local asbestos control regulations and according to the project asbestos removal specifications.

Area air sample analysis results indicate that airborne fiber levels, as measured outside of the removal containment barriers during abatement, were less than the OSHA permissible exposure and action levels.

Details of WTEC's services are presented in subsequent sections of this report. Submission of this report concludes our services on this phase of the project. Should you have any questions or require any additional information, please do not hesitate to contact this office.

Sincerely,

WT ENVIRONMENTAL CONSULTANTS, INC.

Timothy P. Aten

TIMOTHY P. ATEN
Nevada License IM0055

David K. Rueckert KP

DAVID K. RUECKERT
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Nevada License IJPM0014

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APPENDICES

1.0 INTRODUCTION

1.1 GENERAL

This report presents the results of WTEC's abatement air monitoring services conducted for the Clark County General Services Department as part of the asbestos abatement activities at the Centennial Building located at 310 South Third Street in Las Vegas, Nevada. Superior Systems/AC & C of Las Vegas, Nevada, a Nevada-licensed asbestos abatement contractor, performed the abatement work. WTEC was retained by the Clark County General Services Department and was authorized to proceed on the project as stipulated in our Proposal No. 7471A204. Abatement monitoring, air sampling, project review and documentation services were conducted before, during, and after the contractor's job duration from August 22, 1991 through September 16, 1991. Site services were performed by Mr. Dennis J. Kish of WTEC, who is a Nevada-licensed asbestos abatement monitor (License No. IM0054).

1.2 PROJECT OBJECTIVE AND SCOPE OF WORK

WTEC's scope of services included:

- Establish baseline (pre-removal) airborne fiber concentration conditions, in areas where appropriate;
- Monitor airborne fiber concentrations outside of the containment barriers during removal in adjacent stairwells;
- Monitor that the abatement work was completed in compliance with the written project specifications, applicable Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and State of Nevada Department of Industrial Relations (NDIR) regulations;
- Confirm that post-abatement airborne fiber concentrations fell below specified and/or regulated levels within the specified work areas.

2.0 AIR SAMPLING

2.1 AREA AIR SAMPLING EQUIPMENT

All area air samples (baseline, during removal and final clearance) were collected using Dayton Speedaire vacuum pumps pulling air through pre-assembled filter assemblies. Each filter assembly consisted of a 25 mm diameter, 0.8 micron porosity Millipore membrane filter supported by a cellulose pad mounted in a carbon-filled polypropylene housing with a 50 mm extension cowl.

2.2 BASELINE AIR SAMPLING

Baseline (pre-removal) area air sampling was performed by WTEC prior to the commencement of abatement activities in those areas of the Centennial Building where removal of asbestos containing materials (ACMs) was to take place (second and third floors). Baseline fiber concentrations are used to compare with final clearance samples to aid in evaluating completeness of the abatement work. Sampling was conducted for approximately 170 minutes at calibrated rates between 9.67 and 9.86 liters per minute (lpm). The baseline samples were collected in areas within the planned work areas. Analysis of the baseline air samples indicated fiber concentrations ranging from 0.0016 to 0.0071 fibers per cubic centimeter (f/cc).

2.3 AREA AIR SAMPLING DURING ABATEMENT

Area air sampling outside of the containment barriers was conducted during all phases of the contractor's abatement work, including work area preparation and actual ACM removal and cleanup. Area air monitoring was conducted each day that the abatement contractor was onsite at calibrated rates between 9.61 and 9.90 lpm for approximately 8 to 15 1/2 hours. Analysis of the air samples collected during abatement activities indicated fiber concentrations ranging from 0.0001 to 0.02 f/cc. These fiber levels are below OSHA permissible exposure and action levels and are comparable to baseline levels. Overloaded samples likely resulted from construction activity occurring outside of the abatement work area.

2.4 FINAL AREA AIR SAMPLING

After ACM removal and final cleaning, the WTEC monitor performed a visual inspection of the abatement areas to document and verify the complete removal of identified ACMs. After encapsulation, final area (clearance) air samples were collected in the same general areas that

baseline samples were collected. Final clearance sampling was performed using aggressive air techniques on both the second and third floor within contained areas. A minimum air sample volume of 1200 liters was obtained for each sample as required by NDIR. Sampling was conducted for approximately 135 minutes at calibrated pump rates of 9.53 to 9.86 lpm. Before removal of the critical containment barriers, sample results were available to verify that the abatement work area met specified and regulated standards for worker reoccupation.

Analytical results of the clearance air samples indicated airborne fiber levels ranging from 0.0011 to 0.009 f/cc within the contained work areas. These fiber levels are comparable to the pre-abatement (baseline) results and below the State of Nevada's mandated clearance level of 0.01 f/cc for building spaces to be reoccupied.

2.5 PERSONNEL AIR SAMPLING

OSHA-mandated personnel air sampling and sample analysis was performed by Superior Systems/AC & C. It is WTEC's understanding that analytical results were submitted to Clark County General Services in a work completion document.

2.6 SAMPLE ANALYSIS

All WTEC's baseline, area and clearance air sampling filters were analyzed at the WTEC asbestos laboratory in Phoenix, Arizona. The laboratory employs the NIOSH 7400 method for airborne fiber quantification, wherein any structure with a length of 5 microns or greater and a length-to-width ratio of at least 3:1 is counted as a fiber under a phase contrast microscope. The laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos bulk analysis and participates in American Industrial Hygiene Assocation (AIHA) proficiency testing program.

2.7 CHAIN-OF-CUSTODY AND LABORATORY REPORTS

Chain-of-custody records were maintained throughout the project by WTEC for the baseline, area and clearance air samples. Laboratory analysis report forms and copies of the chain-of-custody forms are contained in Appendix A.

3.0 ABATEMENT PROCEDURES

3.1 WORK AREA PREPARATION

On August 20, 1991, Superior Systems/AC & C personnel began preparing the third floor of the Centennial Building for abatement. The abatement workers constructed full containment barriers in the floor space where abatement activities would occur. Critical barriers were placed over doors and windows. Full containment was then achieved by placing 2 layers of 4-mil polyethylene sheeting on all walls. As floor tile and mastic would be removed from the building space, no sheeting was placed over the floor. Barriers were sealed at lap joints and gaps with duct tape and spray adhesive. A worker decontamination unit was constructed at the entrance of the containment area in the exit stairway of the building. As required by law, the perimeter and entrances to the containment areas were posted with signs warning of a possible asbestos hazard inside.

When full containment of the work areas was achieved, negative pressure, High Efficiency Particulate Air (HEPA) filtration machines were placed so that the intake portion of each unit was drawing air from within containment and the discharge of the filtrated air was directed outside of containment. The HEPA filtration units were of a size sufficient to maintain a constant negative static air pressure (relative to the outside air) within the containment area and were situated so that all the rooms within the containment area had continuous air changes.

Once it had been established that the work areas were under full containment and the HEPA filtration units were in place and operating, air flow tests (smoke) were conducted to verify that negative pressure within the containment areas had been achieved. The second floor of the building was also prepared with full containment barriers and HEPA filtration machines as described above.

3.2 GENERAL ACM REMOVAL PRACTICES

Removal of the asbestos-containing mudded pipe fittings, floor tile, floor tile mastic, ceiling tile mastic, and baseboard mastic was performed under full containment conditions in the second and third floors of the Centennial Building. The removal activities consisted of:

- Thoroughly wetting the ACM with amended water
- Stripping, scraping or scouring the ACM from the substrate

- Placing the removed ACM into 6-mil polyethylene "asbestos-labelled" disposal bags in a wet condition.

Copies of WTEC's daily field notes are presented in Appendix B and photographs documenting the ACM removal practices are presented in Appendix C.

3.3 ACM WASTE HANDLING PROCEDURES

Used glovebags and disposal bags of removed ACM were sealed with tape, wet-wiped, placed into another 6-mil polyethylene "asbestos labeled" bag, resealed with tape and loaded into a polyethylene-lined covered trailer. The materials were then transported to the Sunrise landfill site in Las Vegas, Nevada. WTEC was not provided with a copy of the transport manifest to verify disposal. It is WTEC's understanding that a copy of this document was submitted to Clark County General Services in Superior Systems/AC&C's work completion report.

3.4 VISUAL CLEARANCE INSPECTIONS

Following removal of the ACM, all work areas were visually inspected by the WTEC representative. Floors, walls, ceilings, structural members, soffits, plumbing fixtures, diffusers, HVAC units and outside areas, as appropriate, were checked for any evidence of remaining ACM or ACM debris. Based on the results of these visual inspections, the contractor was instructed to either perform additional removal/cleaning or allowed to proceed with encapsulation.

3.5 ENCAPSULATION

Following a visual clearance inspection, the contractor was instructed to proceed with encapsulation of the work area. An EPA-approved lockdown encapsulant was applied to all cleaned surface within the containment barriers using an airless sprayer. One coat was applied to floors, walls, ceilings, structural members, soffits, plumbing fixtures, diffusers and HVAC units. The encapsulant was allowed to dry with the negative pressure HEPA filtration machines operating.

3.6 FINAL AREA AIR (CLEARANCE) SAMPLING

Final air (clearance) sampling within the containment area of both the second and third floors of the Centennial Building was performed following final cleaning, encapsulation and visual inspection by WTEC. Clearance air sampling was performed using aggressive air techniques and procedures previously described in Section 2.

4.0 FINDINGS, CONCLUSIONS AND SUMMARY

4.1 LABORATORY RESULTS OF AIR SAMPLES

Laboratory reports indicate that all clearance samples collected for the containment areas within the specified work areas exhibit fiber levels less than the 0.01 f/cc clearance level set by WTEC's job specifications and NDIR regulations. Results of all area air samples collected during abatement indicated airborne fiber concentrations less than the OSHA permissible exposure and action levels.

4.2 MATERIAL REMOVAL AND DISPOSAL

The asbestos-containing materials identified by the project specifications appeared to have been removed appropriately. The removal operations appeared to have been conducted in compliance with Federal, State and local asbestos regulations and with WTEC's removal specifications.

FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-10-91
REVIEWED BY : A. Assaf
PAGE : 1 of 4
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 8-28-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-01	CCGS-02	CCGS-03	CCGS-04
SAMPLE NUMBER	1913008	1913009	1913010	1913011
DATE SAMPLED	8-19-91	8-19-91	8-19-91	8-19-91
VOLUME	1644.0L	1676.0L	1666.0L	1656.0L
LOCATION	W. end-2nd floor	Center-2nd floor	E. end-2nd floor	W. end-3rd floor
INSIDE/OUTSIDE WORK AREA	Inside	Inside	Inside	Inside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Baseline	Baseline	Baseline	Baseline

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	9.5	5.5	20.5	24
FIBERS/cc	0.0028	0.0016	0.0060	0.0071
UPPER & LOWER CONFIDENCE LIMITS	N/A	N/A	0.0188-0.0030	0.0222-0.0035
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 8-30-91

a3008.ccg

FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-10-91
REVIEWED BY : A. Assat
PAGE : 2 of 4
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 8-28-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-05	CCGS-06	CCGS-08	CCGS-09
SAMPLE NUMBER	1913012	1913013	1913015	1913016
DATE SAMPLED	8-19-91	8-19-91	8-25-91	8-25-91
VOLUME	1666.0L	1673.0L	6085.0L	6192.0L
LOCATION	Center-3rd floor	E. end-3rd floor	Neg. air exhaust	Decon.
INSIDE/OUTSIDE WORK AREA	Inside	Inside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Baseline	Baseline	During removal	During removal

NOTES: CCGS-07-Field blank was missing.

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	12	20.5	112 f/45	103.5 f/82
FIBERS/cc	0.0035	0.0060	0.0201	0.0100
UPPER & LOWER CONFIDENCE LIMITS	0.0110-0.0017	0.0188-0.0030	0.0629-0.0100	0.0313-0.0050
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 8-30-91

a3008.ccg

FIBER COUNT REPORT
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CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-10-91
REVIEWED BY : A. Assaf
PAGE : 3 of 4
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 8-28-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-10	CCGS-11	CCGS-12	CCGS-13
SAMPLE NUMBER	1913017	1913018	1913019	1913020
DATE SAMPLED	8-25-91	8-25-91	8-26-91	8-26-91
VOLUME	6237.0L	0	8676.0L	8784.0L
LOCATION	Exit-2nd floor	Blank	Neg. air exhaust	Decon.
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	During removal	During removal	During removal	During removal

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	**The cassette was empty (did not**	5.5	83	Overloaded
FIBERS/cc	**contain filter)**		0.0047	
UPPER & LOWER CONFIDENCE LIMITS			0.0147-0.0023	
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 8-30-91

a3008.ccg

FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
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REVIEWED BY : A. Assaf
PAGE : 4 of 4
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 8-28-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-14	CCGS-15		
SAMPLE NUMBER	1913021	1913014		
DATE SAMPLED	8-26-91	8-26-91		
VOLUME	8856.0L	0		
LOCATION	Exit-2nd floor	Blank		
INSIDE/OUTSIDE WORK AREA	Outside	Outside		
AREA/PERSONAL	Area	Area		
ACTIVITY	During removal	During removal		

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	99 f/100	0		
FIBERS/cc	0.0055			
UPPER & LOWER CONFIDENCE LIMITS	0.0172-0.0027			
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 8-30-91

a3008.ccg

FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-16-91
REVIEWED BY : A. Assaf
PAGE : 1 of 5
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-4-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-16 *	CCGS-17	CCGS-18	CCGS-19
SAMPLE NUMBER	1913065	1913066	1913067	1913068
DATE SAMPLED	8-27-91	8-27-91	8-27-91	8-27-91
VOLUME	4612L	4656L	4689L	-
LOCATION	Neg Air Exhaust	Decon	Make-up air -2nd floor	Blank
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Outside area air	Outside area air	Outside area air	Quality assurance

NOTES: **Filter CCGS-16 (1913065) is heavily loaded.**

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	3	Overloaded	7	1
FIBERS/cc	0.0003		0.0007	
UPPER & LOWER CONFIDENCE LIMITS	N/A		N/A	
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 9-9-91

a3065.cb

FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-16-91
REVIEWED BY : A. Assaf
PAGE : 2 of 5
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-4-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-20	CCGS-21	CCGS-22	CCGS-23
SAMPLE NUMBER	1913069	1913070	1913071	1913072
DATE SAMPLED	8-28-91	8-28-91	8-28-91	8-28-91
VOLUME	8482L	8499L	8552L	-
LOCATION	Neg Air Exhaust	Decon	2nd floor exit	Blank
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Outside area air	Outside area air	Outside area air	Quality assurance

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	Overloaded	Overloaded	Overloaded	Was not analyzed
FIBERS/cc				
UPPER & LOWER CONFIDENCE LIMITS				
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 9-9-91

a3065.cb

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REVIEWED BY : A. Assaf
PAGE : 3 of 5
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-4-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-24	CCGS-25 *	CCGS-26	CCGS-27
SAMPLE NUMBER	1913073	1913074	1913075	1913076
DATE SAMPLED	8-29-91	8-29-91	8-29-91	8-29-91
VOLUME	9223L	9242L	9289L	-
LOCATION	Neg Air Exhaust	Decon	2nd floor-exit	Blank
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Outside area air	Outside area air	Outside area air	Quality assurance

NOTES: **Filter CCGS-25 (1913074) was heavily loaded.**

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	Overloaded	3.5	Overloaded	0
FIBERS/cc		0.0002		
UPPER & LOWER CONFIDENCE LIMITS		N/A		
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 9-9-91

a3065.cb

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ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-16-91
REVIEWED BY : A. Assaf
PAGE : 4 of 5
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-4-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-28	CCGS-29	CCGS-30	CCGS-31
SAMPLE NUMBER	1913077	1913078	1913079	1913080
DATE SAMPLED	8-30-91	8-30-91	8-30-91	8-30-91
VOLUME	6713L	6686L	6734L	-
LOCATION	Neg Air Exhaust	Decon	2nd floor-exit	Blank
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Outside area air	Outside area air	Outside area air	Quality assurance

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	Overloaded	Overloaded	Overloaded	Was not analyzed
FIBERS/cc				
UPPER & LOWER CONFIDENCE LIMITS				
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 9-9-91

a3065.cb

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ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
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REVIEWED BY : A. Assaf
PAGE : 5 of 5
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-4-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-32	CCGS-33	CCGS-34	CCGS-35
SAMPLE NUMBER	1913081	1913082	1913083	1913084
DATE SAMPLED	8-31-91	8-31-91	8-31-91	8-31-91
VOLUME	4636L	4689L	4732L	-
LOCATION	Neg Air Exhaust	Decon	2nd floor-exit	Blank
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Outside area air	Outside area air	Outside area air	Quality assurance

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	123.5 f/71			
FIBERS/cc	0.0184			
UPPER & LOWER CONFIDENCE LIMITS	0.0576-0.0092			
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 9-9-91

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FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-17-91
REVIEWED BY : A. Assaf
PAGE : 1 of 5
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-5-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-36	CCGS-37	CCGS-38	CCGS-39
SAMPLE NUMBER	1913053	1913054	1913055	1913056
DATE SAMPLED	9-2-91	9-2-91	9-2-91	9-2-91
VOLUME	8703L	8802L	8865L	-
LOCATION	Neg Air Exhaust	Decon	2nd floor-exit floor	Blank
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Outside area air	Outside area air	Outside area air	Quality assurance

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	25	39	29.5	0
FIBERS/cc	0.0014	0.0022	0.0016	-
UPPER & LOWER CONFIDENCE LIMITS	0.0044-0.0007	0.0069-0.0011	0.0050-0.0008	
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 9-10-91

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FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-17-91
REVIEWED BY : A. Assaf
PAGE : 2 of 5
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-5-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-40 *	CCGS-41 *	CCGS-42	CCGS-43
SAMPLE NUMBER	1913057	1913058	1913059	1913060
DATE SAMPLED	9-3-91	9-3-91	9-3-91	9-3-91
VOLUME	6388L	6461L	6501L	-
LOCATION	Neg Air Exhaust	Decon	2nd floor exit	Blank
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Outside area air	Outside area air	Outside area air	Quality assurance

NOTES: Filters CCGS-40 (1913057) and CCGS-41 (1913058) are heavily loaded.

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	41.5	29.5	28	1
FIBERS/cc	0.0032	0.0022	0.0021	
UPPER & LOWER CONFIDENCE LIMITS	0.0100-0.0016	0.0069-0.0011	0.0066-0.0010	
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 9-10-91

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FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-17-91
REVIEWED BY : A. Assaf
PAGE : 3 of 5
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-5-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-44	CCGS-45	CCGS-46	CCGS-47
SAMPLE NUMBER	1913061	1913062	1913063	1913064
DATE SAMPLED	9-4-91	9-4-91	9-4-91	9-4-91
VOLUME	6395L	6481L	6507L	-
LOCATION	Neg Air Exhaust	Decon	2nd floor-exit	Blank
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Outside area air	Outside area air	Outside area air	Quality assurance

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	29	36	48.5	0.5
FIBERS/cc	0.0022	0.0027	0.0037	
UPPER & LOWER CONFIDENCE LIMITS	0.0069-0.0011	0.0085-0.0013	0.0116-0.0018	
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 9-10-91

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FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-17-91
REVIEWED BY : A. Assaf
PAGE : 4 of 5
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-5-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-48	CCGS-49	CCGS-50	CCGS-51
SAMPLE NUMBER	1913042	1913043	1913044	1913045
DATE SAMPLED	9-4-91	9-4-91	9-4-91	9-4-91
VOLUME	1314L	1294L	1286L	1323L
LOCATION	Inside decon	E. side of Bldg.	Center of Bldg.	NEC of Bldg.
INSIDE/OUTSIDE WORK AREA	Inside	Inside	Inside	Inside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Final clearance	Final clearance	Final clearance	Final clearance

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	8	4.5	3	5
FIBERS/cc	0.0030	0.0017	0.0011	0.0019
UPPER & LOWER CONFIDENCE LIMITS	N/A	N/A	N/A	N/A
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 9-10-91

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FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County General Services
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 9-17-91
REVIEWED BY : A. Assaf
PAGE : 5 of 5
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-5-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-52	CCGS-53		
SAMPLE NUMBER	1913046	1913047		
DATE SAMPLED	9-4-91	9-4-91		
VOLUME	1323L	0		
LOCATION	SWC of Bldg.	Blank		
INSIDE/OUTSIDE WORK AREA	Inside	Inside		
AREA/PERSONAL	Area	Area		
ACTIVITY	Final clearance	Quality Assurance		

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	6	0		
FIBERS/cc	0.0022			
UPPER & LOWER CONFIDENCE LIMITS	N/A			
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Anna Logvinenko Anna Logvinenko Date: 9-10-91

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FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICROSCOPY (PCM)
NIOSH METHOD 7400

CLIENT: Clark County
RE: Centennial Building

INVOICE NO. : 7471W206
DATE : 10-8-91
REVIEWED BY : A. Assaf
PAGE : 1 of 4
P.O. NO. : None
SAMPLED BY : D. Kish
SUBMITTED BY : D. Kish

SUBMITTAL DATE: 9-17-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-54	CCGS-55	CCGS-56	CCGS-57
SAMPLE NUMBER	1913266	1913267	1913268	1913269
DATE SAMPLED	9-6-91	9-6-91	9-6-91	9-6-91
VOLUME	5802L	5874L	5904L	0
LOCATION	Neg-air exhaust	Decon.	2nd floor exit	Blank
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area	Area
ACTIVITY	Outside area air	Outside area air	Outside area air	Quality assurance

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	Overloaded	20.0	96.5	2.0
FIBERS/cc	-	0.0017	0.0080	-
UPPER & LOWER CONFIDENCE LIMITS	0	0.0053-0.0009	0.0251-0.0040	-
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):				
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17				
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25				
DETECTION LIMIT DL=5½ fibers/100 fields				
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL				

Analyst: Jason Marshall Jason Marshall Date: 10-7-91

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FIBER COUNT REPORT
ASBESTIFORM FIBER DETERMINATION BY PHASE CONTRAST MICRO
NIOSH METHOD 7400

CLIENT: Clark County
RE: Centennial Building

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SUBMITTAL DATE: 9-17-91

SAMPLE DESCRIPTION

CLIENT SAMPLE ID	CCGS-58	CCGS-59	CCGS-60
SAMPLE NUMBER	1913270	1913271	1913272
DATE SAMPLED	9-10-91	9-10-91	9-10-91
VOLUME	5275L	5308L	0
LOCATION	Bag-out	Bag-out	Blank
INSIDE/OUTSIDE WORK AREA	Outside	Outside	Outside
AREA/PERSONAL	Area	Area	Area
ACTIVITY	Outside area air	Outside area air	Quality ass

NOTES:

RESULTS

BLANK VALUES ARE NOT SUBTRACTED FROM AIR FILTER CONCENTRATION VALUES.
AIR CONCENTRATIONS REPORTED ARE NOT TIME-WEIGHTED-AVERAGE (T.W.A.)

FIBERS 100 FIELDS	1.0	Overloaded	2.0
FIBERS/cc	0.0001	-	-
UPPER & LOWER CONFIDENCE LIMITS	0.0003-0.0005	-	-
COEFFICIENT OF VARIATION (RELATIVE STANDARD DEVIATION):			
INTRA-LABORATORY CV=0.23, 95% CONFIDENCE, NIOSH 7400 RANGE 0.17			
INTER-LABORATORY CV=0.45, 95% CONFIDENCE, NIOSH 7400 A RULES 0.25			
DETECTION LIMIT DL=5½ fibers/100 fields			
QUANTITATION LIMIT 10 fibers/100 fields - (for both Methods - NIOSH 7400 and ID 160 SLCAL			

Analyst: Jason Marshall Jason Marshall

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