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Ref. No. 889437.01/015435.00010

April 3, 2014

Michelle Mullin, Project Manager
U.S. Environmental Protection Agency - Region 10
1200 Sixth Avenue, Suite 900, OCE-084
Seattle, WA 98101

Re: Rainier Commons, LLC – Old Rainier Brewery Exterior Paint Abatement
Phase I Individual Phased Work Plan (IPWP)

Dear Ms. Mullin:

EPA approved the Rainier Commons application for risk based approval of its Work Plan for Exterior Paint Removal dated March 25 2013 and revised pursuant to EPA request July 25 2013. EPA's conditional approval is dated December 18, 2013. Rainier Commons is submitting this Individual Phased Work Plan for the Phase I Work, pursuant to the Work Plan, EPA's December 18, 2013 approval and subsequent in-person meeting and phone conference with Rainier Commons' representatives. This IPWP is a supplement to the Work Plan and incorporates the Work Plan by reference as if set forth here again, in full.

Phase I of the Work includes the removal of exterior paint from the west elevation of building 10, the west elevation of building 11 and all four elevations (sides) of building 13 via fully contained blasting with sand, walnut shells or soda as a blast medium. The remediation areas on building 10 and 11 are primarily brick substrate and building 13 is largely brick with a concrete apron or area of concrete at the ground floor level. Each building also includes small areas of metal substrate such as window frames and parapet flashing, which will need to be remediated via chemical stripping. Window frames will be chemically stripped within the containment. Parapet cap and wall flashings will be chemically stripped outside of the negative air containment structure as this process can be carried out in open air without creating any dust, airborne or waterborne waste. For chemical stripping, the dried paint on metal is coated with a viscous chemical stripper and then covered with impermeable sheeting, allowing the chemical stripper to convert the dried paint into a gel type consistency, which is then removed with the sheeting and wiped clean from the metal surface. All resultant waste materials will then be wrapped together stored in containers and disposed of pursuant to the applicable PCB waste disposal regulations.

Enclosed with this letter are the following components of the IPWP for the Phase I Work:

1. NVL Condition 6 Catch Basin Sampling Plan for Phase I IPWP;
2. CGI Rainier Commons Site Specific Exterior Paint Abatement Safety Plan;
3. CGI Spill Control Plan;
4. CGI 40 hour Hazwoper training cards – to be supplemented when final crew selected and work allocated;
5. CGI General Health and Safety Plan;
6. CGI Sketch of Containment Enclosure with Secondary Containment Elements;
7. CGI Rainier Commons Supplemental #001 to Work Plan;
8. NVL Addendum 1 Condition 6 Catch Basin Sampling Plan for Phase I IPWP;
9. NVL Storm & Sanitary Inlets Protection Plan;
10. NVL Buildings 10, 11, 13 IPWP Specific Storm & Sanitary Inlets Protection Plan;
11. NVL Condition 8 Sampling Plan for Verification of Concrete Substrate Once Visual Standard Met;
12. NVL Visual Inspection Plan to Evaluate Work Performance; and
13. NVL Example of Method to Randomly Select Two Percent Surface Area to Test

Several of these documents have been provided to EPA in draft form or as advance copies for review and early feedback. All of these documents were requested or required by EPA either in the formal December 18, 2013 approval of the Work Plan or in subsequent meetings or conferences. We understand that EPA will review the IPWP and provide approval within 30 days of this submittal. We further understand that Rainier Commons will be authorized to proceed and initiate the Work within 30 days of the approval of this IPWP. Therefore, it is our understanding that Rainier Commons could engage its contractor to commence the work on or about June 2, 2014. Any advanced input regarding timing to the date of approval that might vary from this projection would be appreciated as the contractor has been more than patient in extending the scheduling of this Work.

We look forward to EPA's approval of this Phase I IPWP. If you have questions please contact our office or Rainier Common's Project Manager.

Very truly yours,

RYAN, SWANSON & CLEVELAND, PLLC

Jo M. Flannery
Attorney Of Counsel

Enclosures
cc: Client
Alex Fidis, EPA Regional Counsel (via electronic copy with enclosures)
Mark Marcell, CGI (via electronic copy with enclosures)
Dave Leonard, NVL (via electronic copy with enclosures)

EXHIBIT 1

Condition 6 Catch Basin Sampling Plan for Phase 1 IPWP

NVL Laboratories, Inc.
Office: (206) 547-0100
Fax: (206) 634-1936

Date: **January 30, 2014**

NVL Project No. **2012-949**

Site Address: **Rainer Commons**
3100 Airport Way S, Seattle, 98134

Introduction:

NVL Laboratories has prepared this Catch-Basin Performance Monitoring and Sampling Plan to document procedures to ensure that active measures to protect the storm and combined sanitary sewer systems throughout the duration of the exterior paint removal project as outlined in the Rainier Commons Work Plan dated March 25, 2013, revised July 25, 2013 ("Work" or "Plan"), are meeting the requirements of the EPA risk based approval for the Plan.

As a part of Condition 6 of EPA's approval of the Work Plan Rainier Commons must provide a sampling plan to test catch-basins for Polychlorinated Biphenyl (PCB) contamination before, during and after each phase of the Work.

For each individual phase of the Work, samples will be collected from designated catch-basins once before Work commences, once during the course of the Work, and once after the phase of Work is completed. During each round of sampling, one aqueous and one sediment sample will be collected from each designated catch-basin.

Sampling Locations Phase 1 Work:

The Phase 1 Work includes buildings 10, 11, and 13 and specifically the west elevation of building 10, the west elevation of building 11, and all four elevations of building 13.

The sampling locations for Phase 1 of the Work are depicted on Figure 1 attached hereto, labeled CB1, CB3 and MH6/CB16. The sample locations include the northern end of the site, the southern end of the site and an area adjacent to the Phase 1 Work, which gather inputs of storm run-off from across the site.

Rainier Commons has inventoried the inlets and pathways of storm run-off to the storm and sanitary sewer systems at the site. This inventory includes roof drains, manholes, catch-basins, and trench drains, at a minimum. This inventory and related information are included in Figures 2 through 5 attached hereto.

Sampling Schedule:

The initial sampling round to be collected prior to the commencement of the Work will be conducted approximately 3 to 10 days prior to commencement of the Work.

The Phase 1 Work is estimated to have a total duration of approximately five weeks. The first 10 days may be devoted to erection of scaffolding and containment and staging materials and equipment. Therefore, it is anticipated that the second sampling round will be collected at week three of the Work, but in all events no less than five days after the commencement of active blasting.

The third round of sampling shall be conducted within one week of decontamination and removal of the protective enclosure, following clearance and approval of the contractor's work by NVL and Rainier Commons.

Methodology:

A Certified Industrial Hygienist (CIH) will oversee all sample collection, analysis, data interpretation and reporting involved with the Work and the IPWPs, including this Sampling Plan.

To collect aqueous samples, NVL Laboratories will use a telescopic catch pole fitted with a clean polyethylene catch cup fitted to the end to collect the water sample. The sample cup is to be appropriately discarded after use. After lowering the catch cup down into the water in the catch-basin, the aqueous sample will be retrieved and then poured directly into a one-liter amber glass bottle. The bottles will then be labeled and packed in an iced cooler for transportation to the laboratory via chain-of-custody protocol.

To collect sediment samples, NVL Laboratories will use the same telescopic catch pole fitted with a trowel tip to collect any sediment present at the bottom of the catch-basin. The trowel tip is to be appropriately discarded or cleaned for re-use. After scooping up sediment, the sample will be retrieved and sediment transferred into a clean and labeled container. Sediment samples will then be transported to the laboratory via chain-of-custody protocol.

Media Sample Volume Requirements:

Per the analytical procedure requirements:

- Aqueous sample minimum volume: 250 milliliters
- Sediment sample minimum volume: 10 grams

Analysis:

Per the Condition, samples will be submitted to AIHA and WA Dept. of Ecology accredited laboratories to be analyzed for PCB Arochlor content via EPA Method 8082.

NVL Laboratories will be the primary laboratory used for the analysis. NVL meets the requirements of this Condition. (Courtesy copy of lab accreditation attached hereto).

Quality Assurance/Quality Control (QA/QC):

QA/QC details are necessary to ensure that the resulting data are of acceptable quality, including sensitivity, to be acceptable for comparison to EPA decision criteria.

Field Quality Assurance: To measure QA/QC for reproducibility and representativeness of results, one field duplicate will be obtained from each sample set collected; one aqueous and one sediment field duplicate. The method of selection of the location to collect the duplicate will be by using a random number generator to select one of the sampling locations. For example, if three catch-basin

locations are tested, a random number method will determine which location to collect the duplicate sample. The duplicate sample will be collected in the same manner as the other samples.

Laboratory Quality Assurance: To measure QA/QC for accuracy and reproducibility of results, the duplicate sample will be submitted to another laboratory that meets the qualifications identified in this protocol.

NVL Laboratories QA/QC Program: NVL Laboratories standard QA/QC procedures will also be in place. The QA/QC program in place is part of NVL Laboratories' existing multiple professional laboratory accreditations, which include accreditation by The Washington State Department of Ecology – Accreditation ID C797 - for several listed chemicals, including PCB (Aroclor) analysis. NVL Laboratories' QA/QC program includes the addition of surrogates, laboratory control sample (LCS) and LCS duplicate, matrix spike (MS) and MS duplicate and continuous calibration check (CCV) sample for all PCB analysis.

NVL Laboratories' professional laboratory accreditations and reference to QA/QC documentation can be found at: http://www.nvllabs.com/qualifications.htm

All samples will be managed under chain-of-custody control.

Allowable Maximum Contamination Level (MCL):

Laboratory results from analysis of samples will have an allowable maximum contamination level of 1 Milligram/Liter (ppm) in aqueous samples and 1 Milligram/Kilogram (ppm) in catch-basin sediments.

Contingency Plan:
The contamination level of PCBs greater than (>) 1 Milligram/Liter (ppm) in aqueous samples, or greater than (>) 1 Milligram/Kilogram (ppm) in catch-basin sediments during the Work shall trigger an immediate evaluation of the containment structure and source control measures by Rainier Commons to address any deficiencies and implement appropriate additional interventions, corrections or improvements where applicable.

Reporting:

A written report will be provided by NVL to Rainier Commons to provide to the EPA within 30 days of sample collection and analysis. The report will include a description of the sampling locations and sampling conditions as well as site photos. The results of the laboratory analysis will be shown in a data table. Any sample with a detection result above 1 ppm will be shown in bold in the table. Laboratory analysis reports and a site map showing sample collection locations will also be included as attachments to the report.

FIGURE 1

RAINIER COMMONS
CATCH BASINS SAMPLING PLAN
PHASE 1

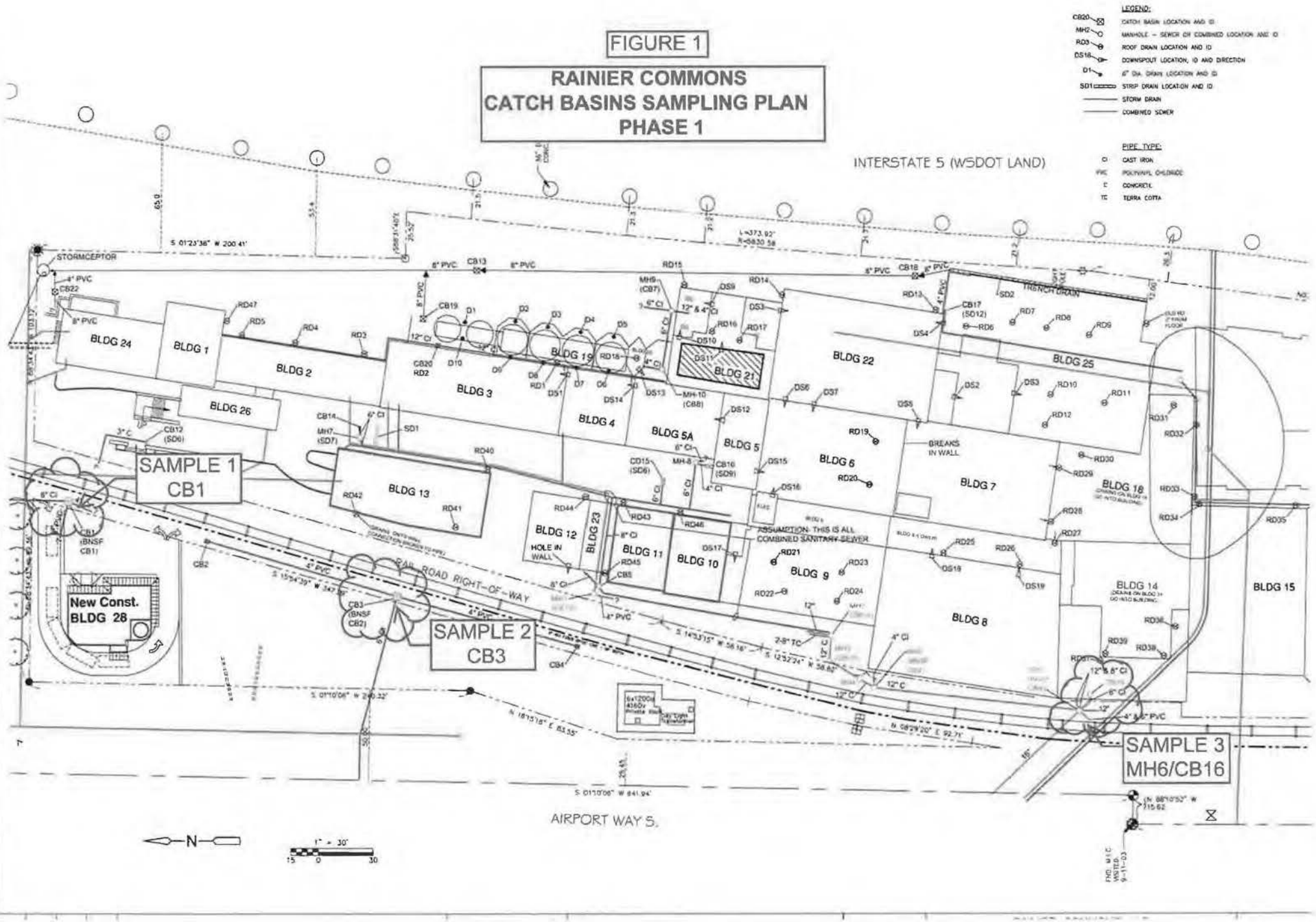
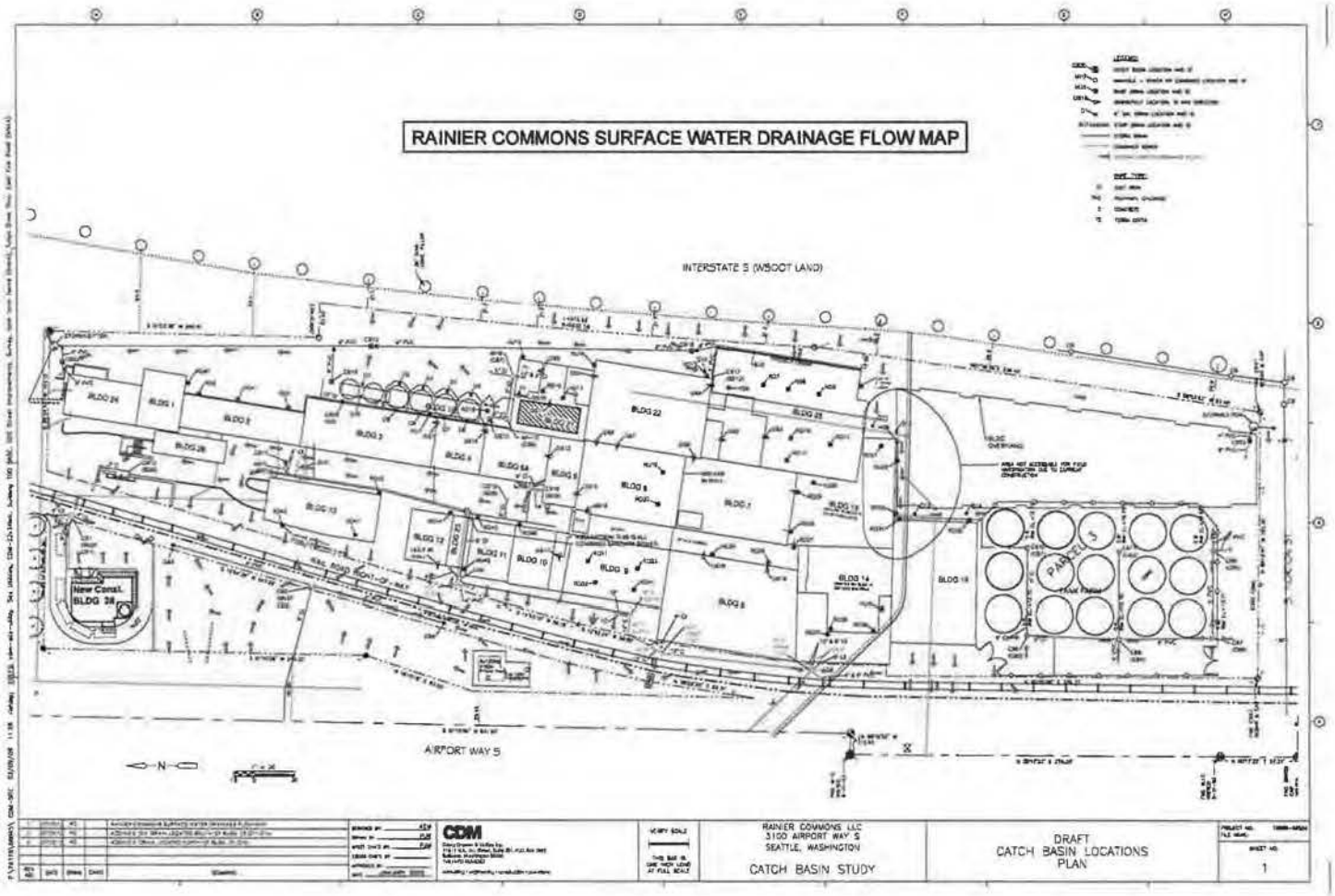


FIGURE 2

RAINIER COMMONS
CATCH BASINS SAMPLING PLAN
PHASE 1



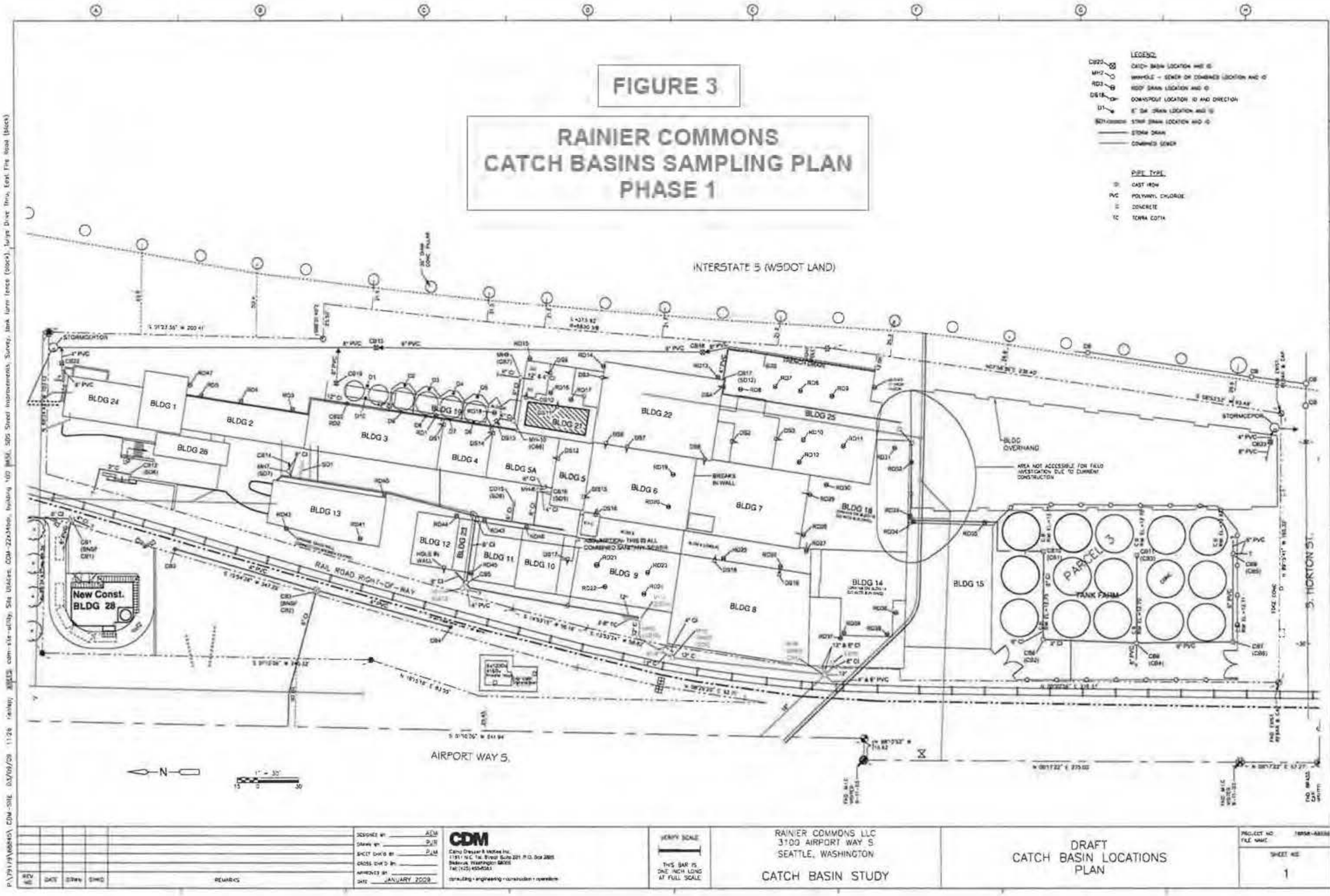
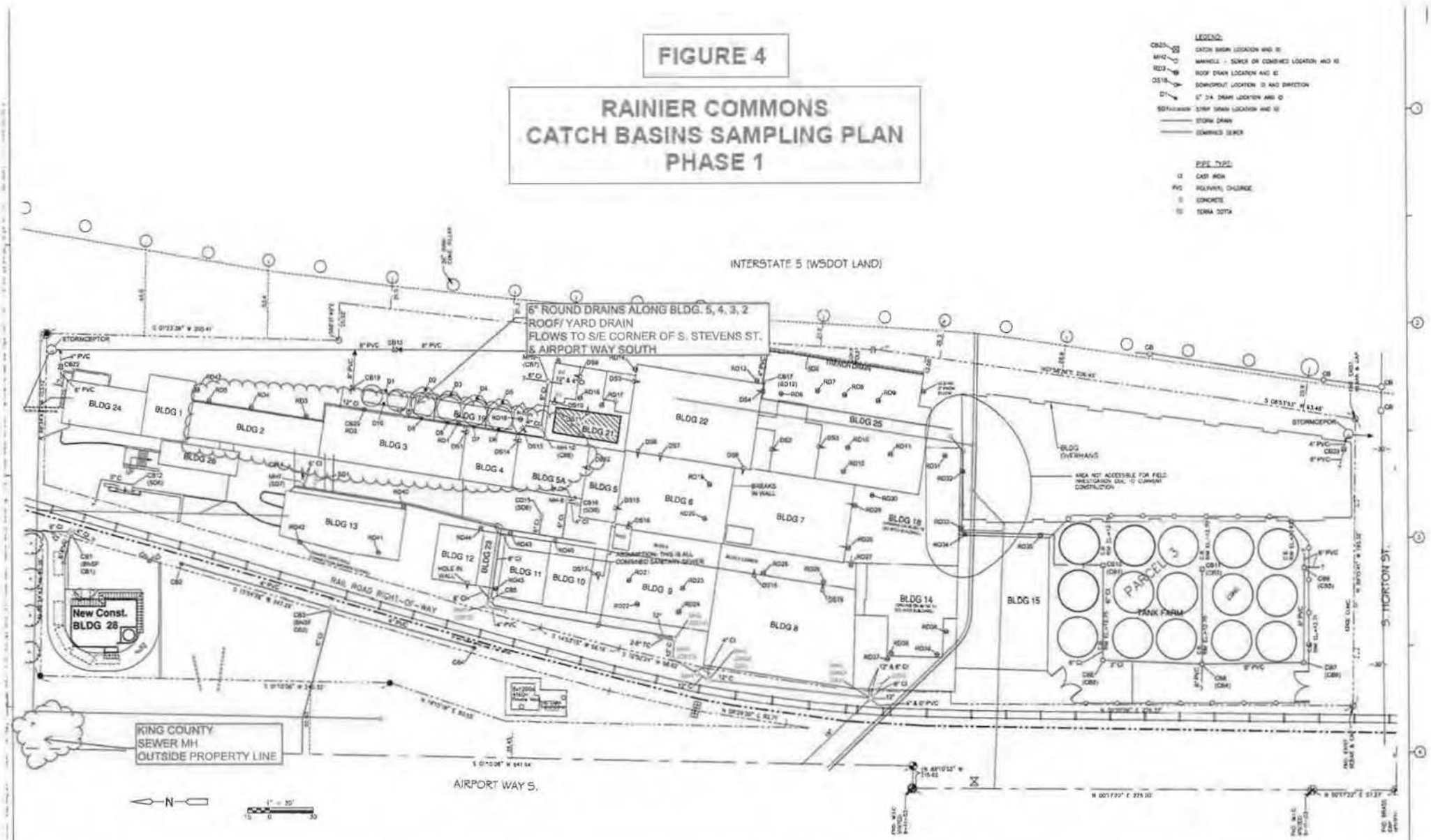


FIGURE 3
RAINIER COMMONS
CATCH BASINS SAMPLING PLAN
PHASE 1
LEGEND
PIPE TYPE
INTERSTATE 5 (WSDOT LAND)
AIRPORT WAY S.
S. HORTON ST.
RAIL ROAD RIGHT-OF-WAY
STORMCEPTOR
BLDG 24
BLDG 1
BLDG 2
BLDG 26
BLDG 3
BLDG 4
BLDG 5A
BLDG 5
BLDG 6
BLDG 7
BLDG 8
BLDG 9
BLDG 10
BLDG 11
BLDG 12
BLDG 13
BLDG 14
BLDG 15
BLDG 18
BLDG 19
BLDG 21
BLDG 22
BLDG 23
BLDG 25
New Const.
BLDG 28
PARCEL 3
TANK FARM
BLDG OVERHANG
BREAKS IN WALL
1" = 30'
N
DESIGNED BY ACM
DRAWN BY PJR
SHEET CHK'D BY PJM
DATE JANUARY 2009
CDM
RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON
CATCH BASIN STUDY
DRAFT
CATCH BASIN LOCATIONS
PLAN
REV NO
DATE
DRWN
CHKD
REMARKS
PROJECT NO.
FILE NAME
SHEET NO.
1

FIGURE 4

RAINIER COMMONS
CATCH BASINS SAMPLING PLAN
PHASE 1



RCV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: AFM
DRAWN BY: PJS
SHEET CHK'D BY: PJM
CHKD. CHK'D BY:
APPROVED BY:
DATE: JANUARY 2009

CDM
Camp Dresser & McKee Inc.
11811 N.E. 1st Street Suite 201, P.O. Box 3645
Bellevue, Washington 98009
Tel: (425) 453-5383
consulting • engineering • construction • operations

VERIFY SCALE
THIS BAR IS ONE INCH LONG AT FULL SCALE

RAINIER COMMONS LLC
3100 AIRPORT WAY S.
SEATTLE, WASHINGTON

CATCH BASIN STUDY

DRAFT
CATCH BASIN LOCATIONS PLAN

PROJECT NO. 78890-66556
FILE NAME:

SHEET NO.
1

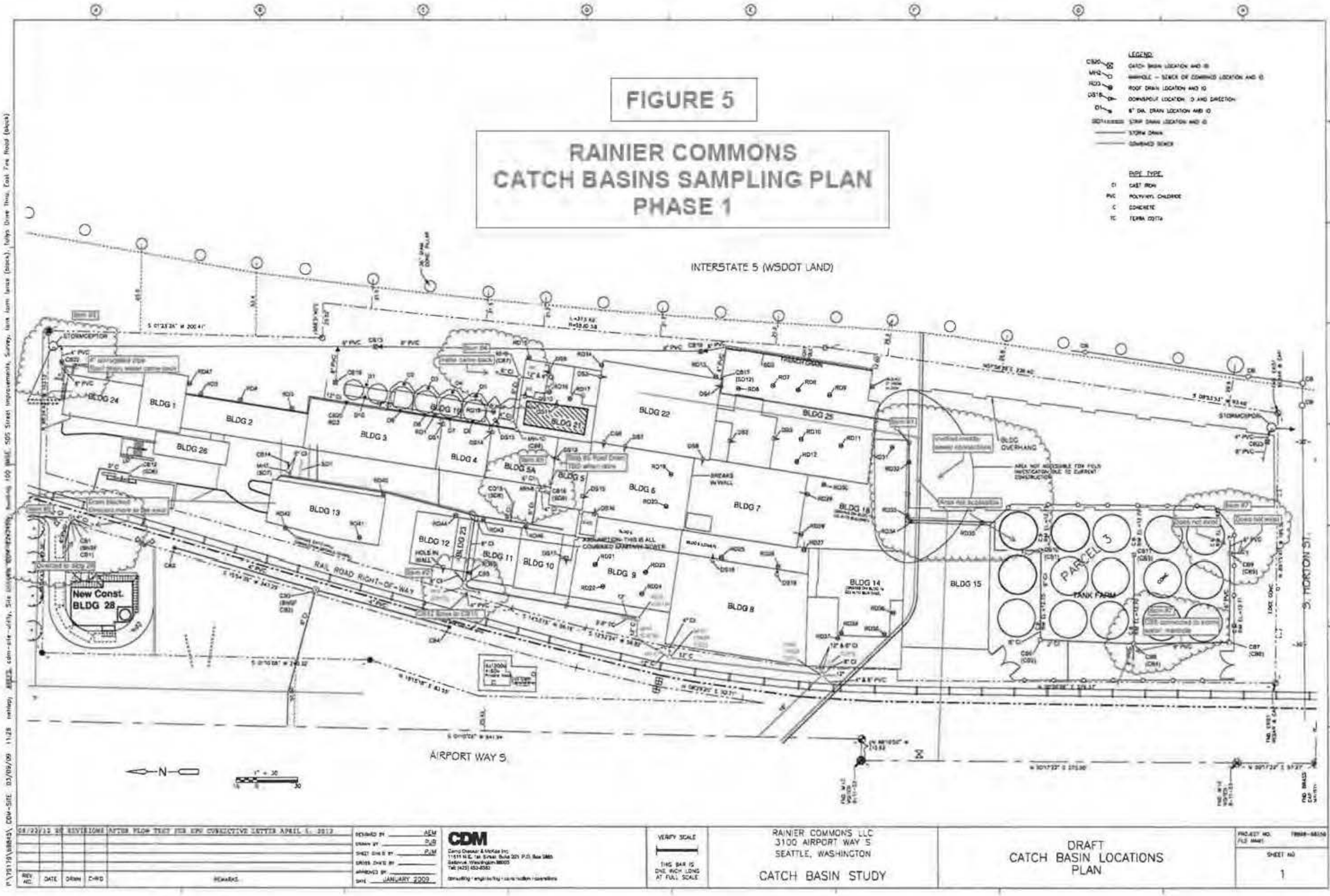


FIGURE 5
RAINIER COMMONS
CATCH BASINS SAMPLING PLAN
PHASE 1
LEGEND
PIPE TYPE
CI CAST IRON
PVC POLYVINYL CHLORIDE
C CONCRETE
TC TERRA COTTA
INTERSTATE 5 (WSDOT LAND)
BLDG 24
BLDG 1
BLDG 2
BLDG 3
BLDG 4
BLDG 5
BLDG 5A
BLDG 6
BLDG 7
BLDG 8
BLDG 9
BLDG 10
BLDG 11
BLDG 12
BLDG 13
BLDG 14
BLDG 15
BLDG 18
BLDG 19
BLDG 21
BLDG 22
BLDG 23
BLDG 25
BLDG 26
New Const. BLDG 28
PARCEL 3
TANK FARM
RAIL ROAD RIGHT-OF-WAY
AIRPORT WAY S
S. HORTON ST.
STORMCEPTOR
N
RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON
CATCH BASIN STUDY
DRAFT
CATCH BASIN LOCATIONS PLAN
CDM
JANUARY 2009
VERIFY SCALE
THIS BAR IS ONE INCH LONG AT FULL SCALE
SHEET NO.
1
REMARKS

The State of Washington Department of Ecology

NVL Laboratories, Inc.
Seattle, WA

has complied with provisions set forth in Chapter 173-50 WAC and is hereby recognized by the Department of Ecology as an ACCREDITED LABORATORY for the analytical parameters listed on the accompanying Scope of Accreditation. This certificate is effective July 18, 2013 and shall expire July 17, 2014.

Witnessed under my hand on July 26, 2013

Alan D. Rue
Lab Accreditation Unit Supervisor

Laboratory ID
C797

Matrix/Analyte	Method	Notes

Accredited Parameter Note Detail

(1) Interim accreditation pending the successful completion of an on-site audit to verify method capabilities (WAC 173-50-100).

07/26/2013

Authentication Signature
Alan D. Rue, Lab Accreditation Unit Supervisor

Date

WASHINGTON STATE DEPARTMENT OF ECOLOGY

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

SCOPE OF ACCREDITATION

NVL Laboratories, Inc.

Seattle, WA

is accredited for the analytes listed below using the methods indicated. Full accreditation is granted unless stated otherwise in a note. Accreditation for U.S. Environmental Protection Agency (EPA) "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846) is for the latest version of the method. SM refers to EPA approved editions of "Standard Methods for the Examination of Water and Wastewater." ASTM is the American Society for Testing and Materials. Other references are described in notes.

Matrix/Analyte	Method	Notes
Drinking Water		
Lead	EPA 200.9 Rev 2.2 (1994)	
Solid and Chemical Materials		
Arsenic	EPA 6010C_(2/07)	
Barium	EPA 6010C_(2/07)	
Cadmium	EPA 6010C_(2/07)	
Chromium	EPA 6010C_(2/07)	
Copper	EPA 6010C_(2/07)	
Lead	EPA 6010C_(2/07)	
Nickel	EPA 6010C_(2/07)	
Selenium	EPA 6010C_(2/07)	
Silver	EPA 6010C_(2/07)	
Zinc	EPA 6010C_(2/07)	
Mercury	EPA 7471B_(1/98)	
Aroclor-1016 (PCB-1016)	EPA 8082A_(2/07)	1
Aroclor-1221 (PCB-1221)	EPA 8082A_(2/07)	1
Aroclor-1232 (PCB-1232)	EPA 8082A_(2/07)	1
Aroclor-1242 (PCB-1242)	EPA 8082A_(2/07)	1
Aroclor-1248 (PCB-1248)	EPA 8082A_(2/07)	1
Aroclor-1254 (PCB-1254)	EPA 8082A_(2/07)	1
Aroclor-1260 (PCB-1260)	EPA 8082A_(2/07)	1

EXHIBIT 2

RAINIER COMMONS SITE SPECIFIC EXTERIOR PAINT ABATEMENTWORK & SAFETY PLAN

GENERAL SCOPE OF WORK

The scope of work for this phase of the project comprises of the removal of PCB containing paint on the exterior surfaces that consist of concrete, brick and sandstone on the above referenced project. The Rainier Commons is located at 3100 Airport Way South, Seattle. There are multiple buildings (see attached map) numbered 1-25. Construction Group. International (CGI) will perform PCB paint abatement in a negative pressure enclosure (NPE) in compliance with applicable local, state and federal regulations and standard industry practices on building(s) 13, 10 & 11.

Bldg. 13, 10 & 11

- **Exterior PCB Paint Abatement**

  Exterior

Building 13 =	7,850 SF
Building 10 & 11 =	4,300 SF

TEMPORARY FACILITIES & CONTROLS

The following temporary utilities and controls will be required by CGI and provided by Owner unless specifically noted otherwise:

- Storage

  Work will require special storage needs for drum/box storage of hazardous material. Area will need to be lockable and dry. Tools and equipment shall be stored within the confines of the fenced area designated by owner rep.

  CGI does not anticipate the need on this project for any flammable material storage.

- Parking

  All parking is self-provided within the fenced area.

- Hoisting

  Self-provided.

- Electrical

  120V, single phase, 15A circuits and one (1) 50A, 3-phase, 240V circuit to be provided by owner for Negative Air Machines, lighting, shower pumps, small tools and breathing air machine.

  A backup generator with automatic transfer switch (ATC) will be necessary in the event of building power loss. The generator will automatically engage in the event of a power loss without interruption and maintain the NPE integrity.

- Lighting

  Task lighting provided by CGI as required.

- Water

  Existing water to be provided by Owner Rep. We will require one water source and connection for the abatement work.

- Sanitary

  Portable toilet facilities.

- Field office

  Provided by Owner

- Fire Protection

  CGI will supply one (1) ABC rated fire extinguisher for each 2,500 SF of work area.

  No "Hot Work" is to be performed on this project precluding the need for any Seattle Fire Department Hot Work Permit.

PROJECT SCHEDULE & CREW

Crew size will be a maximum of six (6) abatement personnel. Work shifts shall be established from 7:00 am to 3:30 pm Mondays through Fridays. It is anticipated that the project will be completed as follows:

Bldgs. 13, 10 & 11

Exterior Scaffolding & Abatement -Twenty-Seven (27) working days.

WORK PLAN

The intent of the work plan is to describe and clarify the processes and procedures to be utilized for the project and not to simply reiterate the language already contained in the specifications.

General Overview & Staging

The work is being performed on the existing structures located 3100 Airport Way Seattle. Commonly known as "The Old Rainier Brewery"

The area to the west of the buildings is sufficient space to stage all the necessary equipment, vehicles and disposal containers to accomplish the project. No Street Use or Sidewalk permits are anticipated.

Abatement Personnel Protection

All abatement personnel shall don the following:

- Full body disposable protective clothing with hood and booties.
- Full face, supplied air, pressure demand or continuous flow respirators.
- Protective gloves.
- Eye protection.
- Protective footwear.
- Hardhats and safety vests as required by CGI safety procedures.
- Hearing protection shall be worn when operating small tools or other loud machinery.

Work Area Demarcations & NPE Enclosures

- **Building 13, 10 & 11 Exterior**

  The east, north, west and south sides of the exterior of Bldg. 13 and the west sides of Bldgs. 10 & 11 will be enclosed using framed scaffolding systems. The scaffold system is composed of 6'-4" high X 3'-6" wide frames that are erected to provide 10' long bays with 2" X 12" wood planks to create a fully walk-able level surface designed for 25 psf live loading.

  CGI will commence by erecting the scaffold system on the least visible side of Bldg. 13 (alley to the east) and work our way around the building going south, west and finishing on the east elevation. The decontamination unit, scaffold stairs and other support infrastructure will remain in a static position at the NE corner of the building.

  The scaffold system will have tie points into the existing structure at every other frame vertically and horizontally. The erection of the scaffolding system will be supervised by a certified scaffold erector with years of experience with similar systems. The scaffold system tie-ins can only be performed by penetrating the existing motor or window openings. The locations of the tie-ins will be identified once the 1st level has been erected. Any penetrations necessary for the structural integrity of the scaffolding through the PCB contaminated paint will be done by certified haz-mat personnel as described below.

  The NPE enclosures shall consist of 1-layer of 9-mil FR shrink wrap poly along with a "shrink wrap" roof to shed water. An additional 6-mil layer will be installed to the inside for additional protection. (2) 10-mil layers will be placed beneath the scaffold structure and run up to a secured straw-waddle, thus creating a reservoir to ensure no water can escape the NPE. Once the scaffolding is fully erected, enclosed, decontamination units attached and negative air system functional, CGI will start the abatement work.

  All egress points into the NPE work areas shall be clearly demarcated with proper signage on the exterior side as noted in NVL work plan dated July 25, 2013. The exterior enclosure can be cut through in the event of an emergency; however, the only entry into the work area will be the Personnel/Material Decontamination Unit (P/MDU).

Decontamination Unit for Exterior NPE Work Area

- **Bldg. 13, 10 & 11 Exterior**

  Given the limited space and crew size for the exterior work, CGI will utilize a combination Personnel / Material Decontamination Unit (P/MDU) consisting of a "dirty room" chamber/waste load out (work area space), shower & clean room and a clean room.

  CGI utilizes pre-fabricated 3'X 6' or 4' X 8' sheet metal pans for their P/MDU's that can accommodate a PVC or steel pipe frame to support polyethylene sheeting (poly). The pans are also fitted with a drainage outlet so that any pan can be utilized as a shower chamber. The pans are large enough to accommodate two (2) showers; however, only one shower shall be required for this project.

  Water used for showering and for our work shall be collected and contained in EPA approved drums for additional testing. NO WATER SHALL BE DISCHARGED OUT OF THE WORK AREA TO THE SANITARY SEWER OR STORM DRAIN SYSTEMS.

Breathing Air Machines

CGI will utilize either multiple small ambient air breathing air machines large enough to accommodate four (4) users, which requires 120V household power or a large 20 man, compressor unit with filtration and gas alarms that requires 230V power as described above in Temporary Facilities.

Negative Air Machine Calculations

2,200 CFM negative air machines (NAM's) will be utilized to create a negative pressure environment within the NPE, which will be monitored by a manometer adjacent to the P/MDU. All NAM's will be exhausted to the outside and distributed throughout the work area such that "dead air" spots are eliminated. The NAM calculations are as follows:

At least 1 NAM + 1 back-up NAM will be installed in each section of the scaffold enclosures. The NAM calculations are based on the entire scaffold enclosure volume as follows:

333 LF X 38' Average Height X 3.5' width =	44,289 FT^3
44,289 FT^3 X 4 air changes/hr =	177,156 FT^3
11,072 FT^3 / 60 minutes =	2,953 CFM

2,953 CFM / 1,540 CFM (2,200 @ 70% efficiency) = **1.9 NAM's**
CGI will use 4-units / work area.

- **PCB Paint Removal**

  The bulk of the abatement work is associated with the removal of the PCB paint finishes located on the exterior of the above mentioned buildings.

  Once the affected areas are contained as described above, the PCB paint will be removed by sand, copper slag, or soda blasting. It also may be necessary to introduce an approved "paint stripper" at specific areas of the exterior. i.e. ledges, window frames, etc. The appropriate blasting media will be best determined after all three are utilized.

  Once the bulk of paint is removed, CGI will perform final cleaning and removal of any visible material in preparation for inspection by NVL/EPA. Final cleaning techniques consist of HEPA vacuuming and wet-wiping all surfaces. Once the area has passed the final inspection, CGI will clean the enclosure, scaffolding and planks prior to dismantling of the containment.

DISPOSAL

All suspect PCB containing waste shall be collect in EPA approved drums and placed in the designated area for further analytical determination by the consultant.

All the waste will be kept inside the NPE until the final clearance has been given by NVL Labs.

All waste containers shall have labels bearing the date, project name, owner and haz-mat contractor. PCB waste containers shall be transported to a dry designated area of the buildings for holding as stated above. Any waste classified as Hazardous Material shall be transported and disposed of as follows:

Transporter:

Kleen Environmental Technologies, Inc.
5955 West Marginal Way SW
Seattle, WA 98106
(206) 285-8010 Phone
(206) 285-9646 Fax

Landfill:

Chemical Waste Management of the Northwest - Landfill
17629 Cedar Springs Lane
Arlington, OR 97812
(541) 454-2030 Phone
(541) 454-3247 Fax

AIR MONITORING & LABORATORY ANALYSIS

Owner and Contractor air monitoring will be collected and distributed by 3rd party (NVL Labs). NVL Laboratories is a NIOSH and AIHA certified laboratory.

NVL Laboratories, Inc.
AIHA Lab #101861
4708 Aurora Avenue North
Seattle, WA 98103
(206) 547-0100 Phone
(206) 634-1936 Fax

SITE SAFETY PROTOCOL

It is the objective of CGI to maintain project sites that provide a safe environment to our employees and result in less time loss injuries, which allows us to continually maintain an experience rating of 1 or less. Safety is a concern of all company employees an each employee has a mandated responsibility to promote the safety of all as prescribed in the corporate Health & Safety Policy. All CGI supervisors are CPR and First Aid trained. Safety is an extremely important priority at CGI and we have a zero tolerance policy for unsafe work practices that consists of a progressive warning system for violators. The first warning for worker's is verbal for all violations not classified as a "willful" or "serious" infraction, the second warning is written and becomes an employee record and the third infraction will result in termination. The same applies to Supervisors, however the first warning is written. Serious violations, dependent on their severity may result in immediate termination, however, will result in a written notice for all personnel categories. A second serious violation will result in termination. Willful + serious violations will result in termination.

All CGI field personnel must maintain a working knowledge of the applicable codes and standards in the WAC as administered by the Washington State Department of Labor & Industries (L&I) by the Washington Industrial Safety & Health Act (WISHA) that are applicable to asbestos and construction activities.

All projects with a duration of more than a week will have a weekly project meeting, of which Safety is a continuous topic that will include both job specific safety concerns and general safety practices as continuing education. All project employees are required to attend and topics of discussion are recorded along with the names of all attendees. Daily reports will also reflect any safety concerns, occurrences or accidents.

Regular job site inspections are conducted by supervisory personnel at the beginning of each work shift, during the work and at the end of each work shift to assure all engineering controls and safety measures are functioning properly and in compliance with regulations and specifications. Any and all potential hazards will be communicated through CGI's on-site Supervisor to Owner's on-site representative. Any and all potential or known hazards will be recorded on a job site inspection form and/or daily log, both of which will be transmitted to Owner's on-site representative.

CGI company policy is to immediately rectify all hazards or safety concerns that impact our work and are within our control until proceeding further with regular work activities. Hazards and safety concerns outside of our immediate control will be immediately reported to on-site representative.

RESPIRATORY PROTECTION PROGRAM

The overall, general safety program that shall be adhered to on this project is the CGI Health & Safety Policy in Tab 8 and all applicable provisions contained therein, which also includes our Respiratory Protection Program (Section H).

FALL PROTECTION PROGRAM

The overall, general safety program that shall be adhered to on this project is the CGI Health & Safety Policy in Tab 8 of this submittal and all applicable provisions contained therein, which also includes our Fall Protection Program (Section X).

A site specific fall protection plan will be developed on-site by our supervisory personnel utilizing the fall protection form in Tab 6 of this submittal. The following fall hazards have been specifically identified for this project:

- Work from ladders or scaffold shall be performed in accordance with procedures found in Section W.6.0 of CGI's Health & Safety Plan.

JOB HAZARD ANALYSIS

The hazards of the project in order of precedence include fall protection, cuts and abrasions and potential airborne contaminant exposure.

CGI written fall protection plan will be implemented on this project as per the form in Tab 6 of this submittal and procedures referenced in the Fall Protection Program section of this work plan.

Cuts & abrasions will be avoided with the use of gloves, eye protection and appropriate work practices.

Hazardous Material exposure to the public will be minimized through the use of regulated areas, contained work areas with negative air filtration, controlled entry and compliant work practices. All workers will have PPE and the work area will not be accessible to the general public.

On-site Job Safety Analysis Sheets shall be filled out by on-site supervisory personnel as applicable.

HAZARD COMMUNICATION PROGRAM

CGI's Hazard Communication Program is reflected in Section T of CGI's Health & Safety Plan. MSDS sheets are included in Tab 4 of this submittal package.

EMERGENCY PROCEDURES

In the event of a minor fire, CGI shall extinguish with one of the ABC fire extinguishers located within or adjacent to each work area. In the event of a serious fire, the work area will be immediately evacuated via the nearest means of egress. Exit paths from work areas shall be pre-established before the commencement of work with Owner's personnel.

In the event of minor work site injuries, the injured shall exit the work area and report to supervisory personnel and assess seeking medical attention. In the event of a more severe injury such as deep wounds, punctures, abrasions, etc. injury, the injured shall be assisted by other CGI personnel for immediate medical attention. In the event of a debilitating or life threatening injury, the injured will be immediately attended to by the nearest CGI personnel but not be moved as recommended by the medical profession. 911 will be immediately called for the most expedient medical attention. CGI Certified Asbestos Supervisor personnel

are First Aid/CPR certified. The nearest medical facilities are listed in the Emergency Contact section.

PROJECT & EMERGENCY CONTACT INFORMATION

For all emergencies dial **911**.

Abatement Contractor:

Construction Group International LLC
19407 144th Avenue NE, Bldg. D
Woodinville, Washington 98072

Project Manager: Elsa Tibbits
elsat@cgius.net
(206) 487-2618 Office
(206) 487-2619 Fax
(206) 462-0380 Cell

Const. Manager: Mark A. Marcell
markm@cgius.net
(206) 487-2618 Office
(206) 487-2619 Fax
(206) 718-5501 Cell

Safety Officer: Mark A. Marcell, President
markm@cgius.net
(206) 487-2618 Office
(206) 487-2619 Fax
(206) 718-5501 Cell

Supervisor: **Larry Middaugh**
larrym@cgius.net
(425) 205-5789 Cell

Police/Fire: ***911 Emergency***

Hospital: Virginia Mason Medical Center
1100 9th Avenue
Seattle, Washington 98101
(206) 223-6600 Main

EXHIBIT 3

SPILL CONTROL PLAN

For

Rainier Commons Exterior Paint Removal
3100 Airport Way
Seattle, WA

Job Number:
A14067
Prepared by:

Construction Grp. Int'l LLC
19407 144th Ave. NE Bldg D
Woodinville, WA 98072

Submitted:
January 2014

Elsa Tibbits

Elsa Tibbits
Project Manager
425-487-2618

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INTRODUCTION

Construction Group International LLC (CGI) has prepared this Spill Control Plan to describe procedures to minimize the potential for accidental spill and discharges as well as response measures in the unlikely event of a spill during execution of the Paint Removal Project. The general scope of work is as follows:

- Scaffold, contain with negative pressure enclosure, abatement and removal of hazardous materials including PCB's, Lead, and Asbestos

APPLICABLE RULES AND REGULATIONS

A list of applicable rules and regulations is presented below:

Code of Federal Regulations (CFR):

- 33 CFR 328: Definitions
- 40 CFR 68: Chemical Accident Prevention Provisions
- 40 CFR 112.7 Spill Control and Countermeasure Plans
- 40 CFR 260: Hazardous Waste Management System: General
- 40 CFR 261: Identification and Listing of Hazardous Waste
- 40 CFR 262: Standards Applicable to Generators of Hazardous Waste
- 40 CFR 279: Standards for the Management of Used Oil
- 40 CFR 302: Designation, Reportable Quantities, and Notification
- 40 CFR 355: Emergency Planning and Notification
- 49 CFR 171 - 178: Hazardous Materials Regulations

PREVENTION

The following key measures will be implemented to prevent the accidental spill or discharge of petroleum products or other contaminants:

- Education – All employees will undergo an orientation and training session prior to starting work on the project. The topics of the orientation and training session will include proper use of all equipment, overview of PCB painted structures and emergency contacts. In addition, employees will undergo supplemental orientation and training sessions as they transition from one task to another (e.g. containment procedures, abatement to final clean & tear down). Documentation of the orientation and training sessions will be kept on site.
- Security – Valves on storage tanks, if any, will be kept padlocked at all times. The key to the padlocks will be maintained by CGI.
- Storage - Store all liquid containers on impervious surfaces and within bermed containment structures. The containment structures shall be capable of containing at least 110% of the volume of the largest single container within the storage area. The containment structure shall be covered with either tarp or a roof.
- Minimization of Storage – Every effort shall be made to efficiently remove hazardous materials from the site and to the proper disposal/treatment facility. Minimization of

storage both in terms of time and volume substantially reduces the risk of release to the environment.

- Labels – All drums, storage containers, etc. shall be clearly labeled with content names, hazards class, and emergency contact numbers. Corresponding MSDSs shall be kept on file at the CGI construction office.
- Fueling – Hydrocarbon absorbent diapers shall be placed under/around nozzles when fueling equipment. All re-fueling operations shall take place within 50 yards of the Spill Kits areas shown on Figures 1, 2, and 3.
- Cleaning – If required, cleaning of equipment shall take place over an impervious surface (asphalt, plastic, etc.) and washwater shall be collected and disposed of according to the washwater constituents (see appropriate Work Plan).
- Fuel/Lubricant Storage – CGI will subcontract a mobile fueling and lubricant service and thus will not store any fuels or lubricants on site.
- Maintenance – A daily inspection of fuel hoses, radiators, drum storage areas, etc. shall be made per CGI's standard operating procedures. Any leaks or drips shall be reported to the CGI Site Supervisor immediately who shall immediately either red tag the equipment or take other corrective action to eliminate the potential for further releases.

PRE EXISTING CONTAMINATION

On this phase of work there is PCB Paint on the exterior of buildings 13, 10 & 11scheduled for abatement. If PCB paint chips are found outside the work area, (from existing conditions) it will be cleaned up with HEPA Vacuum and properly packaged in the designated area for characterization sampling and determination of disposal options

SPILL CONTAINMENT

The most likely hazardous material release event to occur would be the release of flaking exterior paint with PCB contaminates. Other hazardous materials are not anticipated to be in significant quantities at the site.

Personnel responding to the spill will be trained in 40-hour HAZWOPER, OSHA, and emergency response procedures. The level of respiratory protection and type of PPE will be determined by the SSHO prior to any actions to control and remediate spills and discharges. In the event of a release of hazardous materials, the project crew will maintain the following priorities in dealing with the incident:

1. Life/safety
2. Incident mitigation and control
3. Environmental restoration
4. Property damage

In the unlikely event of a spill it is imperative to contain the released materials to prevent potential impacts to soil and groundwater. The following key measures will be employed to provide containment of spilled contaminants:

- Secondary containment measures such as plastic tarps, straw-waddles, Eco Pans, etc. shall be employed at work area perimeter where liquid could potentially leak from containment. Absorbent booms, pads, etc. shall be readily available when the potential

for a spill is present. The absorbent materials shall be deployed in a manner that minimizes the potential for migration of contaminants to the subsurface. In addition, spill mats shall be available to cover storm drains to prevent spilled materials from entering the storm water drainage system.

- Various forms of containerization (e.g. drums, plastic tarps, etc.) of spill materials shall be readily available adjacent to haz-waste storage or transfer operations.

KEY PERSONNEL AND CONTACT INFORMATION

In the event of a spill of hazardous material, the HASP shall assume control and direct efforts for controlling and remediating the incident and report the incident immediately to the Owners Representative. The HASP will complete the documentation on the spill event and be responsible to immediately notify the appropriate state and federal agencies, if required.

Cell phones shall be used for all communication. Spill notification numbers are presented on Table 1.

TABLE 1 - EMERGENCY CONTACT LIST

RAINIER COMMONS PCB PAINT REMEDIATION PROJECT

ORGANIZATION	CONTACT NAME	POSITION	ADDRESS	PHONE NUMBER
Rainier Commons	Vered Mizrahi	Owner Representative	918 Horton St. Ste. 1018 Seattle WA 98134	206-948-2821
CGI CGI	Elsa Tibbits Mark Marcell	Project Manager Const. Manager	19407 144th Ave NE, Bldg D Woodinville, WA 98072	206-462-0380 206-718-5501
CGI	Larry Middaugh	Site Superintendent	19407 144th Ave NE, Bldg D Woodinville, WA 98072	425-205-5789
NVL Labs	Dave ??	Project Manager	1211 North 41st St. Seattle WA 98103	206-634-1936
National Response Center				(800) 424-8802
Washington Emergency Division – Ecology				(800) 258-5990 1-425-649-7000
Fire, Ambulance, Police				911

REPORT ALL ACCIDENTS, SPILLS, IN JURIES IMMEDIATELY TO THE SITE SUPERINTENDENT

SPCC Plan Acknowledgement Form (to be signed by all Project personnel)

This is to certify that I have read this Project SPCC Plan and understand its contents. I have attended a Project orientation meeting discussing the elements of this SPCC Plan and the safety and health hazards associated with SPCC operations to be performed at this Project. Failure to comply with the requirements contained in this SPCC Plan may result in my removal from the Project.

PRINT NAME	SIGNATURE	DATE

APPENDIX A
EXAMPLE SPILL OR INCIDENT REPORT FORM

Instructions: Complete for any type of petroleum product or hazardous materials/waste spill or incident. Provide a copy of this report to Ecology Regional Office, Northwest Region.

1. Contractor:

Name and Title of Person Responsible for Spill Response: _____

Phone Number: _____

2. General Spill Information:

Common Name of Spilled Substance: _____

Quantity Spilled (Estimate): _____

Describe Concentration of Material (Estimate): _____

Date of Spill: ____/____/_____

Time Spill Started: _____ AM _____ PM Time Spill Ended: _____ AM _____ PM

3. Spill Location and Conditions:

Project Title: _____

Street Address and/or Milepost, City: _____

Weather Conditions: _____

If Spill to Water, Name of Water Body (if ditch or culvert, identify the water body that the structure discharges to): _____

_____

_____

_____

Identify the Discharge Point: _____

Estimate the Depth and Width of the Water Body: _____

Estimate Flow Rate (i.e., slow, moderate, or fast): _____

Describe Environmental Damage (i.e., fish kill?): _____

4. Actions Taken:

To Contain Spill or Impact of Incident: _____

To Cleanup Spill or Recover from Incident: _____

To Remove Cleanup Material: _____

To Document Disposal: _____

To Prevent Reoccurrence: _____

5. Reporting the Spill:

Spills to water: Immediately call the National Response Center (1-800-424-8802), Emergency Management (1-800-258-5990), and the Ecology Northwest Regional Office (1-425-649-7000).

Spills to soil that may be an immediate threat to health or the environment (i.e., explosive, flammable, toxic vapors, shallow groundwater, nearby creek, etc.)**:** Call the Ecology Northwest Regional Office immediately (1-425-649-7000). If not immediately threatening, but may be a threat to human health or the environment, report to Ecology within 24 hours.

Note: Project specific permits may have additional reporting requirements.

List all agencies contacted; include names, dates, and phone numbers for people you spoke with:

Record ERTS #, if issued by Ecology: _____

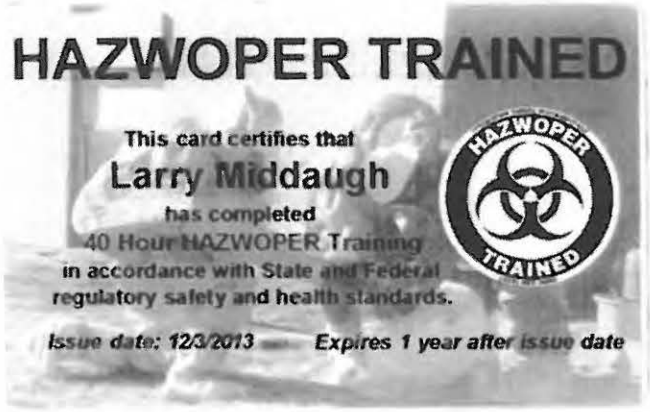
6. Person Responsible for Managing Termination/Closure of Incident or Spill:

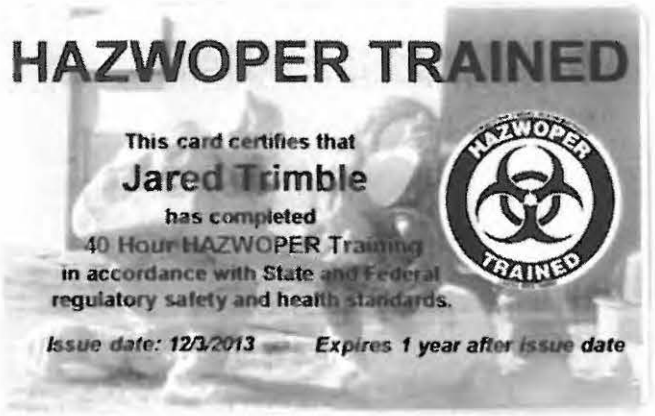
Name and Phone: _____

Address and Fax: _____

7. Additional Notes/Information (if necessary):

EXHIBIT 4


HAZWOPER TRAINED
This card certifies that
Larry Middaugh
has completed
40 Hour HAZWOPER Training
in accordance with State and Federal
regulatory safety and health standards.
HAZWOPER
TRAINED
Issue date: 12/3/2013
Expires 1 year after issue date


HAZWOPER TRAINED
This card certifies that
Jared Trimble
has completed
40 Hour HAZWOPER Training
in accordance with State and Federal
regulatory safety and health standards.
Issue date: 12/3/2013
Expires 1 year after issue date
HAZWOPER
TRAINED

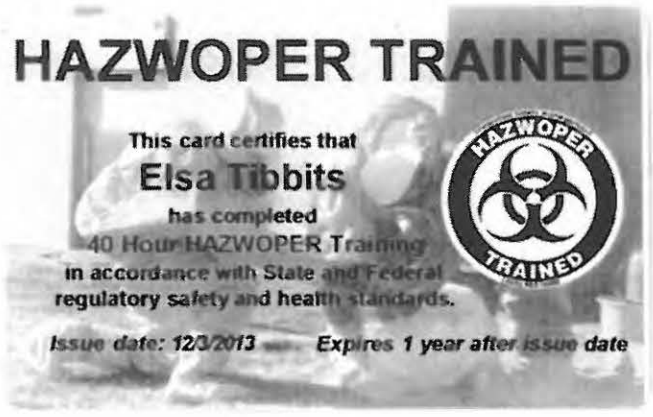

HAZWOPER TRAINED
This card certifies that
Elsa Tibbits
has completed
40 Hour HAZWOPER Training
in accordance with State and Federal
regulatory safety and health standards.
Issue date: 12/3/2013
Expires 1 year after issue date
HAZWOPER
TRAINED

EXHIBIT 5

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A. SAFETY AND HEALTH POLICY (ACCIDENT PREVENTION)

1.0 PURPOSE

The purpose of this statement is to formally communicate the position of Construction Group International, LLC (CGI) relative to occupational safety and health.

2.0 SCOPE

This Construction Group International, LLC safety and health policy applies to all divisions, subsidiaries and joint ventures of CGI.

3.0 POLICY

CGI believes in the dignity and importance of the individual employee and his or her right to derive personal satisfaction from the job. The prevention of occupational injuries and illness is of such a consequence to this belief that it will be given a top priority at all times.

CGI desires to establish and require an accident prevention program that emphasizes the integration of safety and health measures into each job task so that safety/health and job performance become inseparable. This will be accomplished through the cooperative efforts of managers, supervisors and employees who will seek to obtain the lowest possible industrial accident rates. Safety orientation for new and transferred employees, timely and appropriate training, a management/employee safety committee, and active self-inspection program, proper mechanical guards, and personal protective equipment will be some of the tools used to reduce work hazards. All employees are expected to read and understand the rules of safety and health that are provided on each job site. Any employee who willfully disregards known safe practices will be subjected to disciplinary action including immediate discharge for gross violation of company policy. All sub-contractors, will be expected to abide by the provisions of this policy. We make safety a condition of employment for all Construction Group International, LLC employees.

4.0 RESPONSIBILITY

4.1 Management

The management of CGI has the responsibility to establish and supervise:

-A safe and healthful working environment.
-Comply with all federal, state, and local safety and health regulations.
-When required to do so on contract, comply with all safety and health requirements of the job and/or the project owner.
-Provide ample and timely training programs to improve the skill and competency of all employees in the field of occupational safety and health.

-Make available all necessary safety devices and protective equipment for the prevention of occupational accidents, injuries, or illness, and require their mandatory use wherever required.
-Establish and maintain a safety and health committee consisting of management and employee representatives with the employee representatives being elected or appointed by fellow employees.
-Provide and maintain first-aid training for all foremen, supervisors, or persons in direct charge of crews working in physically dispersed operations.
-Maintain continuing employee interest in safety and health matters applicable to company activities, and ensure that management sets a good example in safety and loss control practices.

4.2 Employees

This Company regards the promotion of safety and health programs as a mutual objective of both management and employees. Therefore, each employee is responsible to:

-Coordinate and cooperate with all other employees in an attempt to eliminate accidents
-Study and observe all safe practices governing their work.
-Offer safety suggestions, wherein such suggestions may contribute to a safer work environment.
-Apply the principles of accident prevention in their daily work and shall use proper safety devices and protective equipment as required by their employment or employer.
-Properly care for all personal protective equipment.
-Make a prompt report to their immediate supervisor, of each industrial injury or occupational illness, regardless of the degree of severity.
-Assist in the investigation of accidents so as to prevent the recurrence of similar accidents.
-Report any incident of property damage.

5.0 ON-SITE SAFETY AND HEALTH PROGRAM ADMINISTRATOR

An on-site safety and health program administrator will be designated for each job site. The selection of the administrator will be made from one of the following positions based upon the size and scope of the project and the number of employees on site.

-Superintendent
-Foreman
-Leadperson
-Competent Person
-Supervisor

The name of the onsite program administrator will be posted on the job site.
The name of the onsite program administrator for this project is _____.

6.0 AUTHORITY

By accepting mutual responsibility to operate safely, we will all contribute to the well-being of personnel and subsequently Construction Group International, LLC.

B. GENERAL

1.0 ASBESTOS HAZARD:

The specific hazard associated with asbestos is disturbance or dislocation of asbestos-containing materials causing asbestos fibers to be released into the immediate vicinity of workers where they can be inhaled into the lungs. Adverse health effects of asbestos to workers and building occupants include but are not limited to asbestosis: a scarring of the lung tissue; mesothlioma: an incurable cancer of the chest cavity lining; increased chance of carcinomas of the lungs and respiratory tract. NOTE: the chance of contracting all of the above diseases is increased in a multiplicative factor by cigarette smoking, e.g. a non smoking worker exposed to 10 fibers/cc without respiratory protection for 10 years would have a 5 times normal cancer risk; a pack a day smoker who smokes for 10 years would have a 10 times normal cancer risk; a smoker who was exposed to 10 fibers/cc for 10 years would have a 50 to 100 times normal cancer risk. For this reason, CGI does not hire anyone for asbestos work who smokes cigarettes, pipes, or other forms of tobacco.

Another minor health effect of asbestos exposure is a condition known as asbestos warts which is a skin irritation.

It is the responsibility of CGI's onsite supervisor to apprise all of his workers, supervisory personnel, subcontractors and consultants or any other personnel who will be at the job site of the seriousness of the hazard and of proper work procedures that must be followed to reduce asbestos exposure.

Where in the performance of work, workers, supervisory personnel, subcontractors or consultants may encounter, disturb or otherwise function in the immediate vicinity of any identified asbestos-containing materials, appropriate, continuous measures are necessary to protect all workers and building occupants from the hazard of exposure to airborne asbestos shall be taken. Such measures shall include the procedures and methods described herein and regulations of the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA), and all applicable state and local regulations

2.0 EMPLOYEE STANDARDS:

2.1 Medical Examinations

Before exposure to airborne asbestos fibers or the use of negative pressure respirators, Construction Group International, LLC will provide workers with a comprehensive medical examination. This examination is not required if adequate records show the employee has been examined within the last year. The same medical examination shall be given on an annual basis and within 30 calendar days before or after the termination of employment.

No CGI personnel will perform any asbestos abatement work without a proper physical examination on file.

3.0 JOB CONDITIONS:

3.1 General

CGI's designated certified supervisor shall establish and initiate use of each temporary facility at the earliest time such facility is reasonably required for proper performance of the work. The designated supervisor shall terminate use and remove said facilities at the earliest reasonable time the facility is no longer required or when permanent facilities have, with authorized use, replaced the need.

3.2 Conditions of Use

The certified supervisor shall direct installation, operation, maintenance, and protection of temporary facilities in a manner and at locations which will be safe, non-hazardous, sanitary and protective of persons and property from the deleterious effects of asbestos.

4.0 WORKER PROTECTION:

4.1 General

Requirements of all applicable federal, state and local regulations shall be met. The following will be considered minimum procedures to be followed regardless of fiber concentration in the work area. A formal assessment of required personal protective equipment (PPE) will be performed at the start of each project and documented in the project log book. Workers will be formally trained in the use of PPE.

4.2 Respirators

Each worker shall be instructed and trained in the proper respirator use and shall always wear a respirator, properly fitted on the face, in the work area until the work area is completely decontaminated. Respirators shall be as approved by the National Institute for Occupational Safety and Health ("NIOSH") and as outlined in the CGI Written Respiratory

Protection Policy for use in asbestos-containing environments. NOTE: CGI Written Respiratory Protection Plan allows only the use of Type C and PAPR respirators for asbestos protection. Negative pressure respirators are acceptable for use in protecting against some minor organic vapors and nuisance dusts only and are not to be used for asbestos protection. Refer to our Respiratory Protection Program for details.

4.3 Coveralls

CGI will provide disposable coveralls as necessary for its workers. Workers shall wear disposable, full-body coveralls and disposable head and footwear covers in the work area. Footwear may be a "non-disposable", in which case it shall be washed before leaving the work area or shall be left in the work area at all times and shall be washed or disposed as contaminated material at the completion of the work.

4.4 Boots

Each CGI employee will provide a pair of washable rubber boots for use in the work area. Boots or footwear which is or becomes contaminated shall be left in the equipment room during the project and shall be disposed of as contaminated material upon completion of the project.

4.5 Within Work Area

Workers shall not eat, drink, smoke chew gum or tobacco, or apply cosmetics in the work area. Note that CGI does not hire any workers who smoke. Anyone found to be a smoker will be terminated.

5.0 DECONTAMINATION UNIT

5.1 General

CGI has pre-manufactured decontamination units. Where-ever possible these units will be the preferred use unit. If job conditions, specifications, or lack of prefabricated units precludes their use the following minimum specifications will be applied:

The decontamination unit shall consist of a serial arrangement of connected rooms, and shall consist, as a minimum, a clean (change) room, shower room, and equipment room. Negative pressure shall be maintained at all times between the uncontaminated area and work area. All persons without exception shall pass through the decontamination unit for entry into and the exiting from the work area for any purpose. Parallel routes for entry or exit shall not be allowed. Provide temporary lighting within decontamination units as required by site conditions.

Access between any two rooms in the decontamination enclosure system shall be through an airlock with at least 6 feet separating each curtained doorway unless space prohibits.

6.0 DECONTAMINATION AREA

6.1 Change Room (Clean Room)

The change room is provided for the purpose of changing into protective clothing. It will be constructed using polyethylene sheeting, at least 6 mil in thickness or pre-approved equivalent material, and located so that access to the work area will be from the changing room through the shower. This room will be separated from the building by a curtained doorway..

In this room, the worker will leave all street clothes and dress in clean disposable coveralls. Respiratory protection equipment shall be donned and fit-tested in this area. No asbestos contaminated items will be allowed to enter this room. Workers enter this room either from outside the structure dressed in street clothes or naked from the showers.

An existing room may be utilized as the change room if it is suitably located and of a configuration whereby workers may enter the change room directly from the shower room.

The floor of the changing room should be kept dry and clean at all times. Overflow of water from the shower should not wet the floor in the changing room.

Damp wipe all surfaces as required after each shift change with a disinfectant solution.

Provide a continuously adequate supply of disposable bath towels.

Post information for all emergency phone numbers and procedures.

Whenever possible provide two storage lockers per employee, or clothes hooks for hanging clothes.

6.2 Shower Room

This room is a separate room for transit by cleanly dressed workers entering the job from outside or for workers decontaminating after undressing in the equipment room. A portable fully operational shower will be provided. Whenever possible provide temporary extensions of existing hot and cold water and drainage, as necessary, for a complete and operational shower.

Provide a waste container for spent HEPA cartridges, and a container for respirators so they can be collected for cleaning.

Provide an adequate and continuous supply of soap and maintain in a sanitary condition.

Shower shall be arranged so that water from showering does not splash into the clean room.

Water shut off and drain pump operation controls must be arranged so that a single person can shower without assistance from either inside or outside the work area.

Provide at a minimum 20 micron and 5 micron water filters in line to waste water storage. Larger prefilters may be necessary to increase the life of the smaller end filters. Filters should be changed as required to maintain proper discharge flow.

6.3 Equipment Room (Contaminated Area)

The equipment room is used for storage of equipment and tools at the end of a shift after they have been decontaminated using a HEPA filtered vacuum or wet cleaning techniques. Replacement filters, in sealed containers until used, HEPA vacuums and negative pressure ventilation equipment, extra tools, containers of surfactant and other materials and equipment that may be required during the abatement may also be stored here as needed. A labeled 6 mil polyethylene bag for collection of disposable clothing shall be located in this room. Contaminated footwear (e.g. rubber boots, other reusable footwear) shall be stored in this area for reuse the following workday. This room shall be separated from the work area by a curtained doorway.

6.4 Waste Load-Out Area (Contaminated Area)

This room is a separate room constructed for the removal of bags of asbestos waste from the work area. It consists of an air lock, a container staging area. A second air lock should be installed with access to outside the work area. The waste load-out area is used as an area for final preparation and external decontamination of waste containers, as a short term storage area for bagged waste, and as a port for transporting waste. Bags must be free of all gross contaminated material before removal from the negative-pressure enclosure. Gross contamination is then wiped, scraped off, or washed off containers before they are placed into the two chamber air lock. The exterior of the bag is decontaminated and placed within a second bag in the first chamber, and moved into the second chamber of the air lock for temporary storage or transferred outside of the regulated area.

6.5 Work Area

The work area should be separated by polyethylene barriers from the equipment room. If the airborne asbestos level in the work area is expected to be high, an additional intermediate cleaning space shall be added between the equipment room and the work area. Damp wipe clean all surfaces after shift change or as required to maintain low work area fiber levels.

6.6 Construction

CGI has pre-manufactured decontamination units. Where ever possible these units will be the preferred use unit. If job conditions, specifications, or lack of prefabricated units precludes their use the following minimum specifications will be applied:

Decontamination unit shall be constructed using polyethylene sheeting at least 6 mil in thickness attached to existing building components or a temporary framework. All framework will be constructed with metal framing or suitable wood framing as required.

Three layers of 6 mil polyethylene fire retardant sheeting shall be used to cover floors in the equipment, shower (underneath the shower pan), and changing rooms. One layer of plastic shall be rolled from the equipment room into the work area after each shift change. A minimum of 3 layers of plastic shall remain at all times. All plastic used for the enclosure shall be clear, fire retardant with a minimum of 6 mil in thickness. Plastic used for worker decontamination enclosure shall be opaque white or black with a minimum of 6 mil in thickness.

Rooms shall be separated by curtained doorway fabricated from overlapping sheets. Doors shall be a minimum of three feet wide and sheeting shall overlap adjacent surfaces. Sheets shall be weighted at the bottoms as required so that they quickly close after being released. Arrows shall be put on sheets to indicate direction of overlap and/or travel. There will be a 6 foot space separating each curtained doorway unless space prohibits.

7.0 DECONTAMINATION SEQUENCE

7.1 Entering Work Area

When entering the work area, remove all street clothes in the changing area and put on new disposable coveralls, new head covers, new footwear covers, and a clean respirator each time the work area is entered.

All persons must have facial hair clean shaven to the extent that the hair does not contact (interface with) the respirator/facial seal. NOTE this specifically precludes the wearing of full beards. Each employee is to be clean shaven every day. Employees who report to work in an unshaven condition will be sent home without pay until the condition is corrected.

Any additional clothing and equipment left in the equipment room required by the worker is put on. These must be treated as contaminated clothing and left in the equipment room or work area. Worker proceeds to work area.

7.2 Exiting Work Area

Before leaving the work area, the worker removes all gross contamination and debris from coveralls and feet.

The worker then proceeds to the equipment room and removes all clothing except the respiratory protection equipment. Extra work clothing may be stored in the contaminated end of the equipment room. Disposable coveralls are placed in a bag for disposal with other material.

Still wearing respirators, proceed to shower. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator and filters to avoid asbestos fibers while showering. Follow these procedures:

1. Thoroughly wet body from neck down.

2. Wet hair as thoroughly as possible without wetting the escape respirator filter or PAPR filter.

3. Take a deep breath, hold it and/or exhale slowly, complete wetting of hair, thoroughly wetting face, and respirator. While still holding breath, remove respirator and hold it away from face before starting to breathe.

4. Dispose of wet filters from air purifying escape cartridge on type C respirator or PAPR filter in the appropriate receptacle and put respirator in appropriate container for cleaning.

5. Shower completely with soap and water.

6. Rinse thoroughly.

7. Rinse shower room walls and floor prior to exit.

Shower each time before entering the changing area from work area to change into street clothes or new disposable work items.

8.0 TEMPORARY UTILITY SERVICES:

The types of services which may be required on individual jobs include, but are not limited to: water, sewage, electrical power and telephones. Where foremen or superintendents find it possible and reasonable, they will utilize or connect to existing building utilities for required services and comply with applicable code requirements and recommendations on materials and methods, locate and relocate service (as necessary) to minimize interference with construction operations.

8.1 Potable Water

Water connection to existing potable water system is to at a minimum be one 3/4" pipe-size connection and a minimum flow of 10 gpm. Larger jobs will require additional water sources based on the number of workers. No more than 5 workers per shift should utilize a single shower head. This would require one water connection per shower head.

8.2 Temporary Power

We will generally require a minimum service to decontamination unit subpanel box with 60-amp, 2 pole disconnect from building service panel. Larger connects will be required for larger projects. In cases where no power is available generators may have to be supplied.

8.3 Hot Water

As a minimum we will attempt to provide a 40 gallon electric water heater activated from 30-amp circuit located within the decontamination unit subpanel or other properly grounded service. Alternately hot water may be secured from building hot water system or other supplies.

9.0 TEMPORARY CONSTRUCTION FACILITIES

The following types of temporary construction facilities may be required on individual jobs: water distribution, drainage, enclosure of work, ventilation, electrical power distribution, lighting, hoisting facilities, and ladders. The certified supervisor will determine required temporary facilities as part of the prejob planning and make arrangements to have required reasonable facilities in place prior to startup of work or prior to the time they are required for use.

9.1 Water Distribution

The certified supervisor shall make sure water is supplied to each work area and that a hose outlet is provided within each decontamination unit.

9.2 Lighting

The certified supervisor will be responsible for ensuring that CGI supplies sufficient temporary lighting to ensure proper workmanship everywhere by combined use of daylight, general lighting, and portable plug-in task lighting. Provide general lighting with local switching which will enable energy conservation during periods of varying activity (work in progress, traffic only, security check, lock-up, etc.)

Provide uniformly spaced general lighting, equivalent to output and energy efficiency to not less than one 80-watt high efficiency fluorescent lighting unit with white enameled reflector per 1000 square feet of floor area, and one 40-watt fluorescent fixture per 50 feet of corridor and per flight of stairs.

9.3 Access Provisions

Provide ramps, stairs, ladders and similar temporary access elements as reasonably required to perform the work and facilitate its inspection. Comply with reasonable requests of governing authorities performing inspections.

10.0 MECHANICAL SPECIFICATIONS (NEGATIVE PRESSURE VENTILATION EQUIPMENT)

10.1 Filters

The final filter must be the HEPA type. The filter media must be completely sealed on all edges with a structurally rigid frame and cross braced as required.

A continuous rubber gasket must be located between the filter and the filter housing to form a tight seal.

Each filter shall be individually treated and certified by the manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3 micron dioctylphtalate ("DOP") particles. Each filter must have a UL586 label to indicate ability to perform under specified conditions.

Each filter must be marked with the name of the manufacturer, serial number, air flow rating, efficiency and resistance, and the direction of test air flow.

Pre-filters, which protect the final filter by removing the larger particles, are required to prolong the operating life of the HEPA filter. Two stages of pre-filtration are required. The first stage pre-filter shall be a low-efficiency type (e.g., for particles 10 um and larger.) The second stage (or intermediate) filter shall have a medium efficiency (e.g., effective for particles down to 5 um.) Pre-filters and intermediate filters shall be installed either on or in the intake grid of the unit and held in place with special housing or clamps.

10.2 Electrical

All electrical components must be approved by the National Electrical Manufacturers Association ("NEMA") and Underwriter's Laboratories ("UL"). Each unit should be equipped with overload protection sized for the equipment and connected in the work area with ground-fault circuit protection devices.

10.2.1 Fans

The motor, fan, fan housing and cabinet must be grounded. The unit shall have an electrical (or mechanical) lock-out to prevent the fan from operating without a HEPA filter.

10.2.2 Instrumentation

Units shall be equipped with an automatic shutdown system to stop the fan in the event of a rupture in the HEPA filter or blocked air discharge.

Warning lights are required to indicate normal operation, too high of a pressure drop across the filters (i.e., filter overloading) and too low of a pressure drop (i.e., rupture in the HEPA filter or obstructed discharge.) Units should be equipped with a time meter to show the total accumulated hours of operation.

10.2.3 Manufacturer Recommendations

Operate all units following manufacturers recommendations. The certified supervisor in charge of the project is required to have operating knowledge of the units on the project.

11.0 PREPARATION OF THE WORK AREA

11.1 Determining the Ventilation Requirements

The certified supervisor for the project is responsible for determining the required number and placement of negative air units.

Minimally, the negative pressure system should provide approximately one air change every 15 minutes. The volume (in cubic feet) of the work area is determined by multiplying the floor area by the ceiling height. The total air flow requirement (in cubic feet per minute) for the work area is determined by dividing this volume by the air change rate.

Total cubic feet per minute = Volume of work area (in cubic feet)/15 minutes.

The number of units needed for the application is determined by dividing the total cubic feet per minute by the capacity of the exhaust unit. Capacity of the unit shall be determined for a particular installation by reading the machines Magnahelic gauge in actual operation and finding the capacity indicated for a given static pressure on the machines labeled operating characteristics.

Number of units needed = (Total cubic feet per minute)/capacity of unit in (cubic feet.)
If air-supplied respirators are used, the volume of supplied air will be added to the workplace air volume for calculating ventilation requirements.

Location of Exhaust Units: The exhaust unit(s) should be located so that makeup air enters the work area primarily through the decontamination facility and traverses the work area as much as possible. Smoke tests should be performed prior to work startup to facilitate determination of exhaust unit placement.

11.2 Decontamination Area

11.2.1 Change Room (Clean Room)

Refer to 6.1

11.2.2 Shower Room

Refer to 6.2

11.2.3 Equipment Room (Contaminated Area)

Refer to 6.3

11.2.4 Waste Container Pass-Out Airlock

a. The waste container pass-out airlock shall be located separately from the workers decontamination enclosure system.

b. This airlock system shall consist of an airlock, a container staging area, and another airlock with access to outside of the work area.

c. The waste container pass-out airlock shall be constructed in similar fashion to the worker decontamination enclosure system, using similar airlock and curtained doorway designs and materials.

d. This airlock will never be used to enter or exit the work site except in case of emergency fire egress or as an emergency exit for other immediately life threatening danger.

11.2.5 Airlock to Work Area

The work area should be separated by polyethylene barriers form the equipment room. If the airborne asbestos level in the work area is expected to be high, an additional intermediate cleaning space shall be added between the equipment room and the work area. Damp wipe clean all surfaces after each shift change.

11.2.6 Decontamination Unit Construction

Refer to 6.6

12.0 DECONTAMINATION SEQUENCE

12.1 Entering Work Area

Refer to 7.1

12.2 Exiting Work Area

Refer to 7.2

12.3 Waste Container Pass-Out

1. Asbestos-contaminated waste that has been containerized shall be transported out of the work area through the waste container pass-out airlock.

2. Waste pass-out procedures utilize two teams of workers, an "inside" team and an "outside" team.

3. The inside team, wearing appropriate protective clothing and respirators for inside the work area, cleans the outside, including bottoms, of properly labeled containers (bags, drums, or wrapped components) using HEPA vacuums or wet wiping and washing techniques. The cleaned bags etc. are placed into a second bag and the inside team then transports the containers into the waste container pass-out airlock. No worker from the inside team further through the decon toward the exit than this airlock.

4. The outside team, wearing a clean set of protective clothing and PAPR respirators (min.), enters the airlock from outside the work area, and removes them from the airlock to the outside. No worker from the outside team ever enters further towards the contaminated area than this airlock.

5. The exit from this airlock shall be secured where not in use to prevent unauthorized entry.

13.0 USE OF THE NEGATIVE PRESSURE SYSTEM

13.1 Testing the System

The negative pressure system shall be tested before any asbestos-containing material is made wet or removed. After the work area has been prepared, the decontamination facility set-up, and the exhaust unit(s) installed, the unit(s) should be started (one at a time). Observe the barriers and plastic sheeting. The plastic curtains of the decontamination facility should move lightly in toward the work area. The use of ventilation smoke tubes and a rubber bulb or a Magnahelic gauge shall be used to measure the static pressure differential across the barrier (at least 0.02" of water.) Smoke test the air movement in the clean room through the shower prior to start of removals.

13.2 Use of the System during Removal Operations

The exhaust unit(s) shall be started before beginning work (before any asbestos-containing material is disturbed.) After removal has begun, the unit(s) shall run continuously to maintain a constant negative pressure until decontamination of the work area is complete. The unit(s) shall not be turned off at the end of the work shift or when removal operation temporarily stop.

Negative air system may not be shut down during removal procedures.

Whenever possible removal work should start at a location farthest from the exhaust unit(s) and proceed towards them ("clean towards dirty".)

If an electric power failure occurs, removal stop removal immediately and seal all openings. Removal should not resume until power is restored and exhaust unit(s) are operating again. This work stoppage does not apply to work where a backup generator is being used.

At completion of removal work, the exhaust unit(s) shall remove airborne fibers that may have been generated during wet removal and clean-up and purge the work area with clean make-up air. The unit(s) may be required to run for a longer period of time after decontamination, if dry or only partially wet asbestos material was encountered during removal.

13.3 Dismantling the System

When a final visual inspection and the results of final air tests indicate that the area has been decontaminated, exhaust unit(s) may be shut down and removed from the work area. Before removal from the work area, the unit(s) shall have pre-filter removed and disposed of properly, and the intake to the machine shall be sealed with 6-mil polyethylene to prevent environmental contamination from the filters.

14.0 DECONTAMINATION UNIT

Refer to 5.0

15.0 TEMPORARY ENCLOSURES

15.1 Work Area Preparation

The work area(s) shall be completely isolated from other parts of the building so as to prevent asbestos-containing dust or debris from passing beyond the isolated area. On some projects walls will be required by to insure security. If walls are required they will be constructed of metal stud or wood framing 16" o.c. to support barriers in all openings larger than 4' x 8'. A gypsum wallboard sheathing material of minimum 1/2" thickness or minimum 3/8" plywood shall be applied to the outside of barrier. Where fire protection is required 5/8" type X gypboard and/or firetreated wood studs and plywood will be used. The work side (inside) of partition will be

covered with a double layer of 6 mil polyethylene sheeting with staggered joints and sealed in place. If required by job conditions, caulk edges of partition at floor, ceiling, walls and fixtures to form an air tight seal.

All contaminated fixtures shall be completely cleaned by wet wiping, washing in the decon or HEPA vacuuming prior to being removed throughout the material decon.

A "work area" is considered contaminated during the work, and must be isolated from the balance of the building, and decontaminated at the completion of the asbestos-control work.

The floor of the work area shall be covered with a minimum two layers of polyethylene sheeting, each at least 6 mil in thickness, turned up on the walls at least 12 inches. Sheeting shall form a sharp right angle at the junction of the floor and wall so that there is no radius which could be stepped on causing the wall attachment to be pulled loose. Seams in floor covered shall be spray glued and taped. Seams in top layer should be six feet from or shall run at right angles to the seams in the bottom layer.

All structural walls and columns in the work area will be covered with minimum 2 layers of polyethylene sheeting, at least 6 mil in thickness, taped securely and maintained in place with tape and where required wooden retainer strips or other additional mechanical fasteners. Tape all joints including the joining with the floor covering.

After the ventilation system is shut off, all ventilation openings (supply and exhaust), doorways, windows, etc. should have a primary seal applied. This seal is comprised of tape only or polyethylene sheeting at least 6 mil in thickness taped securely in place. These primary seals remain in place until the entire operation including Project Decontamination is completed. NOTE: Care must be taken in sealing off active heating systems (baseboard heaters etc.) or other hot equipment (transformers etc.) to avoid melting or burning the sheeting.

Tools, scaffolding, staging, etc., necessary for the work should be placed in the area to be isolated prior to erection of the plastic sheeting temporary enclosure.

Prior to commencing work, the onsite supervisor will develop contingency plans for safe evacuation of the work area in case of fire. It is the supervisor's responsibility to review the onsite emergency plan with each worker and subcontractor making sure they understand the plan. It is preferable that this plan be discussed in a prework safety meeting with all hands attending. The onsite supervisor should contact the fire marshall or other interested emergency agencies to review procedures prior to the start of the contract.

Whenever possible, all electrical and mechanical items such as lighting fixtures, clocks, diffusers, registers, etc., which cover any part of the surface of the work, should be removed so as not to interfere with the work. This removal must not be carried out until the requirements of the

Sections of the Specifications referring to "Negative Pressure System", "Temporary Enclosures", and "Worker Protection" have been met. Diffusers and ducts must be cleaned of all overspray materials prior to erection of primary barriers. This may have to be done using glovebag containments or other engineering controls to prevent major fiber release during cleaning.

15.2 Access to the Work Area

Access to the work area shall be permitted only through the Decontamination Unit. All other means of access shall be closed off and sealed and appropriate warning signs displayed on the clean side of the sealed access.

15.3 Signs

Post a manufactured warning sign at each entrance to the work area. The sign shall conform to all Federal, State and Local requirements and will display the following information:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

15.4 Extension of Work Area (Breach of Containment System)

At any point should the enclosure barrier be breached in any manner that could allow the passage of asbestos debris or airborne fibers, then the affected area may have to be added to the work area and be subject to enclosure and decontamination. The onsite supervisor should confer with the monitoring lab and consultant to determine the extent of contamination and make an immediate determination as to the requirement to add areas to the contaminated work area.

Outside Work Area: If any air sample taken outside of the work area exceeds 0.1 f/cc, immediately and automatically stop all removal work until another sample can be taken to verify the achievement of acceptable levels or determine the cause of fiber level. If any air sample exceeds 0.01 f/cc the onsite supervisor shall monitor the work to determine the cause of the elevated fiber count and take necessary steps to lower the outside ambient fiber count (if asbestos fiber) or determine that such fiber

is actually nuisance dust (such as cellulose fiber from fireproofing using required methods including TEM analysis. Install negative air machines outside the enclosures to filter the ambient air during the collection of these samples. Construct temporary barriers of at least 6 mil plastic. Erect barriers at the next existing structural isolation of the involved space (e.g. wall, ceiling, floor). In addition, complete the following:

1. Fiber level at 0.1 f/cc: Stop work. Do not commence until cause of elevation is identified and corrected and fiber level returns to 0.01 f/cc or less or pre-abatement condition. Take follow up steps to clean affected area. Use wet wipe methods minimum. Coordinate with Owner's Representative.

2. Fiber level at.01 f/cc or above:

   a. Decontaminate the affected area.

   b. Respiratory protection and Protective Clothing shall be worn in affected area until area is cleared for reoccupancy.

   c. Leave barriers in place until completion of the work. Insure that the operation of the negative pressure system in the work area results in a flow of air from the balance of the building into the affected area.

16.0 REMOVAL OF ASBESTOS

16.1 Execution

Asbestos-containing materials to be removed shall be thoroughly wetted. It is good practice to wet the material some hours or if possible one or two days before individual sections of material are to be removed. Then rewet immediately prior to stripping and/or tooling to reduce fiber dispersal into the air. Wetting shall be accomplished by a fine spray of wetting agent - 50% polyoxyethylene ester and 50% polyoxyethylene ether, Agua-Gro or equal - in a concentration of one ounce in five gallons of water, (or as recommended by other approved manufacturer). The outer covering of any insulation which has been painted and/or jacketed should be perforated in order to allow for penetration of the wetting agent. Where penetration and wetting prior to removal is not feasible, the covering should be carefully stripped away while simultaneously spraying the wetting agent on the insulation to minimize dispersal of asbestos fibers into the air. Use low pressure spray application only as high pressure will blast fiber loose from the insulation.

Asbestos-containing material which is stripped away, or otherwise removed, shall be packed while still wet into plastic bags, 6 mil minimum thickness. Asbestos bearing material that has fallen onto the plastic on the floor must be kept wet, and packed into the 6 mil bags as soon as possible. Bags should not be filled more than a person is capable of lifting full (35 pounds or less) unless drums or other containers capable of being mechanically transported are used. Bags or containers shall be sealed

and the outside of all containers must be cleaned before leaving the work area. Bags shall be removed from the work area by passing them into a second, clean bag held open in the waste load out area and this second bag shall then be sealed shut. Bags must not be taken out of the work area through the shower except in the case of small jobs where it is not feasible to erect separate material and personnel decons. Periodic clean-up and bagging of removed materials while still wet and bagging of used coveralls, headcovers, etc., should be done to prevent accumulation of such material on the floor covering where traffic in the area may cause excessive airborne concentration of fibers. Spray stripped material as necessary to keep it wet until clean-up.

16.2 Load out of Asbestos Waste

When a sufficient number of sealed bags of asbestos waste have been stored at the load out entrance, the equipment room air lock shall be sealed, and the load out entry lock opened (this will allow make-up air to enter from the load out air lock). Bags shall be passed out to workers who will load them onto the truck.

16.3 High Fiber Counts Inside Work Area

16.3.1 Type C removal process Inside Work Area: Maintain an average airborne count at the perimeter of the work area of less than 2 fibers per cubic centimeter of air (f/cc). If the fiber counts rise above this figure for any sample taken, revise work procedures to lower fiber counts.

If the perimeter area counts exceed 2 f/cc for any sample taken or if any personal sample exceeds 3.0 f/cc, stop all removal work, leave negative air system in operation and clean up.

16.3.2 Activity requiring PAPR respiratory protection: should work area fiber level become higher than 2 f/cc; stop work and revise work practice. If work continues to be above 2 f/cc then increase respiratory protection to Type C supplied air system.

17.0 PROJECT DECONTAMINATION

17.1 Execution

Following completion of the asbestos-control work, drop cloth layers of polyethylene sheeting on walls, and the drop cloth floor cover shall be carefully removed, folded to minimize dispersal of asbestos-containing residue and debris. Pack material in properly cautioned-marked plastic bags, 6 mil minimum thickness. The outside of all bags shall be cleaned and passed from the work area into a second clean 6 mil polyethylene bag held open in the waste load-out area and then sealed for transport.

Two layers of polyethylene on walls and floors shall remain in place.

Sheeting which forms the sole barrier between the work area and occupied areas or areas outside the work area shall remain in place.

The Decontamination Area shall remain in place and shall remain operational.

Sheeting over ventilation openings, doorways and convectors shall remain in place.

17.1.1A First Cleaning of all surfaces of the work area including all remaining sheeting, tools, scaffolding and/or staging shall be carried out by use of damp cleaning and mopping, and/or High Efficiency Particulate Air (HEPA) filtered vacuum. Dry dusting or dry sweeping is not permitted. This cleaning shall be continued until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.

Clean and decontaminate scaffolding, equipment and tools which will not be used during decontamination activities. Remove from regulated area to staging area or off site.

Once poly is visibly clean remove outer most layer of poly from walls and floor.

17.1.2 A Second Cleaning of all surfaces in the work area shall be carried out in the same manner as the first.

One layer of sheeting shall remain on walls and floor. Critical barriers shall remain in place.
Decontamination units shall remain in place and operational.

Negative air system shall remain operational.

When second cleaning is complete, proceed to apply penetrating type encapsulant or encapsulant as approved for use, with airless type applicator, onto surfaces within the work area.

Take care in the application of encapsulant to prevent damage to surfaces and fixtures to remain. Prevent motors, electrical equipment and other components which may become damaged or dangerous when oversprayed from contacting encapsulant.

17.1.3 Air Clearance Testing

Allow encapsulant to dry minimum 4 hours prior to start of collection of air clearance samples.

Collection of samples shall be in accordance with approved sampling plan. All samples collect shall indicate 0.01 f/cc or less in

order to pass air clearance tests. TEM testing may be used to verify fiber levels as determined by individual project air monitoring plan.

17.1.4 Removal of Remaining Barriers

Remove remaining barriers within the work area including final layer of polyethylene and critical barriers between regulated area and non-regulated area. Dispose of barriers as asbestos waste. Remove decontaminated units and negative air machines from area. Remove equipment and tools from area. Provide for cleaning of area as required after all materials and equipment is removed from area.

18.0 PERSONAL PROTECTIVE CLOTHING

18.1. A. Coveralls: CGI will provide disposable full-body coveralls and disposable head covers. All workers in the work area or in areas where there is possibility of contact with ACM (i.e. masking near a ceiling) are required to wear these coveralls. All workers are required to change each time they enter or exit the work area. Workers masking or unloading waste shall change whenever the coveralls become soiled.

B. Boots: Each worker is required to provide a pair of rubber boots with non-skid soles for work in the contaminated work area. Boots or shoes may not be removed from the work area unless thoroughly decontaminated. Boots which become uncleanable must be double bagged and taken through waste load-out as waste. Each worker will provide adequate safety shoes or boots for work outside the contaminated work area. NO ATHELETIC SHOES ARE ALLOWED ON CONSTRUCTION GROUP INTERNATIONAL, LLC's JOBSITES.

C. Hard Hats: CGI will provide head protection (hard hats) as required by WISHA for all workers, and provide spares for use by other authorized visitors. All subcontractors will be required to provide hard hats for all workers and visitors.

When hard hats are used in the contaminated work area they must be labeled with the same warning labels as used on disposal bags. Hard hats are required to be worn at all times when work that may potentially cause head injury is in progress.

D. Goggles: CGI will provide eye protection (goggles or full-face respirator) as required by OSHA or state or local enforcement for all workers involved in scraping, spraying, or any other activity which may potentially cause eye injury. In most cases this is the respirator. Cases which may require goggles include masking and hard barrier erection.

E. Gloves: CGI will provide work gloves to all workers as required by their individual job. CGI requires that they be worn at all times in the work area where there is risk of hand injury or abrasion. Gloves used in the contaminated work area may not be removed from work area and must be disposed of as asbestos contaminated waste at the end of the work.

19.0 ENCLOSURE OF ASBESTOS CONTAINING MATERIAL

CGI does not generally perform enclosure unless it is required by specification. All enclosures must be approved by the District Manager prior to installation.
Approved enclosures of ACM should occur while under Containment and before Final Air Clearance.

If specifications require enclosures at locations outside the regulated area a mini-enclosure must be constructed (if activity is expected to disturb ACM). Workers will enter mini-enclosure using protective clothing and minimum PAPR respirator.

Upon completion of installation of enclosure system the area will be cleaned and Final Air Testing will be requested. Upon completion of Clearance Testing, mini-enclosure will be removed and disposed of as asbestos waste.

In locations outside the regulated area, and where enclosure system is not expected to disturb ACM then construction of the system will occur with care, using non-abatement protection.

C. EMERGENCY PLAN FOR ASBESTOS ABATEMENT INSIDE NEGATIVE PRESSURE ENCLOSURE

The following are general emergency procedures that all employees must be familiarized with and comply with.

1. At a minimum the work crew foreman or certified supervisor must be first-aid trained. It is desirable to have as many CGI personnel carry first aid cards as is possible. In the case of emergency the certified supervisor shall examine the situation and determine the correct response.

2. For non-life threatening situations, such as but not limited to, trips and falls, injured employees will follow normal decontamination procedures with assistance from the certified supervisor if necessary, before exiting the work area to obtain proper medical treatment. The certified supervisor will designate a fellow worker to assist the injured worker in obtaining medical treatment if required. Note the certified supervisor may not leave the job unless another certified supervisor is available to take over.

3. For life threatening injury or illness, such as but not limited to, loss of consciousness, heart attacks, stroke, etc., the certified supervisor will stabilize the injured employee and either remove him/her from the work

place or take such emergency first aid procedures are required. Do not move injured workers with back or neck injuries. The supervisor will designate a person (normally the lead man) to call the appropriate emergency response department and assist emergency response personnel in locating the injured worker. This may require helping them prepare to enter a contaminated area and to decontaminate them when the emergency response is completed.

A list of emergency telephone numbers and the location of the nearest telephone will be prominently posted in the clean room and equipment room. The designated supervisor will post his/her current first aid card and designate a backup to call emergency personnel prior to the start of work.

In life threatening situations, worker decontamination will have the least priority to emergency first aid procedures.

If a containment is breached to evacuate an injured employee the certified supervisor will take all necessary precautions to reseal the enclosure and decontaminate the surrounding area before leaving the jobsite.

4. In case of fire, all employees must exit the work area immediately through the decontamination facilities or the waste load-out area, without going through the normal decontamination procedures. If the passage is cut off by the fire, cut the polyethylene enclosure and exit at any safe location. Call the fire department immediately. The certified supervisor shall make attempts to locate a temporary decontamination station for displaced workers.

5. Prior to work startup emergency exits will be established and clearly marked with duct tape arrows or other effective designations to permit easy location from anywhere within the work area. They will be secured to prevent access from uncontaminated areas and still permit emergency exiting. These exits will be properly sealed with polyethylene sheeting which can be cut to permit egress if needed. These exits may be worker decontamination enclosure, the waste load-out area and/or other alternative exits satisfactory to fire officials. All workers should be drilled in location and procedures to be used in case of emergency.

6. All appropriate departments, such as police, fire and emergency will be notified in writing of The Company's emergency plans. Specific work area layout, location of emergency exits and routes, and any security barriers that may limit access to the work area will be included.

7. It is the responsibility of the certified supervisor to attempt to seal a breech of containment after the emergency clears and to delegate and supervise the cleanup process to minimize outside contamination.

D. SPECIFIC GLOVE BAG PROCEDURES

1. Crews performing glovebag removal should at a minimum carry the emergency clean-up equipment listed below and adhere to all phases of existing specifications. The emergency clean-up kit shall consist of:

   - Respirator and protective clothing
   - HEPA Vacuum
   - Amended Water
   - Disposal Bags
   - Mops, Sponges, Rags, Additional Drop Cloths
   - Asbestos Warning Signs

   Each worker must be trained in the use of these items for emergency clean up. Note that the above equipment may be the same equipment as that being used for the glovebag operation.

2. Glove bag removal will be performed only in unoccupied areas unless emergency makes it necessary to do otherwise. In the case of occupied rooms, written permission must be given by the owner and consent of the district manager. Glove bags will never be used directly above or within a 50' proximity to the occupants of a room.

3. All glove bag removal will be performed above a drop cloth, and only retractable razor knives will be used inside the bag,

4. Wear at a minimum ½ face (hepa) respiratory protection and full protective clothing.

5. Seal bottom seam of glove bag with tape.

6. Attach glove bag securely to pipe. Make sure bag is sealed securely with duct tape or elastic tie-downs.

7. Apply amended water with airless sprayer through the precut port and thoroughly wet asbestos material. If the asbestos is covered with painted canvas or other jacketing material, re-wet the asbestos thoroughly after the jacketing material has be removed.

8. Lower the asbestos to the bottom of the bag carefully and clean the pipe or surface from which asbestos has been removed thoroughly until no visible debris can be seen. Be sure to apply more amended water as dry asbestos materials are encountered.

9. Wash off the top and the sides of the glove bag and ensure the removed asbestos materials are thoroughly wet. Keep all tools wet.

10. Apply bridging encapsulant to the pipe and any asbestos-containing insulation edges that have been exposed as a result of the removal.

11. Evacuate the glove bag through the port with the HEPA vacuum to remove contaminated air in glove bag, and goose-neck seal bag with tape or elastic tie down to keep removed debris in the lower chamber of the bag.

12. Remove HEPA vacuum.

13. Ensure that the lower section of the glove bag is sealed, loosen glove bag and move bag to the next section of pipe. Remember to move the drop cloth also.

14. If the glove bag is full and a new bag is to be used for the next section, follow steps 15 through 17 to prepare bag for disposal.

15. Hold all tools in one hand and pull the glove inside out. The tools will be "bagged" inside the reversed glove. Make two ties with duct tape about two inches apart around the wrist area and cut in between the two newly sealed area.

16. The contaminated tools are now sealed inside its own "bag" Cut the bag open in a bucket of water and wash tools for re-use or place into a new bag and do not open until the bag is sealed and ready for removal as described above.

17. Put the used glove bag inside a six mil bag for disposal.

18. Representative personal air monitoring will be performed during all glove bag removal procedures. Glove bag operations must remain below 0.01 f/cc in order to comply with OSHA and state regulations.

19. Upon completion of any glove bag removal where any sample exceeds 0.01 f/cc, will require post abatement air monitoring and cleanup to establish clearance.

E. CLEAN-UP PLAN FOR GLOVE BAG REMOVAL

1. Follow Specific Glove Bag Procedures established by the Company.

2. If small holes develop during the removal as the result of sharp objects such as wire mesh, repair the holes with tape immediately. There should be no airborne hazards if all asbestos materials inside the glove bag are kept thoroughly wet at all times.

3. If the glove bag breaks and the asbestos material spills out, it should be caught by the drop cloth. Make sure your drop cloth is large enough to ensure this will happen. If a bag breaks stop all work immediately.

4. Thoroughly re-wet all asbestos material with amended water.

5. Pick up large pieces of wetted asbestos debris and put in disposal bag.

6. Wet wipe and HEPA vacuum all contaminated surfaces.

7. Apply encapsulant if appropriate.

8. Set up area air monitoring to determine the degree of contamination, if any. The analysis of this air sample will have priority over routine sampling and will be analyzed as soon as possible.

9. Notify the property owner.

F. RECORD KEEPING

1.0 TYPE AND DURATION

1.1 Construction Group International, LLC shall keep the following asbestos abatement work related records for at least 30 years.

(i) Objective data for exempted operations, if any;
(ii) Bulk asbestos analysis results;
(iii) All air monitoring results, including employee exposure measurements;
(iv) Medical surveillance - physician's written opinions;
(v) Job dairy;
(vi) Work area sign in and out form;
(vii) Hazardous waste manifest;
(viii) Daily inspection checklist;
(ix) Employee training records;
(x) Respirator fit testing records.

2.0 RECORD AVAILABILITY

(i) Construction Group International, LLC, upon written request, shall make all records required to be maintained available to the director and the Assistant Secretary for examination and copying.

(ii) Construction Group International, LLC, upon request, shall make any exposure records available for examination and copying to affected employees, former employees, designated representatives, and regulatory officials,

(iii) Employee medical records available for examination and copying to the subject employee and appropriate regulatory officials.

3.0 TRANSFER OF RECORDS

All records will be transferred to the successor employer. If there is no successor employer the company will notify the employees of their right to access records 3 months prior to ceasing to do business and transfer the records to the Director of the National Institute for Occupational Health and Safety.

4.0 JOB DIARY

It is mandatory that a job diary be maintained by the job foreman. The purpose of a job diary is to maintain a written chronological report of happenings on the job site which might be a benefit in the settlement of disputes or delay claims. The job diary should be filled out for each day that you are working on the job site.

A. Listed below are the items that should be included in the job diary.

1. Any or all instructions from the owner, owner representative, or general contractor pertaining to any phase of the work.

2. The date that each phase of the work was released to you and the date that you released the work to your subcontractor, if any

3. The date you completed each phase of the work.

4. Any verbal changes in the job specifications.

5. Important points discussed at job site meetings with owner or owner representative.

6. A record of any event that would tend to delay your work. This would include such items as work released but not ready.

7. Employee injuries, disputes, odd behavior or poor performance.

8. It is further recommended that the events of the day be filled out each evening before the foreman leaves the job site. (See Sample 1-16)

5.0 WORK AREA SIGN IN/OUT

The certified supervisor will fill out the sign-in/out sheet completely with job number, job name, zone, date and the names of all employees on the job, foreman included. Have the laborers sign their name and card number and then you enter the time in and out. (See Sample I-17)

6.0 HAZARDOUS WASTE MANIFESTS

The dumpsites normally require a 24-hour notice to accept hazardous waste. Some county dumps require a Health Inspector to be present. Check with the dumpsite you have chosen before sending a truck and driver there. The information on dumpsites is on Page I-8. The certified supervisor will fill out the form completely. (See Sample I-20)

7.0 DAILY INSPECTION CHECK LIST (LOG)

Like the heading says, this form must be filled out daily. The certified supervisor prints his name where it says Inspector. Fill in the date and time. Where it says location, write in job name, number and zone. After answering all questions front and back, sign the form where it says, Inspector's Signature.

8.0 FOREMAN'S PACKET AND PROCEDURE

The Foreman's Packet is one way of communicating with the Office and Project Manager. The Foreman's Packet is turned in every Friday and picked up every Thursday. The Packet is a large envelope. Information, memos, questionnaires, checks. etc. will be in the Packet on Thursdays. You will find your Packet in the CGI Foreman's office in the box with your job name and number. You will return your Packet to the same box on Fridays with the following:

A. Contents of Job Packet

1. Memos
2. EWA's
3. Time Cards
4. Material Delivery Receipt/Invoice
5. Accident Reports
6. Hazardous Waste Manifest
7. Job Diary
8. Work Area Sign-In/Out Form
9. Daily Inspection Check List

After you have placed all these items in the Packet, write the Job Name and Job Number on the outside. Take the Packet to the office and make photocopies of the time cards. Place the photocopied time cards in the packet and place the original time cards in the appropriate box in the payroll office. The time cards must be in alphabetical order.

9.0 THINGS TO DO

This is a planning sheet. All foremen should make out this form daily. (See Sample I-19)

10.0 SUMMARY

Organizing the job is highly critical. Regardless of your job description it is here that you can prevent accidents make or lose money for the company and preserve and enhance your job. Daily planning requires understanding the responsibilities of the various people and situations you will work in, and coordinating these efforts into a smooth, well functioning team effort. Good organization requires that you "stay alert on the job", keep track of your tools and coworkers, and always think one step ahead of the work you are performing right now.

G. AIR MONITORING PROGRAM

1.0 AIR SAMPLING

Construction Group International, LLC's policy is that all air samples will be read by independent NIOSH or PAT certified laboratories. It is our preference that air sample collection will be performed by personnel employed by independent laboratories. In exceptional cases where it is not feasible to have an independent lab collect the samples, samples will be taken by a certified supervisor who has participated in training and is proficient in sample collection as specified by OSHA and state regulations.

Even though our policy does not have CGI personnel normally taking samples, it is important that you understand the sample taking process so that you can be sure the lab is taking the proper amount of samples and so that you know enough about the samples to read the results sheets which are posted daily.

At a minimum the following will be required for air monitoring:

Airborne asbestos samples are taken before, during and after abatement activities to determine how much asbestos is in the air. The sampler consists of (1) a pump, (2) plastic or rubber tubing, and (3) a filter cassette. The pump pulls air through the filter, and fibers collect on the filter surface. The filter is then examined under a microscope to see how many fibers were in the sampled air.

Battery-powered pumps are used to pull low volumes of air (0.5 to 4.0 liters per minute). Electric pumps pull higher air volumes (4 to 16 liters per minute). All pumps are calibrated before and after use.

A plastic cassette is attached to the pump with flexible tubing. It holds a filter with very small openings. The front cover of the cassette is removed for asbestos sampling (called "open face" sampling). Air is drawn through the filter, and particles in the air are collected on the filter surface.

The type of filter used depends on the technique that will be used for analysis. The cassette specified by both the OSHA Reference Method (ORM) and WISHA standards has a 25 millimeter diameter mixed cellulose ester membrane filter. This filter has average pore openings of

only 0.8 microns. A 50 millimeter cowl extension is required in the new standards, and the cowl extension must be made of conductive plastic (containing carbon) to minimize or eliminate electrostatic deposition of fibers. The old 37mm cassette and filter may still be used if it is appropriately justified.

2.0 CALIBRATION

Before and after sampling it is necessary to calibrate the equipment. This has three steps

(1) Assemble the calibration train. This consists of the filter cassette connected between the pump and a primary standard such as a soap bubble burette.

(2) Turn on the pump, record the time it takes for the soap bubble to travel a predetermined volume, and calculate the flow rate.

(3) If necessary, adjust the pump to control the flow rate. Most pumps can be adjusted with a small tool such as a screwdriver.

It is important to establish the flow rate before and after each sample, with the sample filter in place. The flow rate and time are both recorded at the beginning and end of the sampling. Knowing the sample time and the flow rate allows the calculation of the total amount (volume) of air that passed through the filter. The lab analyst needs that information to calculate the airborne fiber concentration in fibers per cubic centimeter.

3.0 AREA AIR SAMPLING

The two basic types of air sampling are area and personal monitoring. The process for taking area air samples includes these steps:

1. Place the pump at breathing zone height at a stationary location.

2. Remove the top cover of the plastic filter holder, and point the holder downward to prevent material from falling onto the filter.

3. Turn on the pump, and record the start time and sample description.

4. The pump should be checked periodically (time interval depends on the degree of contamination) to make sure it is functioning properly. Also, the filter should be visibly inspected for overloading.

5. At the end of the sampling period, turn the pump off, replace the cover of the filter holder and secure it with tape. Record the stop time and any other comments about sampling conditions.

Types of samples collected in this way include: Clearance (C), Pre-abatement (P), Inside isolated area (I), Outside isolated area (O), and

HEPA fan exhaust (H). In each case, the pump should be located near the middle of the area to be sampled. If the area is large, more than one sample may be required.

4.0 PASSIVE AND AGGRESSIVE SAMPLING

Area air samples can be collected using passive or aggressive sampling techniques. *Passive sampling* implies monitoring an area as it is, without creating any additional disturbance in the air. This method is typically used during the removal phase of the abatement project. An obvious criticism of this technique is that fibers that have settled out of the air are not detected.

Aggressive sampling addresses this concern by creating an artificial disturbance. This can be done with electric fans, brooms, blowers, etc. Currently, there are no standard requirements regarding aggressive sampling.

5.0 PERSONAL AIR SAMPLING

Personal samples are collected from within the breathing zone (as close to the mouth as possible) of the worker. They are collected in the same manner as area samples except that (1) the pump is hung from a belt around the worker's waist, and (2) the filter cassette is attached to the worker's lapel or collar with tape or clips. The open cassette faces downward and samples the same air that the person would be breathing. This is the only true and accepted method of monitoring an employee's exposure, except in unusual situations such as a very confined area.

6.0 ANALYSIS OF AIR SAMPLES

The main techniques used for analyzing air samples are Phase Contrast Microscopy (PCM). Construction Group International, LLC. will use only independent laboratories that meet the following criteria for analysis of air samples:

1. Participate in the NIOSH/AIHA Asbestos Analysis Registry.

2. Participate in the NIOSH PAT Program.

3. All technicians doing asbestos counting are trained in a NIOSH 582 course or the equivalent.

7.0 SAMPLING STRATEGIES

7.1 Air Sampling Before Abatement Begins

Area air sampling is conducted before abatement activities to estimate the existing airborne fiber concentrations inside and outside the building. This is termed "*pre-abatement".* It is particularly useful when an abatement project is conducted in one part of the building while other parts remain occupied.

Airborne fiber levels in occupied areas should never exceed the preabatement level (before the project began). Also, the airborne fiber levels inside the abatement area after cleanup cannot be expected to be lower than the levels outside the building before abatement began.

Because airborne fiber levels before abatement are usually low, a large volume of air should be sampled The volume needed to obtain a 0.01 f/cc detection limit should range between 500 and 2500 liters, depending on the filter size and counting method used. (The detection limit is the minimum amount needed to give a statistically reliable result.) One fiber per cubic centimeter (f/cc) is equivalent to 1,000,000 fibers in a cubic meter (approximately 1 cubic yard). Samples can be collected at a flow rate of 2-15 liters per minute.

Prevalent samples should be collected throughout the building as well as in the areas where abatement will take place. As a rule of thumb, one sample should be taken for every 50,000 cubic feet (5,000 square feet with 10 foot ceilings) of building space (minimum of 3 samples). At least two samples should be collected from outside the building. The same sampling and analytical techniques should be used for sampling outside the work area before, during and after the abatement.

7.2 Personal Air Sampling

As mentioned earlier, personal air sampling is used to measure employees' exposure (outside any respirator) to airborne fibers. It is required by the OSHA and vario us state Asbestos Standards. By law, employees have the right to know the asbestos concentrations to which they are exposed and what measures are being taken to protect them. CGI will notify all affected employees in writing, either individually or by posting at a centrally located place that is accessible to affected employees, of the monitoring results as soon as possible following receipt of such results.

The results of personal sampling serve several other purposes. They can be used to select proper respiratory protection. They can also be used to identify those removal or control techniques which result in the lowest employee exposure. This, in turn, reduces the risk to the worker of asbestos-related diseases.

Personal samples shall be taken daily in the breathing zones of employees working inside any regulated area. Both TWA (described below) and ceiling samples (a worker's peak exposure

over any 15 minute period) are collected. Additional personal samples should be taken if there are changes in the type of material being removed or the work location (i.e., another building).

Permissible Exposure Limits (PEL)

1. OSHA/WISHA/CAL-OSHA 8-hour time-weighted average: 0.1 f/cc.

2. WISHA ceiling 30 minute exposure limit: 1.0 f/cc.

3. OSHA/CAL-OSHA 30 minute excursion limit: 1.0 f/cc.

4. Other state requirements as necessary.

7.3 Calculating a Time-Weighted Average (TWA)

The concentration of any airborne substance in the work environment is always changing. It can shift up or down by huge amounts in a few seconds, depending upon the activities going on. For example, airborne asbestos can be affected by the shape of the room or facility, the amount and location of ventilation, the number of people working, the kind of material that is being removed, and other factors. The concept of *time-weighted average* was developed to express, in realistic terms, the average concentration of fibers during an eight-hour shift.

A strict number average would not be acceptable. If we took a short sample during a period when five men were working on a scaffold scraping sprayed material off the ceiling, we would expect to find somewhat high values for the asbestos fiber concentration in the air. If another sample was taken at the end of the day when two men were removing some insulation from a pipe, the concentration would be much lower. Now if the men spent six hours doing the first job and only a half hour on the second job, the concentration would have been high for six hours and low for a half hour. If we simply averaged these two results without taking time into account, we would come up with a much lower concentration than the actual exposure levels.

A time weighted average is calculated by the following method:

1. Each sample concentration is multiplied by its sampling time.

2. These values are added together

3. They are divided by the sum of the sampling times.

This formula is expressed as follows:

For example, suppose the samples were taken for 5 and 3 hours, respectively. Assume the fiber concentration of the first sample was 2.0 f/cc, and the second was 0.1 f/cc. Using the formula, we would have:

$$\frac{(2 \times 5) + (0.1 \times 3)}{5 + 3} = \frac{10 + 0.3}{8} = \frac{10.3}{8} = 1.3 \text{ f/cc}$$

In this case, the first sample would be multiplied by 5. The second sample, taken for 3 hours, would be multiplied by 3. The total would be divided by 8; this is the total number of hours in the sampling period. The 5 hour sample thus counts as five eighths of the overall average , and the 3 hour sample as three eighths.

OSHA requires that samples be collected so that the 8-hour time-weighted average can be estimated. In practice, it is not always possible to sample for the whole 8-hour period. Typically, the sampling period may run from 6 to 7 1/2 hours. (Always use the actual sampling times in the formula. If work was going on for 8 hours and you only sampled for 7, the assumption is made that the time not sampled has the same concentration as the period calculated from the formula.) Over a 6 to 8-hour period, filters may have to be changed several times to prevent overloading.

7.4 Area Air Sampling

In addition to personal samples, optional area air samples can be collected inside the work area to determine the concentrations of airborne asbestos fibers. The data from these samples can be used to monitor work conditions from one day to the next. A radical increase in area concentrations would signal that work practices needed to be adjusted.

During an abatement project, samples are also collected every other day from locations outside the work area to see how well asbestos fibers are being contained within the work site. These samples are especially important where there are unprotected people in other parts of the building (see Figure 5.3). Points where sampling should be conducted include the clean side of the containment barriers and the entrance to the decontamination unit. The exhaust of the HEPA machines should also be sampled regularly. If the abatement project is being conducted in a multi-story building, area air samples should be collected from floors above and below the abatement activity.

As mentioned, a large air volume is necessary for accurate results. High volume pumps can be used to shorten the sampling time. Then, problems that develop can be detected relatively quickly. Phase contrast microscopy is generally the analytical method used.

Air samples can also be taken outside a building detect leakage of fibers from an abatement work site. Air pumps can be placed at the entrance of the decontamination unit, at doors or windows, near the

exhaust of negative air filtration units, and at the waste load-out area. Generally, high volume samples are collected and analyzed by phase contrast microscopy.

7.5 Sampling After Final Cleanup

Area air sampling is also conducted at the end of an asbestos abatement project . First, the area must pass a thorough visual inspection. When no remaining material can be seen, final *clearance sampling* is begun. Samples are taken in the work area, aggressively if possible.

EPA recommends a clearance level of 0.01 f/cc. A low limit of detection is necessary, so high-volume samples must be collected.

8.0 INTERPRETATION OF RESULTS

The following are some important points to remember about air sampling on an asbestos abatement job:

1. There is a time lag between sampling and receipt of results if on site analysis is not done. If levels are not known, make a conservative choice of respirators and use exposure-reduction techniques. This makes the sampling results less critical.

2. TWA and ceiling samples shall be collected. Just one or two-hour samples by themselves really relate to neither standard.

3. The results shown on a data sheet are called "exposure" levels, regardless of respiratory protection. However, if employees are properly protected, their actual exposures underneath the respirators will be much lower.

9.0 RECORD KEEPING

All record of measurements taken to monitor employee exposure to airborne asbestos fibers shall be kept by the company for the duration of the employees employment plus thirty years.

The record shall include at least the following information:

(i) Name of employer;
(ii) Name of person conducting monitoring;
(iii) The date of measurement;
(iv) Address of operation or activity;
(v) Description of the operation or activity involving exposure to asbestos that is being monitored;
(vi) Personal or area sample;
(vii) Name, Social Security number, and exposure level of the employees whose exposures are represented;
(viii) Type of protective devices worn, if any;
(ix) Pump calibration date and flow rate;
(x) Total volume of air sampled;

(xi) Name and address of analytical laboratory;
(xii) Number, duration, and results (f/cc) of samples taken;
(xiii) Date of analysis; and
(xiv) Sampling and analytical methods used and evidence of their accuracy.

H. RESPIRATORY PROTECTION PROGRAM

1.0 PURPOSE

The purpose of this program is to establish uniform guidelines for complying with all federal and state requirements, and to provide company-wide procedures for the proper selection, use and care of respiratory protective equipment.

2.0 SCOPE

This program applies to all Construction Group International, LLC operations.

3.0 POLICY

Every consideration will be given to the use of effective engineering controls to eliminate or reduce employee exposure to toxic materials to below any Permissible Exposure limits (PEL's); however, when feasible engineering controls are not effective in controlling toxic substances, appropriate respiratory protective equipment will be provided by CGI at no cost to the employee.

Respiratory protective equipment will be appropriate for the hazardous material(s) involved and the extent and nature of the work requirements and conditions. At a minimum it will exceed the OSHA or state standard for protection for the specific hazard. If there is ever a question as to whether a specific respirator is adequate protection for a specific job, it is the policy of CGI to use the highest grade respiratory protection available i.e. Type C respirator in a pressure demand mode. It is the responsibility of each employee to assist the company in making proper use of the provided equipment including proper care of the respirators which will prolong their service life and effective protection factor.

Employees required to use respiratory protective equipment because of exposure to toxic materials will do so as a condition of employment. Employees required to use respirators will be properly fitted, appropriately tested, medically screened, and thoroughly trained in their use.

It is the policy of Construction Group International, LLC. that any employee who knowingly voids the protection of his or her respirator by altering it or removing it in a contaminated environment will be terminated immediately without recourse.

4.0 CODES AND REGULATIONS

Those standard governing the development of this program include but are not limited to the following:

Asbestos Regulations-Construction
Title 29, Part 1926, Section 58 of the Code of Federal Regulations.

Respiratory Protection

Title 29, Part 1910, Section 134 of the Code of Federal Regulations.

NIOSH/MSHA Approvals for Respirators
Title 42, Part 84 of the Code of Federal Regulations

American National Standards Institute (ANSI)
American National Standard Practices for Respiratory Protection, Z88.2-1980.

Respiratory Protection
Washington Administrative Code WAC 296-842.

Asbestos Standard
Washington Administrative Code WAC 296-62-077.

5.0 The Program Administrator, Mr. Mark Marcell, is authorized and responsible for the administration of this respirator program.

6.0 EQUIPMENT APPROVAL

Only respirators from among those approved as being acceptable for protection by the Mine Safety and Health Administration (MSHA) or by the National Institute for Occupation Safety and Health (NIOSH) under the provision of 42 CFR Part 84 will be purchased and used.

7.0 RESPIRATOR SELECTION

The selection of a proper respirator for any given situation shall require consideration of the following factors:

A. Nature of Hazard. The following factors concerning the nature of the hazard requiring the use of respirators shall be considered in respirator selection:

(1) Type of hazard:
  (a) Oxygen deficiency
  (b) Contaminant
(2) Physical properties
(3) Chemical properties
(4) Physiological effects on the body
(5) Actual concentration of a toxic material.
  (a) Average
  (b) Peak

(6) Established permissible time-weighted average concentration of a toxic material.
(7) Whether the hazard is an immediately-dangerous-to-life-or- health (IDLH) concentration of a toxic material.
(8) Warning properties.

B. Initial Monitoring of Respiratory Hazard Recognition and evaluation of the respiratory hazard [oxygen deficiency or contaminant(s)] shall be an essential part of selecting a respirator except in emergency or rescue operations. Initial monitoring of the respiratory hazard shall be carried out to obtain data needed for the selection of proper respiratory protection. The data should include:

(1) Identification of the type of respiratory hazard:
    (a) Oxygen deficiency
    (b) Specific contaminant(s)
(2) Nature of contaminant(s)
    (a) Particulate matter
    (b) Vapor(s) or gas(es)
(3) Concentration of respiratory hazard

C. Characteristics of Hazardous Operation or Process. The following factors concerning the hazardous operation of process shall be taken into account in selecting the proper respirator:

(1) Operation or process characteristics
(2) Work-area characteristics
(3) Materials, including raw materials, end products, and byproducts (actual and potential)
(4) Worker activities

Modification in the operation or process shall be taken into account, since this may change the hazard and hence require the selection of a different respirator.

D. Location of Hazardous Area. The location of the hazardous area with respect to a safe area having respirable air shall be considered in selecting a respirator, since this will permit planning for the escape of workers if an emergency occurs, for the entry of workers to perform maintenance duties, and for rescue operations.

E. Respirator Use Time Period. The period of time that a respirator must be worn is an important factor that shall be taken into account in selecting a respirator. Consideration shall be given to the type of respirator application, such as for routine, nonroutine, emergency, or rescue use. It would

not be desirable, for example, to select respirators that are heavy or that offer high resistance to breathing for routine wearing for many hours each day.

F. Worker Activity. Worker activities and worker locations in hazardous areas shall be considered in selecting the proper respirator (for example, whether the worker is in the hazardous area continuously or intermittently during the work shift and whether the work rate is light, medium or heavy.

G. Respirator Characteristics, Capabilities and Limitations. The physical characteristics, the functional capabilities, and the performance limitations of the various types of respirators shall be considered in selecting a respirator.

A respirator protection factor is a measure of the degree of protection provided by a respirator to a wearer. Multiplying either (1) the permissible time-weighted average concentration or the permissible ceiling concentration, whichever is applicable, by a protection factor assigned to a respirator gives the maximum concentration of the hazardous substance in which the respirator can be used. Limitations of filters, cartridges, and canisters also shall be considered.

H. Face Dimensions and Facepiece Sizes. The wide range of face dimensions requires more than a single size of respirator facepiece to provide a proper fit to all respirator users. Therefore, respirator facepieces of more than one size shall be available in any respirator-selection involving respirators equipped with facepieces.

I. Employee Acceptance. Employee acceptance of a particular respirators model within a class shall be considered in selecting a respirator since this may determine whether or not he wears the respirator properly. Acceptance factors to be considered include discomfort, breathing resistance, weight, and interference with vision of the work to be performed.

7.1 Respirator Selection for Asbestos Abatement

For asbestos abatement activities, the company will select and provide, at no cost to the employee, the appropriate respirator as specified in Exhibit 1 and 2 and on-site air monitoring results, and will ensure the employee uses the respirator provided properly. Note: The company will provide and require the use of a Powered Air-Purifying Respirator (PAPR) in lieu of any negative-pressure respirator whenever selection would allow that lower protection type of respirator to be used.

All references to negative pressure respirators contained in this document are required by OSHA or state licensing agencies in order to conform with their statues. CGI does not believe that negative pressure respirators provide adequate protection for asbestos related hazard and specifically prohibits their use excepting a Type C respirator which is being used in an emergency escape mode.

8.0 TRAINING

Respirators will only be issued to employees, subcontractors, or visitors who have received appropriate respirator training, medical clearance and who have passed an appropriate respirator fit-testing. The following training will be conducted as a part of each employees asbestos certification, renewal or annual training.

8.1 Training Program Content

(See appendix A for State regulations)

The respirator training will include adequate discussion on the following topics:

- coverage of respirator usage regulations
- the characteristics of the contaminants
- the health hazards of the contaminants, including the nature of diseases, routes of exposure and dose-response relationship
- the classes and characteristics of respirator types
- limitations of respirators
- proper selection, inspection, donning, use, maintenance and storage procedure
- methods for field checking of the facepiece-to-face seal (positive and negative pressure checks)
- qualitative and quantitative fit-testing procedures
- variability between field and laboratory protection factors
- factors that alter respirator fit (e.g., eye glasses and facial hair)
- the components of this respiratory protection program
- the program administrator
- requirements on oil lubricated reciprocating piston compressors for breathing air
- emergency procedures
- allow respirator wearers to wear their respirators in both safe and test atmospheres

8.2 Periodic Training

All employees required to use a respirator will be required to attend a refresher training course at least semi-annually.

9.0 ISSUANCE AND USE OF RESPIRATORS

Whenever practical, respirators will be assigned to individual employees for their exclusive use. Construction Group International, LLC shall maintain an adequate supply of HEPA filter elements for all negative pressure respirators used. Note that negative pressure respirators are not acceptable for asbestos hazard. All employees required to wear a negative pressure respirator shall change the filter elements whenever an increase in breathing resistance is detected. In order to prevent skin irritation associated with respirator use, employees are encouraged to leave the work area to wash their faces and respirator facepieces whenever irritation is detected. Employees will properly dispose of the cartridge when leaving the area.

9.1 Fit Testing - General

All employees required to wear negative pressure respirators will be qualitatively fit-tested before the issuance of the respirator. The qualitative fit-test protocol in Exhibit 3 will be followed.

9.2 Fit-Testing - Asbestos Abatement

All employees required to wear half-face negative pressure respirators will be qualitatively fit tested according to the protocol outlined in Exhibit 3. All employees required to wear negative pressure full-face respirators or Type C supplied-air full-face respirators equipped with HEPA back-up will be quantitatively fit tested according to the fit-test protocol outlined in Exhibit 4.

9.3 Fit Testing Frequency

9.3.1 Qualitative Fit-Testing will be repeated every 6 months

9.3.2 Quantitative Fit-Testing will be repeated every 6 months with HEPA back- up on Type C

9.3.3 Qualitative and Quantitative Fit-Testing will be repeated immediately when the employee has a:

- weight change of 20 pounds or more;
-significant facial scarring in the area of the facepiece seal;
-significant dental changes; i.e., multiple extractions without prosthesis, or acquiring dentures;
-reconstructive or cosmetic surgery; or
-any other condition that may interfere with facepiece sealing.

9.4 Record Keeping

9.4.1 Qualitative fit-testing records will be documented on the respirator Fit-Test Record (Exhibit 5) and maintained for three years.

9.4.2 Quantitative fit testing records will be documented on the Respirator Fit Factor Card (Exhibit 6) and records maintained for three years.

10.0 POLICY ON FACIAL HAIR, CONTACT LENSES, AND EYE AND FACE PROTECTIVE DEVICES

A negative pressure respirator, any self-contained breathing apparatus, or any respirator which is used in an atmosphere immediately dangerous to life or health (IDLH), equipped with a facepiece shall not be worn if facial hair comes between the sealing surface of the facepiece and the face or if facial hair interferes with valve function. The wearer of a respirator shall not be allowed to wear contact lenses if the risk of eye damage is increased by their use. If a spectacle, goggle, face shield, or welding helmet must be worn with a facepiece, it shall be worn so as not to adversely affect the seal of the facepiece to the face.

11.0 RESPIRATOR CARE AND MAINTENANCE

Respirator maintenance will be performed on a regular schedule which ensures that each respirator wearer is provided with a respirator that is clean and in good operating condition.

Maintenance will include:

-washing, sanitizing, rinsing, and drying
-inspection for defects
-replacement of worn or deteriorated parts
-repairs
-storage to protect against dust, sunlight, excessive heat, extreme cold, excessive moisture, damaging chemicals, and physical damage

11.1 Inspection of Respirators

Respiratory equipment will be inspected for defects before and after each use and during cleaning. The most common defects and corrective actions are listed below.

A. Rubber face piece - check for:

- excessive dirt (clean all dirt from facepiece)
- cracks, tears, or holes (obtain new facepiece)
- distortion (allow facepiece to "sit" free from any constraints and see if distortion disappears, if not, obtain new facepiece)
- cracked, scratched loose-fitting lenses (contact manufacturer to see if replacement is possible; otherwise obtain new respirator

B. Headstraps - check for:

- breaks or tears (replace Headstraps)
- loss of elasticity (replace headstraps)
- broken or malfunctioning buckles or attachments (obtain new buckles)
- allowing the facepiece to slip (replace headstrap)

C. Inhalation valve, exhalation valve - check for:

- detergent residue, dust particles, or dirt on valve or valve seat (clean residue with soap and water)
- cracks, tears, or distortion in the valve material or valve seat (contact manufacturer for instructions)
- missing or defective valve cover (obtain new one from manufacturer

D. Filter element(s) - check for:

- proper filter for the hazard
- missing or worn gaskets (contact manufacturer for replacement)
- worn threads - both filter and facepiece threads (replace filter or face piece, whichever is applicable)
- cracks or dents in filter housing (replace filter), and missing or loose hose clamps (obtain new clamps)

E. Atmosphere-Supplying Respirators (Type C)

- breathing air quality
- breaks or kinks in air supply hose and fitting attachments (replace hose and/or fitting)
- tightness of connections
- proper setting of regulators and valves (consult manufacturer's recommendations
- correct operation of air-purifying elements and carbon monoxide (CO) and or high-temperature alarms

Note: The carbon monoxide alarm must be set to go off at or below 20 ppm and must be calibrated at least monthly.

11.2 Maintenance of Respirators

Respirators must be cleaned after each day's use and placed in a plastic bag or stored in another container provided for this purpose (zip-lock bags or clean coffee can). Do not leave them in the work area or hung on a nail.

Respirators should be completely cleaned and disinfected by carrying out the following procedures:

A. Remove the cartridge from the respirator. Cartridge must never be washed or disinfected. Spent cartridges must be disposed of as contaminated waste.

B. Immerse the respirator in a warm soap and water solution. The respirator facepiece and parts may be scrubbed gently with a cloth or soft brush. Make sure that all foreign matter is removed from all surfaces of the rubber exhalation valve flap and plastic exhalation valve seats.

C. Disinfect with a commercial solution, alcohol wipes; or two tablespoons of bleach or one teaspoon of tincture of iodine per gallon of water.

D. After washing and disinfecting the respirator, rinse it with warm water and then allow the respirator to air day. Do not store the respirator with wet straps. Mildew will result. The facepiece, inhalation and exhalation valves must be in a normal position during storage to prevent the abnormal "set" of elastomer parts.

E. After the respirator is dry, install the cartridges.

Any malfunction on the respirator shall be reported to the Program Administrator or his designated and trained assistant who will provide for procurement and replacement of parts.

Each employee assigned to use a respirator shall maintain and routinely inspect it before and after each use. Respirators will be inspected daily by each Job Supervisor to assure that they are kept clean and in satisfactory working condition.

Note: Stretching and manipulating rubber or elastomer parts with a massaging action will keep them pliable and flexible and prevent them from taking a set during storage.

12.0 MEDICAL REQUIREMENTS

No respirator will be assigned to any employee of CGI unless the employee is physically and psychologically able to perform their job with the use of a respirator.

12.1 General Requirement

Program Administrator will use guidelines established by the consulting physician to determine whether or not an employee may be assigned to a task requiring the use of a respirator.

12.2 Medical Requirements for Asbestos Abatement

(See Appendix B for State regulations WAC 296-62-07725, Medical Surveillance)

Employees engaged in asbestos abatement will be required to undergo medical surveillance, as follows:

- prior to the assignment of a negative pressure respirator (pulmonary function test minimal)
- for employees using positive pressure respirators when engaged in Class I, II, and III work, if the exposure to asbestos fibers is at or above the permissible exposure limit (PEL) of 0.1 f/cc for a combined total of thirty or more days per year, or any employee exposed above the PEL. The medical surveillance will be provided within ten days following the thirtieth day of exposure.
- termination of employment medical examination for any employee who has been exposed to airborne concentrations of fibers of asbestos at or above the PEL.

12.3 Medical Records

The contents of the medical examination, as received from the physician will contain the following information:

- the physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;
- any recommended limitations on the employee or upon the use of personal protective equipment such as clothing or respirators; and
- a statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions resulting from asbestos exposure that require further explanation or treatment.
- statement that the employee has been informed about the risks associated with asbestos exposure and smoking.

12.4 Medical Privacy

The company will instruct the examining physician not to reveal to the company any specific findings or diagnosis unrelated to occupational exposure to asbestos or other toxic materials.

12.4.1 Record Availability

A copy of the physician's written opinion to the company will be available to the affected employee within thirty days from its receipt.

12.4.2 Record Keeping

All medical records will be kept by the company for the duration of an employee's employment plus thirty years.

13.0 RESPIRATOR USE MONITORNG

Project Supervisor will monitor the use of respirators in the field to ensure that they are worn properly. Personal air monitoring will also be performed to ensure the adequacy of protection against contaminants by the respirators.

14.0 RESPIRATOR PROGRAM EVALUATION

Program Administrator, Mark Marcell, will appraise the effectiveness of the respirator program so as to correct any defects, if any.

14.1 Evaluation Frequency

The respirator program will be evaluated annually or more frequently, if needed.

15.0 RESPIRATOR SELECTION

1. Type C supplied air pressure demand full face respiratory protection shall be required for personnel entering work area from time of initial removal of spray-applied ACM from building surfaces intended to receive protection.

2. ½ face hepa filtered respirators shall be required for personnel entering area and performing pre-cleaning activities and poly isolation when installation of barriers disturbs ACM. ½ face hepa respirators will be required of personnel when performing removal of poly following Air Clearance.

EXHIBIT 1

Respirator Selection for Asbestos Abatement

SUBJECT: Respirator Selection for Asbestos Abatement

The Company shall provide and require to be worn, at no cost to the employee, a full facepiece supplied-air respirator operated in the pressure demand mode equipped with either an auxiliary positive pressure self-contained breathing apparatus or a HEPA filter to employees engaged in the following asbestos operations:

(a) Inside negative pressure enclosures used for removal, demolition, and renovation of friable asbestos from walls, ceilings, vessels, ventilation ducts, elevator shafts, and other structural members, but does not include pipes or piping systems; or

(b) Any dry removal of asbestos.

Respirator selection for other asbestos operations, including glove bagging pipes or piping systems shall be in accordance with the following table.

Concentration of asbestos fibers		Required Respirators (a)
** Not in excess of 1 f/cc.	1.	Half-mask, air purifying respirator, other than a disposable respirator, equipped with high-efficiency filters (b).
** Not in excess of 5 f/cc.	1.	Full face piece air-purifying respirator equipped with high efficiency filters.
Not in excess of 10 f/cc. high-efficiency filters.	1.	Any powered air-purifying respirator equipped with
	2.	Any supplied-air respirator operated in continuous flow mode.
Not in excess of 100 f/cc. pressure demand mode.	1.	Full face piece supplied-air respirator operated in
Greater than 100 f/cc.	1.	Full face piece supplied-air or unknown concentration respirator operated in pressure-demand mode equipped with either an auxiliary positive pressure self-contained breathing apparatus or a HEPA filter.
	2.	Full face piece positive-pressure self contained breathing apparatus (SCBA)

**SEE NOTE 3

Note: a. Respirators assigned for higher environmental concentrations.
b. A high efficiency filter means a filter that is capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers mean aerodynamic diameter or larger.

EXHIBIT 2

Contaminant	Respirator	Cartridges
Fiberglass Mineral Wool	Dual Cartridge Half-face	HEPA
Spray-Glue Solvent(Orange-Sol)	Dual Cartridge Half-face	Organic Vapor
Spray Can Urethane Foam	Dual Cartridge Half-face	Organic Vapor (changed at least once per shift)
Urethane Foam	Type "C" Air Supplied	N/A
Ammonia(spray poly)	Dual Cartridge Half-face	Ammonia
Nuisance Dust	Dual Cartridge or Disposable Half-face	Dust Fume Mist

SUBJECT: Respirator Selection for Nuisance Dust

The Company shall provide and require to be worn, at no cost to the employee, one of the following respirators for protection from Nuisance Dust (airborne particulates or dust containing less than 1% crystalline silica, no asbestos, and no other toxic components with a Permissible Exposure Limit (PEL) of 10 milligrams per cubic meter of air (mg/m3) as an 8 hour average and 20 mg/m3 for any 15 minute excursion during the day.

Such operations as mixing of portland cement, sanding or taping compound, cutting sheet rock, or mixing of most fireproof produced Nuisance Dust.

Note that operations like welding iron or mild steel produce a Metal Fume instead. The PEL for fume is 5 mg/m3. A dust, fume, and mist filter must be used for cartridge respirators.

Operations involving cutting or sanding wood produce Wood Dust with PEL's of 5 and 10 mg/m3 respectively. Dust filters are acceptable. The PEL for allergenic wood dust PEL is 2.5 mg/m3, i.e. Western Red Cedar; non-allergenic wood dust PEL is 5.0 mg/m3, i.e. Fir.

For example, a disposable respirator could be used for cement dust protection up to 50 mg/m3. A PAPR with dust, fume and mist or HEPA filters could be used for welding fume up to 500 mg/m3.

NOTE: the MSDS sheet provided for each work hazard has appropriate respiratory protection for that product listed on the MSDS. Read the MSDS and note the respirator and glove type that is appropriate.

EXHIBIT 3

Irritant Fume Protocol

(i) Respirator selection. Respirators shall be equipped with a high-efficiency cartridge.

(ii) Fit test.

(A) The test subject shall be allowed to smell a weak concentration of the irritant smoke to familiarize the subject with the characteristic odor

(B) The test subject shall properly don the respirator selected as above, and wear it for at least ten minutes before staring the fit test.

(C) The test conductor shall review this protocol with the test subject before testing.

(D) The test subject shall perform the conventional positive pressure and negative pressure fit checks (see ANSI Z88.2 l980). Failure of either check shall be cause to select an alternate respirator.

(E) Break both ends of a ventilation smoke tube containing stannic oxychloride, such as the MSA part #5645, or equivalent. Attach a short length of tubing to one end of the smoke tube. Attach the other end of the smoke tube to a low pressure air pump set to deliver two hundred milliliters per minute.

(F) Advise the test subject that the smoke can be irritating to the eyes and instruct the subject to keep the eyes closed while the test is performed.

(G) The test conductor shall direct the stream of irritant smoke from the tube towards the face seal area of the test subject. The person conducting the test shall begin with the tube at least twelve inches from the facepiece and gradually move to within one inch, moving around the whole perimeter of the mask.

(H) The test subject shall be instructed to do the following exercises while the respirator is being challenged by the smoke. Each exercise shall be performed for one minute.

(I) Breathe normally.

(II) Breathe deeply. Be certain breaths are deep and regular.

(III) Turn head all the way from one side to the other. Be certain movement is complete. Inhale on each side. Do not bump the respirator against the shoulders.

(IV) Nod head up and down. Be certain motions are complete and made every second. Inhale when head is in the full up position (looking toward ceiling). Do not bump the respirator against the chest.

(V) Talking. Talk aloud and slowly for several minutes. The following paragraph is called the "rainbow passage." Repeating it after the test conductor (keeping eyes closed) will result in a wide range of facial movements, and thus be useful to satisfy this

requirement. Alternative passages which serve the same purpose may also be used."Rainbow Passage." When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

(VI) Jogging in place.

(VII) Breathe normally.

(I) The test subject shall indicate to the test conductor if the irritant smoke is detected. If smoke is detected, the test conductor shall stop the test. In this case, the tested respirator is rejected and another respirator shall be selected.

(J) Each test subject passing the smoke test (i.e., without detecting the smoke) shall be given a sensitivity check of smoke from the same tube to determine if the test subject reacts to the smoke. Failure to evoke a response shall void the fit test.

(K) This fit test protocol, shall be performed in a location with exhaust ventilation sufficient to prevent general contamination of the testing area by the test agents.

(L) At least two facepieces shall be selected by the irritant fume test protocol. The test subject shall be given the opportunity to wear them for one week to choose the one which is more comfortable to wear.

(M) Respirators successfully tested by the protocol may be used in contaminated atmospheres up to 1 f/cc of asbestos.

(N) The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface.

(O) If hair growth or apparel interfere with a satisfactory fit, then they shall be altered or removed so as to eliminate interference and allow a satisfactory fit. If a satisfactory fit is still not attained, the test subject must use a positive-pressure respirator such as powered air-purifying respirators, supplied-air respirator, or self-contained breathing apparatus.

(P) If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician trained in respiratory diseases or pulmonary medicine to determine whether the test subject can wear a respirator while performing her or his duties.

(Q) Qualitative fit testing shall be repeated at least every six months.

(R) In addition, because the sealing of the respirator may be affected, qualitative fit testing shall be repeated immediately when the test subject has a:

(I) Weight change of twenty pounds or more,

(II) Significant facial scarring in the area of the facepiece seal,

(III) Significant dental changes; i.e., multiple extractions without prosthesis, or acquiring dentures,

(IV) Reconstructive or cosmetic surgery, or

(V) Any other condition that may interfere with facepiece sealing.

(iii) Recordkeeping.

A summary of all test results shall be maintained in each office through the length of employment. The summary shall include:

(A) Name of test subject.
(B) Date of testing.
(C) Name of test conductor.
(D) Respirators selected (indicated manufacturer, model, size and approval number).
(E) Testing agent.

EXHIBIT 4

Quantitative Fit Test Procedures

(a) General.

(i) The method applies to the negative-pressure non-powered air-purifying respirators only.

(ii) The Respirator Program Administrator shall assume the full responsibility for implementing the respirator quantitative fit test program.

(b) Definition.

(i) "Quantitative fit test" means the measurement of the effectiveness of a respirator seal in excluding the ambient atmosphere. This test is performed by dividing the measured concentration of challenge agent in a test chamber by the measured concentration of the challenge agent inside the respirator facepiece when the normal air-purifying element has been replaced by an essentially perfect purifying element.

(ii) "Challenge agent" means the air contaminant introduced into a test chamber so that its concentration inside and outside the respirator may be compared.

(iii) Test subject" means the person wearing the respirator for quantitative fit testing.

(iv) "Normal standing position" means standing erect and straight with arms down along the sides and looking straight ahead.

(v) "Fit factor" means the ratio of challenge agent concentration outside with respect to the inside of a respirator inlet covering (facepiece or enclosure).

(c) Apparatus.

(i) Instrumentation. Corn oil, sodium chloride or other appropriate aerosol generation, dilution, and measurement systems shall be used for quantitative fit test.

(ii) Test Chamber. The test chamber shall be large enough to permit all test subjects to freely perform all required exercises without distributing the challenge agent concentration or the measurement apparatus. The test chamber shall be equipped and constructed so that the challenge agent is effectively isolated from the ambient air yet uniform in concentration throughout the chamber.

(iii) When testing air-purifying respirators, the respirator shall be equipped with a cartridge or canister approved for removal of the test agent, or with a high efficiency particulate filter. Only approved assemblies shall be tested.

(iv) The sampling instrument shall be selected so that a strip chart record may be made of the test showing the rise and fall of challenge agent concentration with each inspiration and expiration at fit factors of at least two thousand.

(v) The combination of substitute air-purifying elements (if any), challenge agent, and challenge agent concentration in the test chamber shall be such that the test subject is not

exposed in excess of PEL to the challenge agent at any time during the testing process.

(vi) The sampling port on the test specimen respirator shall be placed and constructed so that there is no detectable leak around the port, a free air flow is allowed into the sampling line at all times and so there is no interference with the fit or performance of the respirator.

(vii) The test chamber and test set-up shall permit the person administering the test to observe one test subject inside the chamber during the test.

(viii) The equipment generating the challenge atmosphere shall maintain the concentration of challenge agent constant within a ten percent variation for the duration of the test.

(ix) The time lag (interval between an event and its being recorded on the strip chart) of the instrumentation may not exceed two seconds.

(x) The tubing for the test chamber atmosphere and for the respirator sampling port shall be the same diameter, length and material. It shall be kept as short as possible. The smallest diameter tubing recommended by the manufacturer shall be used.

(xi) The exhaust flow from the test chamber shall pass through a high-efficiency filter before release to the room.

(xii) When sodium chloride aerosol is used, the relative humidity inside the test chamber shall not exceed fifty percent.

(d) Procedural requirements.

(i) The fitting of half-mask respirators should be started with those having multiple sizes and a variety of interchangeable cartridges for North M, Use either of the checks outlined below to assure that the facepiece is properly adjusted.

(A) Positive pressure check. With the exhaust port (s) blocked, the negative pressure of slight inhalation should remain constant for several seconds.

(B) Negative pressure check. With the intake port (s) blocked, the negative pressure slight inhalation should remain constant for several seconds.

(ii) After a facepiece is adjusted, the test subject shall wear the face piece for at least five minutes before conducting a qualitative test by using either of the methods described below and using the exercise regime described in (e) (i) through (v) of this exhibit

(A) Isoamyl acetate test. When using organic vapor cartridges, the test subject who can smell the odor should be unable to detect the odor of Isoamyl acetate squirted into the air near the most vulnerable portions of the facepiece seal. In a location which is separated from the test area, the test subject shall be instructed to close her/his eyes during the test period. A combination cartridge or canister with organic vapor and high-efficiency filters shall be used when available for the particular mask being tested. The test subject shall be given an opportunity to smell the odor of Isoamyl acetate before the test is conducted.

(B) Irritant fume test. When using high-efficiency filters, the test subject should be unable to detect the odor of irritant fume (stannic chloride or titanium tetrachloride ventilation smoke tubes) squirted into the air near the most vulnerable portions of the test period.

(iii) The test subject may enter the quantitative testing chamber only if she or he has obtained a satisfactory fit as stated in this exhibit.

(iv) Before the subject enters the test chamber, a reasonably stable challenge agent concentration shall be measured in the test chamber.

(v) Immediately after the subject enters the test chamber, the challenge agent concentration inside the respirator shall be measured to ensure that the peak penetration does not exceed five percent for a half mask and one percent for a full face piece.

(vi) A stable challenge agent concentration shall be obtained prior to the actual start of testing.

(A) Respirator restraining straps may not be over tightened for testing. The straps shall be adjusted by the wearer to give a reasonably comfortable fit typical of normal use.

TSI PORTACOUNT METHOD

(i) The respirator must be fitted with a high efficiency particulate filter.

(ii) The test subject must not smoke for at least 30 minutes prior to the test.

(iii) Allow the instrument to warm up and perform a zero-check prior to the fit test.

(iv) Refer to manufacturer's instructions for details of operation.

(e) Exercise regime.

Prior to entering the test chamber, the test subject shall be given complete instructions as to her/his part in the test procedures. The test subject shall perform the following exercises, in the order given, for each independent test.

(i) Normal breathing (NB). In the normal standing position, without talking, the subject shall breathe normally for at least one minute.

(ii) Deep breathing (DB). In the normal standing position the subject shall do deep breathing for at least one minute pausing so as not to hyperventilate.

(iii) Turning head side to side (SS). Standing in place for one minute, pausing at each extreme position to inhale. Be careful to not bump the respirator.

(iv) Moving head up and down (UD). Standing in place for one minute, inhaling in the up position. Be careful to not bump the respirator.

(v) Talking (T). Talk slowly and loud enough to be heard clearly by the individual conducting fit testing for one minute. Choose one of the following: -Read from a prepared text such as the “Rainbow Passage” – Count backwards from 100 – Recite a memorized poem or song.

(vi) Grimace (G). The test subject shall grimace, smile, frown, and generally contort the face using the facial muscles. Continue for at least fifteen seconds.

(vii) Bend over and touch toes (B). The test subject shall bend at the waist and touch toes and return to upright position for one minute.

(viii) Jogging in place (J). The test subject shall perform job in place for one minute.

(ix) Normal breathing (NB). Same as exercise (e) (i) of this exhibit. "Rainbow Passage". When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

(f) The test shall be terminated whenever any single peak penetration exceeds five percent for half-masks and one percent for full facepieces. The test subject may be refitted and retested. If two of the three required tests are terminated, the fit shall be deemed inadequate.

(g) Calculation of fit factors.

(i) The fit factor is determined by dividing the average challenge agent concentration outside the respirator by the average challenge agent concentration inside the respirator facepiece for the test exercise. The average challenge agent concentration is the arithmetic average of the challenge agent concentration at the beginning and at the end of the test.

(ii) Aerosol Generation/Test Chamber Method

(A) The average peak concentration of the challenge agent inside the respirator shall be the arithmetic average peak concentrations for each of the nine exercises of the test which are computed as the arithmetic average of the peak concentrations found for each breath during the exercise.

(B) The average peak concentration for an exercise may be determined graphically if there is not a great variation in the peak concentrations during a single exercise.

(iii) TSI Portacount Method

At the end of a fit test, the overall fit factor is calculated and displayed, based on the individual fit factors for each test cycle and calculated according to ANSI Z88.2 (1980).

(h) Interpretation of test results. The fit factor measured by the quantitative fit testing shall be the lowest of the three fit factors resulting from three independent tests.

(i) Other Requirements

(i) The test subject shall not be permitted to wear a half-mask or full face piece mask if the minimum fit factor of one hundred or one thousand, respectively, cannot be obtained. If hair growth or apparel interfere with a satisfactory fit, then they shall be altered or removed so as to eliminate interference and allow a satisfactory fit. If a satisfactory fit is still not attained, the test subject must use a positive-pressure respirator such as powered air-purifying respirators, supplied-air respirator, or self-contained breathing apparatus.

(ii) The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface.

(iii) If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician trained in respirator diseases or pulmonary medicine to determine whether the test subject can wear a respirator while performing her or his duties.

(iv) The test subject shall be given the opportunity to wear the assigned respirator for one week. If the respirator does not provide a satisfactory fit during actual use, the test subject may request another QNFT which shall be performed immediately.

(v) A respirator fit factor card shall be issued to the test subject with the following information:
- (A) Name of test subject.
- (B) Date of fit test.
- (C) Name of the test conductor.
- (D) Fit factors obtained from every respirator tested (indicate manufacturer, model, size and approval number).

(vi) Filters used for qualitative or quantitative fit testing shall be replaced weekly, whenever increased breathing resistance is encountered, or when the test agent has altered the integrity of the filter media. Organic vapor cartridges/canisters shall be replaced daily or sooner if there is any indication of breakthrough by the test agent.

(j) In addition, because the sealing of the respirator may be affected, quantitative fit testing shall be repeated immediately when the test subject has a:
- (i) Weight change of twenty pounds of more,
- (ii) Significant facial scarring in the area of the facepiece seal,
- (iii) Significant dental changes; i.e., multiple extractions with prosthesis, or acquiring dentures.
- (iv) Reconstructive or cosmetic surgery, or
- (v) Any other condition that may interfere with facepiece sealing.

(k) Recordkeeping.
A summary of all test results shall be maintained through the length of employment. The summary shall include:
- (i) Name of test subject.
- (ii) Date of testing.
- (iii) Name of the test conductor.

(iv) Fit factors obtained from every respirator tested (indicate manufacturer, model, size and approval number).

EXHIBIT 5

Respirator Fit Test Record

NAME_____INITIALS_____

Type of fit test used: quantitative __qualitative__ other__

Name of test operator_____Initials_____

Test Date_____

RESPIRATOR BRAND MODEL APPROVAL # SIZE PASS/FAIL?

#1_____ S M L P F

#2_____ S M L P F

#3_____ S M L P F

#4_____ S M L P F

NOTES
If quantitative fit testing, include the overall fit factor and print out, or other recording of the
test_____
_____
_____
_____

This record indicates that you have passed or failed a qualitative fit test as shown above for the particular respirators shown. Other types should not be used until fit tested. Respirators tested qualitatively for protection against asbestos can only be worn up to 2 f/cc.

I. CONFINED AREA ENTRY PROGRAM

1.0 PURPOSE

This procedure establishes safe practice for entering and/or working in confined spaces which may be hazardous to employees. For the purpose of this procedure, confined space means any space having a limited entrance or egress which is subject to the accumulation of toxic or flammable contaminants or the development of an oxygen deficient atmosphere. Confined spaces include, but are not limited to, cupolas, storage tanks, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, pipelines, and open top spaces more than four feet in depth, such as pits, tubes, vaults and vessels. Permit-required confined space (permit space) means a confined space that has one or more of the following characteristics: Contains or has a potential to contain a hazardous atmosphere; contains a material that has the potential for engulfing an entrant; has an internal configuration such as an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or contains any other recognized serious safety or health hazard.

2.0 SCOPE

This standard applies to all operations.

3.0 POLICY

All persons involved in an operation requiring entry into confined spaces are responsible to see that this procedure is followed. Management will instruct all affected employees in the nature of the hazards involved, the necessary precautions to be taken, and the use of the protective and emergency equipment required.

4.0 SEQUENCE OF CONFINED SPACE ENTRY

4.1 Before any employee is allowed to enter a tank or other confined space, supervisory authorization must be obtained and a CONFINED SPACE ENTRY PERMIT must be initiated. (See Exhibit 6).

4.2 Prior to issuance of the permit, appropriate tests of the atmosphere must be made by authorized personnel from outside of the confined space to determine if established air contaminated limits are exceeded, or if the oxygen concentration is less than 19.5 percent by volume. Tests must be made with the appropriate monitoring equipment. The person authorized to monitor the atmosphere must be trained in the proper use, calibration and care of the monitoring instruments and must remain at the site until all monitoring is completed. The warehouse/equipment manager will be responsible to make sure that all the air monitoring equipment remains functional.

4.3 If tests indicate the atmosphere is initially safe, but the work may produce a hazardous atmosphere from such processes as cutting and welding, disturbing of accumulated sludge, or use of solvents, entry without respiratory protection will only be permitted subject to additional atmosphere testing by authorized personnel. Periodic atmospheric testing will be done when monitoring from outside the space cannot adequately determine that all employee work areas contain a safe atmosphere, i.e. large or baffled spaces; as employees work their way into unmonitored areas of the space, i.e. using an extended sampling probe; and/or when a space cannot adequately be isolated from a source of air contamination, i.e. a sewer.

4.4 If tests indicate that the atmosphere is unsafe, the confined space must be ventilated until the hazardous atmosphere is removed, prior to employee entry.

4.5 If after purging, inerting, flushing, or ventilating the space, tests indicate a non-respirable atmosphere (less than 19.5 percent oxygen) or levels of toxic contaminants hazardous to health, no person will be allowed to enter unless equipped with an approved air-line respirator or a self-contained breathing apparatus, safety harness, and lifeline and has been properly trained in the use of that equipment.

4.6 The employee entering the space must wear protective clothing if the contaminant can cause dermatitis, chemical burns, or can be absorbed through the skin.

4.7 The CONFINED SPACE ENTRY PERMIT will not be issued unless provisions have been made for:

(a) Constant communication and/or observation with an employee in the immediate area who is not in the confined space.

(b) Adequate rescue procedures have been developed and implemented. This includes procedures for summoning rescue and emergency services for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue.

(c) On going training for any on site rescue personnel.

(d) Someone to be readily available who has been trained in cardiopulmonary resuscitation (CPR).

(e) Entry supervisor must verify availability of emergency rescue prior to permit required confined space entry

4.8 In all cases correct Tagout/Lockout procedures will be followed. Before entering a confined space, the contents must be drained and clean-out doors opened where provided. Further, all lines/pipes serving the confined space must be isolated by positive means which may include, but is not limited to, blanking misalignment, and securing valves in a closed position.

5.0 SPECIAL CONSIDERATIONS

5.1 In potentially explosive or flammable atmosphere, non-sparking tools and portable vapor-proof electrical lighting not exceeding 12 volts must be used. Smoking, open flames and cutting or welding will be prohibited.

5.2 Personal protective equipment, such as coveralls, impervious gloves, boots, face and eye protection, must be used as required by the nature of the operation to be performed.

5.3 In the event of a sudden life-threatening or otherwise potentially dangerous situation requiring immediate action which involves entry into a confined space as defined in this procedure, and in the absence of time to complete testing and ventilation procedures, the atmosphere will be considered as unsafe to enter without the use of an approved air-supplied breathing device.

5.4 In locations where active electrical wires and cables exist special care shall be followed when installing barriers so as to avoid damage to supply and injury to worker. Avoid use of sharp and metallic tools and equipment at specific locations where conditions exists.

When removal is in progress, additional care shall be maintained to avoid damage to isolation barriers at active and inactive electrical equipment and supply.

Avoid excessive use of liquids at locations of electrical power cable, wire and transformer locations. Do not apply excessive amounts of removal or penetrating encapsulants and do not allow to collect at power locations.

Do not hang, support, or stand on active or inactive electrical units, transformers, cables or conduit.

6.0 CERTIFICATION

Prior to issuing the CONFINED SPACE ENTRY PERMIT, the owner or user of the confined space must furnish either a letter certifying that the vessel or space has been thoroughly cleaned and ventilated, or must furnish a Material Safety Data Sheet (MSDS) for each of the chemicals which were recently used in the space or vessel.

7.0 TRAINING (See appendix C for WAC 296-62-14511 Training)

Affected employees must be trained in all aspects of the purpose and use of the Confined Space Entry Procedures. The employees must be trained in the use and purpose of all personal protective equipment. The training must include simulated emergencies during which respirators will be donned and rescue procedures practiced.

8.0 EQUIPMENT

8.1 A combination combustible gas/oxygen meter, which samples for combustible vapors and oxygen deficiency simultaneously, is suggested. However, individual meters to sample for combustible atmospheres and oxygen deficiency may also be used. If separate meters are used monitor for oxygen content first, combustible gases second, and toxicity third.

8.2 Supplied-air breathing apparatus, such as a self-contained respirator with full facepiece operated in pressure demand mode (SCBA), or Type-C supplied-air respirator with full facepiece operated in pressure demand mode with an emergency backup SCBA or escape bottle operated in a pressure demand mode must be used in atmospheres immediately dangerous to life.

8.3 A supplied-air Type-C respirator, in either continuous flow or pressure demand mode may be used in areas which are not immediately hazardous to life and from which the wearer can readily escape.

8.4 Harness and Lifelines: Harness should be capable of retrieving an inert body in and upright position. A parachute-type harness with a single lifting ring attached to the upper back, or with duel lifting rings attached to the should straps, is recommended for work in open areas. Where egress through narrow openings is necessary, wristlets with attached lifting rings may be required instead of a body harness. Sufficient lifelines of at least one-half inch manila must be provided to insure constant connection between the worker in the confined space and the attendant outside.

8.5 When using hoseline supplied-air units, breathing air must be delivered through a filter board.

8.6 Ventilation: A portable blower with a minimum capacity of 600 CFM at 1.5 inches static pressure should be used to supply air and ventilate the enclosed space prior to and during occupancy. If the space is large enough, additional air volume may be required.

9.0 MAINTENANCE OF EQUIPMENT

9.1 A Certified Supervisor must maintain and issue all self-contained and/or supplied-air breathing apparatus required by this procedure.

9.2 A Certified Supervisor must be responsible for issuing all entry permits.

9.3 A Certified Supervisor must maintain and insure calibration of all combustible gas/oxygen meters which must be readily available for use as required.

EXHIBIT 6

CONFINED SPACE ENTRY PERMIT

Company:_____ Location:_____

Date of Request:_____ ____ Person Requesting: _____

Telephone No.:_____ Name of Attendant: _____

Name of Entrant(s): _____

Location of Emergency Personnel (on site, off site): _____

Emergency Telephone No.: _____

Description of Work:_____

_____

Hazards of the space: _____

_____

PROCEDURES: Corporate Safety Program--Confined Space/Vessel Entry

Measures used to isolate permit space, (i.e. lockout, tagging, purging, inerting, ventilating, flushing):_____

Rescue Equipment:_____

Acceptable atmospheric concentrations:
Oxygen: 19.5% to 23.5% Substance:_____ PEL _____

Substance:_____ PEL _____ Substance:_____ PEL _____

Substance:_____ PEL _____ Substance:_____ PEL _____

ATMOSPHERIC TESTS
Time
%Oxygen
%LEL
Tested By
Equipment Used

Entrant to Attendant Communication Procedures and Equipment: _____

_____

Emergency Rescue Communication Procedures and Equipment: _____

_____

Respiratory Equipment to be Used:_____

Ventilation Equipment to be Used:_____

THIS CONFINED SPACE HAS BEEN TESTED AND INSPECTED, AND ENTRY IS AUTHORIZED ONLY BETWEEN THE HOURS OF _____ ON THIS DATE_____

THIS PERMIT IS SUBJECT TO USE OF APPROVED CONFINED SPACE ENTRY PROCEDURES.

Issued By:_____Date:_____Time:_____

J. ELECTRICAL HAZARD PROCEDURES/PRECAUTIONS

1.0 PURPOSE

To clarify requirements for assuring electrical safety.

To eliminate unsafe conditions involving electrical equipment, including faulty insulation, improper grounding, loose connections, defective parts, ground faults in equipment and unguarded live parts.

To remove the potential for accidents when working in certain environmental conditions, particularly wetness and dampness, which contribute to electrical hazards.

To identify power shut down when working within Electrical Vaults.

2.0 SCOPE

This standard applies to all divisions, subsidiaries and joint ventures of this company.

3.0 POLICY

Only qualified personnel will be allowed to perform any type of electrical work.

Any electrical work done by CGI will be in accordance with the l971 National Electrical Code (NEC), unless superseded by appropriate federal, state and local regulations.

No employee will be permitted to work in any asbestos containment area, in such proximity to any part of an electric power circuit that he/she may contact same in the course of this work, unless the employee is protected against electric shock by de-energizing the circuit and grounding it or by using Ground Fault Circuit Interrupters (GFCI) or by other appropriate methods i.e. rubber blankets provided by an electrical utility.

4.0 ELECTRICAL - GENERAL

Extension cords used with portable electrical tools will be the 3-wire type, will be protected from damage, and will not be fastened with staples, hung from nails, or suspended from wires. Splices must have soldered wire connections with insulation equal to the cable. Worn or frayed electrical cords will not be used.

Except where bulbs are deeply recessed in the reflector, bulbs on temporary lights will be equipped with guards. Temporary lights will not be suspended from their electric cords unless they are designed for suspension.

All receptacles for attachment plugs will be of the approved concealed contact type. Where different voltages or types of current are supplied, receptacles will be of the design that prevents interchanging attachment plugs.

Electric cables passing through work areas will be covered or elevated, whenever feasible, to protect them from damage which could create a hazard to employees.

The non-current carrying metal parts of all portable and/or plug connected equipment must be properly grounded. Portable tools protected by an approved system of double insulation, or its equivalent, need not be grounded.

5.0 ELECTRICAL - GROUNDING

In lieu of using permanent wiring on a construction job, the use of Ground Fault Circuit Interrupters (GFCI) is required to protect employees working on construction sites and using temporary wiring. These requirements are in addition to any other requirements for equipment grounding conductors.

5.1 Ground Fault Circuit Interrupter

All 120 volt, single-phase, 15 and 20 ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, should, under ideal conditions, have approved Ground Fault Circuit Interrupters to provide protection for those employees.

Receptacles on a two-wire, single-phase portable or vehicle mounted generator rated not more than 5kW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with GFCI.

5.1.1 Asbestos Work Areas

All receptacle outlets used by employees within an asbestos abatement area, where wetness and/or dampness is a consideration, must be protected by GFCI, regardless of whether or not these receptacle outlets are a part of the permanent building wiring or on the end of an extension cord.

6.0 ELECTRICAL VAULT POWER SHUT DOWN/START UP AND PROTECTION

Power to electrical transformer shall be terminated by the electrical utility as coordinated by Owner's Representative prior to first application of damp/wet removal, and isolation of transformers.

Main power supply which is maintained to the transformer (equipment) shall be protected water tight using plywood cover and two layers of polyethylene sheeting (min.).

Transformers which have been shut-down by the electrical utility shall be protected with three layers of 6 mil polyethylene sheeting (min.) as part of set-up process.

Return of transformer and equipment operation shall be performed after Air Clearance by the electrical utility as coordinated by Owner's Representative.

In locations where active electrical wires and cables exists, special care shall be followed when installing barriers so as to avoid damage to supply and injury to worker. Avoid use of sharp and metallic tolls and equipment at specific locations where conditions exists.

When removal is in progress additional care shall be maintained to avoid damage to isolation barriers.

Avoid excessive use of liquids at locations of electrical power cable, wire and transformer locations. Do not apply excessive amounts of removal or penetrating encapsulant and do not allow to collect at power locations.

Do not hang, support, or stand on active or inactive electrical units, transformers, cables or conduit.

K. LOCK OUT / TAG OUT PROGRAM

1.0 PURPOSE

This procedure establishes safe practices for servicing and maintaining machines, equipment and other systems in which the unexpected energization or start up of the machine, equipment or system, the release of stored energy, or contact with an energized system could cause injury to employees.

2.0 SCOPE

This standard applies to all operations and projects.

3.0 POLICY

All persons involved in servicing and/or maintaining energized machines, equipment or systems are responsible to see that this or a similar procedure is followed. If the property/site owner has a lockout/tagout program, the owner’s program will be followed with the exception that CGI employees will use their own individual locks provided by CGI. If the site owner has no lockout/tagout program or this program is deemed to be more stringent than the site owner’s program, this program will be in effect. Management will instruct all affected employees in the nature of the

hazards involved, the necessary precautions to be taken, and procedures to be followed

4.0 SEQUENCE OF LOCK OUT / TAG OUT

4.1 The maintenance or servicing employee (authorized employee) must know the type and magnitude of energy that the machine, equipment, or system scheduled for maintenance or service utilizes and must understand the hazards of the energy source.

4.2 Notify affected employees that a machine, piece of equipment, or energized system is to be locked out or tagged out and the reason.

4.3 If the machine or equipment is operating, shut the system down by normal procedures (e.g. depress stop button).

4.5 Operate the device (e.g. switch, valve, breaker) that isolates the energy from the machine, equipment, or system to be maintained or serviced. Stored energy (such as that in springs, elevated machine or equipment components, rotating flywheels, and hydraulic, pneumatic, and steam systems) must be released or restrained by repositioning, blocking, bleeding down, etc.

4.6 Lockout the energy isolating device with appropriate protective hardware (e.g. lockout hasp, valve, ball valve, or plug cover, blocking material) if applicable and assigned individual locks.

4.7 After ensuring that no personal are exposed, operate the pushbutton or other normal operating controls to make certain the machine or equipment will not operate (try-out). Return operating control(s) to the neutral or off position after the test.

4.8 The equipment is now locked out.

4.9 The tag out system may only be used where no viable way of physically locking out an energy isolating device exists or locking out a device creates a more significant safety hazard.

4.10 The tags are to be hung as close as is safely possible to the energy isolating device.

5.0 RESTORING MACHINES OR EQUIPMENT TO NORMAL OPERATIONS

5.1 After the servicing and/or maintenance is complete and equipment is ready for normal production operations, check the area around the machines or equipment to ensure that no one is exposed.

5.2 After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove all lockout or tagout devices. Operate the energy isolating devices to restore energy to the machine or equipment.

6.0 PROCEDURE INVOLVING MORE THAN ONE PERSON

In the preceding steps, if more than one individual is required to lockout or tagout equipment, each shall place his/her own personal lockout/tagout device on the energy isolating device(s). When an energy isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used.

If lockout is used, a single lock may be used to lockout the machine or equipment with the key being place in a lockout box or cabinet, which allows the use of multiple locks to secure it. Each employee will then use his/her own lock to secure the box or cabinet. As each person no longer needs to maintain his or her lockout protection, that person will remove his/her lock from the box or cabinet.

7.0 TEMPORARY REMOVAL OF LOCKOUT/TAGOUT DEVICES

In situations where lockout/tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment, or a component, the following sequence of actions will be followed:

7.1 Remove non-essential items and ensure that machine or equipment components are operationally intact.

7.2 Notify affected employees that lockout/tagout devices have been removed and ensure that all employees have been safely positioned or removed from the area.

7.3 Have employees who applied the lockout/tagout devices remove the lockout/tagout devices.

7.4 Energize and proceed with testing or positioning.

7.5 De-energize all systems and reapply energy control measures in accordance with section 4.0 of this procedure.

8.0 MAINTENANCE REQUIRING UNDISRUPTED ENERGY SUPPLY

Where maintenance, repairing, cleaning, servicing, adjusting, or setting up operations cannot be accomplished with the prime mover or energy source disconnected, such operations may only be performed under the following conditions:

8.1 The operating station (e.g. external control panel) where the machine may be activated must at all times be under the control of a qualified operator.

8.2 All participants must be in clear view of the operator or in positive communication with each other.

8.3 All participants must be beyond the reach of machine elements that may move rapidly and present a hazard.

8.4 Where machine configuration or size requires that the operator leave the control station to install tools, and where there are machine elements that may move rapidly, if activated, such elements must be separately locked out.

8.5 During repair procedures where mechanical components are being adjusted or replaced, the machine shall be de-energized or disconnected from its power source.

9.0 EMPLOYEE TRAINING

Employee with the potential of utilizing the lockout/tagout system must be trained in all aspects of the purpose and use of lockout/tagout procedures. The training must include the recognition or applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control. Employees must also be trained in the limitations of using a tagout system in lieu of the lockout system.

10.0 PERIODIC INSPECTION

The employer is responsible for conducting periodic inspection of the lockout-tagout program at least annually to ensure the procedures and requirements are being followed. To assist in the inspection, the following must may be used.

LOCKOUT/TAGOUT INSPECTION FORM

1. Inspection Date:_____

2. Inspector (Printed Name/Signature):
_____/_____

3. Employee(s) Inspected (Printed/Signature):
_____/_____

_____/_____

_____/_____

_____/_____

4. Machine, equipment, or system on which the energy control procedure was being utilized:

_____

_____

	YES	NO
5. Does employee(s) have access to adequate lockout/tagout devices?		
6. Has the employee(s) tested the effectiveness of his/her lockout/tagout?		
7 If this is an outside contractor, have they been informed of the necessity for adhering to lockout/tagout procedures?		
8. Were tagouts legible and clearly displayed?		
9. Have all procedures been followed?		

10. Comments/Observations: _____

_____

_____

_____

_____

_____

L. WORKER TRAINING PROGRAM - ASBESTOS ABATEMENT

1.0 GENERAL - ASBESTOS ABATEMENT

CGI hires only "certified asbestos workers". All workers are required to maintain a certification in the state in which they are working. All of our workers are required to be non-smokers.

Each worker shall have participated in the minimum training course as required by OSHA, state, and local codes. The minimum training course which CGI will accept consists of at least 30 hours of training. The content is outlined as follows and each certified asbestos worker is required to pass a written examination with a minimum score of 70%.

2.0 TRAINING COURSE CONTENT

(1) The physical characteristics of asbestos including types, fiber size, aerodynamic characteristics and physical appearance.

(2) Examples of different types of asbestos and asbestos containing materials. Real asbestos shall be used only for observation by trainees and shall be enclosed in sealed unbreakable containers.

(3) The health hazards of asbestos including the nature of asbestos related diseases, routes of exposure, dose-response relationships, synergism between cigarette smoking and asbestos exposure, latency period of diseases, hazards to immediate family, and the health basis for asbestos standards.

(4) Employee personal protective equipment including the classes and characteristics of respirator types, limitations of respirators, proper selection, inspection, donning, use, maintenance and storage procedure, methods for field checking of the facepiece-to-face seal (positive and negative pressure checks), qualitative and quantitative fit testing procedures, variability between field and laboratory protection factors, factors that alter respirator fit (e.g., eye glasses and facial hair), the components of a proper respiratory protection program, respirator program administrator, requirements on oil lubricated reciprocating piston compressors for breathing air, and selection and use of personal protective clothing.

(5) Use, storage and handling of launderable clothing, nonslip footwear, gloves, eye protection and hard hats.

(6) Medical monitoring procedures and requirements, including the provisions of the asbestos section of the occupational safety and health regulation applicable to the state in which the work is being performed, any additional recommended procedures and tests, benefit of medical monitoring and employee access to records.

(7) Air monitoring procedures and requirements specified in the asbestos section of the occupational safety and health regulations of the state where the work is being performed, including a description of equipment, sampling methods and strategies, reasons for air monitoring, types of samples, including area, personal and clearance samples, current standards with proposed changes if any, employee observation and notification,

recordkeeping and employee access to records, interpretation of air monitoring results, and analytical methods for bulk and air samples.

(8) State-of-the-art work practices for asbestos removal and encapsulation activities including purpose, proper construction and maintenance of barriers and decontamination enclosure systems, posting of warning signs, electrical and ventilation system lock-out, proper working techniques and tools with vacuum attachments for minimizing fiber release, use of wet methods and surfactants, use of negative pressure ventilation equipment for minimizing employee exposure to asbestos fibers and contamination prevention, scoring and breaking techniques for rigid asbestos products, glove bag techniques, use of HEPA vacuums and proper clean-up and disposal procedures. Work practice requirements for removal, encapsulation, enclosure and repair shall be discussed individually. Appropriate work practices for both indoor and outdoor asbestos projects shall be included.

(9) Personal hygiene including entry and exit procedures for the work area, use of showers and prohibition of eating, drinking, smoking and chewing (gum or tobacco) in the work area.

(10) Additional safety hazards that may be encountered during asbestos removal and encapsulation activities and hazard abatement; including electrical hazards, scaffold and ladder hazards, slips, trips and falls, confined spaces, noise, and heat stress.

(11) The requirements, procedures and standards established by:
- (a) The Environmental Protection Agency, 40 CFR Part 61, Subparts A and M and OSHA 29 CFR 1926-58.
- (b) State Department of Ecology.
- (c) Local air pollution control agencies.
- (d) State Department of Labor and Industries, Division of Industrial Safety and Health,

(12) Actual work site considerations.

(13) The instruction required by this section shall include, at a minimum, hands-on training for the following:
- (a) Glove bag techniques;
- (b) The opportunity to don respirators including half facepiece and full facepiece air purifying respirators, powered air purifying respirators (PAPR), and Type-C supplied-air respirators. Demonstrate qualitative or quantitative fit testing.
- (c) Removal and repair of sprayed-on material, troweled-on material and pipe lagging;
- (d) Basic construction of a decontamination unit, and proper entry and exit.;
- (e) Suit-up in protective clothing consisting of coveralls, foot coverings and head coverings.

M. ACCIDENT INVESTIGATION AND REPORTING

1.0 DEFINITION AND PURPOSE

ALL ACCIDENTS MUST BE REPORTED to the CGI onsite supervisor immediately for evaluation/investigation. Since every accident includes a sequence of contributing causes, it is possible to avoid a repeat performance of the first event by recognizing and eliminating these causes. The removal of just a single cause can prevent a recurrence. During the supervisors evaluation he/she must determine the possible consequences that could take place if the situation is not corrected and take appropriate action based upon those findings (i.e., investigate, report, correct, etc.) The company requires that a report of each accident be filed by the supervisor with the office as soon as is practical after the accident.

2.0 MEDICAL EMERGENCY PROCEDURE

An aid car will be called in the case where the employee needs immediate medical attention. The telephone number for this job is _____. A company employee designated by the certified supervisor will accompany the employee to the doctor or hospital.

3.0 DOCUMENTATION PROCEDURES

3.1 Minor Injuries - (Requiring doctor/outpatient care). After the emergency actions following an accident, an investigation of the accident will be conducted by the immediate supervisor in conjunction with any witnesses to the accident, to determine the causes. The findings of the investigation shall be documented on an accident investigation form (a sample accident report is contained in Exhibit 1 of this section). Distribution of the completed form will be as follows:

A. Copy to top management official and safety officer.
B. Copy to office files.
C. Copy to safety committee chairperson.

3.2 Major Injuries - (Fatality or multiple hospitalization).

A. Mark Marcell, program administrator and safety officer, supervisor and safety committee chairperson are to be notified immediately by the person in charge and an investigation under the direction of Mark Marcell will be conducted. In addition to Mark Marcell, the inspection party will include the safety officer, supervisor of the I njured person(s) and a representative from the safety committee.

B. In the case of a fatality or if two or more employees are hospitalized, the supervisor will report the accident to the nearest office of the agency enforcing occupational health and safety regulations, within 8 hours after the occurrence of the accident.. The report shall relate the circumstances, the number of fatalities, and the extent of any injuries. NOTE: Any equipment involved in

the accident resulting in an immediate fatality is not to be moved until a representative of the agency enforcing safety and health regulations investigates the accident and authorizes its removal. If, however, it is necessary to move the equipment to prevent further accidents or to remove the victim, the equipment may be moved as required.

3.3 Near misses - (Likelihood of personal injury or property damage).

To the greatest extent possible all "near-miss" accidents shall be investigated by a top management official (if situation warrants), safety officer, supervisor and safety committee representative. A near-miss accident is defined as an unplanned event where damage resulted to equipment but there was no personal injury to employees OR where damage did not result but the likelihood of personal injury to the employee was great. If the conditions which permitted the near-miss or "close-call" to exist are not eliminated, they will continue to be available to cause additional accidents which could eventually result in personal injury to the employee.

N. OCCUPATIONAL INJURY AND ILLNESS RECORDKEEPING

1.0 PURPOSE

In accordance with applicable federal and state requirements, each location of the Company will ensure the appropriate records are kept as follows:

A. Maintain a Log and Summary of Occupational Injuries and Illness on OSHA Form 200. Recordable cases include:

1. Every occupational death
2. Every occupational illness
3. Every occupational injury that involves:

    a. Unconsciousness
    b. Inability to perform all phases of the regular job
    c. Inability to work full time on a regular job
    d. Temporary assignments to another job
    e. Medical treatment OTHER than first aid

B. Keep copies of all reports generated when an employee is injured on the job.

C. During the month of February, post the completed Summary portion of the OSHA Form 200 for the previous year.

D. Maintain records for five years following the year to which they relate.

E. Enter each recordable injury and illness on the log as early as practicable, but no later than six working days after receiving the information that a recordable case has occurred.

F. In addition to the OSHA Form 200, a supplementary record for each occupational injury or illness (OSHA 101) will be maintained. Other reports, such as worker compensation forms, are acceptable alternatives for the OSHA 101 if they contain the information required by the OSHA 101.

2.0 RESPONSIBILITY

The Company is responsible for maintaining records and ensuring proper posting.

O. SAFETY BULLETIN BOARD

1.0 PURPOSE

In addition to the methods heretofore defined, the bulletin board is another method to increase employee's awareness of safety and health and communicate management's safety message.

2.0 PROCEDURE

The following consideration should be made for bulletin board effectiveness:

A. Placed in a spot where there is greatest employee exposure (lunchroom, breakroom, central part of the plant, near time clock, etc.).

B. Posting should be attractively arranged.

C. Posters, safety committee minutes and other information that becomes dated or worn should be changed periodically.

D. A specific safety bulletin board or portion of an existing board should be designated and that spot reserved EXCLUSIVELY for safety material.

E. will be designated to maintain the bulletin board as recommended above.

3.0 POSTER REQUIREMENTS

The following items are required to be posted in Washington State:

A. WISHA Your Rights as a Worker/Family Leave Provisions Poster (Form F700-074-000).
B. Job Safety and Health Protection Poster (Form F416-081-000).

C. Notice to Employees Poster (Form F242-191-000)
D. Federal Minimum Wage Poster
E. Citation and Notice (as appropriate)
F. OSHA 200 Summary (specifically during month of February).

P. PROCEDURE FOR DISPOSAL

Collect asbestos waste, scrap, debris, bags, containers, equipment and asbestos-contaminated clothing which may produce airborne concentrations of asbestos fibers and place in sealed impermeable bags. Waste material inside the bags must be wet.. Affix a caution label to each bag. All disposal bags used will have a minimum thickness of 6 mil.

Sealed bags may be stored in the work area until a sufficient volume of contaminated waste has accumulated for disposal but not to exceed 5 days. The temporary storage area will be prominently designated. The bagged debris will be double bagged in the waste load-out area and then put in drums.

Warning labels having waterproof print and permanent adhesive, will be affixed to the lid and sides of all containers. Warning labels should be conspicuous and legible and contain the following words:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
AVOID BREATHING AIRBORNE ASBESTOS FIBERS

Dispose of waste asbestos material at a state or municipalities approved site. It is our responsibility to determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. We must comply fully with these regulations and ALL U.S. Department of Transportation and EPA requirements. Drums will be delivered to the pre-designated disposal site for burial. Labels and all necessary signs shall be in accordance with appropriate federal state and local regulations.

Workers unloading the sealed drums shall wear, as a minimum, PAPR with HEPA filters when handling materials at the disposal site.

The bags will be dumped from the drums into the burial site. The drums may be re-used. However, if a bag is broken or damaged, the entire drum must be buried.

Additional Requirements to Maintain Contractor Registration in California

In addition to other requirements, Construction Group International, LLC. shall comply with the following to maintain the registration in good standing.

(a) When Construction Group International, LLC will be conducting separate jobs or phases of work which are the subject of the registration, or where the work process may differ or is performed at noncontiguous locations, written notice shall be provided to the nearest District Office of the Division prior to commencement of any such work activity. The written notice shall contain the following:

(1) The address of the job.

(2) The precise physical location of the job at the given address.

(3) The projected starting and completion date.

(4) The name of the certified supervisor who has sufficient experience and authority and who will be responsible for the asbestos-related work activity.

(5) The name of the qualified person who will be responsible for conducting air sampling, calibration of air sampling equipment, evaluation of sampling results and respiratory fit testing as well as the evaluation of those tests.

(6) A description of the type of work to be performed, work practices that will be utilized, and an evaluation of the potential for exposure.

(a) Any change in the information provided the Division by the written notice shall be reported to the Division at or before the time of the change. If notification of any change is made by telephone, or otherwise orally, such notification shall be confirmed immediately in writing but in any event no later than 24 hours after the change.

(b) CGI shall post a sign readable at 20 feet at the locations of any asbestos-related work which is to take place stating "Danger - Asbestos. Cancer and Lung Hazard. Keep Out."

(c) CGI shall provide a copy of the registration to the prime contractor and any other employers at the site before the commencement of any work.

(d) CGI shall conduct a safety conference prior to the commencement of any asbestos-related work subject to the registration and notification requirements. The safety conference shall include representatives of the owner or contracting agency, the contractor, the employer, employees and employee representative. The safety conference shall include a discussion of employer's safety program and such mean, methods, devices, processes, practices, conditions, or operations as the employer intends to utilize in providing a safe and healthful place of employment. The requirement of this section shall apply to all asbestos-handling jobs regardless of the amount of asbestos to be handled.

(e) CGI acknowledges the Division's right to revoke the registration if it is unlikely to properly verify compliance therewith.

(f) CGI understands that failure to comply with any of the requirements for obtaining and maintaining the registration can result in a denial, suspension or revocation of the registration.

Q. HAZARDOUS WASTE OPERATIONS

1.0 PURPOSE

The program establishes environmental protocol and safe work practices for Construction Group International personnel engaged in hazardous waste disposal operations. This program is designed to identify, evaluate, and control safety and health hazards and provide for emergency response for hazardous waste operations.

2.0 DEFINITIONS

Definitions of terms that apply to hazardous waste operations may be found in WAC 296-62-300, and 29 CFR 1910.120.

3.0 ORGANIZATIONAL STRUCTURE

The following describes the chain of authority, responsibility, and communication to be followed during hazardous waste disposal operations:

- Environmental, Health and Safety Specialist: This person has the responsibility and authority to direct all hazardous waste disposal operations for CGI.
- Additional team members needed to perform the disposal and/or emergency response activities will report to the Environmental, Health and Safety Specialist.

4.0 PERSONAL PROTECTIVE EQUIPMENT

All personal protective equipment (PPE) required by CGI employees to handle hazardous waste will be provided and paid for by CGI. The Environmental, Health and Safety Specialist is responsible for: selecting the appropriate level of PPE for site activities and for ensuring that the correct level of PPE is worn by all team members. CGI team members are required to wear the PPE as directed by the Environmental, Health and Safety Specialist for the disposal activities to which they are assigned. Any questions regarding PPE levels to be used during site activities should be directed to the Site Environmental, Health and Safety Specialist.

5.0 TRAINING

The Environmental, Health and Safety Specialist is responsible for ensuring that all team members responsible for hazardous waste disposal operations and emergency response are trained in appropriate procedures.

6.0 MEDICAL SURVEILLANCE

CGI will provide medical surveillance to all CGI team members who meet the conditions listed below. This medical surveillance is provide at no cost to the team member, without loss of pay, and at a reasonable time and place.

- All team members who are or may be exposed to hazardous substances or health hazards at or above the permissible exposure limits or, if there is no permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year;
- All team members who wear a respirator for 30 days or more a year or as required by WAC 296-62-071;
- All team members who are injured, become ill, or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation.

7.0 HANDLING DRUMS AND CONTAINERS

Procedures for handling drums and containers are contained in WAC 296-62-3090. All team members will observe these procedures when handling drums and containers.

R. HEAT STROKE -- HEAT EXHAUSTION

The danger of heat and sun seems to be of little importance to the outdoor construction worker. We all know, however, that periods of high heat can be extremely dangerous to a person who does not recognize the hazards.

The most dangerous time of day is between 10:00 A.M. and 2:00.P.M. This is when the heaviest concentration of ultraviolet rays reach the earth. Unfortunately, this time period also happens to occur right in the middle of a normal work day. Often protective clothing that is absolutely necessary for safe performance of the job must be worn at this time and will further increase a worker's discomfort. It is a fact that accidents and injuries increase during periods of excessive heat and humidity.

What can be done to prevent heat stress? If working indoors in a closed area, proper ventilation is absolutely necessary. This not only helps to prevent heat stress but can also help to protect your lungs from harmful toxic fumes.

Among people working outdoors, individuals who are aged, obese, unacclimatized, in poor physical condition or alcohol abusers, are far more susceptible to heat stroke or exhaustion. Whenever possible, breaks should be taken in a shaded area. Light colored clothing that is loose enough to allow circulation of air without causing a hazard itself should be worn.

A very important factor in preventing heat stroke and heat exhaustion is remembering to drink plenty of water throughout the day. The average body loses approximately 2 1/2 quarts of water a day through perspiration, and up to 3 1/2 quarts per hour when working strenuously. These fluid losses are reflected by a decrease in body weight and blood volume. A 1% loss of body weight can impair performance; 5% can mean there are heat exhaustion problems; with 7% a person is in extreme danger; and any increased loss can bring death. Drinking adequate amounts of water will help to prevent this loss of fluids. Gatorade or Pedialyte are also good substitutes for water. Unlike water, these drinks are fortified with different minerals that will help to replace those lost through sweating.

Symptoms of Heat Stroke: Heat stroke is characterized by a high body temperature, often up to 106 degrees F. In most cases of heat stroke the victim's skin will become red and dry. The victim will not be sweating. There may also be nausea, dizziness, accelerated pulse rate, confusion, convulsions and unconsciousness.

Care of Heat Stroke: It is extremely important to cool the victim as rapidly as possible, immersing the victim in cool not cold water or by sponging the victim with rubbing alcohol or cool water are the best methods. Additional help can be obtained by fanning the victim. Do not give coffee, tea or alcoholic beverages to drink. Get the victim to a medical facility as soon as possible. This is a critical situation. If the victim does not receive adequate help, death or permanent brain damage can occur.

Symptoms of Heat Exhaustion: Heat exhaustion is not as serious and usually has no long lasting effects. Heat exhaustion is characterized by normal or subnormal temperature. Clammy or moist skin; paleness; dizziness; headache; weak rapid pulse; and a general feeling of weakness.

Care of Heat Exhaustion: The victim should be moved out of the sun to a cooler place. Cool cloths should be applied to the skin, a liquid such as water, Gatorade or Pedialyte should be given every fifteen minutes for a period of forty-five minutes to an hour. The victim should rest.

See the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices for how to calculate the Permissible Heat Exposure Threshold.

S. EMERGENCY CLEAN-UP IN ISOLATED WORK AREAS

1. Stop all work.

2. Notify contracting officer and/or representative immediately.

3. Maintain or repair as required isolated work area enclosure.

4. Thoroughly air and surface clean immediate area as required until subsequent air sample results fall below the specified limits.

5. Resume abatement work only after the area has been cleaned, the air results are below the specified limits and authorization is given by the contracting officer.

T. HAZARD COMMUNICATION PROGRAM

1.0 SCOPE

This program applies to Construction Group International, LLC.

2.0 POLICY

Construction Group International, LLC as an employer engaged in business where chemicals and hazardous materials are either used or released, will ensure that the hazards will be evaluated and that information concerning their hazard will be transmitted to all affected employees. Accordingly, this program describes how this criteria will be met.

3.0 STATE RIGHT TO KNOW

Construction Group International, LLC recognizes both State specific regulations as well as Federal OSHA Right to Know laws concerning chemical material hazards within the work place.

4.0 AUTHORITY

4.1 This written Hazard Communication Program is as described by 29 CFR 1910.1200 (e).

4.2 Availability

A copy of this program is available, upon written request, to all employees, their designated representatives, the Assistant Secretary of Labor and Director of OSHA, in accordance with the requirements of paragraph (e) of

the Standard. In order to facilitate this availability, a copy of this program is contained in all master and work area MSDS Binders.

4.3 Exemptions

There are two types of exemptions from this program, and they are as follows:

4.3.1 The following materials or operations are exempt from the provisions of this Standard:

a. Any hazardous waste which is subject to the regulations of the Environmental Protection Agency (EPA).

b. Toxic substances used in the workplace which are in the same form, volume, concentration, and for the same use as commonly sold by retail outlets as consumer goods.

c. Tobacco or tobacco products;

d. Wood or wood products;

e. Articles; and

f. Foods, drugs, or cosmetics for personal consumption by employees in the workplace.

4.3.2 When labeled in accordance with federal requirements, the following substances shall be exempt only from the labeling provisions of the Standard.

a. Pesticides subject to EPA's Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) labeling requirements:

b. Food, drug or cosmetic material subject to labeling requirements of the Food and Drug Administration (FDA);

c. Distilled spirits, wine or malt beverages subject to labeling requirements of the Treasury's Bureau of Alcohol, Tobacco and Firearms (BATF); and

d. Consumer products subject to labeling requirements of the Consumer Products Safety Commission.

5.0 HAZARD DETERMINATION

5.1 Sources

OSHA has established a minimum number of chemicals which are considered hazardous and are covered by the Standard. These are:

a. Chemicals listed by OSHA in 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances; and

b. Chemicals listed by ACGIH in Threshold Limit Values for Chemicals Substances in the Work Environment.

5.2 Responsible Party

CGI is required to comply with the provisions of this Standard and will designate Mark Marcell as its Safety Coordinator. The Safety Coordinator, or his designate, will have the primary responsibility for all aspects of his company's Hazard Communication Program. The Safety Coordinator will be responsible for providing the hazard assessment based upon the chemicals MSDS, obtaining and providing additional information on the hazardous chemicals, and identifying and providing appropriate emergency procedures if necessary.

5.3 Hazard Assessment

Use of the Material Safety Data Sheet will be used to satisfy the requirements of 29 CFR 1910.1200 (d) Hazard Determination. CGI will review New Material Safety Data Sheets.

5.3.1 CGI will rely, in good faith, on the MSDS received with all hazardous chemical shipments, or soon thereafter in the case of missing or updated MSDS's, from the chemical manufacturer, importer or distributor. The Safety Coordinator is charged with the responsibility for ensuring that the most current MSDS's are posted in the master and work area MSDS Binders. If new and significant information concerning the potential health hazard of a chemical in the work place is uncovered, then the Safety Coordinator will ensure that either an updated MSDS is obtained from their supplying source or in the event such MSDS is not available, that the new information is added to the appropriate section of the existing MSDS within two months of his being advised of the new information. Note CGI has employed Schumacher & Associates to update and standardize MSDS sheets. Schumacher will request and update MSDS sheets on a yearly basis or sooner if available.

5.3.2 No alternatives to MSDS will be utilized for addition in house hazard assessment.

5.4 Chemical Inventory

The Safety Coordinator must conduct an inventory of all chemicals within the work place by work area. From the appropriate MSDS on each of these chemicals, he/she will make a hazard assessment and take the necessary steps to ensure that the hazard information is included on each container unit. The Safety Coordinator will also determine whether or not there are any missing MSDS's and that such, if any, have been requested

from the appropriate supplier. The complete inventory of all hazardous chemicals in the work place must become a part of the mastic and all work area MSDS binders.

6.0 MATERIAL SAFETY DATA

6.1 Material Safety Data Sheets (MSDS)

The MSDS is one of the mechanisms used to transmit required information on hazardous chemicals to employees. This is accomplished by placing copies of the MSDS on each hazardous chemical in the work place into a binder. The number of binders will vary, however there should be one master binder which should be located in the office of the Safety Officer and at least one binder in every large work area where hazardous chemicals are used. These binders are referred to as the MSDS Binder, and a list of their locations should be posted for employee information. Additionally the Schumacher program is available on computer.

6.1.1 Acquiring the MSDS

The Safety Coordinator, and the Construction Manager are responsible for obtaining MSDS's on all toxic substances entering the work place. The normal procedure for acquiring an MSDS will be to place a notice on all purchase orders requiring the supplier to comply with the MSDS requirements of the Standard.. Indicate on the purchase order to whom the MSDS should be sent.

The supplier has thirty (30) days in which to respond. A follow-up letter should be sent if the MSDS is not received within the thirty (30) days period. This second request should be accompanied by a telephone call.

If the MSDS is not received within ten (10) working days following this second request a certified letter requesting the MSDS should be sent to the supplier. Continued absence of the MSDS within the ten (10) workings days following the certified letter should result in the filing of a written complaint with the nearest OSHA regional office or appropriate state agency. One other possibility is to seek an alternate supplier who can guarantee and immediate MSDS.

Complete documentation must be maintained on all requests for an MSDS form the initial request on the purchase order through the letter of complaint with the appropriate regulatory agency, including all telephone calls.

Note: One of the most important aspects of state Right to Know laws is documentation.

6.1.2 Distributing

The Safety Coordinator and the Construction Manager are responsible for ensuring that a current MSDS accompanies all initial shipment of hazardous chemicals.

6.1.3 Maintenance

A master MSDS binder and computer program must be maintained in the office of the Safety Coordinator. As a master file, this binder should be complete and up-to-date at all times. The master file should have all written back-up material attached to the MSDS.

7.0 HAZARDOUS MATERIALS IDENTIFICATION

7.1 Labeling

The labeling system is not intended to be the sole of the most complete source of information regarding the nature or identity of the hazardous chemicals within the work place. The identity of the chemical, as it is shown on the label, could be any term the company wishes to use, as long as it also appears on the MSDS for the chemical, along with its precise chemical name.

8.0 CONTRACTOR NOTIFICATION

As of the effective date of the OSHA Standard, all contractual agreements with on-site contractors will contain a notification advising the contractor of this Hazard Communication Program and requiring the contractor to make himself, and those of his employees that will be working at one of the companies facilities or work sites, to become familiar with the provisions of this program.

In the event the contractor will be performing his work in an area where hazardous chemicals are present, the contractor must be given a verbal orientation on the program by the Safety Coordinator, and the location of the nearest work area MSDS Binder, and the chemical inventory for that area.

9.0 EDUCATION AND TRAINING

CGI have established an education and training program for employees who may be exposed to hazardous chemicals in the work place, and believes that labels, MSDS' and training all play an equally important part in their Hazard Communication Program.

10.0 ROUTINE TASKS

CGI employees who are affected by the OSHA Hazard Communication Standard, must be informed of the provisions of this Standard. This includes an explanation of the requirements of the Standard. Hazard Communication Program, and the various components of this program. All employees who have not been previously trained in accordance with this program will be trained prior to their potential exposure to hazardous chemicals and materials. Training will be provided at the time of initial assignment and whenever a new hazardous chemical is introduced into the work area. Employees will be informed of operations in the work area where hazardous chemicals are present, and where they can find the Company's written Hazard Communication Program, the list of hazardous chemicals (chemical inventory), the hazard determination procedure, and the MSDS's. This training will be conducted by the Safety Coordinator for the Company and selected work area supervisors and including the following:

10.1 Methods and observations that may be used to detect the presence or release of a hazardous chemical in the workplace, including air sampling, personal monitoring, visual appearance, odor, etc.;

10.1.1 The physical and health hazards in the work place;

10.1.2 The measures employees can take to protect themselves from these hazards, including specific procedures implemented to protect their employees and contractors from exposure to hazardous chemicals and materials such as appropriate work practices and engineering controls, emergency procedures, personal protective equipment to be used, etc.; and

10.1.3 The details of the Hazard Communication Program.

11.0 NON-ROUTINE TASKS

All management personnel are responsible for contacting the Safety Coordinator before any non-routine task is undertaken in their respective department or anywhere else in the work place where personnel may have the potential for exposure to a hazardous chemical or material. This also applies to non-routine maintenance tasks. This is necessary to allow for a hazard assessment to be made and to communicate these hazards to the affected employees before the non-routine tasks are performed and personnel are subjected to exposure.

12.0 UNLABELED PIPES

The Safety Coordinator is responsible for ensuring that all piping systems within the work place are identified as to their contents, and hazards should they contain hazardous chemicals or be under high internal pressure. This information must be entered on specific work plan. Following this inventory, all unlabeled pipes which contain hazardous chemicals must be labeled with the appropriately marked at intervals of no more than fifteen (15) feet so as to communicate the necessary hazard warning information to all employees and contractors working in the area where such pipes are located.

In the event any unlabeled pipes are uncovered during in-plant construction, demolition or renovation, or non-routine maintenance all work in the immediate vicinity of the pipes will be halted until such time as determination can be made to identify the contents of the pipes. If such and assessment determines that chemicals constituting a hazard are present, the necessary hazard information must be communicated to all affected workers prior to such work being allowed to continue.

Whenever hazardous chemicals are identified with respect to either unlabeled pipes or non-routine tasks, the locations of such potential hazards will be added to all appropriate chemical inventories by the Safety Coordinator.

U. BLOODBORNE PATHOGENS

1.0 PURPOSE

The purpose of this program is to provide protection for all CGI team members who may be exposed to bloodborne pathogens when providing first aid or CPR on the job.

2.0 SCOPE

This program applies to all CGI team members.

3.0 POLICY

All employees will receive bloodborne pathogen training by the Human Resources department.

4.0 EXPOSURE CONTROL PLAN

Universal precautions will be taken for all potential exposures to human body fluids. The only potential for contact with these fluids would be when providing first aid or CPR. Disposable latex gloves and masks will be worn by any team members providing first aid or CPR.

All potential exposure incidents must be reported to management and to the Environmental, Health and Safety Specialist. Immediately following an exposure incident, the potentially exposed team member will be provided with a confidential medical exam and follow-up. The Environmental, Health and Safety Specialist will ensure that these steps are taken.

V. ALCOHOL AND DRUG ABUSE

1.0 PURPOSE

To communicate the Company's policy in connection with the use or possession of any alcohol or drugs while in the work place and to enforce the restriction of reporting to work under the influence of illegal drugs or alcohol.

2.0 SCOPE

This standard applies to all divisions, subsidiaries and joint ventures of this Company.

3.0 POLICY

It is the policy of the Company to prohibit the use or possession of alcoholic beverages or illegal drugs within the work place.

Any Company employee or subcontractor, who, while at the work place, is either determined to be, or who appears to be, under the influence of alcohol or drugs, including controlled substances, may be immediately suspended from work and instructed to leave the job site pending a final disposition.

4.0 ALCOHOL AND DRUG ABUSE

4.1 Being under the influence of either alcohol or drugs, or engaged in the use, sale or possession of narcotics, drugs or controlled substances while on the job site or Company property, is a violation of the Company's safety and health program and is sufficient cause for immediate suspension and disciplinary action, up to and including discharge from employment. Any illegal substances found by the Company will be turned over to the appropriate law enforcement agency.

4.2 Off-the-job illegal drug use or alcohol abuse which could adversely affect an employee's job performance, or which could jeopardize the safety of other employees, the public or Company property, is proper cause for suspension , which could result in disciplinary action seriously affecting the employee's continued employment, pending final disposition

4.3 Employees who are arrested for off-the-job drug activity may be considered to be in violation of this policy. In deciding what action to take, management will take into consideration the nature of the charges, the employee's present job assignment, the employee's work record with the Company and other factors relative to the impact of the employee's arrest upon the conduct of the Company's business.

W. SAFETY TRAINING

A critical part of the Safety Program is the constant reminder of the need for working safely. It is not enough to tell the employee on the first day of work that he/she must work safely.

1. All facilities shall have at least one formal employee safety meeting per week. A file shall be maintained documenting these meetings. The record shall include the topics covered, names of employees in attendance, the name(s) of the person(s) conducting the meeting.

2. A tail-gate on-site safety meeting shall be conducted by the supervisor prior to all jobs. This meeting may include a review of the work to be done, what equipment will be used, what procedure to follow, what safety equipment to wear, the location of plant emergency equipment, plant rules relative to smoking, eating, and evacuation and any other specific instructions necessary to insure the job is performed safely.

Occupational Safety and Health Inspection at Job Site

On most projects the Safety and Health inspector will contact the general contractor and the general contractor's representative who should make all subcontractors aware of the inspection. When the foreman is made aware of the inspection, he should call the district office and at that time he will be given any specific instructions.

1.0 GENERAL PRECAUTIONS

A. Medical Services and First Aid:

The job site foreman will check to ensure that first aid services and provisions for medical care to insure prompt medical attention for any injury employee are available at the job site.

B. Housekeeping:

The job site foreman is responsible for seeing that our scrap and debris are cleaned up at least daily and removed in accordance with the contract. This is to permit unobstructed movement of equipment and reduce the possibility of accidents.

C. Illumination:

The job foreman will check to ensure that the job site has adequate lighting levels as required to perform the task involved.

D. Sanitation:

The job site foreman will check to ensure that there is an adequate supply of drinking water and disposable cups and that the job site has suitable sanitation facilities.

E. Fire Protection:

In those situations where our operation poses a potential fire hazard, fire extinguishers will be available as close to the operations as possible. These situations could include but are not limited to working with flammable glues and solvents.

F. Signs:

"Danger" signs will be posted at all areas where a hazard exists. For example, signs noting that power actuated tools are in use and noting that lasers are in use.

It is the policy of this company to provide all employees with the necessary personal protection equipment. The proper clothing, including shoes, are the responsibility of the individual employee.

The job site foreman shall be responsible for requiring that each employee is not only issued but is wearing appropriate personal protection equipment as required for the task involved. Specifically this includes:

2.0 PERSONAL PROTECTIVE EQUIPMENT - GENERAL

A. Hard Hats:

1. Hard hats will be available on all jobs at all times. It is recognized that there are special situations where the wearing of hard hats may be unnecessary. The decision to waive the use of hard hats will be made only by the superintendent. Unless the foreman has specific instructions from the superintendent, hard hats will be worn at all times.

2. Regardless of whether or not the wearing of a hard hat is required, the hard hat shall be within reach of workmen should the situation change and the need for head protection become necessary.

B. Clothing:

1. It is important that all personnel wear clothing that will protect them from minor injuries. The job site conditions, weather conditions and type of work being performed should be considered in determining the proper clothing. The foreman and the superintendent shall make the decision as to what type of clothing and shoes are required.

C. Eye Protection:

1. Any employee using machines or equipment that presents the potential of eye or face injury will wear eye and face protection.

2. If the employee wears corrective glasses, then he shall wear:

   a. Goggles that can be worn over corrective lens without disturbing adjustment of lens or

   b. Goggles or safety glasses that incorporate a corrective lens.

3. All eye and face protection equipment will be kept clean and in good repair.

4. It is the foreman's responsibility to assess the task and job conditions to determine if safety glasses or goggles are required except that safety glasses, goggles or face protection will be worn when:

   a. Using any pneumatic or powder activated tools.

   b. Using any power saws or other power cutting tools such as a chop saw.

   c. Any drilling is performed.

D. Safety Harnesses & Life Lines:

1. If not otherwise protected employees must use full body harnesses and life lines when:
   a. Within 3 feet of exposure to the hazard of falling more than 6 feet from the perimeter of a structure or through shaft openings.

   b. Exposed on scaffold, catwalks or walkways more than 6 feet high.

c. The foreman shall determine that the harness is properly worn and the life line attached to proper anchorage point which must be able to support 5000lbs.

F. Ear Protection:

1. Ear protection shall be provided whenever the noise level is considered excessive. If the standard molded ear plugs are not adequate then a sound survey should be arranged by the superintendent to determine the type of ear protection required or whether any engineering or administrative controls are required.

1. Exposure to high levels of noise, that of a time weighted average (TWA) of 85dbA or greater at the inner ear, can result in some hearing impairment. This can be temporary, permanent, or a combination of temporary and permanent. Continued exposure may reduce the ability of the ear to recover from temporary impairment and the damage may be permanent. Those employees exposed to noise induced hearing loss may also experience "Tinnitus" which is a continual ringing in the ear.

2. For employees on the jobsite, a simple way to see if levels of noise may be excessive is this: can you speak to other employees at a comfortable distance (e.g. five feet) **without** raising your voice? Or do you have to get within two feet and raise your voice to be understood?

3.0 FLOOR AND WALL OPENINGS AND STAIRWAYS

A. Floor Openings and Floor Holes:

1. Ladder way openings or platforms shall be guarded by standard railings with standard toe boards on all exposed sides, except the entrance to the opening will be provided with a swinging gate or the entrance should be offset so that a person cannot walk directly into the opening.

2. Temporary floor openings shall have standards railings.

3. Floor holes into which persons can accidentally walk shall be guarded by either a standard railing with standard toe board or a cover that is secured against accidental displacement. While the cover is not in place, the floor holes shall be protected by a standard railing.

B. Wall Openings:

Wall openings from which there is a drop of more than 4 feet shall be guarded with a railing or, if the bottom of the wall opening is less than 4 inches above the working surface, by a standard toe board or an enclosing screen.

C. Open-Side Floors:

Every open sided floor or platform 6 feet or more above ground level shall be guarded by a standard railing or equivalent. A toeboard shall be provided wherever persons pass beneath the open sides or there is equipment or machinery with which falling materials could create a hazard.

D. Runways:

Runways shall be guarded by a standard railing or the equivalent on all open sides, except where it is used exclusively for special purposes the railing on one side may be omitted if the runway is at least 18 inches wide and the rail would interfere with the employees work.

E. Every flight of stairs having 4 or more risers shall be equipped with standard stair railing or standard handrails.

F. The protection described above should be provided by the general contractor. If we remove any of this protection to perform a specific task, the protection must be replaced immediately upon completion of that task. If there are any openings, or stairways not properly protected, this condition should be reported to the general contractor at once and personnel shall not be allowed in the area until the condition is properly corrected.

G. If there are job sites where the workers are required to provide protection around openings and barricades the foreman shall obtain from the superintendent specific instructions regarding the type of protection required. This protection must be in place before the workers being work.

4.0 MATERIALS, HANDLING AND STORAGE

A. General:

1. All materials that are stored in tiers will be stacked or secured in a manner to prevent being blown by winds, sliding, falling or collapsing.

2. Maximum safe floor loads are to be posted and shall not be exceeded. If this information is not posted, get the information from the general contractor.

3. Aisles and passageways will be kept clear and in good repair.

B. Material Storage:

1. Material stored inside buildings under construction shall not be placed within 6 feet of any hoistway or inside floor openings, nor within 10 feet of any exterior wall which does not extend above the top of the material stored.

2. Non-compatible materials shall be segregated from each other.

3. Bagged materials shall be stacked by stepping back the layers and crosskeying the bags as least every 10 bags.

C. Material Disposal:

The work area will be kept clean and the debris disposed of in accordance with the contract provisions. Special attention should be paid to those operations where debris on the floors could pose a hazard to scaffold movement or walking.

1. All scrap and waste material will be removed from the work area as the job progresses.

2. All solvent waste, oily rags, and flammable liquids shall be kept in fire resistant covered containers.

5.0 TOOLS

A. General:

1. All hand and power tools and similar equipment, whether furnished by the employer or the employee, shall be maintained in a safe conditions.

B. Guarding:

1. When power operated tools are designed to accommodate guards, they shall be equipped with such guards when in use.

2. Employees exposed to flying particles resulting from the use of hand or powder tools will be provided with the will wear appropriate personal protective equipment. Specifically safety glasses, goggles or face protection shall be worn when using any power or pneumatic tools and any powder actuated tools.

3. Under no circumstances shall any power, pneumatic, or powder actuated tools be used for any purpose other than that for which it is specifically designed. Guards and any other safety devices will not be altered or removed from the equipment.

C. Hand Tools:

1. Superintendents shall not issue and shall not permit the use of unsafe hand tools.

2. The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.

D. Laser Operations:

1. Our lasers have a maximum radiant power of less than 5 milliwatts and, therefore, eye protection is not necessary. However, employees should not stare directly into laser light. Whenever a laser is brought to a job the foreman shall check the label to be sure the maximum radiant output is less than 5 milliwatts. If the laser has a maximum radiant output greater than 5 milliwatts the foreman will obtain the correct eye protection from the Superintendent before using the laser.

E. Pneumatic Power Tools:

1. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected. Pneumatic power tools shall have a constant pressure switch.

2. Safety clips or retainers shall be installed and maintained on percussion tools to prevent attachments from being accidentally expelled.

F. Powder Actuated Tools:

1. Only employees who have been trained and licensed in the operation of the particular type tool in use shall be allowed to operate a powder actuated tool.

2. The tool shall be tested each day before loading to see that safety devices are in proper working conditions.

3. Any tool found not in proper working order, or that develops a defect during use, shall be immediately removed from service and not used until properly repaired.

4. Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any employees. Hands shall be kept clear of the open barrel end.

5. Loaded tools shall not be left unattended.

6. Fasteners shall be driven into steel, concrete or concrete block only.

7. No fastener shall be driven into a spalled area caused by an unsatisfactory fastening.

8. Tools shall not be used in an explosive or flammable atmosphere.

G. Power Tools:

1. Electric power operated tools will be of the approved double insulated type and be distinctively marked and be effectively grounded.

2. The use of electric cords for hoisting or lowering tools shall not be permitted. Extension cords will be of the three wire type and round in shape and UL approved for outdoor use.

3. All hand held circular saws shall be equipped with a constant pressure switch that will shut off the power when the pressure is released.

4. All portable, power driven circular saws shall be equipped with guards above and below the base plate or shoe.

5. All hand held power drills, screw guns, sanders, reciprocating saws and similar operating power tools shall have a momentary contact "on-off" control and may have a lock on control provided turn off can be accomplished by a single motion of the same finger that turned it on.

6.0 LADDERS

A. General Requirements:

1. Ladders will be maintained in good repair and visually inspected before each use. If a part is broken or faulty, the ladder will immediately be broken up and removed.

2. All ladders used will meet either ANSI A14.1-1968 Safety Code for Portable Wood Ladders or ANSI 14.2-1956 Safety Code for Portable Metal Ladders. This information is usually on the ladder or in the catalog and must be checked.

3. Portable ladder feet shall be placed on a substantial base, and the area around the top and bottom of the ladder shall be kept clear.

4. Portable ladders shall be used at such a pitch that the horizontal distance from the top support to the base is about 1/4 the vertical distance between these points or one foot away from the wall for each 4 feet of height.

5. Ladders shall not be placed in passageways, doorways, driveways, or any locations where they may be displaced by activities being conducted on any other work, unless protected by barricades or guards.

6. The side rails shall extend not less than 36 inches above the landing. When this is not practical, grab rails, which provide a secure grab for an employee moving to or from the point of access, shall be installed.

7. Portable ladders in use shall be tied, blocked, or otherwise secured to prevent their being displaced.

B. Job-Made Ladders:

1. Job-made ladders will be constructed for special use only.

2. Double cleat ladders shall not exceed 24 feet in length.

3. The width of single cleat ladders is to be between 15 to 20 inches between rails at the top.

4. Side rails shall be parallel or flared top to bottom by not more than 1/4 inch for each 2 feet in length and extend 36 inches above the landing.

5. Cleats shall be uniformly spaced, 12 inches top to top.

C. Step Ladders:

1. Step ladders will be maintained in good repair. If any part is broken or faulty, the ladder will immediately be broken up and removed.

2. The metal cross brace shall be fully extended and locked before stepping on the ladder.

3. The employee will not stand on the top or first step from the top of the ladder under any circumstances.

4. All four legs shall be placed on a substantial base and the ladder shall be level.

5. Workers shall never use step ladders to go to an elevation and step off. Workers shall only ascend step ladders and exit them at ground level.

7.0 SCAFFOLDING

All pipe or similar type scaffold erected by our personnel shall conform to the following standards:

A. General:

1. The footing or anchorage for scaffolds shall be sound and rigid. Unstable objects such as barrels, boxes, loose bricks, or concrete blocks, shall not be used to support scaffolds or planks.

2. Guardrails and toeboards shall be installed on all open sides and ends of platforms more than 10 feet above the ground floor. Scaffolds 4 feet to 10 feet in height, having a minimum horizontal dimension in either director of less than 45 inches, shall have standard guardrails installed on all open sides and ends of the platform.

3. Guardrails shall be 2 x 4 inches, or the equivalent, approximately 42 inches high, with a midrail, when required. Supports shall be at intervals of 4 inches in height.

4. Where persons are required to work or pass under the scaffold, scaffolds shall be provided with a screen between the toeboard and guardrail, extending along the entire opening.

5. Scaffolds and their components shall be capable of supporting at least 4 times the maximum intended load.

6. Any scaffold, including accessories damaged or weakened from any cause such as braces, brackets, trusses, screw legs, ladders, etc., shall be immediately repaired or replaced.

7. All planking shall be "Scaffold Grade," as recognized by approved grading rules for the species of wood used. The maximum permissible spans for 2 x 10 inch or wider plans shall be as follows:

	Full Thickness Undressed Lumber			Normal Thickness Lumber	
Working Load (p.s.f.)	25	50	75	25	50
Permissible Span(ft.)	10	8	6	8	6

8. The maximum permissible span for 1 1/4 x 9 inch or wider plank of full thickness shall be 4 feet with medium duty loading of 50 p.s.f.

9. All planking or platforms shall be overlapped (min. 12 inches), or secured from movement.

10. An access ladder or equivalent safe access shall be provided.

11. Scaffold planks shall extend over their end support not less than 6 inches nor more than 12 inches.

12. The poles, legs, or uprights of scaffolds shall be vertical, plumb, and securely and rigidly braced to prevent swaying and displacement.

13. Slippery conditions on scaffolds shall be eliminated as soon as possible after they occur.

14. Overhead protection shall be provided if employee on a scaffold are exposed to overhead hazards.

C. Manually Propelled Scaffolds:

1. When free standing mobile scaffold towers are used, the height shall not exceed 4 times the minimum base dimension.

2. All caster shall be provided with a positive locking device to hold the scaffold in position.

3. Scaffolds shall be properly braced by cross bracing and horizontal bracing.

4. Platforms shall be tightly planked for the full width of the scaffold except for necessary entrance opening. Platforms shall be secured in place.

5. A ladder or stairway shall be provided for proper access and exit and shall be affixed or built into the scaffold and so located that when in use it will not have a tendency to tip the scaffold. A landing platform must be provided at intervals not to exceed 35 feet.

6. The force necessary to move the mobile scaffold shall be applied as close to the base as practical. Scaffolds shall only be moved on level floors free of obstructions and openings.

7. Employees shall not ride on manually propelled scaffolds unless the following conditions exists:

a. The floor or surface is within 3 degrees of level, and free from its, holes, or obstructions.

b. The minimum dimension of the scaffold base when ready for rolling is at least 1/2 the height. Outriggers, if used, shall be installed on both sides of staging.

c. The wheels are equipped with rubber or similar resilient tires.

d. All tools and materials are secured or removed from the platform before the mobile scaffold is moved.

C. Baker Scaffold:

When 4 feet to 10 feet in height provide standard guardrails on all open sides and ends. The platform board shall be wire tied to the sides supports and the platform support shall be wire tied to the end rails.. The platform boards shall be inspected daily for any damage and replace if cracked or broken.

Casters shall have positive locking device to hold the scaffold in position and shall be locked to prevent movement except when approved as a manually propelled scaffold and when floor or surface is within 3 degrees of level and free from pits, holes or obstructions.

D. Rented Scaffold:

Scaffold shall be visually inspected daily before use to insure that planks and platforms are properly in place and that support members are not damaged. Before use base footing shall be checked to determine there has been no movement or settlement.

8.0 ELECTRICAL

A. Ground Fault Protection:

1. All 120 volt single phase, 15 and 20 ampere receptacle outlets on construction sites which are not a part of the permanent wiring of the building or structure and which are in use by employee shall have approved ground fault circuit interrupters for personnel protection. Receptacles on a two wire, single phase portable or vehicle mounted generator rated not more than 5kw, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with ground fault circuit interrupters.

2. If there is no GFCI protection, the Assured Equipment Grounding Conductor Program will apply to all cord sets,

receptacles which are not a part of the permanent wiring of the building or structure, and equipment connected by cord and plug which are available for use or used by employees.

B. Assured Equipped Grounding Conductor Program:

1. It is the policy of the Company to establish and implement an Assured Equipment Grounding Conductor Program on construction sites covering all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and equipment connected by a cord and plug which are available for use or used by employees. This policy shall apply to all construction sites not equipped with ground fault circuit interrupters in accordance with OSHA standards 1926.400(h).

2. Foremen are designated to implement the Assured Equipment Grounding Conductor Program; and so they are to be capable of identifying existing and predictable hazards in the surrounding area or working conditions which are unsanitary, hazardous or dangerous to employees, and are authorized to take prompt corrective measures to eliminate them.

3. Foremen will be responsible for the following:

a. Each cord set, attachment cap, plug and receptacle of cord sets and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, shall be visually inspected before each day's use for external defects, such as deformed or missing pins or insulation damage, and for indication of possible internal damage. Equipment found damaged or defective may not be used until repaired.

4. Foremen are responsible for tests on all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and cord and plug connected equipment required to be grounded. Tests shall be documented on the log for the Assured Equipment Grounding Conductor Program and shall be on the jobsite for inspection by OSHA officials and any effected employee. Equipment that does not meet prescribed tests shall not be put into service. The following tests shall be performed:

a. All equipment grounding conductors shall be tested by continuity and shall be electrically continuous.

b. Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment

grounding conductor. The equipment grounding shall be connected to its proper terminal.

5. All required tests shall be performed:

   a. Before first use;

   b. Before equipment is returned to service following any repairs;

   c. Before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over);

   d. At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months.

   e. Tests performed as required in this paragraph shall be recorded. This test record shall identify each receptacle, cord set, and cord and plug connected equipment that passed the tests, and shall indicate the last date it was tested or the interval for which it was tested. This record shall be kept by means of logs, color coding, or other effective means, and shall be maintained until replaced by a more current record. The record shall be made available on the jobsite for inspection.

6. In accordance with OSHA Construction Safety and Health Standard 1926.21 Safety Training and Education. Foremen shall attend such training sessions as the company may deem necessary.

7. A copy of this policy shall be at the jobsite for inspection and copy by OSHA officials and any effected employee.

8. Management retains the authority to designate that certain jobs comply with Regulation 1926.400(h) by use of ground-fault circuit interrupters in lieu of the program established above.

9. A copy of completed forms will be kept on each applicable jobsite for inspection purposes.

9.0 COMPANY VEHICLES

A. The operations of company vehicles is a serious responsibility. The potential for serious injury to the employee and others is high and extreme care and diligence must be exercised when operating these vehicles.

B. The operator of the vehicle must have a current drivers or chauffeurs license as required by the state.

C. The operator of the vehicle must wear the shoulder and/or lap safety belt whenever the vehicle is moving.

D. The operator is responsible to see that all maintenance is performed on the vehicle. This maintenance should be in accordance with the vehicle manufacturer recommendations.

E. The operator is to immediately report any moving violations to the district manager.

F. The driver should be instructed to follow the procedure below if he is involved in an accident.

1. The first duty, of a driver, is to take the necessary precautions to protect the scene so that further damage or injuries do not occur. It is his duty to give aid and assistance to anyone who has been injured or to see that someone else gives such aid.

2. The following rules shall be adhered to:

a. Render aid

b. Notify authorities and request formal report be made out.

10.0 TOWING SAFETY

A. The towing of machinery and/or equipment is necessary part of our business, however, this activity is one that must be done with extreme care. The liability that can occur when the proper safety procedures are not followed is extremely high. Probably no other operation in our Company requires more attention, diligence and care. The procedures set forth here must be followed explicitly and it is the responsibility of the driver, the foreman, the superintendent and the district manager to see that these procedures are understood and implemented. In the event of an accident THE DRIVER COULD BE HELD PERSONALLY LIABLE FOR NEGLIGENCE.

B. Use extreme caution whenever towing machinery and/or equipment as the chances of being involved in an accident are increased eightfold.

C. Maintain lower speeds so as to reduce the swaying effects caused by gusting winds and suction caused by passing vehicles.

D. Be alert for changes of wind pressure that hits both vehicles entering or emerging from an underpass or tunnel.

E. Any piece of equipment carried on a trailer must be securely anchored to the trailer.

F. Extreme caution must be exercised when towing an unloaded trailer. Special attention must be paid to the hitch and the safety chain connections and the breakaway safety system.

G. The following items must be checked every time a towed vehicle is attached to a vehicle before the towed vehicle is moved.

1. Towed vehicle brakes.

2. Check air pressure and condition of tires.
3. Safety chains - properly attached to towed vehicles and towing vehicle.

a. Safety chains must be connected and, where two chains are used, crossed under the tongue to provide a cradle.

b. The following abuses can reduce the working load limit of the chain and should be avoided:

1) Twisting or disfigurement of the chain.
2) Deterioration caused by strain, long usage, weathering, corrosion and age.
3) Jerking or pulling at an angle.
4) Accelerating the rate at which a load is applied.

c. The safety chains should be inspected weekly link by link to determine if any abuses have occurred. Links with defects should be marked with paint to indicate rejection. The chain so marked shall be removed from service until it has been properly repaired.

4. Towed vehicle lights and reflectors.

5. Emergency breakaway system should be checked by activating the system.

6. Hitch should be free of defects, and positive locking device operable. Any hitch that is defective in any way shall not be used and replaced promptly. Axle or bumper mounted hitches are not permitted.

X. *FALL PROTECTION PROGRAM*

1.0 PURPOSE

This procedure establishes safe practice for employees working at heights of ten feet or more above the ground, other work surface or work.

2.0 SCOPE

This standard applies to all divisions, subsidiaries and joint ventures of CGI.

3.0 POLICY

All persons involved in an operation requiring work at heights of ten feet or more shall follow the procedures outlined in this section of the Health and Safety Manual. As required by WAC 296-155-245, the Safety Coordinator's designee has prepared site specific fall protection work plans and will train employees:

- to identify when fall protection is required.
- in the use of the type of fall protection equipment to be used in a case by case situation.
- in the correct procedures for the assembly, maintenance, inspection, and disassembly of the fall protection system to be used.
- in the correct procedures for handling, storage and securing of tools and materials.
- in the method for prompt, safe removal of injured workers.

4.0 TRAINING

New employee orientation shall include training on fall protection. Employees shall be trained on the differences between fall restraint and fall arrest systems including the use of full body harnesses, retractable lifelines, lanyards, restraint lines and horizontal lifelines. (See attached Employee Fall Protection Training checklist)

Prior to beginning any jobs which may expose employees to a hazard of falling from a location 10 feet or more in height, the fall program will be reviewed, including information on the following:

4,1 The site specific fall protection work plan (see page 1 and 2 attached).
4.2 Identification of fall hazards (see page 1 attached).
4.3 Use of fall protection systems (see page 1).
4.4 Procedures for handling, storage and security of tools and materials (page 2)
4.5 Providing overhead protection for other workers (page 2).
4.6 Removal of injured workers (page 2).

A record of employee training shall be maintained (see page 4 attached).

5.0 PLAN

A copy of the site specific fall protection plan will be kept at each jobsite for which a plan is required.

Y. LEAD HAZARDS AND PROTECTIVE MEASURES

1.0 GENERAL

The disturbance or dislocation of lead-containing materials may cause lead dust and fumes to be released into the building's atmosphere, thereby creating a health hazard to workers and building occupants. The contractor shall apprise all of his workers, supervisory personnel, subcontractors and consultants who will be at the job site of the seriousness of the hazard and of proper work procedures which must be followed.

Where in the performance of work, workers, supervisory personnel, subcontractors or consultants may encounter ,or disturb any identified lead-containing materials, appropriate, continuous measures are necessary to protect all workers and building occupants from the hazard of exposure to lead dust and fumes. Such measures shall include the procedures and methods described herein and regulations of the Occupational Safety and Health Administration (OSHA) the Environmental Protection Agency (EPA), all applicable state and local regulations, and Housing and Urban Development (HUD) Interim Guidelines for Lead Based Paint Abatement in Indian and Public Housing.

Training for employees working with lead-containing materials shall be provided in accordance with Appendices A and B of 29 CFR 1910.1025 (see attached).

2.0 LEAD DETERMINATION

Lead based paint materials and contamination shall be determined per the current HUD and OSHA guidelines: higher than 1.6 mg/cm2 as determined by XRF instrumentation or 1% by weight as determined by Atomic Absorption analysis, or higher than the clearance level listed herein.

3.0 WORKER PROTECTION

3.1 General

HEPA filter respirators and protective clothing shall be recommended for any activity which is expected to exceed the **Action Level**, in accordance with state of the art guidelines and regulations. The Action Level shall be defined as a TWA exposure of 30 ug/cubic meter of air.

The **Permissible Exposure Limit (PEL)** shall be defined as an exposure of 50 ug/cubic meter of air. Control measures such as local exhaust ventilation or negative air machines and wet methods shall be used to keep exposures below the PEL. HEPA filter respirators and protective clothing are required above these levels, whether measured, expected, or potential.

Lead based paint must be stripped back at least 4" from any point of welding or torch cutting.

In no case shall welding or torch cutting be allowed directly on materials which have lead based paint (in the amount as described by the HUD Guidelines) without the use of supplied-air respiratory protection.

3.2 Employee Medical Surveillance

Medical surveillance shall be performed in accordance with Appendix C of 29 CFR 1910.1025. Blood lead levels shall be monitored for each employee expected to perform work on a lead abatement project. Initial monitoring shall be established prior to work.

Blood lead levels shall be monitored for each employee who has been exposed to airborne lead levels at or above 30 ug/cubic meter of air.

Employees with blood lead levels of 40ug/deciliter or greater shall not continue with direct lead related work. Blood lead level shall be monitored on a monthly basis thereafter until the blood lead level remains below 40 ug/deciliter. Workers rights will be protected as per 29 CFR 1910.1025(k)(1) and (2). (The State of California requires that all blood lead levels greater than 25 ug/deciliter be reported by the laboratory to the California Department of Health Services Occupational Lead Registry.)

4.0 SET UP

The floor of the immediate work area shall be covered with a single layer of 6 mil poly, unless the floor is considered to be lead contaminated, in which case no poly will be placed on floor. Respiratory protection and protective clothing shall be in-place prior to disturbance of lead.

At exterior locations poly shall be placed on the ground at the perimeter of the work area and extending away from the work area a total of 6'-0" per 12'-0" of building height and not to exceed 12'-0".

Air circulation shall be stopped at the work area. Critical barriers shall be installed using single layer 6 mil poly.

The work area shall be restricted from entrance by unauthorized visitors.

5.0 PERSONAL PROTECTIVE EQUIPMENT

HEPA filtered cartridge respirators shall be worn at all times during activities which are expected to disturb lead materials and through final clearances at the area. If monitoring results indicate airborne lead levels greater than 0.5mg/m3, then powered, air-purifying respirators equipped with HEPA filters shall be used.

Supplied air respiratory protection shall be used when torching of materials containing lead based paint.

Disposable coveralls shall be worn at all times during activities which are expected to disturb lead materials and through final clearances at the area.

6.0 MATERIAL AND EQUIPMENT

The following materials may be used on lead based paint cleanup projects: cloths, sponges, spray bottles, water pumps, 6 mil plastic bags, cleaning solutions including tri-sodium phosphate (TSP), HEPA vacuums, and negative air machines with HEPA filters.

7.0 PRE-CLEANING REGULATED AREA

The work area will be precleaned of debris on horizontal surfaces using a HEPA vacuum and damp cloths. Furniture in the area shall be HEPA vacuumed and/or wet wiped and removed from the regulated area prior to the start of lead abatement.

8.0 WORK PROCEDURES

Methods for abating or removing lead based paint (LBP) from woodwork include replacement, encapsulation, chemical stripping, electric heat guns, caustic strippers, HEPA sanders or reversal of trim so the painted surface is no longer exposed Caustic strippers may be used if removed or neutralized with a vinegar/water solution during the same day of application. Methods which produce uncontrolled dust or fumes shall not be used.

LBP removal on metal surfaces shall be performed using chemical methods. Caution shall be taken to avoid skin and eye contact with chemicals. Additional respiratory protection such as a combination HEPA filter/organic vapor cartridge may be necessary. LBP removal on wall and ceiling surfaces is generally by encapsulation. Specific removal techniques shall be evaluated and performed on a job by job basis.

9.0 AIR MONITORING

Personal samples for airborne lead shall be collected in the regulated area to determine the typical daily exposure level for each task on each work shift. Employees shall be notified in writing of the results which represent their exposure.

10.0 FINAL CLEANING

Contaminated surfaces, removal surfaces and horizontal surfaces within the work area shall undergo a final cleaning prior to final clearances. Surfaces will be cleaned with water and trisodium phosphate (TSP). prior to start of final clearances.

11.0 FINAL CLEARANCE

11.1 Visual

All work surfaces and horizontal surfaces within the interior regulated area shall be visually clean of debris, dust and residue. Poly sheeting on the floor shall be removed and disposed of as lead waste.

11.2 Final clearances shall be conducted in accordance with the HUD Guideline recommendations and/or the following, whichever is most stringent. Final clearances shall be wipe samples. Horizontal surfaces shall be sampled for residual lead. Surfaces with levels exceeding the following shall be recleaned and resampled. Samples shall be collected analyzed using HUD protocol for atomic absorption.

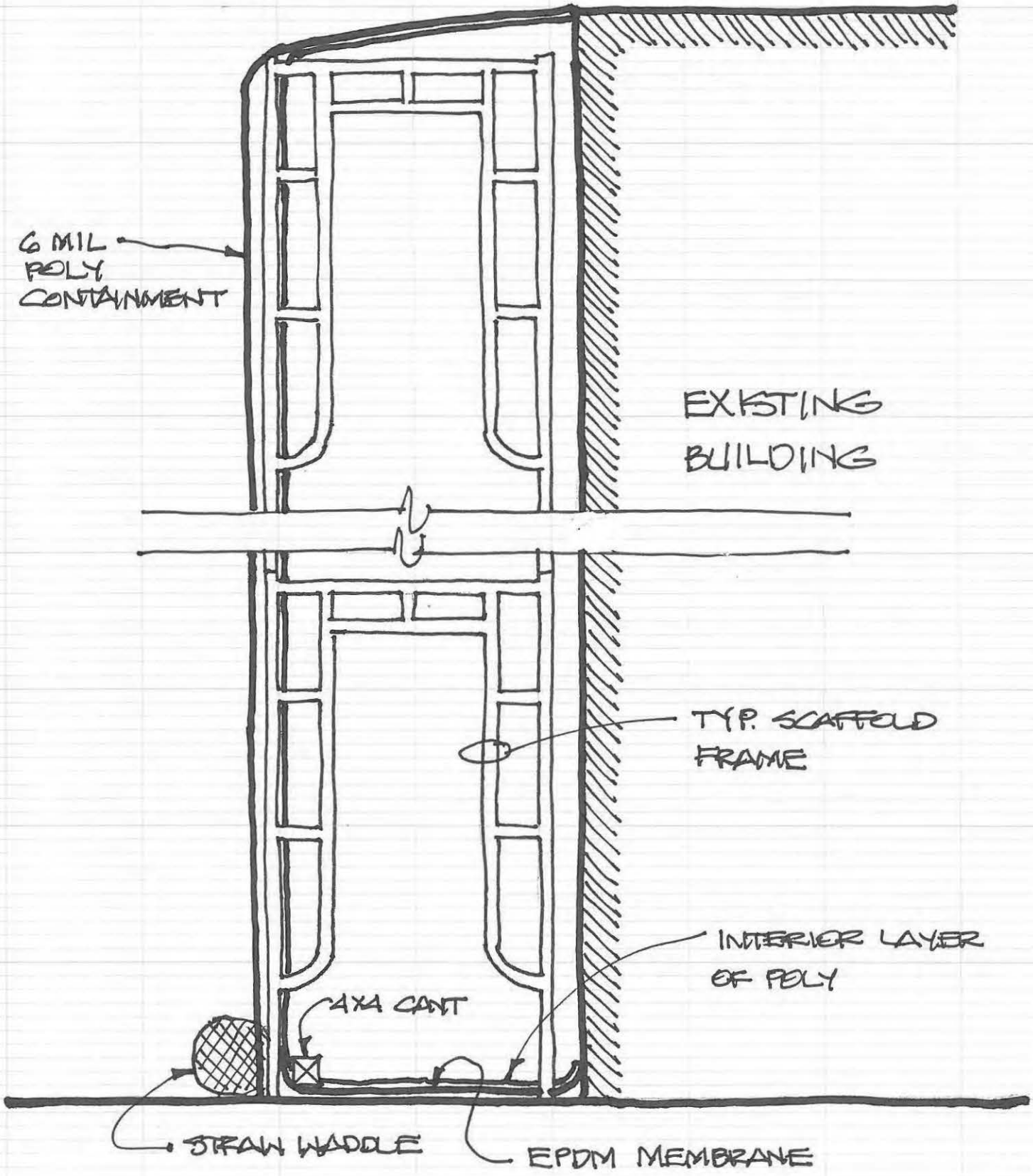
Material	Clearance Levels
floor	200 ug/sq ft
window sills	500 ug/sq ft
window wells	800 ug/sq ft

Airborne clearance sampling is not recommended.

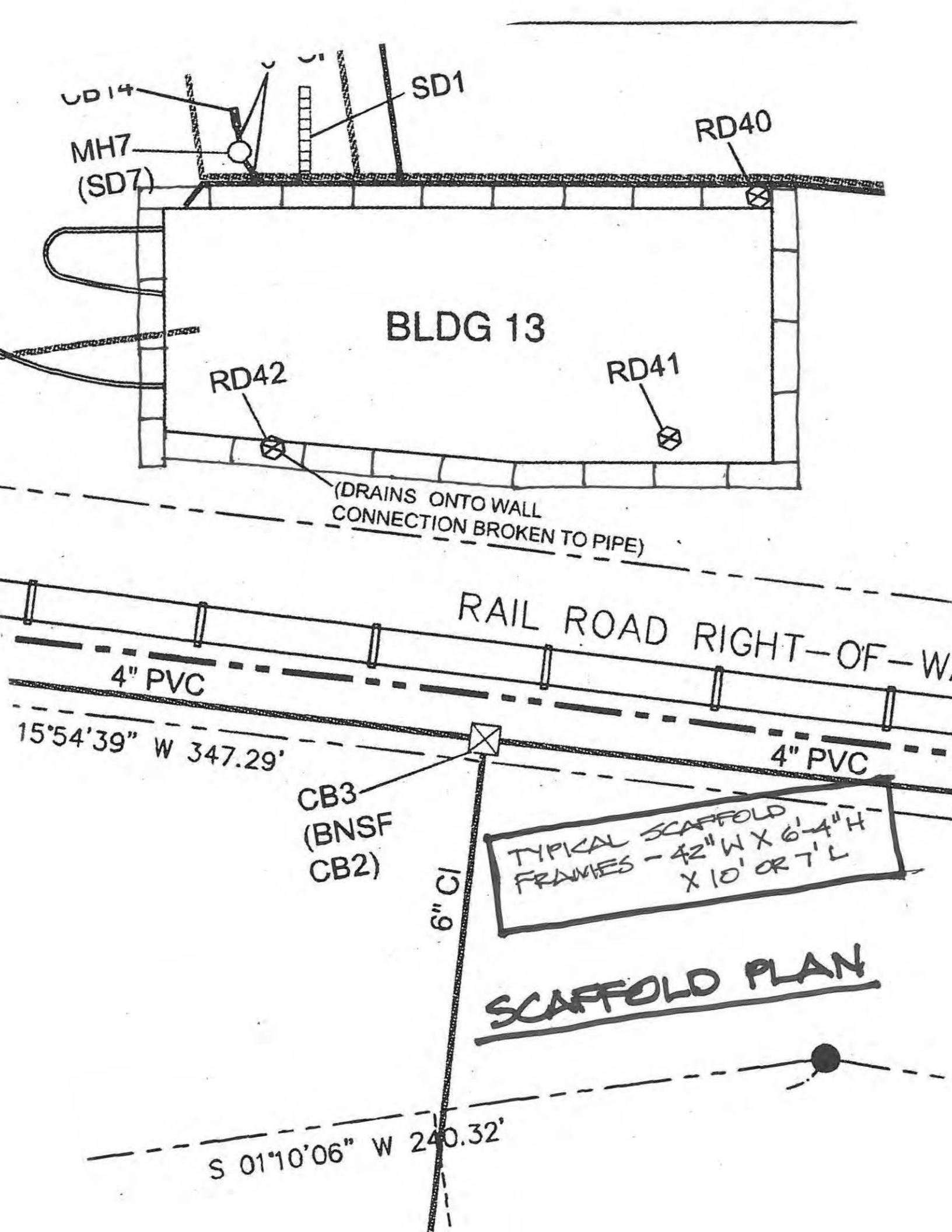
12.0 DISPOSAL

Lead containing debris shall be put into heavy duty 6 mil plastic bags, which will be kept in a secure place. Within 48 hours of completing the final clean-up, all lead waste shall be removed from the site. Lead waste shall be transported and disposed in a legal manner to prevent lead from becoming airborne.

EXHIBIT 6



CONTAINMENT SECTION


SD1
RD40
MH7
(SD7)
BLDG 13
RD42
RD41
(DRAINS ONTO WALL
CONNECTION BROKEN TO PIPE)
RAIL ROAD RIGHT-OF-W
4" PVC
15°54'39" W 347.29'
4" PVC
CB3
(BNSF
CB2)
6" CI
TYPICAL SCAFFOLD
FRAMES - 42" W X 6'-4" H
X 10' OR 7' L
SCAFFOLD PLAN
S 01°10'06" W 240.32'

Rainer Commons

Detail for Containment Set Up (Example by photos)

Example of scaffolding being erected

Interior poly and tape being installed to seal the work area for negative enclosure.

Final wrap of scaffolding

ACF WEST INC.
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WASHINGTON: Woodinville 425-415-6115 | Fife 253-922-6641
UTAH: Salt Lake City 801-521-5141

9" Wattle Information

Earth Savers® certifies that the EE08.525PRL, EE08.525PRP,EE08.510PRL, ES08.510PRP or ES08.525PRP Wattle meets the following minimum properties.

Earth Savers® Wattles are machine produced weed free rice straw filled tubes compacted in a continuous photodegradable netting material creating consistent densely filled Pre-manufactured Fiber Rolls.

Property	Test Method	Units	Min. Value
Mass per Unit Weight	Field Measured	(lbs/ft) / (kg/m)	1.9 / 2.82
Dimension	Field Measured	(Dia/Inches) / (Dia/mm)	8.5 / 216
Net Strand Thickness	Field Measured	(Inches) / (mm)	0.030 / .76
Net Knot Thickness	Field Measured	(Inches) / (mm)	0.055 / 1.39
Netting Unit Weight	Certified	(Ounces/ft) / (g/m)	0.35 / 32.55
Installed Free-Board Ht.	Field Measured	(Height/Inches) / (Height/cm)	6.5 / 16.51
Straw Fiber	Field Measured	Avg. Length (in) / (cm)	3.0 / 7.62
Soil Loss1	Rainfall Sim. 1	% Effectiveness	58[2]
Fiber Content	Certified3	% Rice Straw	100

Values determined by San Diego State University Soil Erosion Research Laboratory (SDSU/SERL) and in accordance to Earth Saver Quality Control Manual (ESQCM) Revision 1.0.
Testing Protocols at SDSU/SERL were developed by Caltrans pilot study incorporating features of the following facilities: Utah Water Research Laboratory (UWRL) at Utah State University, Logan, Utah; USDA Agriculture Research Service National Soil Erosion Research Laboratory (NSERL) at Purdue University, West Lafayette, Indiana; and Texas DOT/Texas Transportation Institute (TTI) Hydraulics and Erosion Control Laboratory at Texas A M, College Station, Texas.

[1] Minimum of three Repeetitive10 year predicted storm events on 1V:3H slope with Clayey Sand type soil.
[2] Minimum sediment yield reduction value.
[3] Certified Weed Free under Food and Agriculture Code sections 5101 and 5205.

WARRANTY

Earth Saver™ warrants that the products sold hereunder will be free from manufacturing defects. It is recommended that the product be stored in its packaging or under cover prior to installation. Product to be used in an application designed and specified by a qualified engineer. Buyer shall be obligated to inspect the product within five (5) days after the date of arrival at the destination specified on the purchase order and to give immediate written notice to Seller of any claim of defective materials or improper manufacture, setting forth with particularity the manner in which the products do not comply with this contract. If such notice is not given within five (5) days of delivery, it shall be conclusively presumed that the buyer has approved and accepted the products. The exclusive remedy for any defects covered by this warranty shall be the obligation of Manufacturer to repair or replace any said products which shall be determined to the satisfaction of the Manufacturer, upon Earth Saver™ examination, to have been thus defective or improperly manufactured. To the best of our knowledge the information contained herein is accurate and final suitability of the product is the sole responsibility of the user.

EXHIBIT 7

Rainier Commons – Supplemental #001 to Work Plan March 18, 2013

Roof Drain Protection Methods – Bldg. 13

RD42 – Roof drain located in the NW area of Building 13 is a square hole cut out of the parapet to allow for water to drain freely, without pipe, down the west side of the building. During PCB paint removal, this drain will be modified with a 4" flexible coil pipe that will be installed from the roof top, through the square opening, and will run the length of the building to the ground. The square opening at the parapet, and once the 4" pipe is installed with an inlet protection with two layers of filter fabric, the parapet opening will be sealed with a foam to prevent any water intrusion, other than the 4" pipe. Once the pipe is installed and the square opening is sealed, the pipe will remain within the containment and will run straight down the side of the building to the ground and out of the containment area where the water will discharge. This will ensure that the water will remain fully protected from the work activities within the containment and the NW roof area will still be able to freely drain.

RD42 Opening

Pipe Product Spec:
Hancor AASHTO 4" Corrugated Pipe
See product specs attached

Cont. Roof Drains

RD 40 – Located at the SE corner of Bldg 13. This roof drain has a drain in the floor of the roof that is attached to a pipe that runs from the roof top down through the roof and out the SE side of the building, just under the parapet. The pipe drains into a drain scupper that is attached to the building. Water drains down from the scupper on the exterior side of the building. The scupper transitions and connects to a ductile iron pipe and water then discharges below grade at the bottom of the building.

This roof will be modified with the following: The scupper and gutter will be removed in its entirety. The roof drain will be modified in the same fashion as RD 42 to ensure that there are no breaches with in the pipe system during abatement activities. This modified roof drain will drain down the side of the building and then outside of the containment. The ductile pipe that is stubbed up 5' from ground surface will be mechanically capped. The water that drains down the modified roof drain will leave the containment and discharge in the alley way. The north end of the alley way has a protected trench drain that will pick up the water for proper stormwater disposal. RD 40 will also have an inlet protection at the roof level with two layers of filter fabric. These areas will be inspected and monitored throughout the scope of work.

Drain scupper to be removed in its entirety. Replaced and modified with 4" corrugated Pipes as shown in RD 42

Pipe Product Spec:
Hancor AASHTO 4" Corrugated Pipe

Ductile pipe to be mechanically capped.

Vent Pipe, Exposed Utilities and Fire Scape – Bldg 13 has a few exposed sewer, water, electrical lines (encased) and gas lines on the exterior of the building. Along with the exposed utilities, there is also a vent pipe and a fire escape. These items will be enclosed with in the containment and the paint will be abated with a chemical striper to remove the paint as described in the Work Plan.

Attachments to Supplemental #001

- Scaffold and Site Map for Bldg 13.
  - Includes location of 3 stage decon, exit/entrance for people and equipment load out, NAMs locations and exhaust, scaffold location, and Roof drain locations.
- Scaffold and Site Map for Bldg 11 and 10.
  - Includes location of 3 stage decon, exit/entrance for people and equipment load out, NAMs locations and exhaust, scaffold location, and Roof drain locations.
- Updated Containment Section to include enclosure sealant locations and process.
- Pipe Product Spec Hancor AASHTO 4" Corrugated Pipe and Hancor Brochure.

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AASHTO PIPE

THE PERFORMANCE YOU EXPECT. THE INNOVATIONS YOU NEED.

With over 110 years experience, Hancor has provided expert knowledge and innovative product solutions proven in a wide range of field drainage applications. Our HDPE pipe delivers superior value while providing physical strength and structural design that just cannot be matched by metal or concrete.

AASHTO pipe is perfect for culvert applications; cross, slope or edge drains. Other uses include sports playing fields, golf course and parking lot drainage; pond overflow, pond equalizer, dams, waterways and terracing.

BENEFITS

- Adaptable to soil-tight joint performance requirements – gasketed or non-gasketed split coupler, and internal and external snap couplers are available.
- Available in 100' - 4,900' (30 - 1470m) coil lengths for 3" - 6" (75 - 150mm) diameter pipe and 20' 6m) lengths for 8" - 24" (200 - 600mm) diameter pipe. Longer lengths result in fewer joints – pipe can be cut easily to the desired length in the field.
- Easy-to-handle, safe, lightweight pipe requires less labor and equipment for faster installation and reduced costs.
- HS-25 (Highway traffic loads) rated with a minimum of 12" (0.3m) of cover.
- Provides superior resistance to chemicals, road salts, motor oil and gasoline – will not rust, deteriorate or crumble.
- Withstands repeated freeze/thaw cycles and continuous sub-zero temperatures.

Hancor Service: Hancor representatives and engineers are committed to providing you with the answers to all your questions, including specifications, installation, backfill recommendations and more.

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SCOPE

This specification describes 3" - 24" (75 - 600mm) Hancor AASHTO pipe for use in nonpressure drainage applications.

PIPE REQUIREMENTS

Hancor AASHTO pipe shall have annular interior and exterior corrugations.

- 3" - 10" (75 - 250mm) shall meet AASHTO M252, Type C.
- 12" - 24" (300 - 600mm) shall meet AASHTO M294, Type C.

JOINT PERFORMANCE

Pipe shall be joined with internal or external couplers, or coupling bands covering at least two full corrugations on each end of the pipe. Connections shall meet the soil-tightness requirements of the AASHTO M252 or M294. Gasketed connections shall incorporate a closed-cell synthetic expanded rubber gasket meeting the requirements of ASTM D1056 Grade 2A2. Gaskets shall be installed by the pipe manufacturer.

FITTINGS

Fittings shall conform to AASHTO M252 or AASHTO M294.

MATERIAL PROPERTIES

- Pipe and fitting material shall be high density polyethylene meeting ASTM D3350-04 minimum cell classification 424420C for 3" - 10" (75 - 250mm) diameters or 435400C for 12" - 24" (300 - 600mm) diameters.
- The 12" - 24" (300 - 600mm) pipe material shall be a slow crack resistant material evaluated using the single point notched constant tensile load (SP-NCTL) test. Average SP-NCTL test specimens must exceed 24 hrs. with no test result less than 17 hrs.

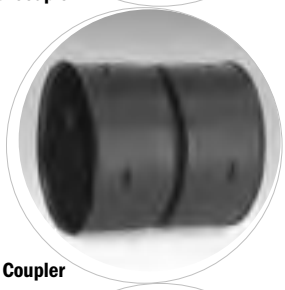
INSTALLATION

Installation shall be in accordance with ASTM D2321 with the exception that minimum cover in trafficked areas shall be one foot 0.3m).

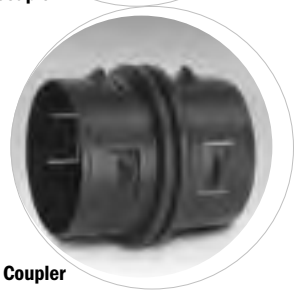
PIPE DIMENSIONS

Nominal Pipe I.D., in. (mm)	3 (75)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	15 (375)	18 (450)	24 (600)
Approx. Pipe O.D., in. (mm)	3.6 (91)	4.7 (119)	7.0 (178)	9.4 (239)	12.0 (305)	14.2 (361)	17.8 (452)	21.5 (546)	28.0 (712)
Approx. Pitch, in. (mm)	0.7 (18)	0.7 (18)	0.7 (18)	1.0 (25)	1.7 (43)	2.0 (50)	2.4 (60)	3.0 (76)	3.9 (100)
Approx. Weight lb/ft (kg/m)	0.19 (0.28)	0.30 (0.45)	0.72 (1.07)	1.1 (1.64)	1.5 (2.23)	3.3 (4.91)	4.2 (6.25)	5.8 (8.63)	10.5 (14.96)
Perforations	All diameters are available in plain, perforated, or perforated with wrap styles.								

8" - 24" Split Band Coupler



4" - 10" External Snap Coupler



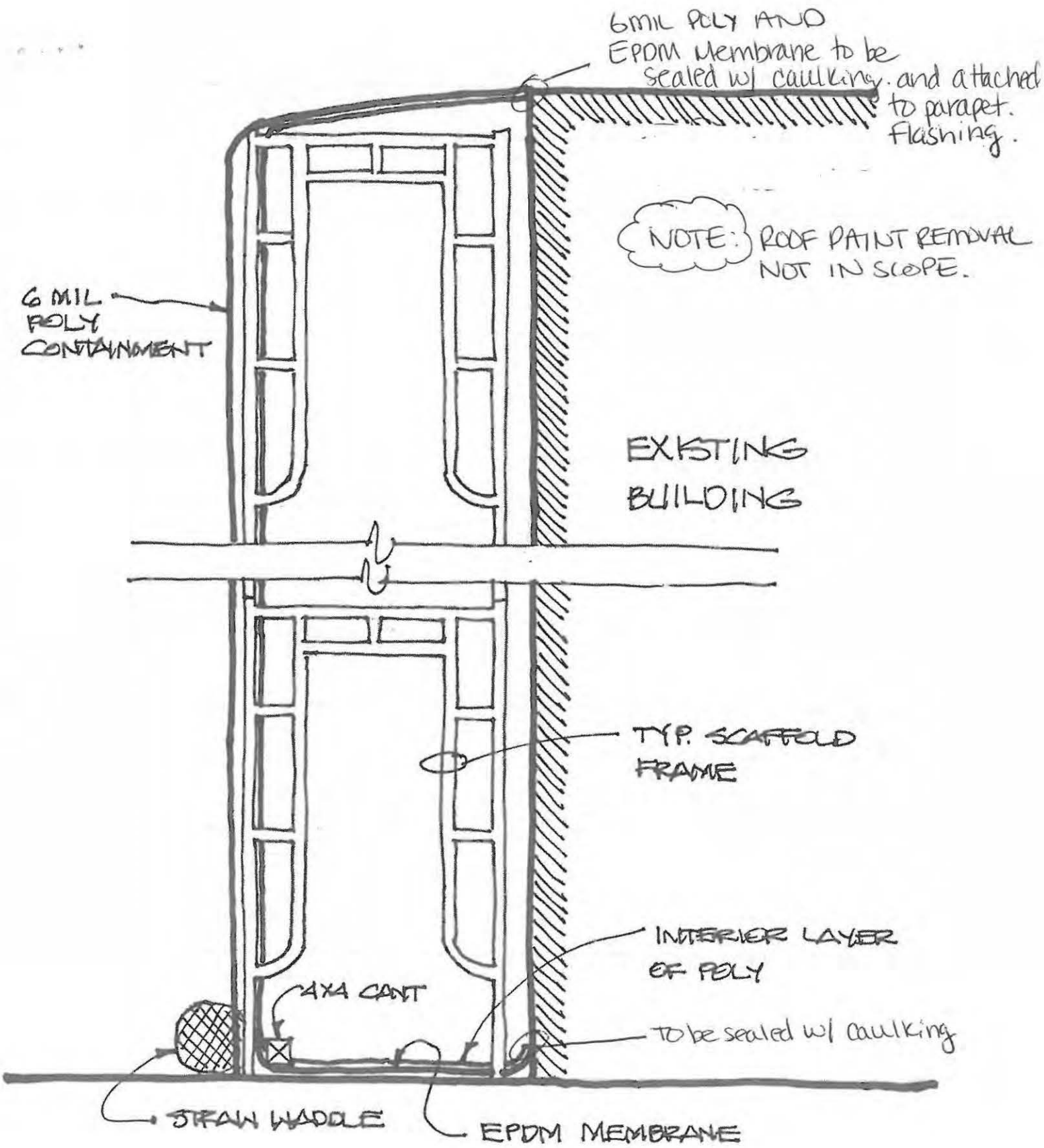
3" - 8" Internal Snap Coupler

DIRECT CONTACT

Customer Service
888-FOR PIPE 367-7473)
Fax 888-FAX PIPE 329-7473) 24 hours a day

ELECTRONIC MEDIA

Web Site
Find market- and application-specific information and the latest industry news at our On-Line Pipeline – **www.hancor.com**



CONTAINMENT SECTION

HANCOR AASHTO PIPE SPECIFICATION

Scope
This specification describes 3- through 24-inch (75 to 600 mm) Hancor AASHTO pipe for use in gravity flow drainage applications.

Pipe Requirements
Hancor AASHTO Pipe shall have annular interior and exterior corrugations.
- 3- through 10-inch (75 to 250 mm) shall meet AASHTO M252 Type C
- 12- through 24-inch (300 to 600 mm) shall meet AASHTO M294 Type C.

Joint Performance
Pipe shall be joined with coupling bands covering at least two full corrugations on each end of the pipe. Standard connections shall meet the soil-tight requirements of the AASHTO M252 and M294. Gasketed connections shall incorporate a closed-cell synthetic expanded rubber gasket meeting the requirements of ASTM D1056 Grade 2A2. Gaskets, when applicable, shall be installed by the pipe manufacturer.

Fittings
Fittings shall conform to AASHTO M252 or AASHTO M294.

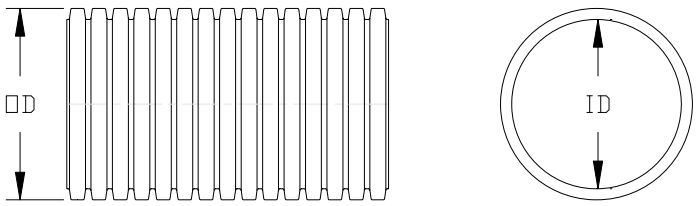
Material Properties
Pipe and fittings shall be made of virgin polyethylene compounds that comply with the cell classification 424420C for 4- through 10-inch (100 to 250mm) diameters, or 435400C for 12- through 24-inch (300 to 600mm) diameters, as defined and described in ASTM D3350, except that carbon black content should not exceed 4%. The 12- through 24-inch (300 to 600mm) virgin pipe material shall comply with the notched constant ligament-stress (NCLS) test as specified in Sections 9.5 of AASHTO M294.

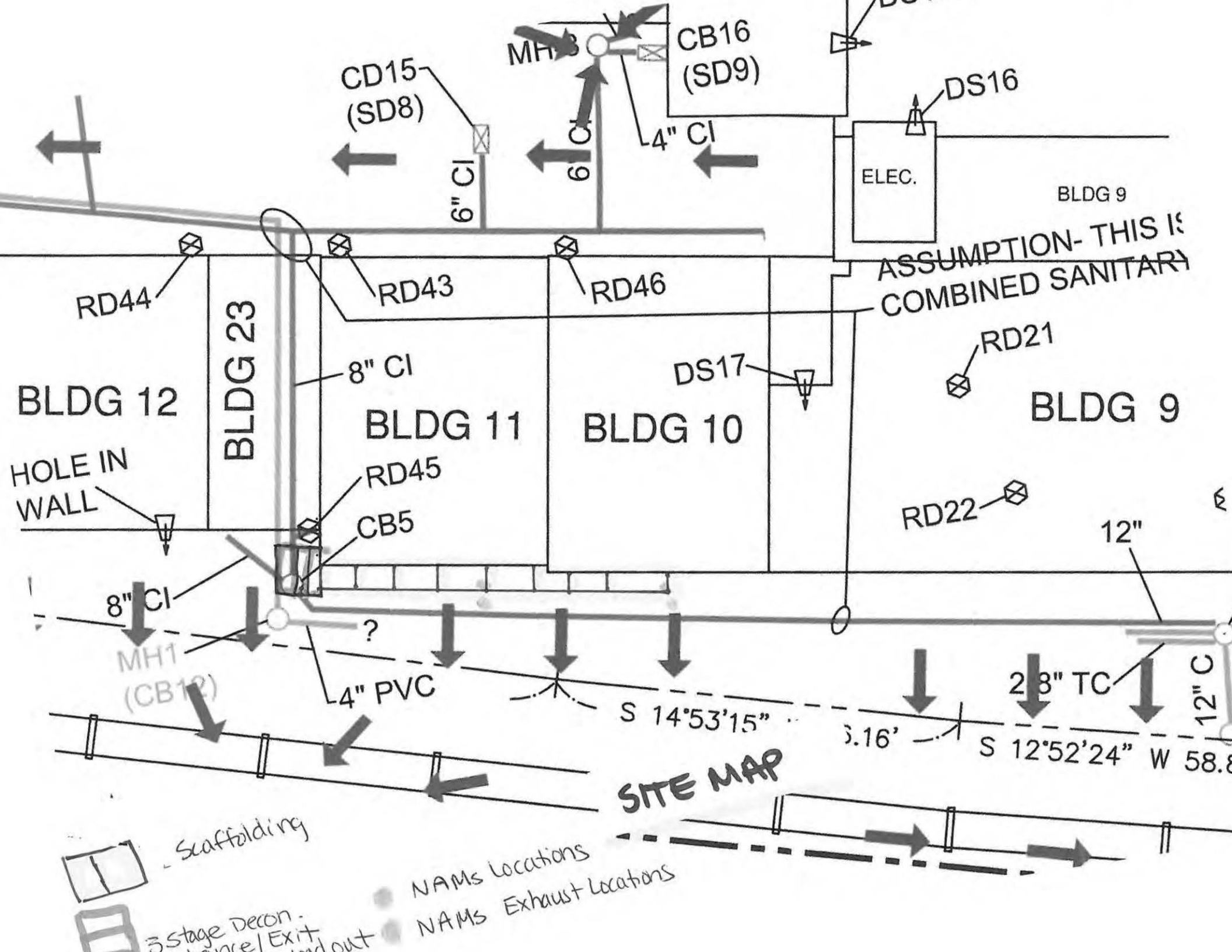
Installation
Installation shall be in accordance with ASTM D2321 and Hancor recommended installation guidelines with the exception that minimum cover in trafficked areas shall be one foot (0.3 m). Contact your local Hancor representative or visit our website at www.hancor.com for a copy of the latest installation guidelines.

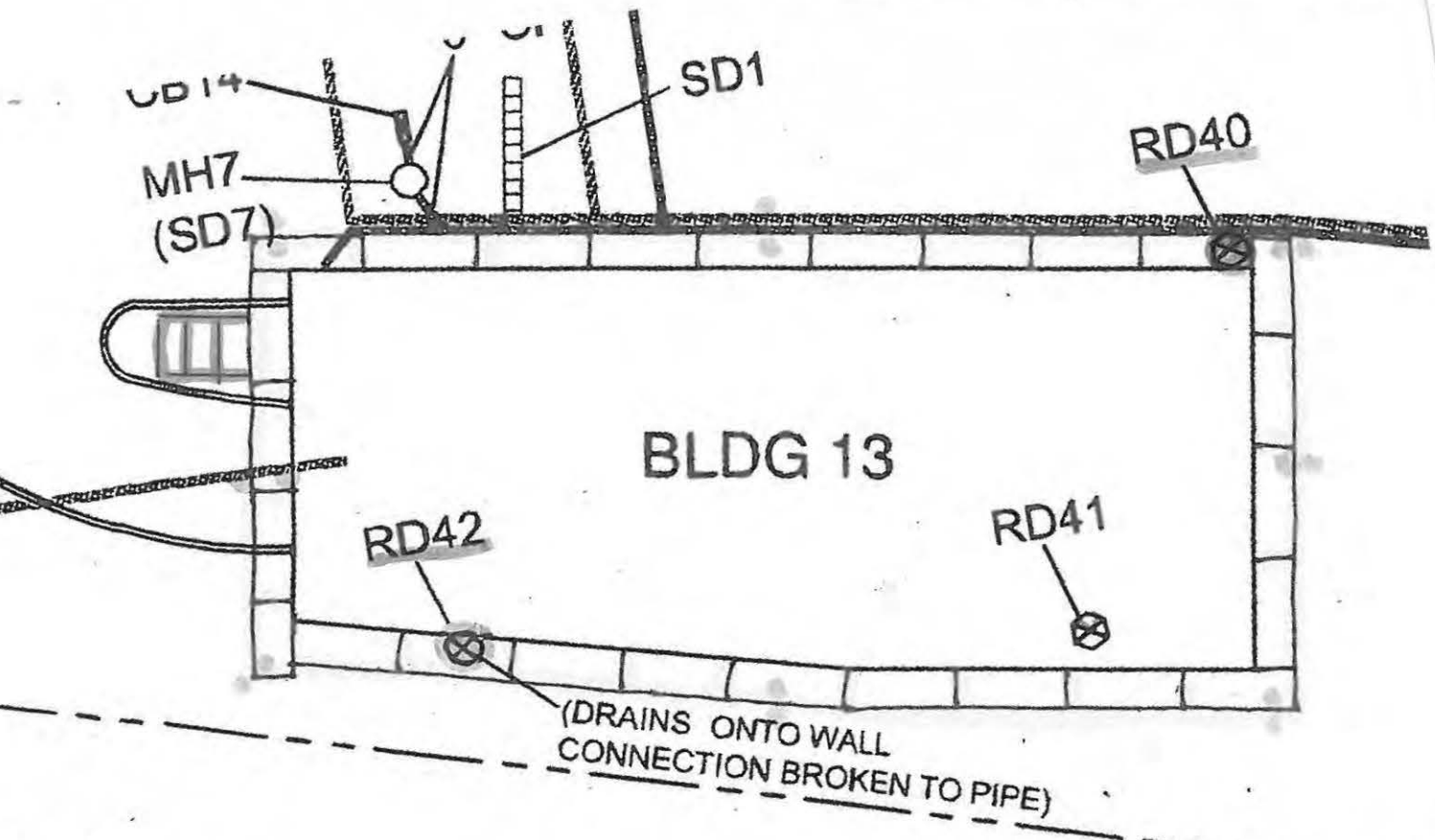
Pipe Dimensions

Nominal Diameter, in. (mm)									
Pipe I.D. in (mm)	3 (75)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	15 (375)	18 (450)	24 (600)
Pipe O.D.* in (mm)	3.6 (91)	4.6 (117)	7.0 (178)	9.5 (241)	12.0 (305)	14.5 (368)	18 (457)	22 (559)	28 (711)
Perforations	All diameters available with or without perforations.								

*Pipe O.D. values are provided for reference purposes only, values stated for 3- through 24-inch are ± 0.5 inch. Contact a sales representative for exact values.




CD15
(SD8)
MH3
CB16
(SD9)
DS16
6" CI
6" CI
4" CI
ELEC.
BLDG 9
ASSUMPTION- THIS IS
COMBINED SANITARY
RD44
RD43
RD46
RD21
BLDG 23
8" CI
DS17
BLDG 12
BLDG 11
BLDG 10
BLDG 9
HOLE IN
WALL
RD45
CB5
RD22
12"
8" CI
?
MH1
(CB12)
4" PVC
S 14°53'15"
S 12°52'24" W
12" C
SITE MAP
Scaffolding
NAMs Locations
NAMs Exhaust Locations
3 Stage Decon -



RAIL ROAD RIGHT-OF-WA

4" PVC

15°54'39" W 347.29'

4" PVC

CB3
(BNSF
CB2)

6" CI

3 Stage Decon
Entrance / Exit;
Equipment load out

NAM's Location

NAM's Exhaust Locations

⊗ Roof Drains operate independent. TO be covered w/ 6mil Poly and sealed with Duct Tape.

Roof Drain to be modified with 4" flex coil pipe to make functional per supplement to Work Plan 3/18/14.

32'

TYPICAL SCAFFOLD FRAMES - 42" W X 6'-4" H X 10' OR 7' L

SCAFFOLD PLAN & SITE MAP

EXHIBIT 8

ADDENDUM 1
Condition 6 Catch Basin Sampling Plan for Phase 1 IPWP

NVL Laboratories, Inc.
Office: (206) 547-0100
Fax: (206) 634-1936

Date: **March 12, 2014**

NVL Project No. **2012-949**

Site Address: **Rainer Commons**
3100 Airport Way S, Seattle, 98134

Introduction:

NVL Laboratories prepared the Catch-Basin Performance Monitoring and Sampling Plan dated January 30, 2014 to document procedures to ensure that active measures to protect the storm and combined sanitary sewer systems throughout the duration of the exterior paint removal project as outlined in the Rainier Commons Work Plan dated March 25, 2013, revised July 25, 2013 ("Work" or "Plan"), are meeting the requirements of the EPA risk based approval for the Plan.

The Catch-Basin Performance Monitoring and Sampling Plan has been verbally approved by the EPA at the Project Manager level, with the understanding that the required updates described below would be made as an addendum. In summary, the updates/clarifications required included:

- Identify Laboratory Result Turnaround Times
- Provide more detail on how sediment samples are collected so that they are representative, homogeneous and not heterogeneous – compositing was recommended.
- Update and add more detailed specifics in QA/QC section.
- Provide detail on protection of catch basins / roof drains that may be covered by abatement containment, or drain pipes that are on the side of the building that would be enclosed in the abatement structure (see separate document addressing this item).
- Confirm Best Available Practices from SPU are being used to protect basins/drains.
- RC will provide the report of the last clean out of the Storm water line that was done (previously submitted under separate cover to EPA with meeting notes).
- Per EPA Project Manager, RC will clean the "Catch all" inserts prior to the abatement work.

The addendum items specific to the previously provided Catch Basin Sampling Plan are as follows:

Item #	Section	Addendum Action	Update / Change
1	**Sampling Locations Phase 1 Work**	*The following is additional text for this section*	If NVL is unable to obtain an adequate sediment sample from the designated sampling locations, then, in that event, NVL will review adjacent locations to either collect a sample or complete a sample to obtain minimum sample amounts. NVL will document in its reports its records and observations that sediment was or was not present

			at each sampling location, during an inspection.
2	**Methodology**	*The following is additional text for this section*	Collection of Sediment Samples from Catch Basins: Composite sampling will be used with the intent to collect a representative sediment sample. The bottom of a catch basin will be divided visually into four quadrants and four separate scoops will be taken from each quadrant, withdrawn and all placed in the same container. It is recognized that there may not be any sediment in one or more of the quadrants at the bottom of a catch basin. If this is the case, then only the scoops of sediment from the remaining quadrants that can be collected will be submitted as the sample. The container will be submitted to the laboratory as a single sample and the directions for analysis will be to homogenize the sample prior to analysis.
3	**Chain of Custody**	*The following is a new section and new text. This section is to be inserted after section titled* ***Media Sample Volume Requirements:***	**Chain of Custody** NVL's Standard Chain of Custody Procedures include: • All samples must have an unique field sample number that will identify it with a specific collection details (including location/date/time) that cannot be reused. • Personnel will maintain control and security of samples collected to prevent loss or possible tampering. • A chain of custody form will be used to transfer custody of samples to the laboratory. • The chain of custody form minimally includes fields for sample number, parameter for analyses, sample collection date & time, sampler, and custody transfer signature area. • Samples collected will be properly stored and relinquished to the laboratory for analysis as soon as practical.
4	**Analysis:**	*The following is additional text for this section*	Laboratory turnaround time will be between one to five days depending on the need of the project.
5	**Quality Assurance/Quality Control (QA/QC):**	*The following replaces the text in this section*	QA/QC details are necessary to ensure that the resulting data are of acceptable quality, including sensitivity, to be acceptable for comparison to EPA decision criteria.

			Field QA/QC Procedures: • Field Duplicates: To measure QA/QC for reproducibility and representativeness of results, a minimum of 10% of the samples collected in each set from each type of matrix will be "field duplicates", which are separate samples collected as close as possible to the same point in space and time. They shall be stored, and labeled in separate containers, and analyzed independently. The method of selection of the location to collect the duplicate will be by using a random number generator to select one of the sampling locations. For example, if three catch-basin locations are tested, a random number method will determine which location to collect the duplicate sample. The duplicate sample will be collected in the same manner as the other samples. Laboratory analysis results must be with 75 to 125 percent to be acceptable. • Split Samples: To measure QA/QC for accuracy and reproducibility of results, "split samples" will be submitted to another laboratory that meets the qualifications identified in this document. A minimum of 5% of samples collected in the field will be collected similar to the method described for field duplicates. Laboratory analysis results must be with 75 to 125 % to be acceptable. NVL Laboratories QA/QC Program: NVL Laboratories standard QA/QC procedures will also be in place. The QA/QC program in place is part of NVL Laboratories' existing multiple professional laboratory accreditations, which include recognition by The Washington State Department of Ecology (Ecology) – Accreditation ID C797 - for several listed chemicals, including PCB (Aroclor) analysis. NVL's practices and procedures in place to maintain Ecology Accreditation include: • Periodic Laboratory Inspections by Ecology to monitor and accept NVL's laboratory facilities, laboratory procedures/practices and testing conditions.

			• Routine involvement with the Proficiency Testing Program where samples are sent to NVL's laboratory and results are reviewed by Ecology to test the accuracy of analysis. NVL Laboratories' QA/QC program includes the addition of surrogates, laboratory control sample (LCS) and LCS duplicate, matrix spike (MS) and MS duplicate and continuous calibration check (CCV) sample for all PCB analysis. NVL Laboratories' professional laboratory accreditations and reference to QA/QC documentation can be found at: http://www.nvllabs.com/qualifications.htm All samples will be managed under chain-of-custody control.

EXHIBIT 9

Storm and Sanitary Inlets Protection Plan

"Plan for Protection of Storm and Sanitary Inlets During Removal Activities"

NVL Laboratories, Inc.
Office: (206) 547-0100
Fax: (206) 634-1936

Date: **April 2, 2014**

NVL Project No. **2012-949**

Site Address: **Rainer Commons**
3100 Airport Way S, Seattle, 98134

Introduction:

NVL Laboratories has prepared this *Plan for Protection of Storm and Sanitary Inlets During Removal Activities* "Protection Plan" to document procedures to ensure the paint removal project as outlined in the Rainier Commons Work Plan dated March 25, 2013, revised July 25, 2013 ("Work" or "Plan"), are meeting the requirements of the EPA risk based approval for the Plan.

As a part of Condition 6 of EPA's approval of the Plan, Rainier Commons must ensure that the inlets adjacent to the subject building and/or work area are protected from infiltration of blast media or PCB bulk product waste during removal activities.

The following is the plan to meet the requirement to protect storm and sanitary sewer inlets during removal activities.

References and Resources

The following lists the references used in this Protection Plan. References are referred to in this document using the underlined titles.

- Work Plan = "Work" or "Plan" = Rainier Commons Work Plan Dated March 25, 2013 / Revised July 25, 2013

- Stormwater Management Manual for Western Washington, Volume II Construction Stormwater Pollution Prevention, Washington State Department of Ecology, Water Control Program, August 2012, Publication No. 12-10-030.

Background

Abatement Containment:

The removal strategies and controls put in place and described in the Work Plan, and supplemental documents in the first Individual Phased Work Plan are designed to prevent paint chips, or blast media, from escaping the containment structure and to prevent PCBs from spilling onto surfaces that drain to catch basins, or otherwise entering the storm/sewer system.

The Plan requires a fully enclosed containment that will have dust and particulate control. The enclosure will be under negative pressure 24 hours a day and all air exhausted will be through a HEPA filter.

The design of the enclosure is to prevent the tracking of debris to the outside. Anything that exits the containment goes through a special decontamination process and special decontamination area:

- Worker entry and exit into the enclosure is only through a three stage entry, that will have a shower, or through the waste load out area. Water used for showering will not be allowed to enter the sewer; rather it will be collected and characterized for proper disposal. Workers leaving the containment must remove protective garments and shower prior to exiting.
- As a result, workers who leave the containment will be decontaminated by removing protective garments and by showering and debris that is removed from the containment will only be in sealed containers that are clean on the outside.
- Waste is removed through a waste load out area that provides a way to clean the outside of the waste containers or to seal them in a clean container prior to being removed from the enclosure.

The only currently approved methods to remove the paint are “dry” procedures. The accepted methods are:

1. Abrasive Blasting, with blasting media composed of any or all of the following:
    - Sand
    - Walnut shells
    - Baking soda

2. Hand methods, including small tool scraping and/or concrete grinder a supplement to blasting or for final touch up.

3. Isolated areas, for example, metal frames on windows may be abated using a chemical stripper, subject to prior approval by the EPA project manager.

The use of water is not an accepted form for removal, although areas may be damp wiped following abatement.

The use of water inside the containment, if used, will minimal. Water may be used to clean surfaces for final inspection and to clean the outside of containers. Any water that is used is not allowed to enter a storm or sanitary inlet. Rather, it must be collected and characterized for proper disposal.

The floor of the containment will be bermed. This is primarily for containment of dust and debris that will collect on the floor form. Being bermed, it will also provide a form to contain wash water and prevent it from exiting the containment if it were spilled.

As an extra precaution, a straw waddle will also be placed and maintained around the containment to collect and absorb any moisture or particulate matter (such as paint chips and blasting media) if water were to escape the enclosure.

Basis of Plan

The basis of the Plan is to control and prevent any emission of blast media or PCB bulk product waste during removal activities from exiting a controlled work environment by using engineering and administrative controls.

In addition, for protection and assurance in case there ever was a breach and an exit of materials outside of the containment, secondary protection and spill procedures will be in place to protect the adjacent storm and sanitary inlets.

To provide assurance that controls and prevention actions that are put in place are of best practice, are maintained and continue to be acceptable, the implementation of monitoring, inspection and documentation will be done by NVL staff and overseen by both a CIH and a Project Engineer who are trained and have certification from the Washington State Department of Ecology in erosion and sediment control (CESCL / Certified Erosion and Sediment Control Lead).

In summary, protection of the adjacent storm and sanitary inlets to work activities is done for:

1. General protection as part of the routine practices at the Rainier Commons site to prevent and control PCB bulk product from entering the storm or sanitary systems.
2. Adjacent back up protection as an addition to the controlled work environments put in place when paint removal activities are conducted.

Existing Protection Already at Site for Drain Inlets

Rainer Commons already has a program in place to control paint chip debris from entering the storm and sanitary inlets. Part of the program includes:

- Placement and management of filters at the storm and sanitary inlets
- Weekly vacuum truck cleaning the parking surfaces
- Monitory the area for paint chip debris and hand collection
- Testing storm water run-off and sediment at catch basins.

Types of Additional Adjacent Drain Inlet Back Up Protection

In addition to the existing protection for drain inlets already at the Rainier Commons site, the following will be done for those inlets adjacent to the enclosure:

Additional Parking Lot Drain Inlet Protection Adjacent to Enclosure

Purpose: Storm drain inlet protection will be to filter storm run-off and prevent bulk material from entering the drainage system.

Types of parking lot drain inlets include:

1 - Catch Basin
2 - Direct Inlet

Following the guidance of the Stormwater Management Manual for Western Washington, the method of protection shall include design considerations from BMP C220 Storm Drain Inlet Protection.

Roof Drain Inlet Protection

Purpose: Storm drain inlet protection will be to filter storm run-off and prevent bulk material from entering the drainage system.

Types of roof drains include:

1 - Direct Inlet
2 – Over the wall into catch pipe

The method of protection shall include protection of drains via filter fabric at the inlet or via filtration at the outfall where possible to avoid excessive ponding on the roof and roof leaks.

Emergency Protection

If there is a breach of the containment allowing blast media or PCB bulk product waste to escape, the emergency protection plan is to block any storm and sanitary inlets at risk and allow water to pool. Once the breach is contained, the plan is to extract and collect the water for proper disposal treatment, then clean the surface areas prior to allowing drain inlet to return to functioning status. To prepare for any such emergency, plastic sheeting and material necessary to block inlets will be kept on site by the contractor for this purpose and be readily accessible for immediate use, in addition to absorbent spill kits.

Maintenance Standards

Maintenance of protective measures at inlets shall include:

- Contractor to inspect protection frequently, minimally daily, and more frequently as necessary, especially after storm events and maintained as necessary to ensure their continued functioning.
- Rainier Commons will maintain existing protection already at site for inlets

Inspection / Documentation

Rainier Commons / NVL will throughout the exterior paint removal project ensure that the interim measures to protect the storm and combined sanitary sewer systems, described both in the Work Plan, and as conditions of its approval, are working effectively.

This will include daily inspection and documentation of inlet protection by NVL staff when abatement activities are conducted.

NVL CIH will review / comment / approve on a daily basis any and all reports from NVL staff regarding inlet protection.

NVL CIH to work with NVL Project Engineer who is a Civil Engineer specializing in water resources and has training and certification from the Washington State Department of Ecology in erosion and sediment control (CESCL Certified Erosion and Sediment Control Lead).

NVL Project Engineer will be onsite to review and inspect regular maintenance and proper installation of inlet control measures minimally every 7 days and within 24 hours after any rainfall greater than 0.5 inches. NVL CIH or Project Engineer will also review and approve

any modification or removal of any controls. NVL will be on call, 24 hours per day throughout the time of the project, to respond to needed services or concerns.

NVL on-site staff, trained by CIH and Project Engineer, as part of daily routine monitoring activities, will inspect inlet protection control measures. NVL staff will keep daily logs and inspection reports. NVL staff will also immediately identify and communicate to Rainier Commons the need for any corrective measures.

Site Specific Storm and Sanitary Inlets Protection Plan

For each phase of the paint removal project, a *Site Specific Storm and Sanitary Inlets Protection Plan* will be developed by NVL CIH and NVL Project Engineer that will detail the protection of each inlet that is within or adjacent to the Work and may be impacted.

EXHIBIT 10

Buildings 10, 11 and 13
IPWP Specific Storm and Sanitary Inlets Protection Plan

Introduction

The following IPWP Specific Storm and Sanitary Inlets Protection Plan has been prepared to protect the inlets potentially impacted by the Phase 1 Work, which includes buildings 10, 11, and 13 and specifically the west elevation of building 10, the west elevation of building 11, and all four elevations of building 13.

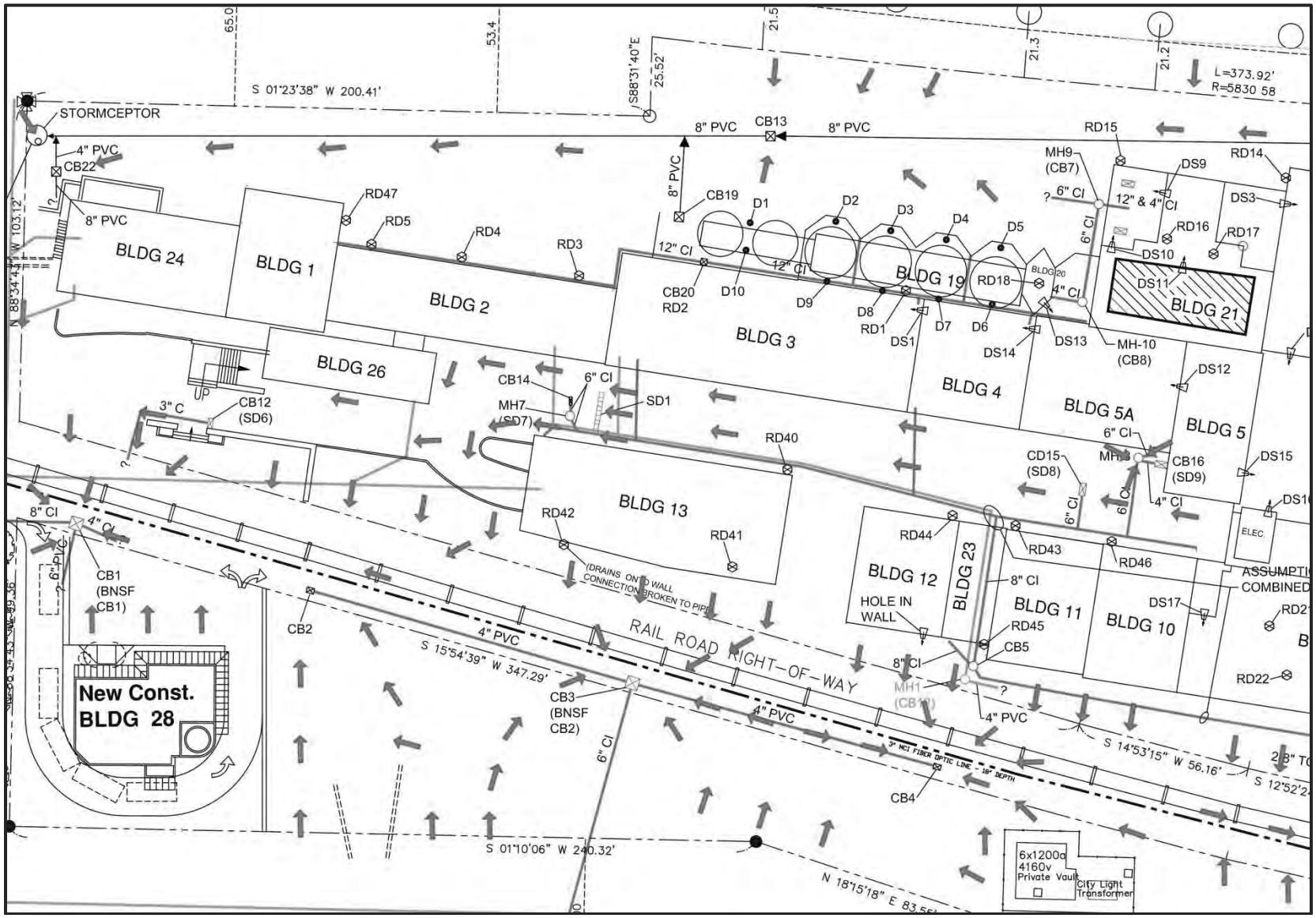
Key Components

The following table identifies and provides information about many of the key inlet protection components that are integral to any IPWP plan for this project:

1	**Rainier Commons Storm and Sanitary Inlets Protection and Prevention Program**	Throughout any phase, there will be continual operation of the overall Rainier Commons Storm and Sanitary Inlets Protection and Prevention Program for existing paint conditions. This program includes: • Placement and management of filters at the storm and sanitary inlets • Weekly vacuum truck cleaning of the parking surfaces • Monitoring the area for paint chip debris and hand collection • Testing storm water run-off and sediment at catch basins.
2	**Creation of IPWP specific Storm and Sanitary Inlets Protection Plans**	For each and every IPWP, a specific Storm and Sanitary Inlets Protection Plan will be developed by NVL to identify the specific inlets and the extra protection that will be in place for protection during paint removal. NVL CIH (Certified Industrial Hygienist) or Project Engineer will review and approve any modification or removal of any controls. Any change is also subject to EPA project manager's field approval if conditions warrant a different approach.
3	**Pre-inspection, cleaning and protection of adjacent areas as the initials steps of a IPWP**	As the initial step of mobilizing and setting up an area for paint removal, the general area will be carefully examined, pre-cleaning will be done to remove any general debris that could enter an inlet, and adjacent surfaces will be protected to prevent the possibility of adjacent debris from entering an inlet . Examples of such actions may include HEPA vacuuming surfaces and protecting adjacent areas with a plastic cover.
4	**Paint removal following the approved Work Plan**	The paint removal procedures in the approved Work Plan require full negative pressure containment involving engineering and administrative controls that prevent paint from becoming a source of pollutant at the inlets. Exit of any people, equipment or debris containers from the enclosed containment is only through a decontamination process.

5	**Inlet Protection Inspections**	Contractor The contractor is required to do daily inspections and maintenance of adjacent inlet protection described in the IPWP Specific Storm and Sanitary Inlets Protection Plan. Rainier Commons/NVL NVL will conduct daily inspections and document conditions and maintenance status of inlet protection. All NVL work is overseen by CIH and Project Engineer.
6	**Daily review regarding status of inlet monitoring data by CIH and/or Project Engineer when work is conducted**	As part of the daily review of all project activities, the CIH will review inlet protection inspection reports and do onsite inspections as necessary. Also, the Project Engineer will be onsite to review and inspect regular maintenance and proper installation of inlet control measures minimally every 7 days and within 24 hours after any rainfall greater than 0.5 inches.
7	**Catch Basin Testing**	Catch basin testing will be done by NVL as detailed in the documents titled: Condition 6 Catch-Basin Performance Monitoring and Sampling Plan and ADDENDUM 1
8	**Waste Control**	Any waste collected shall be characterized prior to disposal determination.
9	**Emergency Preparedness Plan for Protecting Inlets**	A plan will be in place to respond, control and collect any release of blast media or PCB bulk product waste from the containment to prevent it from entering inlets.
10	**Clearance**	All clearance criteria is to be met to assure completion of work and all waste are to be removed from the containment, prior to NVL CIH authorization of shut down of negative pressure within the containment and authorization for the contractor to initiate disassembly of the containment.

Site Plan around Building 10, 11 and 13 indicating Storm and Sanitary Inlets



Legend for Site Plan around Building 13 indicating Storm and Sanitary Inlets

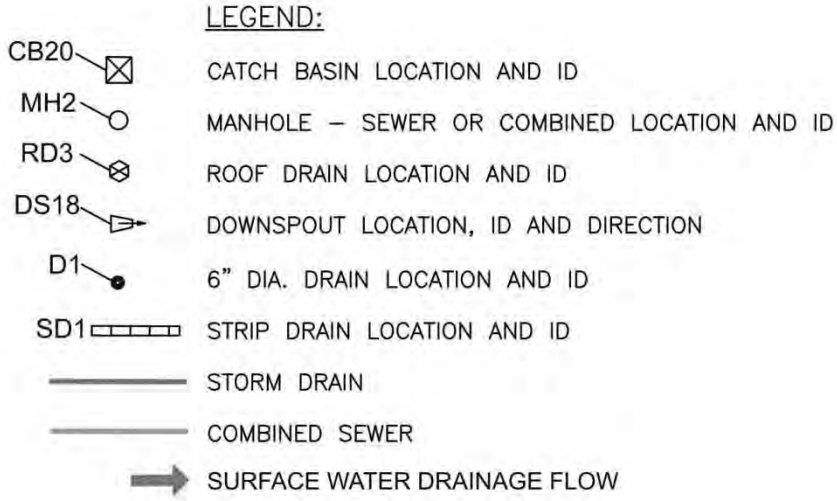


Table 1
BUILDING 13 - Plan for Parking Lot Drain Inlet Protection Adjacent to Enclosure

Row #	Inlet ID	Type of Inlet	Description / Notes	Type of Existing Inlet Protection (Note #1)	Required Additional Protection (Note #2 & #4)	Additional Inlet Protection That May Be Required (Note #2)	If Needed, Design & Installation Specifics Required? (Note #2)	Maintenance -Existing -Contractor (Notes #1 & # 5)	RC/NVL Inspection / Monitoring / Documentation (Note #6)	Waste Control (Note #7)	Emergency Protection Plan (Note #8)
1	**CB3 (BNSF CB2)**	Catch Basin	In drive area of west parking lot	Catch Basin Filter	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES
2	**MH7 (SD7)**	Manhole	Solid manhole cover in east driveway	None Required Not a typical inlet	Area Pre-clean Manhole cover to be sealed to surface with caulk and any vent holes closed/ blocked.	Not Applicable Manhole Inlet to be Sealed and Closed	YES	YES	YES	YES	YES
3	**CB 14**	Catch Basin	Solid manhole cover in east driveway	None Required Not a typical inlet Solid Cover	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES

4	**SD 1**	Strip Drain	Storm grate In driveway area – vehicles must cross over to access area	Catch Basin Filter	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES
5	**CB12 (SD6)**	Catch Basin (strip drain)	Small inlet at end of driveway	Catch Basin Filter	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES
6	**CB1 (BNSF CB1)**	Catch Basin	Near Tully's in west parking lot. Included in plan because east driveway exits near this area	Catch Basin Filter	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES
7	**CB2**	Catch Basin	In drive area of west parking lot	Catch Basin Filter	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES

Table 2
BUILDINGS 10 & 11 - Plan for Parking Lot Drain Inlet Protection Adjacent to Enclosure

Row #	Inlet ID	Type of Inlet	Description / Notes	Type of Existing Inlet Protection (Note #1)	Required Additional Protection (Note #2 & #4)	Additional Inlet Protection That May Be Required (Note #2)	If Needed, Design & Installation Specifics Required? (Note #2)	Maintenance -Existing -Contractor (Notes #1 & # 5)	RC/NVL Inspection / Monitoring / Documentation (Note #6)	Waste Control (Note #7)	Emergency Overflow Protection (Note #8)
1	**CB4**	Catch Basin	In drive area of west parking lot	Catch Basin Filter	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES
2	**MH1 (CB12)**	Man Hole	-	Catch Basin Filter	Area Pre-clean Manhole cover to be sealed to surface with caulk and any vent holes closed/ blocked.	Not Applicable Manhole Inlet to be Sealed and Closed	YES	YES	YES	YES	YES
3	**CB5**	Catch Basin	-	Catch Basin Filter	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES
4	**CB2**	Catch Basin	In drive area of west parking lot	Catch Basin Filter	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES

Table 3
BUILDING 13 - Plan for Roof Drain Inlet Protection Adjacent to Enclosure

Row #	Inlet ID	Type of Inlet	Description / Notes	Type of Existing Inlet Protection (Note #1)	Required Additional Protection (Note #3 & #4)	Additional Inlet Protection That May Be Required (Note #3)	If Needed, Design & Installation Specifics Required? (Note #3)	Maintenance -Existing -Contractor (Notes #1 & # 5)	RC/NVL Inspection / Monitoring / Documentation (Note #6)	Waste Control (Note #7)	Emergency Overflow Protection (Note #8)
1	**RD 40**	Hole in parapet	Low area of roof – drains through hole in parapet to an entry catch and downspout pipe on exterior side of building.	None	Area Pre-clean Drain to be connected to flexible coil pipe that will run the length of the building to the ground. Parapet to be sealed with foam.	Level 2 Extra Protection	YES	YES	YES	YES	YES
2	**RD 42**	Hole in parapet	Low area of roof – drains through hole in parapet than goes down side of building	None	Area Pre-clean Drain to be connected to flexible coil pipe that will run the	Level 2 Extra Protection	YES	YES	YES	YES	YES

					length of the building to the ground. Parapet to be sealed with foam.						
3	**RD 41**	Roof Drain	Located on roof deck – SW corner	None	Area Pre-clean	Level 2 Extra Protection	YES	YES	YES	YES	YES

Table 4
BUILDINGS 10 & 11 - Plan for Roof Drain Inlet Protection Adjacent to Enclosure

Row #	Inlet ID	Type of Inlet	Description / Notes	Type of Existing Inlet Protection (Note #1)	Required Additional Protection (Note #3 & #4)	Additional Inlet Protection That May Be Required (Note #3)	If Needed, Design & Installation Specifics Required? (Note #3)	Maintenance -Existing -Contractor (Notes #1 & # 5)	RC/NVL Inspection / Monitoring / Documentation (Note #6)	Waste Control (Note #7)	Emergency Overflow Protection (Note #8)
1	**RD 43**	For Building 11 on east side	Low area of roof – drains through hole in parapet to an entry catch and downspout pipe on exterior side of building.	None	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES
2	**RD 45**	For Building 23 on west side	Inlet near building 11 drains through hole in parapet to an entry catch and downspout pipe on exterior side of building.	None	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES
3	**RD 46**	For Building 10 on east side	Low area of roof – drains through hole in parapet to an entry catch and downspout pipe on exterior side of building.	None	Area Pre-clean Level 1 Extra Protection	Level 2 Extra Protection	YES	YES	YES	YES	YES

Notes for Inlet Protection Plan	
#	**Note**
1	**Existing Maintenance Program at Rainier Commons** Rainier Commons will maintain existing protection already at site for inlets which includes periodic monitoring of catch basin filters and weekly surface cleaning of asphalt surfaces. Frequent visual inspection and hand collection, or hand vacuuming of any paint chips or debris in the work area will also be conducted.
2	**Storm Drain Inlet Extra Protection** This two level approach can be modified subject to EPA project manager's field approval if conditions warrant a different approach. ***Level 1 – Extra Protection*** Catch Basins • Two layers of filter cloth. • Top layer inspected daily. Replaced minimally every 7 days • Top and bottom later replaced minimally every 21 days. Roof Drains • Two layers of filter cloth if filtered at ground level – one layer if filtered at roof level • Top layer inspected daily. Replaced every 7 days • Top and bottom later replaced minimally every 21 days. Manholes • Seal closed

	Level 2 –– Extra Protection NVL Project Engineer and/or NVL CIH may require additional protection at any time. For each inlet requiring Level 2 Extra Protection, the NVL Project Engineer will design a specific filter style protection for the inlet incorporating appropriate principles and design specifics utilizing best management practices (BMPs) from Washington State Department of Ecology's Stormwater Management Manual for Western Washington, in particular: • BMP C220 Storm Drain Inlet Protection (see curb and gutter barrier as an example) Reference https://fortress.wa.gov/ecy/publications/summarypages/1210030.html See in particular, Volume II, Chapter 4, commencing at page 356 of the pdf. Maintenance requirements to be defined by Project Engineer.
3	**Roof/Building Drains Inlet Protection** NVL Project Engineer and/or NVL CIH may require additional protection and will incorporate principles and design specifics following S424 BMPs for Roof/Building drains at manufacturing and commercial buildings
4	**Pre-Abatement Activities Area Pre-Clean** Areas adjacent to project will be cleaned prior to abatement work to Rainier Commons / NVL satisfaction, including the removal of any paint chips/debris. Any paint chips/debris or sediment collected will be handled as addressed in note #7.

5	**Contractor Inlet Protection Inspection and Maintenance** CGI (Hazardous Material Contractor) shall inspect and maintain catch basin filters and any other protection put in place. Inspection and maintenance shall be minimally daily and shall be more frequently during the day during and after storm events. Any visible debris on filters will be collected. If the insert becomes clogged it will be replaced. Any visible paint debris adjacent to containment shall be removed, even if not from project area.
6	**Sampling Plan / Storm and Sanitary Inlets Protection Plan** Rainier Commons / NVL shall follow and comply with what is detailed in submitted Catch Basin Sampling Plan (Condition 8) and Storm and Sanitary Inlets Protection Plan, which includes: • Conducting catch basin sampling as defined in Catch Basin Sampling Plan (Condition 8). If the Maximum Allowable Concentration (MCL) for PCBs is found to be exceeded, work shall stop and not continue to proceed until Rainier Commons instructs CGI to continue work after consultation with EPA Project Manager. • NVL on-site staff, trained by CIH and Project Engineer, as part of daily routine monitoring activities when abatement activities are in progress, will inspect and document status of inlet protection control measures. NVL staff will maintain daily logs and inspection reports. NVL staff will also immediately identify and communicate to Rainier Commons the need for any corrective measures. • NVL CIH will review / comment / approve on a daily basis any and all reports from NVL staff regarding inlet protection. • NVL CIH to work with NVL Project Engineer who is a Civil Engineer specializing in water resources and has training and certification from the Washington State Department of Ecology in erosion and sediment control (CESCL Certified Erosion and Sediment Control Lead).

	• NVL Project Engineer will be onsite to review and inspect regular maintenance and proper installation of inlet control measures minimally every 7 days and within 24 hours after any rainfall greater than 0.5 inches. NVL CIH or Project Engineer will also review and approve any modification or removal of any controls. NVL will be on call, 24 hours per day throughout the time of the project, to respond to needed services or concerns.
7	**Waste Control** Any waste collected shall be collected and characterized prior to disposal determination. No sediment will be allowed to flow into storm drains while cleaning. Rather it will be collected and characterized prior to disposal.
8	**Emergency Overflow Protection Plan** If there is a breach of the containment allowing blast media or PCB bulk product waste to escape, the *Emergency Overflow Protection Plan* is to block any storm and sanitary inlets at risk and allow water to pool. Once the breach is contained, the plan is to extract and collect the water for proper disposal treatment, then clean the surface areas prior to allowing drain inlet to return to functioning status. To prepare for any such emergency, plastic sheeting and material necessary to block inlets will be kept on site by the contractor for this purpose and be readily accessible for immediate use, in addition to absorbent spill prevention kits.

EXHIBIT 11

Condition 8 - Sampling Plan for Verification of Concrete Substrate Once Visual Clearance Standard Met

NVL Laboratories, Inc.
Office: (206) 547-0100
Fax: (206) 634-1936

Date: **April 2, 2014**

NVL Project No. **2012-949**

Site Address: **Rainer Commons**
3100 Airport Way S, Seattle, 98134

Introduction:

NVL Laboratories has prepared this ***Sampling Plan for Verification of Concrete Once Visual Clearance Standard Met*** to document procedures to ensure paint removal project as outlined in the Rainier Commons Work Plan dated March 25, 2013, revised July 25, 2013 ("Work" or "Plan"), are meeting the requirements of the EPA risk based approval for the Plan.

As a part of Condition 8 of EPA's approval of the Plan, Rainier Commons must collect verification samples of concrete and any other substrate type not analyzed as part of the September 2011 RBDA demonstration project once the visual standard for paint removal is met.

Summary of Requirements in Condition 8

1. Rainier shall use the grid system established in Condition 7 and collect a minimum of three samples per substrate, per phase of removal activity covered by the IPWP. As part of the IPWPs, Rainier shall devise a detailed sampling plan that will ensure that the data collected are representative of the PCBs that may remain in the substrate, if any, and include an analysis of the representativeness in their sampling plan.

2. The sampling plan shall also include sample collection methods, sample locations, and QA/QC. Sampling shall follow the guidelines provided in the EPA document titled Standard Operating Procedure For Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs), revised May 5, 2011 (SOP). The most recent version can be found at: http://www.epa.gov/regionl/cleanup/pcbs/pdfs/484692.pdf.

3. Data shall be sufficient for EPA to conclude that the visual performance standard is adequate to verify both removal of PCB bulk product waste and that no further cleanup is likely to be-required for the remaining substrate to satisfy the performance criteria of 40 C.F.R.761.61(c) and 761.62(c) of no unreasonable risk of injury to health or the environment.

References

The following lists the references used in this Sampling Plan. References are referred to in this document using the underlined titles.

- Work Plan = “Work” or “Plan” = Rainier Commons Work Plan Dated March 25, 2013 / Revised July 25, 2013

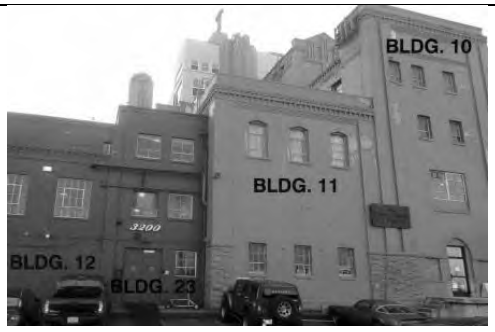
- EPA Sampling Procedure = Standard Operating Procedure For Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs), revised May 5, 2011 (SOP).

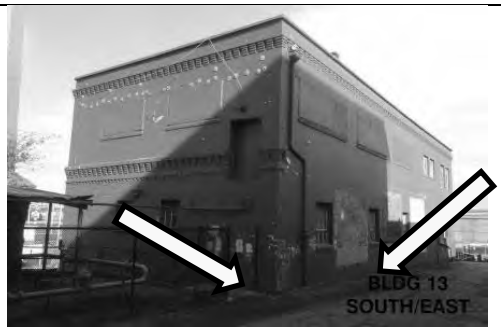
Locations for Testing

The Phase 1 Work includes Buildings 10, 11, and 13 and specifically the west elevation of Building 10, the west elevation of building 11, and all four elevations of Building 13.

Of these three buildings, only Building 13 has suitable locations for concrete substrate testing. There is no appreciable portion of painted concrete on the west elevation of Building 10 or Building 11. The concrete stairs and landing of Building 10 are not painted. (See also enlarged photographs of the Phase I work surfaces attached at the end of this Plan).

The following are photographs of the Phase I work surfaces where paint will be removed. The yellow arrows indicate the general location of the concrete substrate on Building 13

1		**Buildings 10 & 11** West Elevation
2		**Building 11** West Elevation

3		**Building 13** North Elevation
4		**Building 13** South and East Elevations
5		**Building 13** West Elevation

Four primary substrate samples will be collected, one each from the concrete area on the ground floor level at the west, east, north and south elevations of building 13, and one field duplicate sample will be collected, as outlined below. The samples will be collected from the grid-square located in the mid-field position on each elevation, as more particularly described below.

Sampling Methodology

A Certified Industrial Hygienist (CIH) will oversee all sample collection, analysis, data interpretation and reporting involved with the Work and the IPWPs, including this Sampling Plan.

Surface Preparation – Surfaces to be tested will have met the visual standard for paint removal as described in the Work Plan.

Sample Location Selection – Sample location will be selected by identifying the mid-field of each of the four concrete sampling areas, one on each side of Building 13. The following summarizes the method:

1. Using a rough calculation of the total square footage of the abated surface area ready for inspection, a record of the dimensions and calculation will be made on a separate set of Verification Sampling and Analysis Field Notes (the "Sampling Notes") (separate from or set off in a separate section from NVL's regular daily field notes);

2. Before the verification sampling begins, a simple diagram will be drawn of the inspection area in the Sampling Notes. The approximate center point of the area will be determined. These diagrams are to be carefully drawn, but hand drawn to approximate scale for record keeping purposes is acceptable. Perfect or exact scale drawings are not required.

3. NVL shall use its discretion to field measure and mark out the sampling area, in the most efficient manner possible with chalk or masking tape or other media.

4. NVL shall then collect the samples, pursuant to the SOP referenced above.

5. The sampling area shall be designated with the building number, the ordinal direction of the elevation or wall (N=north facing, S=south facing, E=east facing, W=west facing) and the level (G=ground, 1=first level of scaffolding and so on). So, for example, if the west facing wall of building 13 is sampled on the ground level the sample area will be designated in the Sampling Notes and in the photograph(s) as 13-W-G.

Sample Collection – Sample collection is done following the EPA Sampling Procedure. This includes:

- Sampling using an impact hammer drill to generate a uniform, finely ground, powder to be extracted and analyzed for PCBs, generating a minimum of 10 grams of sample material.

Chain of Custody

NVL's Standard Chain of Custody Procedures include:

- All samples must have an unique field sample number that will identify it, with specific collection details (including location/date/time) that cannot be reused.
- Personnel will maintain control and security of samples collected to prevent loss or possible tampering.
- A chain of custody form will be used to transfer custody of samples to the laboratory.
- The chain of custody form minimally includes fields for sample number, parameter for analyses, sample collection date & time, sampler, and custody transfer signature area.
- Samples collected will be properly stored and relinquished to the laboratory for analysis as soon as practical.

Analysis

Per the Condition, samples will be submitted to AIHA and WA Dept. of Ecology accredited laboratories to be analyzed for PCB Arochlor content via EPA Method 8082.

NVL Laboratories will be the primary laboratory used for the analysis. NVL meets the requirements of this Condition. (Accreditation documentation referenced below).

Laboratory turnaround time will be between 1 to 5 days depending on the need of the project.

Quality Assurance/Quality Control (QA/QC):

QA/QC details are necessary to ensure that the resulting data are of acceptable quality, including sensitivity, to be acceptable for comparison to EPA decision criteria.

Field QA/QC Procedures:

- Field Duplicates: To measure QA/QC for reproducibility and representativeness of results, a minimum of 10% of the samples collected in each set from each type of matrix will be "field duplicates", which are separate samples collected as close as possible to the same point in space and time. They shall be stored in separate containers, and analyzed independently. The method of selection of the location to collect the duplicate will be by using a random number generator to select one of the sampling locations. For example, if three locations are tested, a random number method will determine which location to collect the duplicate sample. The duplicate sample will be collected in the same manner as the other samples. Laboratory analysis results must be within 75 to 125 percent to be acceptable.

- Split Samples: To measure QA/QC for accuracy and reproducibility of results, "split samples" will be submitted to another laboratory that meets the qualifications identified in this document. A minimum of 5% of samples collected in the field will be collected similar to the method described for field duplicates. Laboratory analysis results must be within 75 to 125 % to be acceptable.

NVL Laboratories QA/QC Program: NVL Laboratories standard QA/QC procedures will also be in place. The QA/QC program in place is part of NVL Laboratories' existing multiple professional laboratory accreditations, which include recognition by The Washington State Department of Ecology (Ecology) – Accreditation ID C797 - for several listed chemicals, including PCB (Aroclor) analysis. NVL's practices and procedures in place to maintain Ecology Accreditation include:

- Periodic Laboratory Inspections by Ecology to monitor and accept NVL's laboratory facilities, laboratory procedures/practices and testing conditions.

- Routine involvement with the Proficiency Testing Program where samples are sent to NVL's laboratory and results are reviewed by Ecology to test the accuracy of analysis.

NVL Laboratories' QA/QC program includes the addition of surrogates, laboratory control sample (LCS) and LCS duplicate, matrix spike (MS) and MS duplicate and continuous calibration check (CCV) sample for all PCB analysis.

NVL Laboratories' professional laboratory accreditations and reference to QA/QC documentation can be found at: http://www.nvllabs.com/qualifications.htm

All samples will be managed under chain-of-custody control.

Equipment Decontamination

All nonporous tools and equipment used for sampling shall be cleaned and decontaminated before use, and after each sample is obtained. Porous materials such as grinding wheels/disks, if used,

cannot be reliably decontaminated between uses, and shall be discarded after each use. Cleaning/decontamination should be accomplished according to the following procedure:

1. Prepare two decontamination buckets, the first containing potable or organic-free water and a suitable residue-free detergent according to manufacturer's directions. The second bucket should contain potable or organic-free rinse water. Place all used tools and equipment in the detergent/water bucket, and scrub each piece thoroughly using a scrub brush. Next, rinse each item in the rinse bucket, then rinse with hexane, either from a laboratory wash bottle, or using a hexane-moistened paper towel or wipe. Take care to properly dispose of spent hexane and wipes. Place the cleaned and rinsed items on a clean surface in an area where free of dust from sampling activities, and allow to air-dry thoroughly prior to re-use.

2. Lightly-contaminated items and items that cannot be immersed in water (e.g., the motorized part of the coring device) may be cleaned by wiping with a hexane-moistened paper towel or wipe.

3. Clean, previously unused disposable gloves must be used at each sample location.

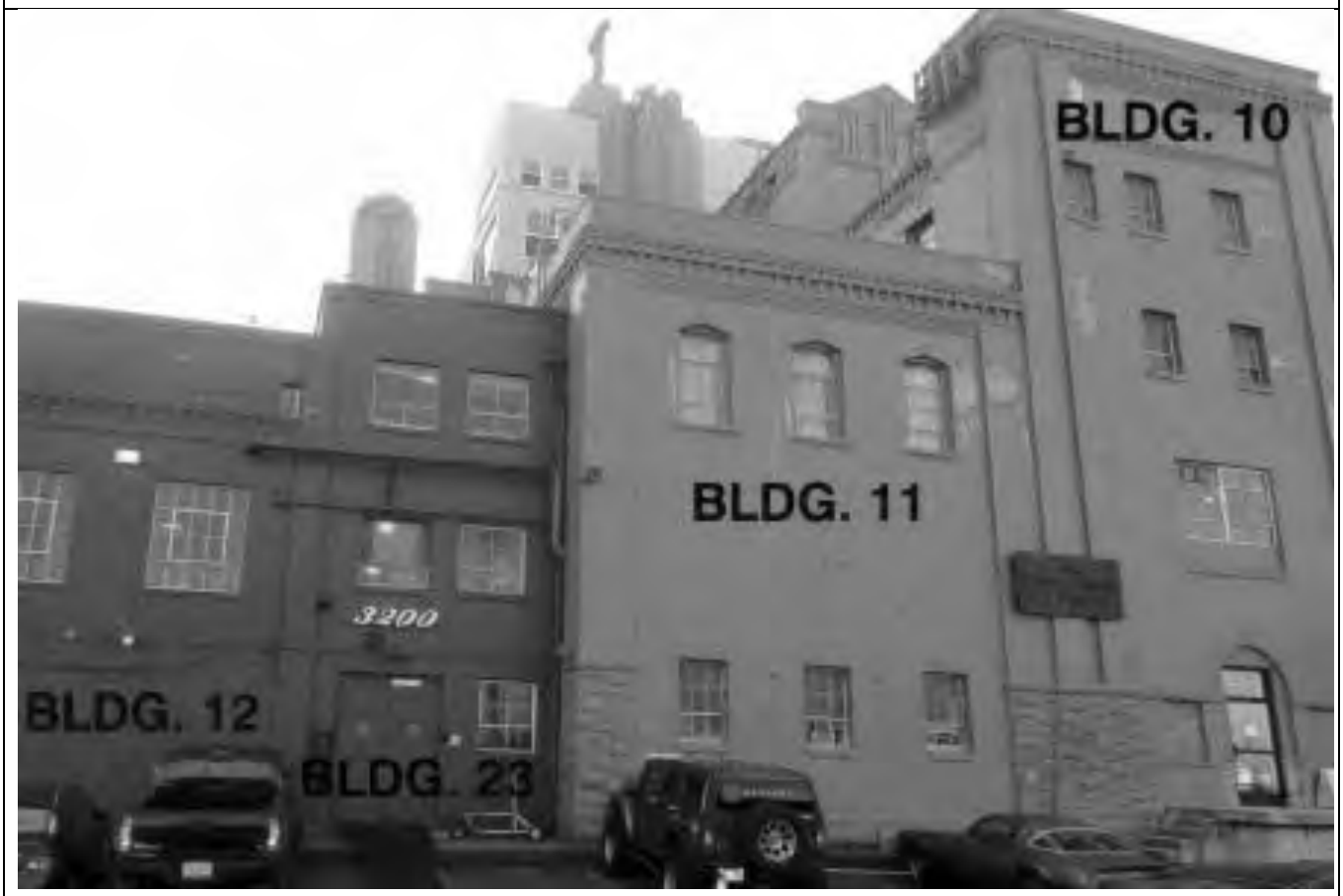
Sample Volume Requirements:

Per the analytical procedure requirements, a minimum of 10 grams of material must be collected.

Reporting

A written report will be provided by NVL to Rainier Commons to provide to the EPA within 30 days of sample collection and analysis. The report will include a description of the sampling locations as well as site photos. The results of the laboratory analysis will be shown in a data table. Any sample with a detection result above 1 ppm will be shown in bold in the table. Laboratory analysis reports and a site map showing sample collection locations will also be included as attachments to the report.

1- **Buildings 10 & 11** West Elevation



2 - **Building 11** West Elevation

3 - Building 13 North Elevation

4 Building 13 South and East Elevations

5 Building 13 West Elevation


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EXHIBIT 12

Visual Inspection Plan to Evaluate Work Performance

NVL Laboratories, Inc.
Office: (206) 547-0100
Fax: (206) 634-1936

NVL LABS
INDUSTRIAL HYGIENE SERVICES
MANAGEMENT | TRAINING | LAB SERVICES
www.NVLLABS.com

Date: **February 7, 2014**

NVL Project No. **2012-949**

Site Address: **Rainer Commons**
3100 Airport Way S, Seattle, 98134

Introduction:

NVL Laboratories has prepared this Visual Inspection Plan to Evaluate Work Performance to document procedures to ensure that paint is removed at the completion of each Individual Phased Work Plan (IPWP) as outlined in the Rainier Commons Work Plan dated March 25, 2013, revised July 25, 2013 ("Work" or "Plan"), and meets the requirements of the EPA risk based approval for the Plan.

Requirements:

Condition 7 of EPA's approval of the Work Plan, "Rainier shall **evaluate the performance of the work through visually examining 100 percent of the surface from which paint was removed, and conducting detailed verification visual analysis of 2 percent of the substrate** pursuant to the description provided in the Work Plan and the conditions herein."

The requirements include:

1. EPA requires complete removal of all visible paint to satisfy the requirements of this approval.*

2. If paint remains after blasting is conducted additional remediation is necessary to meet the terms of this approval.

3. If a remediation method that is not listed in the Accepted Abatement Methods on Page 8 of the Work Plan is deemed necessary by Rainier to remove all exterior paint, Rainier will seek EPA approval prior to commencing paint abatement activities following the procedures in Section 3, page 9 of the Work Plan.

4. EPA requires the use of a numbered grid and a random number selector for this process.

5. The proposed grid, inspection locations and inspection methodology shall be included in each IPWP for EPA approval.

* = Note: What this is interpreted to mean "visually" per the Work Plan: "The goal will be complete removal of the paint, with the understanding that the infrequent, small fleck of paint remaining post-abatement is functionally unavoidable as a practical matter. Complete removal and completely clean to visual inspection will be required of the Contractor."

Inspection Locations Phase 1 Work:

The Phase 1 Work includes buildings 10, 11, and 13 and specifically the west elevation of building 10, the west elevation of building 11, and all four elevations of building 13.

The inspection locations for Phase 1 of the Work are depicted on Figure 1 attached hereto.

Inspection Schedule:

Per the Process Steps described in the Work Plan, a summary of the steps include:

- Step #6 – Notification by Contractor to NVL that paint removal is complete and ready for inspection.

- Step #7 – General inspection by NVL of paint removal and determination if paint removal is complete:
    - If not complete, further action by Contractor and repeat of abatement work described in Step #4
    - If complete, then proceed to step 8

- Step #8 – Compliance Inspection, including what is detailed in this document as the Visual Inspection Plan to Evaluate Work Performance. After inspection:
    - If accepted, work activities proceed to Step #9
    - If not accepted, then work activities will be to conduct required action, most likely returning to Step #4

Methodology:

A Certified Industrial Hygienist (CIH) will oversee all visual inspection, analysis, data interpretation and reporting involved with the Work and the IPWPs.

Visual Inspection of 100 Percent of Area Abated

When the Contractor notifies NVL that a level, or segment of work, is complete and ready for inspection, qualified NVL personnel will walk each level, either ground or scaffold level, and visually scan the entire work area for any residual paint, with Contractor performance and contract compliance requirements in mind. Provisional acceptance of the work will be carried out as outlined in Sections 3 and 4 in the Work Plan.

Detailed Visual Inspection on Randomly Selected Two Percent (2%) of Surfaces Abated

After NVL has provisionally accepted the work, NVL then will carry out the verification inspection as follows:

1. Using a rough calculation of the total square footage of the abated surface area ready for inspection, a record of the dimensions and calculation will be made on a set of Field Notes.

2. The calculation of the area to be inspected will be made finding two percent of the total square footage of the area ready for inspection. The areas inspected will be recorded in the Field Notes.

3. Before the verification inspection begins, a simple diagram will be drawn of the inspection area in the Field Notes. These diagrams are to be carefully drawn, but hand drawn to approximate scale for record keeping purposes is acceptable. The locations of the areas inspected should be recorded on the diagrams. Perfect or exact scale drawings are not required. The distribution of the inspection area (two percent of the total area) may be in one location or broken up into two or more locations at NVL's discretion depending upon the overall size of the particular inspection area.

4. NVL shall use its discretion to field measure and mark out the inspection area in the most efficient manner possible with chalk or masking tape or other media. NVL personnel shall make a detailed and close visual inspection of the area.

5. NVL shall photograph the inspection area and make the photographs a part of the Field Notes, captioning or documenting within the photograph the area that it represents.

6. The investigation area shall be designated with the building number, the ordinal direction of the elevation or wall (N=north facing, S=south facing, E=east facing, W=west facing) and the level (G=ground, 1=first level of scaffolding and so on). So, for example, if the west facing wall of building 13 is investigated on the 2nd level of scaffolding the investigation area will be designated in the Field Notes and in the photograph(s) as 13-W-2.

Reporting:

A written report will be provided by NVL to Rainier Commons to provide to the EPA within 30 days of visual assessment. The report will include a description of the inspection locations and conditions as well as site photos.

EXHIBIT 13

Example of Method to Randomly Select Two Percent of Surface Area to Test

NVL Laboratories, Inc.
Office: (206) 547-0100
Fax: (206) 634-1936

Date: **February 7, 2014**

NVL Project No. **2012-949**

Site Address: **Rainer Commons**
3100 Airport Way S, Seattle, 98134

Example of Method Using West Side of Building #11

1. Calculate square footage of surface

Example, the west side of building 11 is 70' x 40' = 2,800 Square Feet (SF)

2. Calculate what is 2% of the surface

2800 * 0.02 = 56 SF

3. NVL determined desired minimum number of grid boxes to inspect for the 2% is 5 and the ideal number is 10.

5. NVL determined the ideal size of a grid box is between 4 and 10 SF

6. Calculate the ideal square footage and number for having 10 grid boxes on the surface:

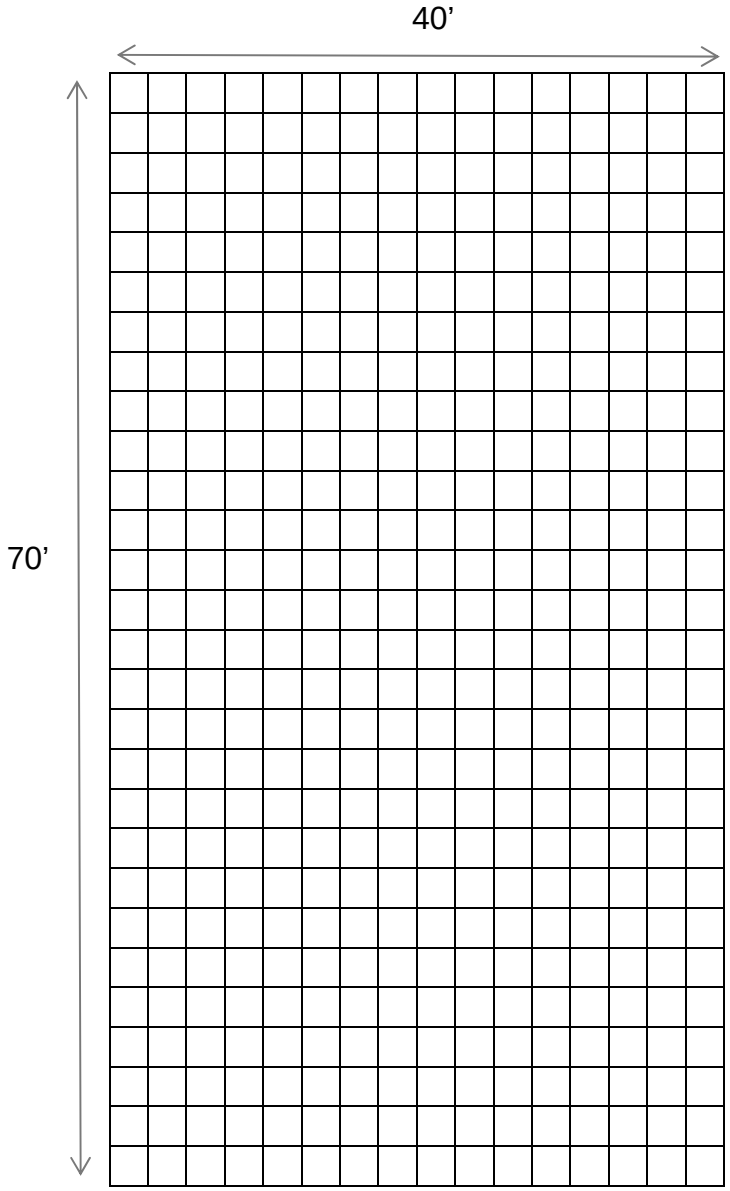
56 SF / 10 = 5.6 SF per grid box (this is ideal)

2800 SF/ 5.6 SF per grid box= 500 grid boxes (this is ideal)

7. Figure out how best to define and demark uniform square grid boxes near the ideal number i.e. 500 Grid Boxes on a 70' x 40' surface. (Uniform square to avoid potential statistical skew.)

70' / 2.5' = 28 boxes along the 70' side
40' / 2.5' = 16 boxes along 40' side.

28 x 16 = 448 Grid Boxes



Which means, each grid box = 2.5' x 2.5' = 6.25 SF

As calculated earlier, assess at least two percent 2 percent of the side of the building, 56 SF must tested. 56 SF / (6.25 SF/box) = 8.96 boxes, which means **9 grid boxes minimally need to be inspected**

8. Create the grid. The numbers for the grid boxes will be set up in a boustrophedon pattern, i.e. alternate lines in opposite directions for the purpose to avoiding potential statistical skew.

The selection of the random grid boxes is done in the next step, and those that are selected in the next step are indicated on the grid. For this example, the first 9 randomly selected grid box numbers are in **RED.**

The following page has a 28 x 16 grid, with 448 grid boxes numbered in a boustrophedon pattern

40’

70’

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
33	➲														48
64														⊂	49
65	➲												78		80
96														⊂	81
97	➲														112
128														⊂	113
129	➲											141			144
160							153							⊂	145
161	➲	163					168								176
192														⊂	177
193	➲														208
224	223													⊂	209
225	➲														240
256														⊂	241
257	➲														272
288														⊂	273
289	➲														304
320								312	311					⊂	305
321	➲										332				336
352								344						⊂	337
353	➲														368
384														⊂	369
385	➲														400
416														⊂	401
417	➲	419										429			432
448		446											435	⊂	433

9. Determine / identify grid on actual surface

The surface grid will typically be marked off on the actual surface using a tape measure and chalked line.

For this example, Building #11 is being used. The following is a picture of the west side of Building #11 as well as a diagram of the west side of the building with the inspection grid overlaid.

Building #11:

Inspection Grid Overlay:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
33	ↄ														48
64														ↄ	49
65	ↄ												78		80
96														ↄ	81
97	ↄ														112
128														ↄ	113
129	ↄ											141			144
160							153							ↄ	145
161	ↄ	163					168								176
192														ↄ	177
193	ↄ														208
224	223													ↄ	209
225	ↄ														240
256														ↄ	241
257	ↄ														272
288														ↄ	273
289	ↄ														304
320								312	311					ↄ	305
321	ↄ										332				336
352								344						ↄ	337
353	ↄ														368
384														ↄ	369
385	ↄ														400
416														ↄ	401
417	ↄ	419										429			432
448		446											435	ↄ	433

One potential issue, as can be seen in the grid overlay above, is that some cells lie within the windows or other areas that might not have paint.

10. Select the grid boxes to be inspected using random numbers

Number of grid boxes = 448
Number of random grid boxes needed = 9

Use a random number generator to generate a list of unique three-digit random numbers that fall within the range of cell numbers (in this case, numbers 1-448). Generally, the number of random three digit numbers on the list should be two times the number of random grid boxes needed. For this experiment, 18 random unique three-digit numbers in the chosen range were created using the random number generator:

141
004
099
312
435
429
332
153
334
023
419
199
423
211
068
183
350
091

Working down this list of random numbers, the first random number that corresponds with an available grid box on the building side will be marked as the first inspection location. The next number on the list that corresponds with an available grid box will be the second inspection location, and so forth. A numbered inspection box becomes unavailable if the inspection box is located on an unpainted surface.

In this situation, the numbers 099 and 334 were unavailable and not utilized as inspection locations because the corresponding cells are non-painted surfaces (windows).

Here is an example of nine randomly selected inspection locations that resulted from our mock selection:

Location #	Grid Box Random Number
1	**141**
2	**004**
3	**312**
4	**435**
5	**429**
6	**332**
7	**153**
8	**023**
9	**419**

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June 2, 2014

Michelle Mullin, Project Manager
U.S. Environmental Protection Agency - Region 10
1200 Sixth Avenue, Suite 900, OCE-084
Seattle, WA 98101

Re: Rainier Commons, LLC – Old Rainier Brewery Exterior Paint Abatement
Supplement to Phase I Individual Phased Work Plan (IPWP)

Dear Ms. Mullin:

EPA approved the Rainier Commons application for risk based approval of its Work Plan for Exterior Paint Removal by way of its conditional approval dated December 18, 2013. Rainier Commons submitted its Individual Phased Work Plan for the Phase I Work, on April 3, 2014 satisfying the conditions in the formal approval and additional requirements and supplements requested by EPA. After reviewing the IPWP for Phase I Work, EPA followed up with Rainier Commons on various questions that were answered and then May 15, 2014 EPA issued a list of 34 items requiring clarification, which were addressed on a preliminary basis in a phone conference on May 16, 2014. This correspondence additionally responds to those 34 items, at EPA's request. This letter and its attachments are a supplement to the Work Plan and the IPWP for Phase I.

1. King County wants SD-1 and CB-5 sampled and analyzed as well as the three locations you identified. You mentioned in our call on 2/11/14 that those may not have sediment, or may be covered by the containment structure. If so, you planned to note that in the report. The Phase I IPWP did not reflect any of this conversation. You must include these locations in the sampling plan.

   These locations were not additionally referenced in the IPWP as Rainier Commons believed they had been removed from the sampling plan by agreement in the 2/11/14 conference call with EPA for the practical reasons discussed. Rainier Commons has confirmed with EPA that the SD-1 trench drain is covered by the containment on the east side of Building 13. CB-5 next to Building 11 similarly will be blocked or partially blocked by the containment. Any portion of these drains that is not full covered by the containment will be covered and sealed

with an impermeable material, during the hours of blasting work. In addition, those locations feed into the locations that are being sampled. Thus, any sediment or aqueous solution that is contained in the SD-1 trench drain and CB-5 areas would be reflected or represented in the samples collected from the Sample 1 and Sample 3 locations, in all events.

2. The King County discharge authorization is 0.1 micrograms per Liter (ug/L). Therefore, the action level for PCBs in water is 0.1 ug/L. This is stated in the RBDA. Both the General Workplan, the Phase I IPWP and a recent email from RC/NVL all continue to use 1ppm as the action level. 1 ppm (or 1 mg/kg) is the action level for PCBs in sediments. 0.1 ug/L is the action level for PCBs in water. Laboratory detection limits/reporting limits must be adequate for both of these levels.

   Understood, for all purposes of the Work Plan and the IPWP, a concentration of PCBs in aqueous samples, in excess of 0.1 *ug*/L would be the action level. All references to aqueous samples from catch basins are considered by Rainier Commons to be amended to reflect the 0.1 ug/L as the maximum concentration level for PCBs in water and if exceeded will trigger additional action.

3. The RBDA only approved the use of blasting material identified in the General Workplan, which did not include copper slag or chemical strippers. At this time, neither of those materials are approved for abating the paint at the property. I understand that chemical strippers may be necessary for paint adhered to window frames, etc. Please send me information for the strippers you plan to use, including MSDS, application and disposal plans, and any other information that is necessary to determine the safety and environmental risk of using such a product. Copper slag is not approved for use at this time.

   See product information sheets attached as a part of Exhibit 1 attached hereto. Any and all waste related to the chemical stripping required for metal substrates, such as window frames, which may include but not be limited to wipe rags, paper or other material used to cover the stripper while curing, and the stripper itself, will be drummed and labeled for disposal to be characterized and directed to the appropriate waste facility by the waste disposal sub-contractor at the end of the Phase I work, according to all applicable regulations.

4. You have provided an inventory of the inlets in the form of a map. On the 2/11/14 call I also requested a table that listed each inlet, it's feature attributes and lat/long coordinates. Please provide this table.

   Rainier Commons provided a table of the inlets at issue in the Phase I Work with the IPWP. Rainier Commons does not have the latitude and longitude position of each of its inlets to the sanitary sewer. Rainier Commons is generally located at

3100 Airport Way South, Seattle, Washington 98134. A table of inputs previously developed by CDM is also included here as Exhibit 2.

5. The QA is still inadequate. I do note that you did include more specifics regarding duplicate and lab QA samples. And you did include the RPD required to accept the duplicate results. However, you did not include any parameters for how you will determine when to use or reject the sample results in general- such as what level of completeness is acceptable? You did not list the Reporting Limits for the analysis. I do not know if the analysis will be sensitive enough to detect contamination at the action levels. You mentioned the volume needed for your samples, but not for the QA samples. Do you need to collect extra volume for the lab-run MS/MSD, for example? You did not include any sampling QA such as equipment blanks or rinsate blanks.

   See NVL supplemental responses as follows:

   Parameters for how you will determine when to use or reject the sample results in general – such as what level of completeness is acceptable.

   The decision to use or reject sample results is based on the surrogate recovery to determine if an extraction is complete. The exact parameters are set using a control chart based on previous sampling results. In general, the parameters are typically between 50 to 150 percent. Also, the matrix spike needs to be within the control charted levels, which is typically 65 to 135 percent.

   You did not list the Reporting Limits for the analysis.

   Liquid 0.1 ug/L
   Soil 0.1 mg/Kg

   I do not know if the analysis will be sensitive enough to detect contamination at the action levels.

   The Reporting Limits for Aroclors = 0.1 ug/L (Liquid) which is the same as the King County Screening Limit = 0.1 ug/L.

   You mentioned the volume needed for your samples, but not the QA samples.

   Three times the sample volume, for example, if the sample volume collected is one liter, three liters need to be collected for the matrix spike.

Do you need to collect extra volume for the lab run MS/MSD, for example?

Yes. As referenced above, three times the sample volume, for example, if the sample volume collected is one liter, three liters need to be collected for the matrix spike.

You did not include any sampling QA such as equipment blanks or rinsate blanks?

Due to cost and to avoid the potential for any cross contamination, collection device equipment will be disposable, where possible, and/or sufficient quantity of, for example, trowels will be present for the sampling round to facilitate clean scoops for each sample for that sampling round. As a result, there are no rinsate blanks to be collected.

6. What if your sediment scoops include a lot of water? Recommend putting into a container, letting settle, then decanting.

   Agreed, Rainier Commons will generally follow the procedure set forth by King County in Section 3.1 at page 7 of its East Waterway Source Tracing in King County Combined Sewer System Sampling and Analysis Plan document. Overlying water collected with the sediment will be allowed to decant from the sample container and be returned to the sewer line.

7. Inlets under the containment structure need to be separately wrapped/protected (CB-5 according to scaffold drawings). You did mention completely sealing some of the manholes, I just want to ensure that any inlet under the structure is also separately sealed.

   Agreed and understood if fully under the containment structure. If partially under, portions not fully under will be sealed during blasting hours, but may be uncovered during non-blasting periods to prevent excessive ponding of any storm water on site, if precipitation levels warrant.

8. Pre-blasting you mentioned that you would inspect all of the filter fabric and clean or replace them if necessary. Not mentioned specifically in the IPWP, though you do mention the ongoing inspection and cleaning. I just want to be clear that you will do a specific inspection to ensure all filters in place are intact and clean.

Yes that was the intent of the statement in the IPWP. A special pre-Work inspection will be performed and any and all maintenance will be carried out at that time, in addition to the regular maintenance schedule.

9. You mention appropriate decon of tools for sampling the substrate, but I don't recall seeing that for the sediment and aqueous samples as well. Please ensure that all sampling equipment is either disposed between uses or provide decon plans.

   Due to cost and to avoid the potential for any cross contamination, collection device equipment will be disposable, where possible, and/or sufficient quantity of, for example, trowels will be present for the sampling round to facilitate clean scoops for each sample for that sampling round. Decontamination of any sampling equipment that is not disposable will follow the general procedure and protocol outlined in the concrete substrate sampling plan.

10. Aqueous sampling plan- I would like to see in the schedule a plan to use the weather forecast to plan the sampling event. You should attempt to collect catch basin samples during or immediately following rain events, as practicable. I understand this may not always be feasible, which is why documenting the weather forecast will be helpful.

    Understood, Rainier Commons will make best efforts to comply with the recommendation regarding timing of collection of aqueous samples as outlined in item 10 above, and it will consult the NOAA weather forecast for the Seattle area (http://www.wrh.noaa.gov/sew/) and/or other credible weather news source to assist in planning for collection of adequate aqueous sampling, before each round.

11. The workplan mentions that wet wiping will occur on the substrate prior to visual inspection- what will be the "wet" material, water?

    See CGI clarification at Exhibit 1 attached hereto. The substrate will be brushed and HEPA vacuumed.

12. Workplan mentions storing equipment, and disposal materials, but does not explicitly state in accordance with 761 storage requirements at 65(b) or (c). Must ensure compliance with 761, as stated in the RBDA. Also, the staging area is described, but where will the full containers be stored?

    See CGI clarification at Exhibit 1 including recognition of adherence to PCB regulations. It is understood that Rainier Commons and its contractors will adhere to all applicable PCB rules and regulations in the conduct of all aspects of the Work.

13. Backflow protection needs to be installed on water sources used for the showers, etc. to prevent contamination.

    See Exhibit 1 confirming backflow prevention check valve to be installed on water sources as requested.

14. What is the total height of the scaffolding? Will it be installed applicable to OSHA/WISHA and manufacturers standards? Include a statement as such.

    See CGI clarification at Exhibit 1 confirming compliance with all applicable regulations and standards including WISHA.

15. How will water collection effectively work in the containment area? It will be trapped on the plastic sheeting within the straw waddle berm, but then what?

    Water used in the containment should be minimal, primarily for workers personal wash. If any water escapes the initial area, and it should not, it will be contained within the bathtub type lip of the base of the containment and shop vacuumed up and drummed immediately. If any water manages to escape the layers of structured containment, a secondary barrier of straw waddle will trap and adsorb any such water. In addition, absorbent spill kit materials will be kept on hand to immediately trap and absorb any water that is not trapped within the impermeable container or "bathtub" style flooring of the containment.

16. Have you considered having a wearing surface on top of the plastic sheeting on the ground, to prevent punctures and tears? Such as planks of wood or aluminum?

    Yes. See the description in the CGI supplement attached at Exhibit 1 hereto regarding sacrificial, replaceable wear layers among other layers for containment.

17. How will the plastic sheets be sealed between the building and the scaffolding? Example photos show tape, drawing shows caulk- what is the plan?

    Caulk or foam sealant will be used in most, if not all instances. See CGI supplement at Exhibit 1.

18. Numbers and units seem to be off in the calculation on airflow.

    See CGI clarification at Exhibit 1.

19. Will need to ensure that spent blasting media and waste are also sampled to comply with WA Dangerous waste rules.

Yes. All waste will be appropriately characterized prior to designation for waste disposal facility including compliance with Washington State Dangerous Waste rules and regulations to the extent that those rules and requirements may determine the correct facility to which any and all waste, including, but not limited to dry blasting media waste, personal protection equipment and containment enclosure material, wet waste and/or water or liquid waste.

20. Demonstration project showed that sand was very aggressive to the substrate, and soda was not effective. Walnut shells were best, but aren't mentioned in the IPWP.

    The IPWP incorporates the Work Plan by reference and all three media are referenced and considered viable options. The contractor will need the flexibility to make a field judgment call to change the blasting media as the work progresses according to results being achieved. Therefore, the contractor should not be constrained to any one particular blasting media and additives like copper slag or other similar blasting abrasive additives commonly used in this type of paint abatement work is reserved where industry standards would commonly utilize such additives. Product information for sample copper slag as an abrasive or as an additive are submitted herewith. If Rainier Commons is to achieve the goal of complete paint removal all viable blasting media commonly accepted in the industry should be considered available for approval if the need for an alternative presents itself in the field to achieve that goal. Rainier Commons requests EPA project manager approval for the copper slag product as an approved blasting media as attached on Exhibit 1. CGI was not the contractor on the pilot project and is an experienced paint remediation contractor. CGI currently believes the proposed product is the best candidate to achieve remediation goals while being protective of the building to the greatest extent possible. CGI explained, in the May 16, 2014 conference, that the copper slag has the ability to bite and tear the surface of the paint at a superior level with low dust creation, which are both desirable characteristics for the Work.

21. May want to use Aluminum planks instead of wood, to prevent PCBs from contaminating the wood. Otherwise will need to decon and sample to ensure they are not contaminated.

    CGI is planning to utilize steel and/or aluminum planking. See Exhibit 1.

22. What is the waste sampling and analysis plan?

    CGI is subcontracting the waste profiling and disposal work to Kleen Environment and all applicable rules and regulations will be adhered to for each type of waste, including but not limited to dry blasting media, personal protection and containment material, wet waste and water and/or liquid waste. See Exhibit 1. Rainier Commons understands that incineration may be required as to some of

this remediation waste. Rainier Commons reserves the right to appropriately characterize and dispose of any and all remediation waste that may qualify for disposal other than by incineration as may be allowed under all applicable rules and regulations.

23. Waste containers also need the date out of service for PCB waste.

    Understood, Rainier Commons will follow the requirements outlined in EPA email of May 21, 2014, in follow up to the May 16, 2014 conference on this subject referencing among other regulations 761.65.(a)(1) and 761.65(c)(9). The contractor will include the date the PCB waste was removed from service, which means removed from the building, on each drum. The earliest date that PCB waste is removed from service and the drum is started to be filled will be the date placed upon the label for the out of service date.

24. CGI Workplan states "hazardous material"- this needs to be clearly "PCB wastes regulated for disposal or wastes that designate as dangerous waste pursuant to WAC 173-303"

    Understood, this will be followed.

25. Where are you sending the collected waste water? Can't go to a landfill.

    See item 22 above. Rainier Commons understands that PCB contaminated liquid waste may require disposal by incineration, unless cost of disposal and volume of waste justifies disposal contractor to set up filtration and treatment on site prior to disposal, which is not currently under consideration, but due to high cost of waste handling and disposal, Rainier Commons reserves the right to make any and all appropriate waste disposal arrangements that are available to it under all applicable laws and regulations, when the Phase I Work is complete and actual volumes of each category of waste are known, in consultation with the qualified waste disposal contractor.

26. Air monitoring- what is the sampling and QA plan? What are the MDL/RL?

    The air sampling plan is to follow NIOSH Method 5503, attached hereto as Exhibit 3.

    Per this method, with a 100 Liter air volume, the

    RL = 0.01 mg/m3 or 10 ug/m3
    MDL = 0.005 mg/m3 or 5 ug/m3

27. All field personnel must be aware of the RBDA.

    Understood, they will be so informed at preconstruction meeting and as necessary throughout the Work.

28. Spill plan does not have any mention of 761 Subpart G- Spill Cleanup Policy. All PCB spills or releases must be cleaned up in accordance with that part of the regulations.

    Understood, see supplement to CGI site specific work plan at Exhibit 1 attached.

29. HASP is not site specific, and only applies to CGI- what site specific health and safety plan procedures will be implemented to cover all the work being conducted by all parties?

    See additional NVL HASP included here at Exhibit 4. To the extent that any person enters the containment they will adhere to the CGI HASP. Rainier Commons personnel that continue to conduct regular source control tasks such as filter sock replacement, hand collection of paint chips, vacuuming of paint chips or other site debris will continue to wear protective gloves and mask. Any additional source control tasks, which may include additional rounds of visual inspection of filter socks and visual inspection of the exterior condition of the containment and grounds adjacent to the containment while the blasting work is on-going, but that is outside of the contractor's established work area and does not require any physical contact with paint chips, will not require special personal protection.

30. In the Containment section drawing- what is the "4x4 cant"?

    It is a rigid strip of building material installed at the base perimeter of the containment to provide the outside edge of the containment structure, rigidity and additional puncture protection.

31. NVL roof drain protection includes RD41 on Building 13, and RD 43 on Building 23 and RD45, 46 on Building 10 and 11. CGI plan does not include these. Ensure that all on the NVL plan are protected according to NVL's specs prior to work.

    Understood, Rainier Commons will appropriately protect with filter sock at roof level or divert storm water and filter before entry into storm/sewer system. See Exhibit 5 attached.

32. Backup generator or power source to maintain neg pressure in the event of a power outage?

This was discussed and determined to not be required at the in person meeting with EPA in January due to the layered nature of the containment, the additional cost of providing this type of back-up power in a site ready status and the low likelihood of needing this type of back-up power.

33. What is the substrate on the west elevations of Bld 10 and 11? Pictures look like concrete, with stone near bottom. Was stone previously demonstrated to be PCB free?

    The concrete portions at the base of the building, the stairs and landing, are not painted. The stone appears to be a form of brick. The PCBs in the dried applied paint at Rainier Commons have already been shown not to migrate to porous stone or cementitious like substrates, through substrate sampling, and specifically to be at or below 1 ppm in brick and cementitious plaster substrates. If, when the paint is removed from buildings 10 and 11, the brick-like substrate appears to be different enough from the brick and cementitious plaster substrates already demonstrated to be clear of PCB migration, then at EPA's request Rainier Commons will sample that substrate as well, with three substrate samples, generally following the sampling plan and SOP referenced therein for the concrete substrate submitted with the IPWP.

34. In the Visual Inspection addendum there is a note that the "infrequent small fleck of paint remaining post abatement is functionally unavoidable as a practical matter. Complete removal and completely clean to visual inspection will be required of the Contractor". I want to re-iterate that complete removal and completely clean is required. The statement "functionally unavoidable as a practical matter" is not a statement that EPA agreed to, and is not how the RBDA is written.

    Understood, Rainier Commons is committed to making best efforts to carry out the Work Plan to the fullest extent practicable such that the substrate does not pose an unreasonable risk to human health or the environment at the completion of the Work.

We look forward to EPA's final approval of the Phase I IPWP. If you have questions please contact our office or Rainier Common's Project Manager.

Very truly yours,

RYAN, SWANSON & CLEVELAND, PLLC

Jo M. Flannery
Attorney Of Counsel

Enclosures
cc: Client
Alex Fidis, EPA Regional Counsel (via electronic copy with enclosures)
Mark Marcell, CGI (via electronic copy with enclosures)
Dave Leonard, NVL (via electronic copy with enclosures)

SUPPLEMENTAL AMENDMENTS TO RAINIER COMMONS SITE SPECIFIC EXTERIOR PAINT ABATEMENTWORK & SAFETY PLAN

3. COPPER SLAG AND GREEN DIAMOND SAND

See attached Data Sheets for these products.

11. PCB PAINT REMOVAL

Correction to the cleaning process; Prior to inspection by NVL/EPA, "all surfaces shall be brushed and HEPA Vacuumed clean".

13. BACKFLOW PREVENTION

Water source used inside containment shall be equipped with a back-flow preventer check valve assembly.

14. SCAFFOLDING

Scaffolding erectors shall have proper certification by LNI. CGI and there subcontractor shall erect the scaffolding in compliance with WISHA and manufactures recommendations.

15. CONTAINMENT ENCLOSURE

Prior to scaffolding erection, CGI will install 1-layer of reinforced 6 mil poly, 2-layers of cardboard and 1-layer of 10-mil shrink-wrap on the ground. Scaffolding pads will then be placed at each base frame to ensure no floor puncturing. During the work, CGI will use a 6-mil poly drop to catch most of the debris and protect main layers of base floor containment. This shall be changed out periodically or as necessary to ensure no breech in containment.

17. Urethane caulking or foam will be used as necessary to seal poly containment to building and base systems.

18. NEGATIVE AIR MACHINES

2,200 CFM negative air machines (NAM's) will be utilized to create a negative pressure environment within the NPE, which will be monitored by a manometer adjacent to the P/MDU. The NAM calculations are as follows:

At least 1 NAM + 1 back-up NAM will be installed in each section of the scaffold enclosures. The NAM calculations are based on the entire scaffold enclosure volume as follows:

333 LF X 38' Average Height X 3.5' width = 44,289 FT^3
44,289 FT^3 X 4 air changes/hr = 177,156 FT^3
177,156 FT^3 / 60 minutes = 185 CFM
2,953 CFM / 1,540 CFM (2,200 @ 70% efficiency) = **1.9 NAM's**
CGI will use 4-units / work area or more if necessary.

21. SCAFFOLD PLANKING

CGI's intent is to use steel and aluminum planking systems for our work.

22. DISPOSAL PLAN

CGI has contracted with Kleen Environmental to profile all waste generated within the containment. With the caveat that if tests more favorably than schedule D facility we'll dispose pursuant to all applicable regulations.

28. SPILL RESPONSE

CGI acknowledges 761 Subpart G – Spill Cleanup Policy.

COPPERSLAG MSDS

Product and Company Identification	Product Name	Copper Slag
	No	GSR - SDS 005
	Manufacturer Information	Manufacturer's Name PT. Smelting Gresik Smelter and Refinery Address Desa Roomo, Kecamatan Manyar PO. Box 555 Gresik 61151 Jawa Timur - Indonesia Telephone Number : 62-31-397-6458/59 Fax Number : 62-31-397-6460
Composition/ Information on Ingredients	Chemical formula	$FeO\text{-}SiO_2\text{-}Al_2O_3\text{-}CaO$
	Element and Content	FeO : 45 ~ 55 % SiO_2 : 30 ~ 38 % CaO : 3 ~ 7 % Al_2O_3 : 1 ~ 5 %
	CAS No	-
Hazard Identification	Non hazardous material	
First Aid Measures	Inhalation	None
	Eye Contact	Rinse thoroughly with water. Seek medical attention for abrasion
	Skin Contact	Wash with soap and water
	Ingestion	Seek medical attention for discomfort
Fire Fighting Measures	Flash point and method	None
	Flammable Limits	Not Combustible
	Fire fighting equipment	This product is not a fire hazard
Accidental Release Measures	Land Spill	Clean up spilled material
	Water Spill	Clean up spilled material
Handling and Storage	Handling	It is safe to handle copper slag, however recommended to use personal protection
	Storage	Open stock yard

Exposure Controls / Personal Protection	Exposure Controls	-
	Personal Protection	
	• Respirator Protection	Under ordinary condition no respiratory protection is required. Wear respirator/dust mask when exposed to dust above exposure limits
	• Eye Protection	Wear glasses or safety goggles to prevent contact with eyes
	• Skin Protection	Use gloves, shoes and protective clothing to prevent skin contact
Physical And Chemical Properties	Physical State	Solid
	Color	Grainy
	Odor	Odorless
	Boiling point	-
	Melting point	around 1200° C
	Specific gravity	
	• True	3.5-3.7
	• Apparent	1.0-2.1
	Solubility in Water	-
Stability and Reactivity	General	Product is stable
	Dust explosion	None
	Ignition (reactivity of spontaneous ignition and water)	None
	Oxidize ability	None
	Combustibility	None
Toxicological Information	Skin corrosiveness	No
	Stimulation (skin and eyes)	No

	Acute Toxicity (including lethal dose 50)	No
	Sub-acute toxicity	No
	Chronic toxicity	No
	Cancer field	No
	Mutation field (microorganism & abnormal chromosome)	No
	Genital Toxicity	No
Ecological Information	Decomposition	There is no problem
	Accumulation	There is no problem
	Fish toxicity	There is no problem

Disposal Considerations	Dispose in landfill in accordance with all applicable regulation. Any disposal practice must be in compliance with local regulations	
Transport Information	-	
Regulatory Information	-	
Other Information	Abbreviation CAS No	Chemical Abstract Service Number

back to top -product

Green Diamond Sand Products
Abrasives Spec Sheet

Green Diamond Abrasives is fused magnesium ortho silicate, formed from molten lateritic ore and granulated by quenching. The quenching process produces and amorphous non-crystalline form of hard durable granule. Green Diamond Sand is non metallic and chemically inert.

Green Diamond Abrasives are manufactured in the U.S.A.

Materials Properties
Shape: Angular to Sub Angular
Hardness: 7 on the Mohs hardness scale
Color: Green to Gray
Specific Gravity: 3.3
Bulk Density: 85 to 105 lb. Per Cu. Ft.
Certifications: QPL Mil 22262 b (SH), CARB Title 17, AASHTO (T104-90-T12-87)
Contains no free silica
Product Specifications: See spec sheets also custom blending available
Packaging: Jumbo bags, 100 and 50 lb. paper bags
Bulk: Rail covered hoppers and trucks pneumatic or container type

Typical Analysis

Silicon Dioxide	50.9
Magnesium Oxide	32.8
Iron Oxide	11.7
Aluminum Oxide	1.2

Environmental: ***Green Diamond Abrasives*** meet the TCLP (40 CFR 261.24a) Criteria prior to its use.
Green Diamond Abrasives contain no heavy metals exceeding the levels of the TCLP.

GREEN DIAMOND SAND PRODUCTS

ABRASIVE PRODUCTS

(1636, 2050, 3060)

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION		HMIS
Manufacturer's Name:	Green Diamond Sand Products	Health - O
Telephone:	(541) 874-3111	Flammability - O
Address:	PO Box D, Riddle, OR 97469	Reactivity - O
Date Prepared:	August 1, 2013	Protective Gear - K

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components (Specific Chemical ID - Common Names)	CAS No.	ACGIH TLV	OSHA PEL
SiO_2 (Silicates)	112926-00-8	10 mg/m3	10 mg/m3
MgO (Magnesium Oxide)	1309-48-4	10 mg/m3	10 mg/m3
Fe_2O_3 (Iron Oxide)	1309-37-1	10 mg/m3*	10 mg/m3
Al_2O_3 (Aluminum Oxide)	1344-28-1	10 mg/m3	10 mg/m3
CaO (Calcium Oxide)	1305-78-8	2 mg/m3	5 mg/m3
Ni (Nickel)	7440-02-0	1 mg/m3	1 mg/m3
Cr_2O_3 (Chromium Oxide)	1308-38-9	10 mg/m3*	15 mg/m3*

*Regulated as for nuisance particulate (dust).

TYPICAL ANALYSIS:

SiO_2	50.2%
MgO	31.4%
Fe_2O_3	15.9%
Al_2O_3	1.6%
CaO	0.7%
Ni + NiO	<.1%
Cr_2O_3	.1%
Trace Elements & Compounds (total)	1.5%
TOTAL	99.8%

*All SiO_2 reported in Green Diamond materials is in the form of silicates and contains **no** crystalline silica. Crystalline silica is the only form of silica suspected of being carcinogenic.*

SECTION 313 SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372):

CAS #	Chemical Name	Percent by Weight
7440-02-0	Nickel	<.1%

This information should be included in all MSDSs that are copied and distributed for this material.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point:	NA
Vapor Pressure (mm Hg.):	NA
Vapor Density (AIR = 1):	NA
Specific Gravity (H2O = 1):	3.0
Melting Point:	2,650 Deg. F
Evaporation Rate:	NA
Solubility in Water:	Not soluble in water
Appearance and Odor:	Green, Gray granular, no odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point:	NA
Flammable Limits:	NA
Extinguishing Media:	NA
Special Fire Fighting Procedures:	None
Unusual Fire & Explosion Hazards:	None

SECTION V - REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	None
Incompatibility (materials to avoid):	None
Hazardous Decomposition or By-Products:	None
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	None

SECTION VI - HEALTH HAZARD DATA

Route(s) of Entry:	Inhalation?	Yes
	Skin?	No
	Ingestion?	No
Health Hazards (Acute & Chronic):		No specific health hazards; should avoid specified limits for compounds listed in Section II.
Carcinogenicity:	NTP?	No
	IARC Monographs?	No
	OSHA Regulated?	Yes, control for compounds in Section II and for nuisance dust.
Sign & Symptoms of Exposure:		Typical of over exposure to nuisance dust.
Medical Conditions Generally Aggravated by Exposure:		Respiratory conditions.
Emergency & First Aid Procedures:		As relevant for over exposure to nuisance dust.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING & USE

Steps to be Taken in Case Material is Released or Spilled:	Clean up with broom or vacuum.
Waste Disposal Method:	Follow federal, state, and local regulations for disposal as in inert solid waste.
Precautions to be Taken in Handling & Storing:	No specific precautions.
Other Precautions:	None

SECTION VIII - CONTROL MEASURES

Respiratory Protection (Specify Type):	NIOSH/OSHA/MSHA approved particulate filter respirator.
Ventilation:	Yes
Local Exhaust:	Yes
Mechanical (General):	Use to meet TLV requirement if dust is generated.
Special:	None
Other:	None
Protective Gloves:	Yes, if handling.
Eye Protection:	Yes, safety glasses.
Other Protective Clothing or Equipment:	Appropriate apparel.
Work/Hygienic Practices:	Use material for the purpose intended and incorporate methods of dust control that are effective in maintaining airborne dust concentrations within the TLV.

NOTICE

Fiberlock TECHNOLOGIES

PRODUCT DATA SHEET

Piranha 4

Solvent Gel

Product Description

5740

Piranha 4 is a biodegradable, solvent-based gel formulated to remove multiple coats of lead-based paint. This fast acting, lemon scented, formula starts removing most paints and stubborn coatings in less than one hour, without the use of dangerous chlorinated solvents, caustics or methylene chloride. Gel formulation yields maximum coverage per gallon and has excellent resistance to sagging, enabling it to cling to vertical and overhead surfaces. Piranha 4 has a very slow rate of evaporation keeping it active for hours. Piranha 4 is a unique solvent formulation ideally suited for paint removal from historically significant architectural components since it does not discolor or raise wood grain or require neutralization. Piranha 4 can be used on virtually any substrate to remove oil based paint, latex paint, elastomeric paint, cementitious asbestos paint, epoxy and urethane. Piranha 4 is ideal for use on substrate metals like copper that are reactive with caustic alkaline paint removers.

Application Information

SURFACE PREPARATION

Warning! If you scrape, sand, or remove old paint from any surface, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a NIOSH approved respirator to control lead exposure. Carefully clean up with a wet mop or HEPA vacuum. Before you start, find out how to protect yourself and your family by contacting the U.S. EPA/Lead Information Hotline at 1-800-424-LEAD (5323) or log on to www.epa.gov/lead.

Protect all surfaces not being stripped with polyethylene sheeting. For interior use, open windows and doors or use other means to assure a constant supply of fresh moving air during use. Ideal working temperature is between 65-85°F; not recommended when substrate temperature is below 60°F. Avoid direct sunlight.

APPLICATION TOOLS

Apply Piranha 4 with brush, roller or airless spray equipment.

Brush: Synthetic, nylon or polyester bristle
Roller: Synthetic fiber 3/8" nap or longer
Spray: .019 to .021 tips

PRODUCT APPLICATION

For best results, perform a test patch to determine the appropriate dwell time required to remove the existing paint system. The length of time required to remove a paint system is dependent on the application temperature, and the thickness and type of paint being stripped. If Piranha 4 is to be left for an extended period of time, cover with polyethylene sheeting. Piranha 4 can be applied using a brush, roller or airless sprayer.

Be certain that all uneven or irregular surfaces receive adequate coverage. When Piranha 4 has penetrated to the substrate, scrape the softened paint residue.

Allow the surface to dry before lockdown of residual lead-based paint or dust with Lead Shield®. Contact Fiberlock Technologies for detailed application instructions.

COVERAGE

Smooth Surfaces: 125 ft²/gal.
Porous Surfaces: 50-100 ft²/gal.

CLEANUP

Clean tools and drippings with warm soapy water. Collect all waste in a plastic bag or drum. Properly dispose of waste and wastewater in accordance with Local, State and Federal regulations. Keep container closed when not in use. If practical, filter wastewater in accordance with a federally or locally accepted method to minimize the amount of waste which must be disposed of as hazardous.

PRECAUTIONS

Store in a dry place at temperatures between 40°F (4.5°C) and 90°F (32°C). Protective clothing should be worn. Wear rubber gloves. Wear eye protection at all times. Face and head protection should be worn when working at face level or overhead.

FIRST AID

EYE: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyes open. Get medical attention.

Properties

Product Specifications

Color:	Blue
Odor:	Mild Solvent Odor
Flash Point:	>212°F
pH:	7.0-8.0
Shelf Life:	36 Months Min. (Original Sealed Container)

Coverage

Smooth Surfaces:	125 ft²/gal
Porous Surfaces:	50-100 ft²/gal

Performance

Specific Gravity:	1.06 lbs/gal
Activation Time:	30 minutes
Minimum Activation Temp:	40°F

Available Package Sizes

5 gallon containers

Weight Per Gallon ± .5 lbs:	10.7 lbs/gal

Piranha 4

PRODUCT DATA SHEET

Solvent Gel

5740

Application Information

SKIN: Remove contaminated clothing and shoes. Flush skin with water. Follow by washing skin thoroughly with soap and water. If irritation occurs, get medical attention. Do not reuse clothing until cleaned.

INGESTION: If ingested, DO NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. Get medical attention.

INHALATION: Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing.

SUPPLEMENT HEALTH INFORMATION: Overexposure may cause blurring vision.

CAUTION!
KEEP OUT OF REACH OF CHILDREN.
FOR PROFESSIONAL APPLICATORS ONLY!
OVER EXPOSURE MAY CAUSE BLURRING OF VISION.
Do not take internally. Close container after each use.
Keep from freezing.
Store between 40°F (4.5°C) and 90°F (32°C)
24 hour Emergency "CHEM-TEL" - 1-800-255-3924

For Technical Information call 800.342.3755

Fiberlock Technologies, Inc. • 150 Dascomb Rd • Andover, MA 01810 • www.fiberlock.com • 800.342.3755

MATERIAL SAFETY DATA SHEET

MSDS DATE: 11/27/13

PIRANHA® 4

Per OSHA-recommended ANSI Z400.1-2004 standard format & in accordance with European standard format

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Piranha® 4
Product Description: Lemon Scented NMP Solvent Gel Paint Remover
Product Code: 5740
Manufacturer: Fiberlock Technologies, Inc.

Address:
Fiberlock Technologies
150 Dascomb Road
Andover MA, 01810

Contact Info:
Tel: (800) 342-3755
Fax: (978) 475-6205

Emergency Phone: 24 Hour Contact: CHEM-TEL: (800) 255-3924 (Contract Number: MIS0001450)
INTERNATIONAL 24 HOUR EMERGENCY Phone: 813-248-0585

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous:

Chemical Name	CAS#	Percent	OSHA PEL	ACGIH TLV
1 - N - Methyl-2-Pyrrolidone	872-50-4	45 - 50	Not Established	Not Established
2 - Dimethyl Adipate	627-93-0	40 - 45	Not Established	Not Established

This product contains N - Methyl-2- Pyrrolidone which is subject to reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains N - METHYL-2- PYRROLIDONE which is known to the state of California to cause reproductive harm.

SECTION 3: HAZARDS IDENTIFICATION

Potential Health Hazards:

Inhalation health risks and symptoms of exposure: If mists or vapors are generated at high concentrations, may cause pallor, nausea, anesthetic or narcotic effects, blurred vision and irritation of the upper respiratory passages.

Skin and eye contact health risks and symptoms of exposure: Skin: This material may cause mild skin irritation. Prolonged or repeated contact may cause redness, cracking and blistering of skin. Eye contact can cause irritation. Direct contact with the liquid or exposure to vapors or mists may cause stinging, tearing, redness and blurred vision.

Skin absorption health risks and symptoms of exposure: Due to low evaporation rate, components can be absorbed through skin causing numbness and blurred vision.

Ingestion health risks and symptoms of exposure: Ingestion can cause severe internal irritation.

Health hazards (chronic): N-Methyl-2-Pyrrolidone: a component of this product was reported to be fetotoxic and to increase the incidence of skeletal abnormalities when administered dermally to rats at a dose of 750 mg/kg during gestation (fund. and appl. tox 2: 73-6, 1982).

Carcinogenicity: NTP: No IARC Monographs: No OSHA Regulated: No

Medical conditions generally aggravated by exposure: NONE

SECTION 4: FIRST AID MEASURES

Eyes: Flood with plenty of water with eye lids held open for at least 15 minutes and get medical attention promptly .

Skin: Wash thoroughly with soap and water. Thoroughly launder contaminated clothing before reuse. If irritation and redness persists, see physician.

Ingestion: Keep person warm and quiet get medical attention. Immediately give two glasses of water if conscious.

Inhalation: If illness occurs, remove patient to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, start artificial respiration. Call physician immediately.

SECTION 5: FIRE-FIGHTING MEASURES

Product is non-combustible

Flash point:

F: 200°F
C: 93.3°C

Autoignition Temperature:

F: Not Established
C: Not Established

Flammable Limits in Air:
(% BY VOLUME)

UPPER: Not applicable
LOWER: Not applicable

Extinguishing Media:

Use extinguishing media appropriate for surrounding fire

Water Spray	OK
Carbon Dioxide	OK
Foam	OK
Dry Chemical	OK
Halon	NO
Other	N/A

SPECIAL FIRE FIGHTING PROCEDURES: Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment. Cool tank container with water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product may burn, but will not ignite readily.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures:

Review section IV- unusual fire and explosion hazards. Small spills: Wipe or scrape up any material. Wash area thoroughly with detergent and water; ventilate adequately with good fresh air movement at floor level. Large spills: Wear proper protective equipment. Stop spill at source, dike area of spill to keep from spreading and keep out of ground water and streams. Transfer material to metal containers. Absorb remainder with sand, clay, earth, floor absorbent, or other material and shovel into containers. Then wash area thoroughly with water and detergent. Ventilate adequately with good fresh air movement at floor level. Do not restart pilot lights or operate electrical devices or other sources of sparks, flames or heat until all vapors (odors) are gone.

Personal Precautions: Do not get in eyes. Do not take internally. Avoid skin contact. Prevent prolonged or repeated breathing of vapor or spray mists. Keep unnecessary people away. Floor may be slippery, use care to avoid falling. Remove all sources if ignition. Ventilate the area. Remove with inert absorbent.

SECTION 7: HANDLING AND STORAGE

Handling and Storage:

Precautions to be taken in handling and storing: Store in cool place, out of hot sun and below 100°F. All containers are subject to damage in storage and transit. Damaged containers may start leaking immediately or at a later time. Do not store where vapors may come in contact with flames, sparks or heat.

Other Precautions: Avoid contact with material. Do not eat, drink or smoke when handling this material.

Maximum Storage Temperature: 100°F (38°C), minimum 35°F (2°C).
Keep closure tight and containers upright to prevent leakage.

Precautionary labeling: KEEP FROM FREEZING".
Product is non-combustible.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Precautions:
Use only with adequate ventilation.

Work Hygienic Practices: Avoid contact with skin. Do not get in eyes. Do not take internally. Avoid breathing vapors or spray mists.

Ventilation: Use local exhaust to control vapors.

Respiratory Protection: Approved organic vapor respirator, If vapors or mists are generated.

Eye Protection: Chemical goggles or safety glasses with side shield.

Skin Protection: For repeated or prolonged exposure, neoprene gloves are recommended.

Other Protective Equipment: N/A

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Viscous liquid	**Solubility in Water:**	Total
Odor:	Sweet odor	**Color:**	Light Blue
Boiling Point:	200°F	**Viscosity @ 77°F:**	N/A
Evaporation Rate: (Butyl Acetate=1)	Slower	**Vapor Density (AIR = 1) @ 68°F:**	Heavier
Vapor Pressure:	<1 mm Hg @ 68 F	**Specific Gravity (H2O = 1) @ 68°F:**	1.04
pH	7.0-8.0	**Percent Volatile**	98+

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: (Material to Avoid): Strong oxidizing agents (E.G. Nitric acid, permanganates, Etc.) Strong Alkalies (E.G. NAOH Ammonia, Etc.), Strong acids (E.G. HCL, Sulfuric, Etc.)

Hazardous Decomposition or By-Products: Not Established

Hazardous Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological Information:

Health hazards (chronic): N-Methyl-2-Pyrrolidone: a component of this product was reported to be fetotoxic and to increase the incidence of skeletal abnormalities when administered dermally to rats at a dose of 750 mg/kg during gestation (fund. and appl. tox 2: 73-6, 1982).

SECTION 12: ECOLOGICAL INFORMATION

Ecological Information:
No Data Available

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Dispose of in accordance with local, state and federal regulations. This product is not considered a hazardous waste under current RCRA regulations.

SECTION 14: TRANSPORT INFORMATION

U.S. Department of Transportation

Hazard Class: "Non Regulated"

SECTION 15: REGULATORY INFORMATION

U.S. Federal Regulations:

TSCA (TOXIC SUBSTANCE CONTROL ACT): The intentional ingredients of this product are listed.

SARA TITLE III (SECTION 312): Immediate/Health

SARA TITLE III (SECTION 313): This product contains N - Methyl-2- Pyrrolidone which is subject to reporting requirements of section 313 of Title 313 of Title III of The Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986. This product contains a chemical(s) known to the state of California to cause cancer, birth defects, or other reproductive harm.

Pennsylvania Substance List: N - Methyl-2- Pyrrolidone (872-50-4)

New Jersey Right to Know Hazardous Substance List: N - Methyl-2- Pyrrolidone (872-50-4)

SECTION 16: OTHER INFORMATION

Judgement of potential hazards of this product is based on information available about individual components listed under section II - Ingredients. Direct testing of mixture has not been done. Flash point has been tested. Information given herein is believed to be accurate and is given in good faith; however, no warranty either expressed or implied is made. It is strongly suggested that users confirm in advance of need that the information is current and applicable to their situations.

To comply with New Jersey DOH Right-To-Know labeling law (NJAC 8:59 – 5.1 & 5.2)

CAS. No.:	CHEMICAL INGREDIENTS
872-50-4	N-Methyl-2-Pyrrolidone
627-93-0	Dimethyl Adipate

HMIS HAZARD RATING			
Health 1	Flammability 1	Physical Hazard 0	Personal Protection C
HAZARD INDEX: 0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe			
PERSONAL PROTECTION CODE:			
C = Safety Glasses, Gloves, Synthetic Apron			

This company cannot anticipate all conditions of handling and use of this product. Therefore, this company accepts no responsibility for results obtained by the application of this information, or the safety and suitability of our products either alone or in combination with other products. It is the responsibility of the user to provide a safe workplace, using the health and safety information contained herein as a guide. This company will accept no liability for damages or loss incurred from the improper handling and use of this product.

Catch Basin, Manhole and Drain Summary
Rainier Commons/Former Rainier Brewery
Seattle, Washington

Location (Bldg. # / Tank farm/ Roof)	Storm / combined/sanitary	MH / Drain Lid Description	Dimensions (ft, in)			Grate removable Y /N	Condition	Pipes			Observations			Surrounding area / Comments
			L	W	D			In /Outlet	Dia. (in)	Orient.	sediment	paint chips	other	
CB 2*	Storm	Steel Grate	2.4'	2.1'	3.4'	Y	Good	Outlet	4"Green PVC	South	~ 0.5"			asphalt pavement; traffic area
CB 3*	Storm	Steel Grate	2'	1.7'	4.7'	Y	Good	Inlet Inlet Outlet	4"Green PVC 4"Green PVC 6 " Cast iron	North South West	4-6"			Site Plan ID - BNSF CB 2, asphalt pavement; traffic area
CB 6*	Storm	Steel Grate	2.2'	1.9'	4.3'	Y	Good		6" Cast iron 3" Cast iron	East South	2.1'			Tank Farm ID - CB2; with sock installed Concrete pavement and brick tile
CB 7*	Storm	Steel Grate	2.2'	2'	4.25'	Y	Good	Outlet	6" PVC	North	1.35'			Tank Farm ID - CB6; with sock, with sediment on concrete pavement
CB 8*	Storm	Steel Grate	2.3'	2'	3.05'	Y	Good	Outlet	6" Cast iron	West	1.15'			Tank Farm ID - CB4; without sock, concrete pavement, constr. Material adj. to CB
CB 9*	Storm	Steel Grate	2.3'	2'	4.3'	Y	Good		6" Green PVC 6" PVC 6" Black plastic	West South East	3'			Tank Farm ID- CB5; with sock , observed bentonite grout in sock Sediment on concrete pavement, constr. Mat. and vegetation adj.
CB 10*	Storm	Steel Grate	2.3'	2'	2.9'	Y	Good	Outlet	6" Cast iron	West	10"			Tank Farm ID CB1; with sock installed, sediment on Brick Tile, constr. Mat. surrounding
CB 11*	Storm	Steel Grate	2.3'	2'		Y	Good	See comments						Tank Farm ID - CB3; with sock; unable to access - construction wall supports on grate
CB 18*	Storm	Steel grate	2.2'	1.9'	5'	Y	Good	Inlet Outlet	8" Green PVC 8" Green PVC	South North	0.75'			Asphalt pavement; standing water in CB
CB 19*	Storm	Steel grate	2.2'	1.9'	5.2'	Y	Good	Outlet	8" Green PVC	East	0.3'	present		Asphalt pavement, stall
CB 20*	Storm	Steel Plate	2'	2'	10.9'	Y	Good	Outlet Inlet	12" Cast iron 12" Cast iron	South North	0.4'	present		Roof of Bldg adj. and North of Bldg 19
CB 22*	Storm	Steel Grate	2.1'	1.9'	4.32'	N	Good	Inlet Outlet	8" Green PVC 8" Green PVC	South North	6"		organics	Lid locked in place asphalt pavement, traffic area
CB 24*	Storm	Steel Grate	2.1'	1.9'	4.1'	Y	Good	Inlet Outlet	4" plastic 8" Green PVC	West East	6"			asphalt pavement, traffic area black corrugated plastic pipe
CB 26*	Storm	Steel Grate	2.2'	1.9'	4.5'	Y	Good	Outlet Inlet	8" PVC 4" plastic	West Southeast	6"			with sock black corrugated plastic

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Rainier Commons/Former Rainier Brewery
Seattle, Washington

Location (Bldg. # / Tank farm/ Roof)	Storm / combined/sanitary	MH / Drain Lid Description	Dimensions (ft, in)			Grate removable Y /N	Condition	Pipes			Observations			Surrounding area / Comments
			L	W	D			In /Outlet	Dia. (in)	Orient.	sediment	paint chips	other	
CB 1	Storm	Steel Plate w/holes	3'	2.6'	3'	Y	Good	Inlet Inlet Outlet	6" PVC 4" Cast iron 8" Cast iron	West SW North	~ 1 "			Site Plan ID -BNSF CB 1; concrete vault asphalt pavement; traffic area Brick fragments in vault
CB 4	Storm	Steel Grate	1.25'	1.25'	1.33'	Y	Good	Outlet	4"Green PVC	North	~ 1"			asphalt pavement; traffic area
CB 5	Storm	Circular steel Lid, with partial grate	See comments		5'	Y	Good		8" Cast iron 8" Cast iron 4" PVC 8" Cast iron	NE East West South	2-4 "	present	organics and debris	Lid diameter - 2.3'; Inside diameter- 5'; asphalt pavement; in parking stall and adj. to sidewalk
CB 12	Storm	Steel Grate	1'	1'	0.83'	Y	Good	Outlet	3" concrete	North	3.5"		organics	near concrete steps, broken concrete fragments in CB
CB 13	Storm	Steel Grate	10.5'	0.65'	1.1'	Y	Good	Outlet	6"	West end of Strip drain	1-2"	present	organics and debris	Strip drain, asphalt pavement surrounding
CB 14	Storm	Steel Grate	2.1'	0.65'	1'	Y	Good	Outlet	6"cast iron	West	4-5"	present		covered with metal plate and sediment
CB 15	Storm	Steel Grate	2'	0.65'	1'	Y	Good	Outlet	6" cast iron	West	1-2"	present		Asphalt pavement surrounding
CB 16	Storm	Steel Grate	2.1'	0.7'	0.8'	Y	Good	Outlet	8" cast iron	North	¼-½"	present		Asphalt pavement surrounding
CB 17	Storm	Steel Grate	0.8'	0.8'	1.5'	Y	Good	Outlet	4" PVC	West	trace	present		in a concrete walkway near entrance to Bldg 25
CB 21	Storm	Steel Grate	see comments			N	Good	Outlet	6" PVC	Northeast	trace	present		Brass roof drain cover - 6" diameter, screws have been stripped Paint chips adj. to drain and on roof
CB 23	Storm	Steel Stormceptor	10.4'	2.4'	4.7'	Y	Good	Outlet	6	North	3"			asphalt pavement, traffic area
CB 25	Storm	Steel Grate	88.15'	0.4'	1'	Y	Good	Outlet	4" PVC	North	¼ - 3 "	present	organics	¼ inch sediment at north end, 3" sed. at south end; strip drain located outside truck bay doors
CB 27	Storm	Steel Stormceptor	8.8'	2.4'	3.75'	Y	Good				3.75'			Plugged with Sediment

Catch Basin, Manhole and Drain Summary
Rainier Commons/Former Rainier Brewery
Seattle, Washington

Location (Bldg. # / Tank farm/ Roof)	Storm / combined/sanitary	MH / Drain Lid Description	Dimensions (ft, in)			Grate removable Y /N	Condition	Pipes			Observations			Surrounding area / Comments
			L	W	D			In /Outlet	Dia. (in)	Orient.	sediment	paint chips	other	
MH 1	Sanitary	"Sewer" MH Lid	See comments		2'	Y	Good	Inlet Outlet	6" Cast iron 4" Terra Cotta	NE South			plugged w/ bio solids &Toilet products	MH Lid diameter- 1.85' / inside diameter-3'; asphalt pavement; in parking stall
MH 2	Combined	"Sewer" MH Lid	4.5'	4.5'	5'	Y	Good	Inlet Inlet Inlet Outlet	8" Terra Cotta 8" Terra Cotta 12" Cast iron 12" Concrete	North North East West	trace			Lid diameter - 2.25', Site Plan ID - CB14 concrete and brick constr. traffic area, asphalt pavement parking stall
MH 3	Sanitary	"Sewer" MH Lid	3'	2.5'	5'	Y	Good	Inlet Outlet	12" Concrete 12" Concrete	East SW	trace			Lid diameter - 2.25' asphalt pavement; traffic area
MH 4	Sanitary	MH Lid	5'	5'	5.2'	Y	Good	Inlet Outlet	12"Cast iron 12"Cast iron	North/NE South/SW	trace			Lid Diameter - 2.3' 4" water line crosses above
MH 5	Combined	"Sewer" MH Lid			5.35'	Y	Good	Inlet Inlet Outlet	4" Cast iron 12" Concrete 12" Concrete	NE North South	trace			Lid diameter- 1.8'; 2.5' diameter brick and mortar vault traffic area, asphalt pavement
MH 6	Combined	Steel MH lid with handle	5.3'	5'	8.3'	Y	Good	Inlet Inlet Inlet Inlet Inlet Outlet	12" 12" 8" cast iron 8" cast iron 6" PVC 4" PVC 18" concrete	East SE East East South South West	trace	present		Steel Lid-1.85' diameter with handle Ladder present wooden lagging and concrete construction
MH 7	Storm	Circ. MH Lid	see comments		3.05'	Y	Good	Inlet Inlet	6" cast iron 4" Terra Cotta	East SW	3"	present		MH lid-1.5' diameter; covered with metal plate
MH 8	Storm	Steel MH Lid	3'	3'	5'	Y	Good		4" cast iron 6" cast iron 6"cast iron 6" cast iron	South South South West	1-2"	present		Circ. concrete vault casing MH Lid - 2' diameter Asphalt pavement surrounding
MH 9	Storm	Steel Lid	4.5'	3'	7'	Y	Good	Inlet Inlet	6" Cast iron 4" Cast iron 12" Cast iron 4" Cast Iron 4" Cast iron	North West South South	6"	present		Steel lid - 2.1' diameter Ladder present 12" Cast iron - capped paint chips and debris near MH lid
MH 10	Storm	Steel Lid	see comments		13.75'	Y	Good		4" Cast iron 6" Cast iron	North East	trace	present		Inside bldg. 20; Steel lid-2.15' diameter, Concrete casing- 2.5 ' in diameter paint chips at top of casing

Catch Basin, Manhole and Drain Summary
Rainier Commons/Former Rainier Brewery
Seattle, Washington

Location (Bldg. # / Tank farm/ Roof)	Storm / combined/sanitary	MH / Drain Lid Description	Dimensions (ft, in)			Grate removable Y /N	Condition	Pipes			Observations			Surrounding area / Comments
			L	W	D			In /Outlet	Dia. (in)	Orient.	sediment	paint chips	other	
D1		circ. cast iron drain	see comments			y	good							6 in. diameter cast iron drain. Surrounded by organic growth and sediment.
D2		circ. cast iron drain	see comments			y	good	outlet	1.75"	down				7.5" diameter cast iron drain. Partially covered in organic growth and sediment.
D3		circ. cast iron drain	see comments			y	good	outlet	1.75"	down				7.5" diameter cast iron drain. Partially covered in organic growth and sediment.
D4		circ. cast iron drain	see comments			y	good	outlet	1.75"	down				7.5" diameter cast iron drain. Partially covered in organic growth and sediment.
D5		circ. cast iron drain	see comments			y	good	outlet	1.75"	down				7.5" diameter cast iron drain. Partially covered in organic growth and sediment.
D6		circ. cast iron drain	see comments			y	good	outlet	1.75"	down				7.5" diameter cast iron drain. Inlet plugged with sediment and debris.
D7		circ. cast iron drain	see comments			y	good	outlet	1.75"	down				7.5" diamter cast iron drain. Partially covered in organic growth and sediment.
D8		circ. cast iron drain	see comments			y	good	outlet	1.75"	down				7.5" diameter cast iron drain. Partially covered in organic growth and sediment.
D9		circ. cast iron drain	see comments			y	good	outlet	1.75"	down				7.5" diameter cast iron drain. Partially covered in organic growth and sediment.
D10		circ. cast iron drain	see comments			y	good							6 in. diameter cast iron drain. Surrounded by organic growth and sediment.

MH - Manhole (access)
CB - Catch Basin (drainage)
D - Drain (drainage)
* - should be compatible with standard sized catch basin inserts

Roof Drain Summary
Rainier Commons/Former Rainier Brewery
Seattle, Washington

Building #	Influent downspout sources (sources that flow onto roof of building)	Effluent runoff sources (sources that flow from the roof)	Comments
3	DS1 (roof 4)	**RD1, RD2**	RDs appear to go into concrete slab into system
2	none	**RD5, RD4, RD3**	RD3 and RD4 appear to drain onto grass, RD5 drains into system
25	DS2 and DS3 (from stairwell section of bldg 25)	RD6, RD7, RD8, RD9, RD10, RD11, RD12	RD6-12 appear to collect and drain onto BLDG22 through DS4, old RD opening on S side of roof 2" above roof floor
22	DS4, DS5	DS6, DS7, DS8, **RD13, RD14**	DS6, DS7 drain onto BLDG6, DS8 drains onto BLDG7, RD13 and RD14 drain down to the ground and system
21 high point	DS9, DS11, RD16 and RD17 through DS10	**RD15**	RD15 drains down to ground into system
5A	DS12 (roof 5)	DS14	DS14 drains onto BLDG4
4	DS14	DS1	DS runs onto roof of building 3
6	DS6, DS7, DS15, DS16	**RD19, RD20**	RD19 and RD20 appear to collect and flow through pipes down to roof of building 9 and enter there. Breaks in the wall connect building 6 and 7.
7	DS8	**RD29, RD28**	RD27 and RD28 run down the S.side of building 7 and enter into building 18.
9	DS17	**RD21, RD22, RD23, RD24**	all roof drains enter into building 9, pipes from roof of building 6 also enter building 9
8		DS18, DS19	Flow onto lower part of building 8 (see plan drawing)
8 Low	DS18, DS19	**RD25, RD26**	roof drains enter building 8 low
18		**RD27, RD28, RD29, RD30, RD31, RD32, RD33**	RD 27 - 31 enter building 18 while RD32 and RD33 appear to enter combined system on ground
15		**RD34, RD35**	RD34, RD35 appear to enter combined system on ground
14		**RD36, RD37, RD38, RD39**	RD36-39 enter into building 14
13		**RD40, RD41, RD42**	RD 41 enters building 13, RD40 and RD42 enter drains on the side of the building
23		**RD45**	RD45 runs on side of building and drains into system
12		**RD44**	RD44 runs on side of building and drains into system, hole in wall on roof of building 12 appears to be location of old RD
11		**RD43**	RD43 runs on side of building and drains into system
10		**RD46**	RD46 runs on side of building and drains into system
5		DS12, DS15	runoff from building 5 flows onto building 5a and building 6

Bolded items drain into storm or combined sewer system
RD - Roof Drains, sources that go into storm or combined sewer
DS - Down Spouts, drainage from one roof down to another roof

mixture: $C_{12}H_{10-x}Cl_x$ [where x = 1 to 10] MW: ca. 258 (42% Cl ; $C_{12}H_7Cl_3$); ca. 326 (54% Cl ; $C_{12}H_5Cl_5$) CAS: Table 1 RTECS: Table 1

METHOD: 5503, Issue 2 **EVALUATION: PARTIAL** **Issue 1: 15 February 1984**
Revision #1: 15 August 1987
Issue 2: 15 August 1994

OSHA : 1 mg/m^3 (42% Cl); 0.5 mg/m^3 (54% Cl)
NIOSH: 0.001 mg/m^3/10 h (carcinogen)
ACGIH: 1 mg/m^3 (42% Cl) (skin); 0.5 mg/m^3 (54% Cl) (skin)

PROPERTIES: 42% Cl: BP 325 to 366 °C; MP -19 °C; d 1.38 g/mL @ 25 °C; VP 0.01 Pa (8 x 10^{-5} mm Hg; 1 mg/m^3) @ 20 °C
54% Cl: BP 365 to 390 °C; MP 10 °C; d 1.54 g/mL @ 25 °C; VP 0.0004 Pa (3 x 10^{-6} mm Hg; 0.05 mg/m^3) @ 20 °C

SYNONYMS: PCB; 1,1'-biphenyl chloro; chlorodiphenyl, 42% Cl (Aroclor 1242); and 54% Cl (Aroclor 1254)

SAMPLING

SAMPLER: FILTER + SOLID SORBENT (13-mm glass fiber + Florisil, 100 mg/50 mg)

FLOW RATE: 0.05 to 0.2 L/min or less

VOL-MIN: 1 L @ 0.5 mg/m^3
-MAX: 50 L

SHIPMENT: transfer filters to glass vials after sampling

SAMPLE STABILITY: unknown for filters; 2 months for Florisil tubes [1]

BLANKS: 2 to 10 field blanks per set

ACCURACY

RANGE STUDIED: not studied

BIAS: none identified

OVERALL PRECISION ($\hat{S}_{rT}$): not evaluated

ACCURACY: not determined

MEASUREMENT

TECHNIQUE: GAS CHROMATOGRAPHY, ECD (^{63}Ni)

ANALYTE: polychlorobiphenyls

DESORPTION: filter + front section, 5 mL hexane; back section, 2 mL hexane

INJECTION VOLUME: 4-µL with 1-µL backflush

TEMPERATURE-INJECTION: 250 to 300 °C
-DETECTOR: 300 to 325 °C
-COLUMN: 180 °C

CARRIER GAS: N_2, 40 mL/min

COLUMN: glass, 1.8 m x 2-mm ID, 1.5% OV-17/1.95% QF-1 on 80/100 mesh Chromosorb WHP

CALIBRATION: standard PCB mixture in hexane

RANGE: 0.4 to 4 µg per sample [2]

ESTIMATED LOD: 0.03 µg per sample [2]

PRECISION ($\bar{S}_r$): 0.044 [1]

APPLICABILITY: The working range is 0.01 to 10 mg/m^3 for a 40-L air sample [1]. With modifications, surface wipe samples may be analyzed [3,4].

INTERFERENCES: Chlorinated pesticides, such as DDT and DDE, may interfere with quantification of PCB. Sulfur-containing compounds in petroleum products also interfere [5].

OTHER METHODS: This method revises methods S120 [6] and P&CAM 244 [1]. Methods S121 [7] and P&CAM 253 [8] for PCB have not been revised.

REAGENTS:

1. Hexane, pesticide quality.
2. Florisil, 30/48 mesh sieved from 30/60 mesh. After sieving, dry at 105 °C for 45 min. Mix the cooled Florisil with 3% (w/w) distilled water.
3. Nitrogen, purified.
4. Stock standard solution of the PCB in methanol or isooctane (commercially available).*

* See SPECIAL PRECAUTIONS.

EQUIPMENT:

1. Sampler: 13-mm glass fiber filter without binders in a Swinnex cassette (Cat. No. SX 0001300, Millipore Corp.) followed by a glass tube, 7 cm long, 6-mm OD, 4-mm ID containing two sections of 30/48 mesh deactivated Florisil. The front section is preceded by glass wool and contains 100 mg and the backup section contains 50 mg; urethane foam between sections and behind the backup section. (SKC 226-39, Supelco ORBO-60, or equivalent) Join the cassette and Florisil tube with PVC tubing, 3/8" L x 9/32" OD x 5/32" ID, on the outlet of the cassette and with another piece of PVC tubing, 3/4" L x 5/16" OD x 3/16" ID, complete the union.
2. Personal sampling pump, 0.05 to 0.2 L/min, with flexible connecting tubing.
3. Tweezers.
4. Vials, glass, 4- and 7-mL, with aluminum or PTFE-lined caps
5. Gas chromatograph, electron capture detection (^{63}Ni), integrator and column (page 5503-1).
6. Volumetric flasks, 10-mL and other convenient sizes for preparing standards.
7. Syringe, 10-µL.

SPECIAL PRECAUTIONS: Avoid prolonged or repeated contact of skin with PCB and prolonged or repeated breathing of the vapor [9-11].

SAMPLING:

1. Calibrate each personal sampling pump with a representative sampler in line.
2. Break the ends of the Florisil tube immediately before sampling. Connect Florisil tube to Swinnex cassette and attach sampler to personal sampling pump with flexible tubing.
3. Sample at an accurately known flow rate between 0.05 and 0.2 L/min for a total sample size of 1 to 50 L.
   NOTE: At low PCB concentrations, the sampler was found to be efficient when operated at flow rates up to 1 L/min, for 24 hours [4]. Under these conditions, the limit of detection was 0.02 µg/m^3.
4. Transfer the glass fiber filters to 7-mL vials. Cap the Florisil tubes with plastic (not rubber) caps and pack securely for shipment.

SAMPLE PREPARATION:

5. Place the glass wool and 100-mg Florisil bed in the same 7-mL vial in which the filter was stored. Add 5.0 mL hexane.
6. In a 4-mL vial, place the 50-mg Florisil bed including the two urethane plugs. Add 2.0 mL hexane.
7. Allow to stand 20 min with occasional agitation.

CALIBRATION AND QUALITY CONTROL:

8. Calibrate daily with at least six working standards over the range 10 to 500 ng/mL PCB.
   a. Add known amounts of stock standard solution to hexane in 10-mL volumetric flasks and dilute to the mark.
   b. Analyze together with samples and blanks (steps 11 and 12).
   c. Prepare calibration graph (sum of areas of selected peaks vs. ng PCB per sample).
9. Determine desorption efficiency (DE) at least once for each lot of glass fiber filters and Florisil used for sampling in the calibration range (step 8). Prepare three tubes at each of five levels plus three media blanks.
   a. Remove and discard back sorbent section of a media blank Florisil tube.
   b. Inject known amounts of stock standard solution directly onto front sorbent section and onto a media blank filter with a microliter syringe.
   c. Cap the tube. Allow to stand overnight.
   d. Desorb (steps 5 through 7) and analyze together with working standards (steps 11 and 12).
   e. Prepare a graph of DE vs. µg PCB recovered.
10. Analyze three quality control blind spikes and three analyst spikes to ensure that the calibration graph and DE graph are in control.

MEASUREMENT:

11. Set gas chromatograph according to manufacturer's recommendations and to conditions given on page 5503-1. Inject sample aliquot manually using solvent flush technique or with autosampler.
    NOTE 1: Where individual identification of PCB is needed, a procedure using a capillary column may be used [12].
    NOTE 2: If peak area is above the linear range of the working standards, dilute with hexane, reanalyze and apply the appropriate dilution factor in calculations.
12. Sum the areas for five or more selected peaks.

CALCULATIONS:

13. Determine the mass, µg (corrected for DE) of PCB found on the glass fiber filter (W) and in the Florisil front (W_f) and back (W_b) sorbent sections, and in the average media blank filter (B) and front (B_f) and back (B_b) sorbent sections.
    NOTE: If $W_b > W_f/10$, report breakthrough and possible sample loss.
14. Calculate concentration, C, of PCB in the air volume sampled, V (L):

$$C = \frac{(W + W_f + W_b - B - B_f - B_b)}{V}, \text{ mg/m}^3.$$

EVALUATION OF METHOD:

This method uses 13-mm glass fiber filters which have not been evaluated for collecting PCB. In Method S120, however, Aroclor 1242 was completely recovered from 37-mm glass fiber filters using 15 mL isooctane [8,13,14]. With 5 mL of hexane, Aroclor 1016 was also completely recovered from 100-mg Florisil beds after one-day storage [1]. Thus, with no adsorption effect likely on glass fiber filters for PCB, 5 mL hexane should be adequate to completely extract PCB from combined filters and front sorbent sections. Sample stability on glass fiber filters has not been investigated. Breakthrough volume was >48 L for the Florisil tube at 75% RH in an atmosphere containing 10 mg/m ^{3} Aroclor 1016 [1].

REFERENCES:

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[3] Kominsky, J. Applied Ind. Hyg. 1 (4), R-6 (1986).
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[5] Hofstader, R. A., C. A. Bache, and D. J. Lisk. Bull, Environ. Contam. Toxicol., 11, 136 (1974).
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[10] Current Intelligence Bulletin 7, Polychlorinated Biphenyls (PCBs), U.S. Department of Health and Human Services, Publ. (NIOSH) 78-127 (1975).
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[13] Backup Data Report for S120, prepared under NIOSH Contract 210-76-0123, available as "Ten NIOSH Analytical Methods, Set 2," Order No. Pb 271-464 from NTIS, Springfield, VA 22161.
[14] NIOSH Research Report-Development and Validation of Methods for Sampling and Analysis of Workplace Toxic Substances, U.S. Department of Health and Human Services, Publ. (NIOSH) 80-133 (1980).
[15] Hutzinger, O., S. Safe, and V. Zitko. The Chemistry of PCBs, CRC Press, Inc., Cleveland, OH (1974).

METHOD REVISED BY:

James E. Arnold, NIOSH/DPSE; S120 originally validated under NIOSH Contract 210-76-0123.

Table 1. General Information.

Compound	CAS	RTECS
Polychlorinated Biphenyls	1336-36-3	TQ1350000
Chlorobiphenyl	27323-18-8	DV2063000
Aroclor 1016 (41% Cl)	12674-11-2	TQ1351000
Aroclor 1242 (42% Cl)	53469-21-9	TQ1356000
Aroclor 1254 (54% Cl)	11097-69-1	TQ1360000

Table 2. Composition of some Aroclors [15].

Major Components	Aroclor 1016	Aroclor 1242	Aroclor 1254
Biphenyl	0.1%	<0.1%	<0.1%
Monochlorobiphenyls	1	1	<0.1
Dichlorobiphenyls	20	16	0.5
Trichlorobiphenyls	57	49	1
Tetrachlorobiphenyls	21	25	21
Pentachlorobiphenyls	1	8	48
Hexachlorobiphenyls	<0.1	1	23
Heptachlorobiphenyls	none detected	<0.1	6
Octachlorobiphenyls	none detected	none detected	none detected

NVL's

HEALTH AND SAFETY PLAN (HASP)

for the

Rainier Common's Exterior Paint Removal Project

NVL Laboratories
4708 Aurora Ave North
Seattle WA 98103

NVL Project #: 2012-494

Version Date: May 26, 2014

The HASP is to be reviewed and updated by the CIH minimally after completion of an IPWP (Individual Phase Work Plan) and more frequently if the work changes. Updates are done as new tasks are implemented. The latest version date is posted at the NVL construction site office.

HEALTH AND SAFETY PLAN APPROVAL

NVL Laboratories (NVL) developed this Health and Safety Plan (HASP) for its use. NVL claims no responsibility for its use by others. This plan covers activities with the potential for exposure to hazardous materials during activities associated with the project.

The Contractor at the Site (CGI) has a HASP in operation at the site. The intent is to follow the procedures documented in CGI's HASP with NVL's HASP providing specifics and clarity for NVL operations.

With this said, NVL's HASP is written for the specific site conditions, purposes, dates, and personnel specified and must be amended as described in the document, particularly if conditions change. It is recognized that this is a living document and will be continuously improved and updated during the course of the project. At a minimum, this HASP is to be reviewed and updated by the CIH minimally after completion of an IPWP (Individual Phase Work Plan) and more frequently if the work changes. Updates are done as new task are implemented. As a result, even though initially approved as signed below, it is critical that the latest version of the HASP is used. The latest version date is posted at the NVL construction site office.

The HASP is not intended to address normal safety practices on the construction site or NVL's standard operating procedures that are covered in the Washington State Department of Labor and Industries Safety Standards for Construction Work (WAC 296-155).

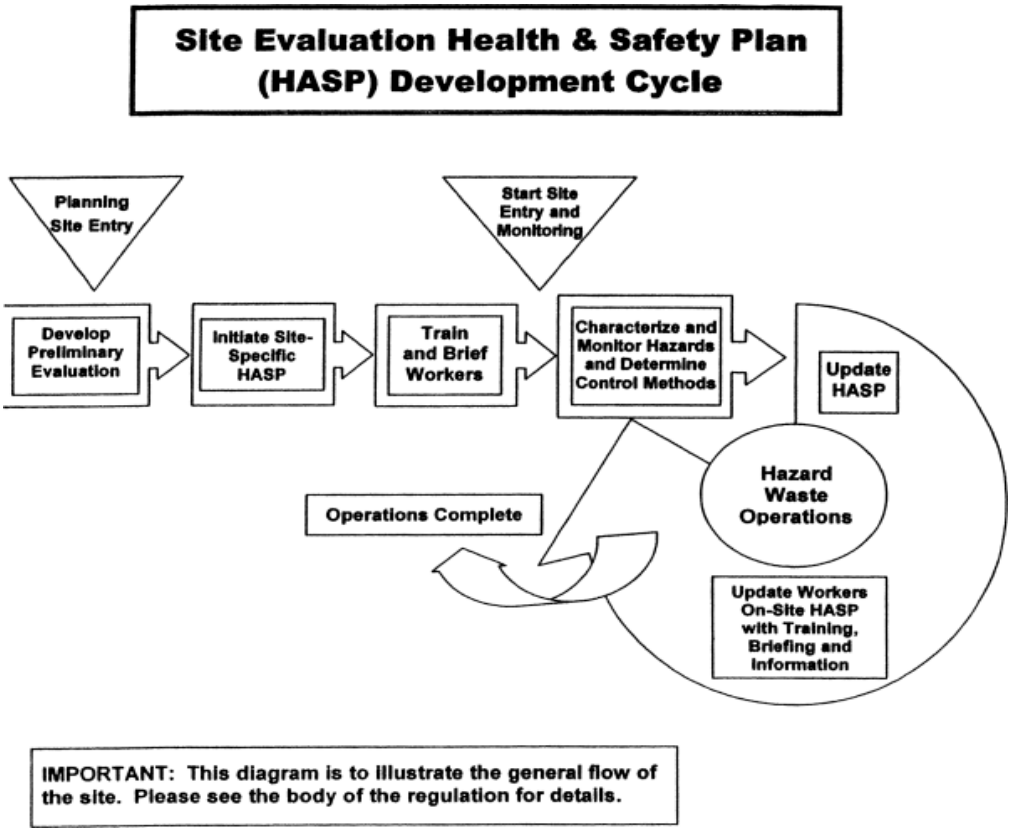
PROJECT CONTACTS AND EMERGENCY INFORMATION	
SITE LOCATION:	**3100 Airport Way South** **Seattle, WA 98134**
NVL JOBSITE ADDRESS:	**3100 Airport Way South** **Seattle, WA 98134**
NVL LABORATORIES, INC. (NVL) **KEY PERSONNEL** **HEALTH AND SAFETY** • **SITE SAFETY OFFICER**	**NVL Laboratories, Inc.** (NVL) 4708 Aurora Ave. N. Seattle WA 98103 Office: Phone: (206) 547-0100 Fax: (206) 634-1936
	Munaf Khan Project Manager/Laboratory Directory/President CELL: 206-914-4646 E-mail: Munaf.K@nvllabs.com
	Dave Leonard MSPH CIH Certified Industrial Hygienist (CIH) CELL: 206-498-0326 E-mail: catalystnw@comcast.net
	Marcus Gladden Site Safety Officer / Industrial Hygienist CELL: 206-819-4213 E-mail: Marcus.G@nvllabs.com
Project Site KEY PERSONNEL	**Vered Mizrahi** Project Manager : Rainier Commons 918 S Horton Street, Suite 1018 Seattle WA 98134 CELL: 206-948-2821 Office: 206-447-0263 E-mail: vered@arieldevelopment.com
	Mark Marcell, President Contractor: CGI Office: 425-487-2618 Cell: 206-718-5501 E-mail: markm@cgius.net
NEAREST HOSPITAL:	**Harborview Medical Center** 325 Ninth Avenue Seattle, WA 98104-2499 General Information: 206-744-3300 Emergency Department: 206-744-3074 Urgent Care, 206-744-5867
EMERGENCY FIRE AND AMBULANCE:	**Call 911**

EMERGENCY PROCEDURES	
Emergency Phone Number	**Call 911 for POLICE / FIRE / MEDICAL AID**
Jobsite Address:	**3100 Airport Way South** **Seattle, WA 98134**
NEAREST HOSPITAL: **(Map with directions on next page)**	**Harborview Medical Center** 325 Ninth Avenue Seattle, WA 98104-2499 General Information: 206-744-3300 Emergency Department: 206-744-3074 Urgent Care, 206-744-5867
FIRST AID KIT LOCATIONS	NVL Construction Site Office
SITE EVACUATION	In the event of an emergency situation such as fire, explosion, or significant release of toxic gases, project personnel in the field will be directed to evacuate the area. In the event of an emergency, personnel will gather at their pre-determined meeting point for a head count. The meeting point is in front of Tulley's Coffee (West Side). This location (or any change) will be communicated to the work crew(s) during the safety briefing prior to commencement of work activities and weekly thereafter.

1.0 INTRODUCTION

This site specific Health and Safety Plan (HASP) provides a general description of the levels of personal protection and safe operating guidelines expected of each NVL employee associated with the work being conducted under the control of Rainier Commons during the Exterior Paint Removal project.

It is recognized that this is a living document and will be continuously improved and updated during the course of the project. As described and shown in the following diagram from WAC 296-843-100, characterization and analysis of site hazards is an ongoing process:



In order to do this, HASP supplements will be generated as necessary to address any additional activities or changes in site conditions which may occur during field operations. Once generated, each Supplement will be reviewed and acknowledged by NVL, communicated to field personnel prior to the start of applicable work activities and appended to this HASP.

At a minimum, this HASP is to be reviewed and updated by the CIH minimally after completion of an IPWP (Individual Phase Work Plan) and more frequently if the work changes. Updates are done as new task are implemented. As a result, even though initially

approved as signed below, it is critical that the latest version of the HASP is used. The latest version date is posted at the NVL construction site office.

1.1 GENERAL

The provisions of this HASP are mandatory for all NVL personnel engaged in fieldwork associated with the Rainier Commons Exterior Paint Removal project. A copy of this HASP, any applicable HASP Supplements and applicable NVL safety documents shall be maintained on site and available for review at all times. Record keeping will be maintained in accordance with this HASP.

In the event of a conflict between this HASP and federal, state, and local regulations, workers shall follow the most stringent/protective requirements.

1.2 SCOPE OF HEALTH AND SAFETY PLAN

This HASP covers specific site activities that will be conducted by NVL personnel.

Site Investigation and Monitoring

Activities include, but are not limited to: the industrial hygiene and safety sampling and testing for air contaminants and material testing by NVL personnel in support of HASP activities. Other site investigation activities not specifically listed here will be covered by Health and Safety Supplements, which will be appended to this HASP as needed.

Other activities not specifically listed here will be covered by Health and Safety Supplements, which will be appended to this HASP as needed.

1.3 PURPOSE OF THE SITE SPECIFIC HASP

The information in this HASP has been developed in accordance with applicable standards and the project specification and is, to the extent possible, based on information available to date and is tailored to be site specific. The HASP is a living document and is to be constantly updated as conditions and knowledge of the work activities develop.

1. This site specific *Health and Safety Plan* (HASP) is required in the specification for the project to identify, evaluate and control safety and health hazards.

2. Also, as part of this project, NVL provides support to Rainier Commons with health and safety services, including an experienced Certified Industrial Hygienist to perform the duties of identifying and taking immediate actions to correct hazards found during the course of the project.

3. NVL's duties per this HASP is to assess safety hazards, conduct exposure monitoring and interpret laboratory data to provide the professional industrial hygiene, safety and laboratory services needed to support operations and assure compliance with Environmental and Health and Safety regulations

1.4 HASP REQUIREMENTS

The HASP includes the following requirements:

- **Communication** the contents of this HASP to all NVL personnel which includes at a minimum an initial briefing regarding health and safety procedures. During the briefing, employees shall be instructed on the following topics:
    - The nature of the hazardous materials at the site and the controls in place
    - The atmospheric monitoring program and equipment
    - Action levels and requirements, if exceeded
- **Elimination of unsafe conditions**, i.e. efforts to identify conditions that can contribute to an incident and to remove exposure to these conditions.
- **Scheduled formal review and update of the HASP.** To ensure this HASP maintains compliance with regulatory and specification requirements, and is serving its purpose to protect people and the environment, this HASP is to be reviewed and updated by the CIH minimally after completion of an IPWP (Individual Phase Work Plan) and more frequently if the work changes. Updates are done as new task are implemented. As a result, even though initially approved as signed below, it is critical that the latest version of the HASP is used. The latest version date is posted at the NVL construction site office.

2.0 PROJECT HEALTH AND SAFETY ORGANIZATION

PROJECT MANAGER

The Project Manager (PM) has overall management authority and responsibility for all NVL site operations, including safety. The PM will provide the site supervisor and NVL with the necessary work plans, staff and budgetary resources which are appropriate to meet the safety needs of the project operations.

PROJECT SITE SUPERVISOR

The Site Supervisor (SS) has the overall responsibility and authority to direct NVL work operations at the job site according to the provided work plans, this HASP and applicable THAs (Task Hazard Analysis forms). This includes:

- Discussing deviations from the work plan with the PM.
- Discussing safety issues with the PM and field personnel.
- Assisting with the development and implementation of corrective actions for site safety deficiencies.
- Assist the with the implementation of this HASP and ensuring compliance.
- Assist the with inspections of the site for compliance with this HASP.

At this project, the competent person for NVL is the SS who the Department of Labor and Industries (L&I) regulations define a "competent person" as one who is capable of identifying existing and predictable hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

NVL's INDUSTRIAL HYGIENE AND SAFETY SUPPORT

For this project NVL Laboratories (NVL) provides the professional industrial hygiene, safety and laboratory services needed to assess safety hazards, conduct exposure monitoring and interpret laboratory data to support operations and assure compliance with Environmental and Health and Safety regulations.

EMPLOYEES

Employee Responsibilities

Responsibilities of employees associated with this project include, but are not limited to:

- Understanding and abiding by the policies and procedures specified in the HASP and other applicable safety policies, and clarifying those areas where understanding is incomplete.
- Providing feedback to the NVL relating to omissions and modifications in the HASP or other safety policies.
- Notifying NVL of unsafe conditions and acts.

Employee Authority

The health and safety authority of each employee assigned to the site includes the following:

- The right to refuse to work and/or stop work authority when the employee feels that the work is unsafe, or where specified safety precautions are not adequate or fully understood.
- The right to refuse to work on any site or operation where the safety procedures specified in this HASP or other safety policies are not being followed.
- The right to contact NVL at any time to discuss potential concerns.

3.0 SITE HAZARDS

The project is to remove exterior paint that is known to contain PCBs. The methods to be used by CGI to remove the paint include abrasive blasting and chemical removal.

Other hazards also exist at the site and are categorized as construction hazards.

4.0 SITE CONTROL

GENERAL

The purpose of site control is to minimize potential contamination of workers and protect the adjacent area from the site hazards.

Controlled work areas will be established at each work location, and if required, will be established directly prior to the work being conducted. Diagrams designating specific controlled work areas will be provided by CGI, posted in the support area and discussed during the daily safety meetings. If the site layout changes, the new areas and their potential hazards will be discussed immediately after the changes are made.

5.0 SAFE WORK PRACTICES

STOP WORK AUTHORITY

- **Project Manager and Site Safety Officer**

  The PM and SS have the ultimate responsibility and authority to stop work if they determine if workplace conditions present an uncontrolled risk of injury or illness to employees. Resumption of safe operations is the primary objective AND operations shall not resume until NVL has concurred that workplace conditions meet acceptable safety standards.

- **Employees**

  All employees have the right and duty to stop work when conditions are unsafe and to assist in correcting these conditions.

6.0 TRAINING

HAZWOPPER training is required for workers at the site.

The CIH will work with PM to identify if additional training is required. Topics for training may include:

- **HASP training**

  Instruction on the contents of applicable portions of this HASP and any supplemental health and safety information developed for the tasks to be performed, including:
  - Information about the potential routes of exposure, protective clothing, precautionary measures, and symptoms or signs of chemical exposure and heat stress.
  - Awareness of task-specific physical hazards and other hazards that may be encountered during site work. This includes any specific required training for health and safety.
  - Awareness of emergency and evacuation procedures.

- **Personal Protective Equipment (PPE)**

- **Respiratory Protection**

- **Hazard Communication Program**

7.0 PERSONAL PROTECTIVE EQUIPMENT

NVL's existing Personal Protective Equipment (PPE) procedures/program will be followed at this site, which includes training in its use.

Priority for control of site hazards will be eliminated or reduced to the greatest extent possible first through administrative and/or engineering controls along with safe work practices prior to relying on personal protective equipment. The goal, if PPE is used, is that it is as a back-up if the other controls are ineffective.

General Information about Personal Protective Equipment		
Type	**Material**	**Information**
Safety Vest	High Visibility	Must be visible from all sides
Boots		
Safety Glasses		ANSI Approved
Hearing Protection	Ear Plugs and/or Muffs	When in noisy environments
Gloves	Any	When working with sharp objects or powered equipment
Protective chemical gloves	Inner: Best Safety N-DEX Outer: Heavy duty Nitrile, PVC, Neoprene, and Viton	When in contact with potentially contaminated materials

Protective Chemical Overalls	Tyvek	When clothing may contact contaminated materials
Protective Chemical Boots	Rubber, Neoprene, PVC	If needed
Level C Respiratory Protection	Full Face Respirator	If in containment
Face shield	Debris/splash shield	If needed
Cold weather gear	Hard hat liner, hand warmers, and insulated gloves	If needed

8.0 GENERAL SAFETY AT THE SITE

Smoking, Eating, or Drinking

Smoking, eating and drinking will not be permitted inside any controlled work area at any time. Field workers will first wash hands and face immediately after leaving controlled work areas (and always prior to eating or drinking).

Personal Hygiene

The following personal hygiene requirements will be observed:

- Water Supply: A water supply meeting the following requirements will be utilized:

- *Potable Water* - An adequate supply of potable water will be available for field personnel consumption. Potable water can be provided in the form of water bottles, canteens, water coolers, or drinking fountains. Where drinking fountains are not available, individual-use cups will be provided as well as adequate disposal containers. Potable water containers will be properly identified in order to distinguish them from non-potable water sources.

- *Non-Potable Water* - Non-potable water may be used for hand washing and cleaning activities. No potable water will not be used for drinking purposes. All containers of non-potable water will be marked with a label stating:

  Non-Potable Water
  Not Intended for Drinking Water Consumption

Heat and Cold Stress

Heat and cold stress may vary based upon work activities, PPE/clothing selection, and weather conditions. To reduce the potential of developing heat/cold stress, NVL will be aware of the signs and symptoms of heat/cold stress and watch fellow employees for signs of heat/cold stress.

9.0 RECORDKEEPING

Records shall established and maintained of all necessary and prudent monitoring activities as described in the appendices.

Copies of air sampling results will be maintained in the project files.

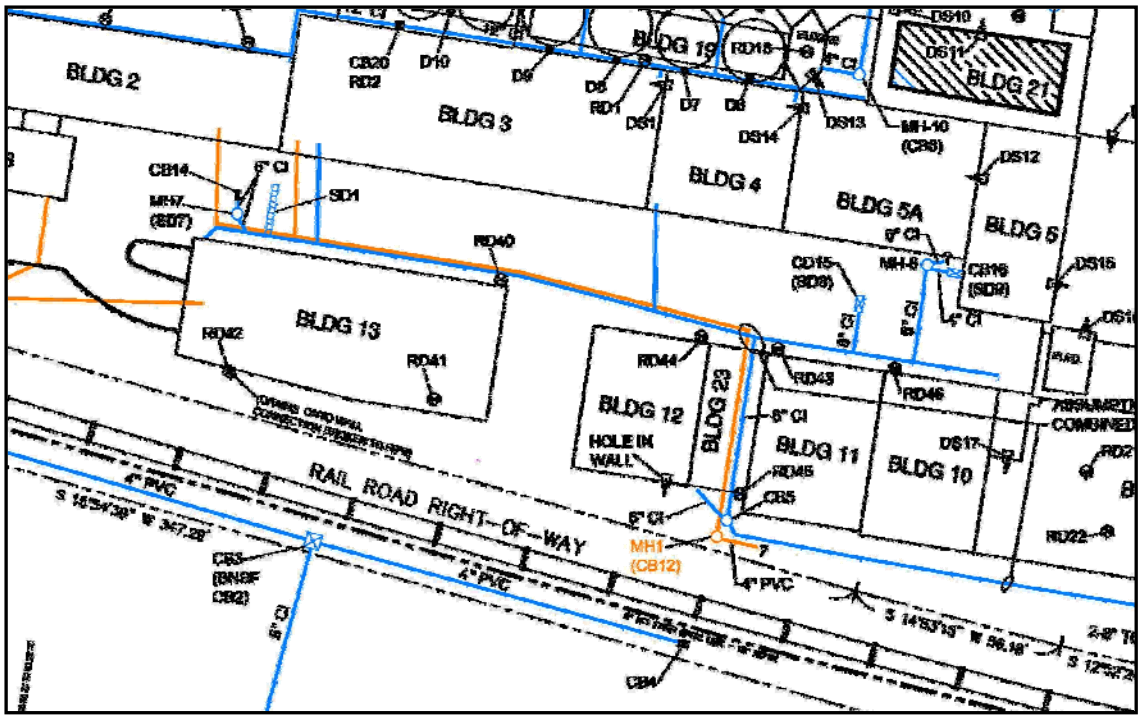
Addendum Item # 31

Roof Drain Protection Plan Phase 1

The purpose of this document is to clarify the protection plan for the roof drain in building 13, 10 and 11 to Exhibit 10 in Phase 1 IPWP".

RD #	Location	Action/Protection	Notes
RD40	South East corner on the out side wall	Drain will be reroute so it drains to courtyard. Filter at the outside end of the corrugated pipe	Before blasting work starts
RD41	South West of Corner roof deck	Filter fabric	Before blasting work starts
RD42	North West corner on the out side wall	Drain will be reroute so it drains to parking lot. Filter will be placed on the outside end of the corrugated pipe	Before blasting work starts

- Building 10 and 11 roof drain (RD 43, RD45 and RD 46) will protect with filter and will be out side of the containment.



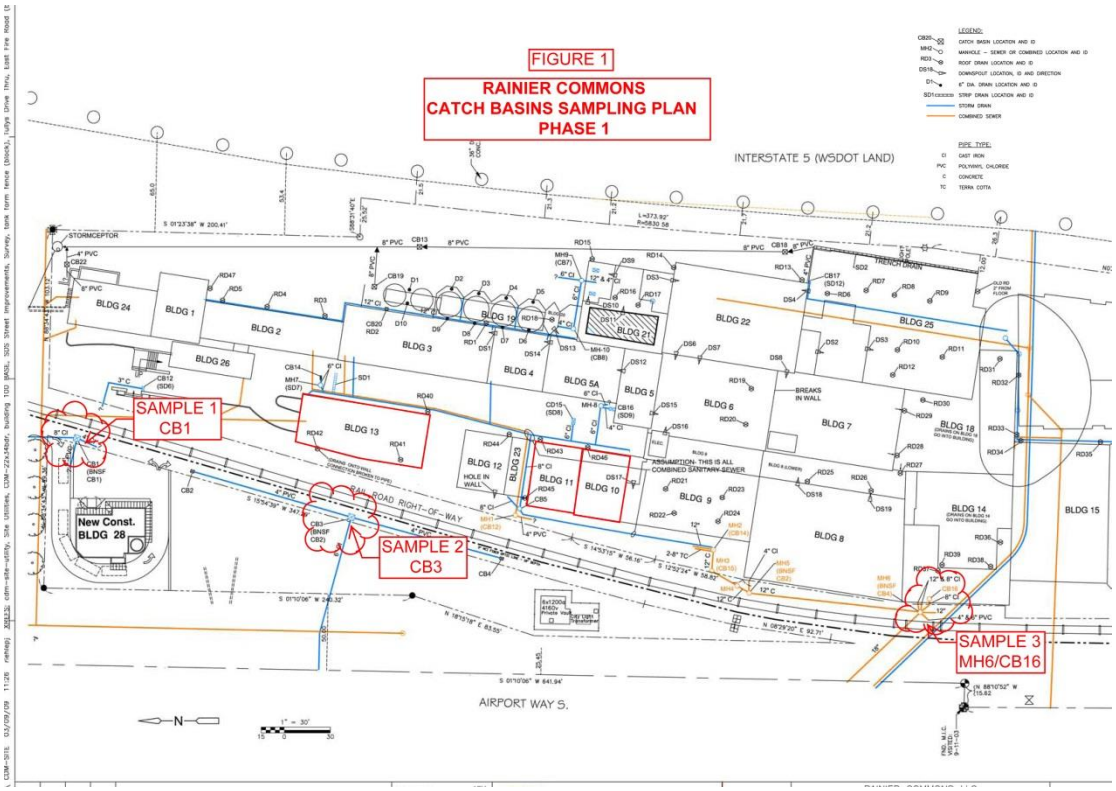
Estimated Catch basin Sampling Schedule for Phase 1

The purpose of this document is to create a schedule for the "Condition 6 Catch Basin Sampling Plan for Phase 1 IPWP". Dates can be based on our informal starting work date- May 19th, 2014 or a week after anticipated EPA approval to Phase 1 Work Plan.

The schedule will be as followed:

CB #	Sample # 1	Sample # 2	Sample # 3
CB1	A week before blasting work starts	3 weeks from starting staging or one week after blasting work starts.	One week follow blasting work completion and containment break down.
CB3	A week before blasting work starts	3 weeks from starting staging or one week after blasting work starts.	One week follow blasting work completion and containment break down.
MH6/CB16	A week before blasting work starts	3 weeks from starting staging or one week after blasting work starts.	One week follow blasting work completion and containment break down.

*Attached figure 1 for the three sampling locations, see the red-clouded areas with red boxed labels.
**see IPWP attachment No. 8 item #1, "If NVL is unable to obtain an adequate sediment sample from the designated sampling locations, then, in that event, NVL will review adjacent locations to either collect a sample or complete a sample to obtain minimum sample amounts."



PCB Air Sampling Plan for Phase 1 IPWP

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INDUSTRIAL HYGIENE SERVICES
MANAGEMENT | TRAINING | LAB SERVICES
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Date:	**June 9, 2014**
NVL Project No.	**2012-494**
Site Address:	**Rainer Commons** 3100 Airport Way S, Seattle, 98134

PCB Air Sampling

Background / Purpose of Air Sampling

The overall plan for the project has been designed to control and prevent any emission of blast media or PCB bulk product waste during activities from exiting the controlled work environment by using engineering and administrative controls. In short, it is expected that there will be no airborne emissions from the containment.

Air sampling is part of the inspection and monitoring program to assure the project is protective of human health and the environment. In other words, it is to provide assurance that controls and prevention actions that are put in place are of best practice, are maintained and continue to be acceptable.

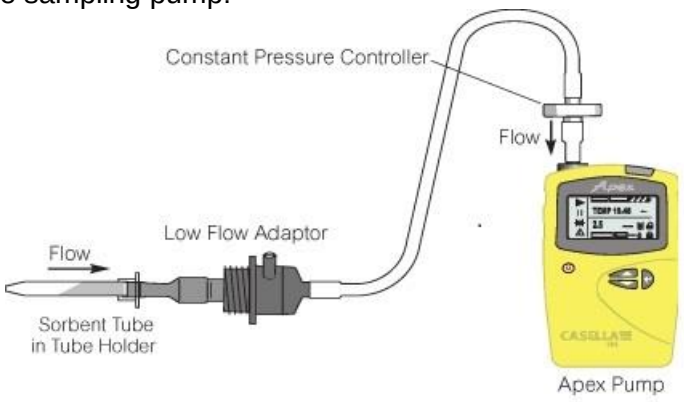
The air testing strategy to take air samples that are analyzed for PCBs and confirming levels are minimally below the NIOSH REL both inside the occupied building undergoing abatement on the exterior and at the HEPA exhaust locations for the negative air machines.

The sampling method of collecting and analyzing air samples for PCBs is specific to the concern of unintentional release of PCB containing material to either the environment inside the occupied building or from air blowing to the outside environment through the HEPA filers on the negative air machine used to maintain the pressure of the containment.

Field Testing Equipment

1 – The “Sampler” is a 13-mm glass fiber filter without binders in a Swinnex cassette followed by a glass tube, 7 cm long, 6-mm OD, 4-mm ID containing two sections of 30/48 mesh deactivated Florisil. The front section is preceded by glass wool and contains 100 mg and the backup section contains 50 mg; urethane foam between sections and behind the backup section. (The tube will be purchased assembled this way) The cassette and tube will be joined with PVC tubing. Note: The “sampler” will be assembled at NVL Labs.
2 – Sampling pump capable of sampling 1.0 liter per minute with flexible connecting tubing.
3 – Calibrated rotometer

Picture of the sampling pump:



Activity in the Field

1 Information is to be collected on the field data sheet and Chain of Custody (COC) form.
2 All pumps will be calibrated for airflow prior to each and every use with a representative sampler in line.
3 Air flow will be measured using a calibrated rotometer
4 Air flow will typically be at 1.0 liter per minute. (per the method, with anticipation of no to very low levels of airborne PCBs)
5 The actual sampler will be connected to the calibrated pump. This involves per the method:
-Immediately before sampling, breaking the ends of the Florisil tube and connecting it to the Swinnex cassette.
-The sampler is then connected to the pump using flexible tubing.
6 Each sample collected, a unique sample number will be generated, which will be put on a label on the sampler and recorded on the field forms. The standard method to generate a unique number will be the date – followed by PCBAIR and then a number. For example, 060814-PCBAIR-1.
7 The sample train is then placed at sample location, with start and end times noted.
8 Samples are collected during the duration of the daily work period, which is anticipated to be between 6 to 8 hours per day.
9 When samples are collected, the pump will be turned off, the time will be noted and the sampler removed.
10 The sampler will then be capped at the Florisil tube end.
11 The sampler will then be placed under refrigeration (typically an ice chest) for transportation.
12 The air flow for the pump will be re-measured and recorded using a representative sampler in line.
13 The sampler will be delivered that day to NVL Labs.

Sample Locations and Volume

Air testing will include the collection of one air sample inside the building adjacent to the area where PCB's containing paint removal is taking place. Air testing will also include the collection of sample outside the containment at locations where air is exhausted from the negative air machine after passing through a HEPA filter. Air sampling inside/outside will be taken for first three days of blasting, followed by reducing the samples to every other day of blasting work (if lab results are below the NIOSH REL), thereafter.

Field QA/QC

Representative field blank samplers will be added periodically. Per the method, 2 to 10 field blank samplers are to be collected per set. For the purpose of document, a set will be considered the samples collected for an IPWP.

A field blank sampler is treated exactly like a sample, except that no air is drawn through the sampler.

At the Laboratory

All samples will be extracted within 1 week after collection. All samples will be stored at <4 degrees Celsius until extracted. At this moment, the planned turnaround time for analysis will be between 1 to 5 business days.

Laboratory Analysis Method

Method based on NIOSH Method 5503.

Equipment

- **Sampler:** 13-mm glass fiber filter without binders in a Swinnex cassette (Cat. No. SX 0001300, Millipore Corp.) followed by a glass tube, 7 cm long, 6-mm OD, 4-mm ID containing two sections of 30/48 mesh deactivated Florisil. The front section is preceded by glass wool and contains 100 mg and the backup section contains 50 mg; urethane foam between sections and behind the backup section. (SKC 226-39, Supelco ORBO-60, or equivalent) Join the cassette and Florisil tube with PVC tubing, 3/8" L x 9/32" OD x 5/32" ID, on the outlet of the cassette and with another piece of PVC tubing, 3/4" L x 5/16" OD x 3/16" ID, complete the union.
- Personal sampling pump, 0.05 to 0.2 L/min, with flexible connecting tubing.
- Tweezers.
- Vials, glass, 4- and 7-mL, with aluminum or PTFE-lined caps
- Volumetric flasks, 10-mL and other convenient sizes for preparing standards.
- Gas Chromatograph equipped with split/splitless inj. dual column and ECD detectors (Shimadzu GC-2010 Plus)
- Columns:
  ZB-Multiresidue-1, serial# 207631 (30m., 0.32mmID, 0.50um df),
  ZB-Multiresidue-2, serial# 278651 (30m., 0.32mmID, 0.25um df).
- Detectors: Shimadzu Electron Capture Detector (2)
- Auto Sampler.
- Fume hood.
- Centrifuge.
- Shimadzu GC Real Time Analysis (Acquisition and analysis software).
- Analytical balance capable of accurately weighing to at least +/-0.001.
- Vortex
- Hot Plate

Reagents and Supplies

- Hexane, pesticide quality.

- Florisil, 30/48 mesh sieved from 30/60 mesh. After sieving dry at 105 °C for 45 min. Mix the cooled Florisil with 3% (w/w) distilled water.
- Nitrogen, purified.
- Stock standards of all nine Aroclors at 1000 ppm in methanol or isooctane from Absolute.
- Standards for calibration and pattern recognition.
- Second source standards for Aroclors 1016, 1260 and 1254 from Supelco at 1000 ppm.
- Calibration standards: mixture of AR1016 and AR1260 at a concentration from 0.02, 0.05, 0.1, 0.2 and 0.5 ppm for external standard calibration.
- Glass centrifuge tubes with caps.
- Amber autosampler vials.
- Glass pipettes.
- Gas-Tight syringes: 10ul, 100 ul and 500 ul.
- Filter paper: 9.0 cm.
- Razor Blades (for chopping)/scissors.
- Mortar and Pestle (for grinding).
- 2,4,5,6-Tetrachloro-M-Xylene (TMX) combined with DCB at a 1:1 ratio, yielding a 10 ppm surrogate mix).
- 250ul glass flat bottom inserts for GC vial.
- Baked Florisil :Resprep: 60/100Mesh, LOT#316050-CB, CAT# 26135
- Sulfuric Acid : JT Baker: CAS # 7664-93-9, Lot# B03032
- Extraction tubes.
- Copper:
- Aluminum pan for drying
- Nitric Acid
- Acetone

Working Standard making procedure (In Hexane – can be prepared in stock and kept in fridge for 6 months)

Standard type	Supplier	Initial concentration	Volume used	Final Volume
100ppm DCB/TMX Surrogate	Absolute	-TMX @1000ppm -DCB @ 1000ppm	500ul of each	5mL
0.1 ppm1016+1260 mix Initial Cal / CCV + 0.1ppm Surrogate	Absolute	-ARC1016 @100ppm -ARC1260@100ppm -100ppm DCB/TMX mix	10ul of each	10mL
0.1ppm ICV	Supelco	-ARC1016 @100ppm -ARC1260@100ppm	10ul of each	10mL
0.02ppm std (1016/1260 mix)	Absolute	-ARC1016 @100ppm -ARC1260@100ppm	2ul of each	10mL
0.05ppm std (1016/1260 mix)	Absolute	-ARC1016 @100ppm -ARC1260@100ppm	5ul of each	10mL
0.10ppm std (1016/1260 mix)	Absolute	-ARC1016 @100ppm -ARC1260@100ppm	10ul of each	10mL
0.20ppm std (1016/1260 mix)	Absolute	-ARC1016 @100ppm -ARC1260@100ppm	20ul of each	10mL
0.50ppm std (1016/1260 mix)	Absolute	-ARC1016 @100ppm -ARC1260@100ppm	50ul of each	10mL
0.1ppm1254 Cal + 0.1ppm Surrogate	Absolute	-100ppm 1254 Aroclor -100ppm DCB/TMX mix	10ul of each	10mL

Note: 0.1ppm of Individual aroclors of PCB can be prepared by adding 10uL of 100ppm of Working Stock standard, plus 10uL of 100ppm DCB/TMX surrogate mix and diluting to 10mL final volume in a volumetric flask.

GC Conditions

- Shimadzu 2010 Plus equipped with AOC-20i Auto-Injector and Shimadzu GC Real Time Analysis (acquisition and analysis software).
- Dual-column analysis with ZB-Multiresidue-1, serial# 207631 (30m., 0.32mmID, 0.50um df), and ZB-Multiresidue-2, serial# 278651 (30m., 0.32mmID, 0.25um df).
- Single injection with a Restek Siltek, Universal Y Connector to two Shimadzu electron capture detectors (ECD).
- Operating conditions:
- Carrier gas: (He)
- Column flow rate: 3 ml/min
- Make-up gas: (P5)
- Injection volume: 2ul
- Equilibration time: 0.5 min.
- Oven temperature program:
- Initial 150 deg. C, hold 2 min, rate 7 deg/min to 320 deg hold 5 min for a 31.29 min run time.
- Injector: splitless
- Split: N/A
- Purge flow: 2 ml/min
- Temperature: 320 deg C
- Linear velocity: 43.4 cm/sec
- Pressure: 69.6 kPa
- Detectors settings: flash vaporization
- Temperature: 320 deg. C
- Current: 2nA
- Sampling rate: 40 msec
- Filter time constant: 200 ms

Extraction Procedure - Disassembly of the "Sampler": Filter + Solid Sorbent samples. (13-mm glass fiber + Florisil, 100 mg/50 mg)

The front section is preceded by glass wool and contains 100 mg and the backup section contains 50 mg; glass wool between sections and behind the backup section.

1. Place the glass wool and 100-mg Florisil bed in the same 7-mL vial in which the filter was stored. Add 5.0 mL hexane.
2. In a 7-mL vial, place the 50-mg Florisil bed including the two sets of glass wool. Add 2.0mL hexane.
3. Prepare a MB/MS/LCS by placing some of the clean Florisil bed + filter paper in each QC.
4. Add 5mL Hexane to all the QC samples. Add secondary source Aroclor 1016/1260 standard mix to the LCS at 0.1ppm, add secondary source Aroclor 1254 at 0.1ppm to MS.
5. Add 100ppm mixture of TMX/DCB surrogate at 0.1ppm to all client samples plus method QC.
6. Allow to stand for 20 min with occasional agitation.
7. Centrifuge for 10mins
8. Pipette the hexane layer into GC vials for analysis.

PCB Extract Cleanup procedure.

Sulfuric Acid Cleanup:

Sulfuric acid clean up is conducted on PCB extracts whenever elevated baselines or overly complex chromatograms prevent accurate quantitation of PCBs. This method cannot be used to cleanup extracts for other target analytes, as it will destroy most organic chemicals including the Pesticides Aldrin, Dieldrin, Endrin, Endosulfan (I and II), and Endosulfan sulfate.

1. Add 1mL Conc Sulfuric Acid to the 2ml PCB extract in the centrifuge tube. Cap the tube and vortex for 60 seconds. Allow for the 2 layers (acid/ Hexane) to separate.
    a. **Caution**: Stop the vortexing immediately if the vial leaks.
    b. AVOID SKIN CONTACT, SULFURIC ACID BURNS.
2. Centrifuge at 3000rpm for 10 mins.
3. Pipette the top Hexane layer into a clean centrifuge tube.
4. If the Hexane extract still appears dark or there is emulsion in the centrifuge tube, carefully pipette the top visible portion into a clean tube, repeat step 1, 2, till the bottom acid layer appears light pinkish or the Hexane extract appears clear.
5. Proceed to Florisil cleanup

Florisil Cleanup

Florisil has been used for the cleanup of pesticide residues and other chlorinated hydrocarbons; the separation of nitrogen compounds from hydrocarbons; the separation of aromatic compounds from aliphatic-aromatic mixtures; and similar applications for use with fats,oils, and waxes.

1. Bake the Florisil (to dry) at 100 degrees C for 1hr in a beaker, cool and store in a desiccator.
2. Add 1/4 spatula of florisil to the acid cleaned PCB Hexane extract.
3. Vortex for 20 seconds, centrifuge at 3000rpm for 10mins.
4. Transfer the top Hexane layer into the GC vial for Analysis. OR if sediment samples, then proceed to Sulfur cleanup.

Sulfur cleanup (Mostly done on Sediment samples)

Sulfur cleanup is useful in eliminating sulfur from sample extracts, which may cause chromatographic interference with analytes of interest (often an elevated baseline towards the start of the chromatogram). Elemental sulfur is encountered in many sediment samples (generally specific to different areas in the country), marine algae, and some industrial wastes. The solubility of sulfur in various solvents is very similar to the organochlorine and organophosphorus pesticides. Therefore, the sulfur interference follows along with the pesticides through the normal extraction and cleanup techniques. Copper granules are used to remove sulfur.

First must remove oxides in the copper by treating with dilute nitric acid, rinse with organic-free reagent water to remove all traces of acid, rinse with acetone and dry. Store in a clean amber vial in a desiccator for 1 year.

1. Add few Copper granules in to the cleanup florisil extract. Vortex for 60 seconds.
2. Centrifuge and transfer to GC vial for PCB analysis.

3. If there is sulfur present, then the Copper and Hexane extract will appear dark grey/black. If such is the case, transfer the hexane layer in to a clean vial and repeat step 1, 2 till the copper remains shiny.

Calibration:

The calibration is performed by the external standard technique. A multipoint curve consisting of 5 concentrations of Aroclor 1016 and Aroclor 1260 mix (1016/1260 mix) is constructed for each column and its respective detector. The concentrations in the calibration span the range of the concentration of Aroclors expected in client samples. DCB/TMX is calibrated at 0.02, 0.05, 0.1, 0.2 and 0.5 ppm. While the Aroclor 1016/1260 mix are also calibrated at five points (0.02, 0.05, 0.1, 0.2 and 0.5 ppm) to check for detector linearity, the other seven Aroclors have only a single-point calibration level of 0.1 ppm. This includes Aroclor(s), 1221, 1232, 1242, 1248 and 1254, 1262, 1268. 4 to 5 congeners that span the retention time scale of the Aroclor are chosen for each Aroclor. Each congener is at least 25% of the height of the highest peak for that particular Aroclor. The calibration model chosen for the 1016/1260 mix is the same model that is applied to the other seven Aroclors. The 1016/1260 mix calibration will have an r value of greater than 99% for all selected congeners and the group calibration. The Relative Standard Deviation (RSD) for this calibration will also be less than 20%. Should the calibration not meet the above specifications, the associated problem(s) will be identified and corrected prior to a recalibration. An Initial Calibration Verification (ICV) at a mid-point concentration (generally 0.1 ppm) is run to verify the validity of the calibration. It is prepared from a 1016/1260 mix made from a secondary source. The **ICVs** response/recovery should be within +**/- 15% of its intended value**.

The calibration factor is determined by the following equation for each characteristic Aroclor peak (specific congener) in the initial calibration standards:

$$CF = \frac{\text{Peak Area(or height) in the Standard}}{\text{Total Mass of the Standard injected (in nanograms)}}$$

Analysis:

Sample extracts are processed with the same parameters as the calibration curve.

A continuing calibration verification standard (CCV) of the 1016/1260 mix is run at the beginning and end of every 12-hour shift, as well as every 12 hours or a maximum of twenty samples. The laboratory may decide to run the CCV every ten samples depending on the color of the extracts to decrease the number of samples requiring reanalysis.

The CFverification of the CCV must not vary more than a +/- 20 percent difference from the mean CF (CFmean) of the calibration curve. The percent deviation is calculated with following formula:

$$\%\text{Difference} = \frac{\text{CFmean - CFverification}}{\text{CFmean}} \times 100$$

After a qualitative identification has been made by comparing the unknown fingerprint to the correct reference, the concentration of a sample is determined by the response in relation to the calibration curve. Samples are initially screened at a 10X dilution to gage the instrument response and are diluted appropriately following the analysis of the screen (i.e. if the extracts look really dark). NVL will make every attempt to analyze samples at the lowest dilution factor possible to ensure the integrity of

the data produced. If a sample exceeds the upper limit of the curve, the sample must be diluted and reanalyzed. The samples which are reported must be analyzed between two valid CCVs.

When a CCV falls out of the 20% limit any sample analyzed after or before must be reanalyzed. An exception is if the CCV is above the acceptance criteria , i.e. >20%, and the PCB aroclor was not detected in the specific samples, then the extract does not have to be reanalyzed , since the verification standard has demonstrated that if the aroclor was present, then it would have been detected. But if the CCV falls more than 20% below the initial calibration, then reinjection is necessary to protect against reporting a false negative result.

Qualitative Identification: The identification of a PCB as an Aroclor is based on the match between absolute retention times and pattern recognition with a reference fingerprint. Each Aroclor is run at 5 ppm to catalog this pattern on each column. The Shimadzu software allows overlay of chromatograms to confirm a specific pattern of congener retention times and response for each Aroclor. If the sample chromatogram has suspected matrix effects one could either run a dilution or run the extract on the GCMS for confirmation.

Quantitative Identification: Once an Aroclor has been qualitatively identified, it is quantitated by direct comparison to its single point calibration of 4-5 characteristic peaks. This is the case for Aroclors: 1016, 1221, 1232, 1242, 1248, 1254,1260,1262,1268. The concentration for a particular Aroclor is determined by averaging the 4-5 concentrations of the 4-5 characteristic peaks against its one-point curve.

If compound identification is precluded due to interferences (e.g., broad, rounded peaks or ill-defined baselines are present). Corrective action must be taken. Further extract cleanup may be needed or rerun the sample on GCMS to identify if the problem is the sample or the GC itself.

Use the calibration standard analyzed during the run to evaluate retention time stability. If retention time shifting is noticed, determine the cause of the problem and fix it.

1242 and 1248 aroclor pattern is very similar to each other and so is the pattern of 1260 with 1262. Careful pattern matching must be done with the individual standards to ensure the correct aroclor is identified and reported. Where interferences prohibit the identification of the correct pattern between either of the aroclor, then the most dominant one can be reported.

Laboratory QA/QC

From each lot of Florisil tubes, at least one tube will be analyzed for quality control.

Calibration and Quality control will be per steps 8, 9 and 10 described in NIOSH method 5503.

Procedures will also include:

Quality control procedures are necessary to monitor and evaluate analyst competency, the extraction procedure and operation of the GC system.

Initial Demonstration of Proficiency (IDOC): The laboratory must demonstrate the ability to perform the method for which he or she will be generating data, by generating data of acceptable accuracy and precision in a clean matrix. The same is true when any new staff is trained or significant changes in instrumentation are made.

A QC reference sample concentrate or Laboratory Control Spike (LCS) will contain PCBs as Aroclors (1016/1260 mix) at a concentration of 0.1 ppm (the midpoint calibration point. In the initial demonstration of capability, the incumbent shall successively extract and run four of these samples for each matrix that will be encountered during analysis.

Include a midpoint calibration standard i.e. a Continuing Calibration Verification (CCV) before and after every batch or 20 samples, whichever is less (or 10 to minimize repeat injections) in every analysis sequence as a calibration check. For the purposes of sample analysis at NVL, the **CCV** will be run at 0.1 ppm. The response factor for the standard should be within **20% of the initial calibration**. If the CCV is out of this acceptance window then corrective action must be performed before any client samples are analyzed.

The laboratory must have procedures for documenting the method performance (precision, accuracy and detection limit). At a minimum and given adequate sample, this includes the analysis of the following QC samples in addition to the CCV and LCS mentioned above: a method blank (MB), a duplicate (DUP), a matrix spike (MS) and a laboratory control sample (LCS) in each analytical batch as well as the addition of surrogates to each field and QC sample. Recoveries for the MB should be below the RL. The **MS and MSD** pair will have recoveries of **40-140%** with a **50% RPD**. The **LCS/LCSD** pair will have recoveries of **40-140%** with a **50% RPD**.

Documenting the effect of the matrix should include the analysis of at least one matrix spike and duplicate sample and/or an MS/MSD pair. Due to often times limited sample volume, the surrogates are used to monitor the matrix of the samples. An LCS/LCSD will be prepared with each batch and/or a MS/MSD pair will be analyzed given adequate sample. The spike should be an Aroclor mixture of 1016/1260 unless the samples in the batch are known to have a specific Aroclor. The LCS/LCSD consists of an aliquot of a clean (control) matrix similar to sample matrix and of the same weight or volume. They are spiked with a secondary source standard containing the same analytes, at the same concentration as the matrix spike (0.1 ppm). When the results of the matrix spike analysis indicate a potential problem due to sample matrix effects, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.

Surrogates recoveries: The laboratory must evaluate surrogate recovery data from the individual samples versus the surrogate control limits developed by the laboratory. While the control limits are under development, surrogate recoveries will be between **40-140%.**

Method Performance:

The method detection limit (MDL) is performed to verify the instrument sensitivity. A set of 7 or 8 replicates of LCS's spiked at a level one half the reporting limit are analyzed and entered in a spreadsheet to determine the standard deviation of the replicates. The MDL should be performed on any matrix the laboratory may expect to analyze.

Instrument Maintenance:

System Check: If a calibration standard falls out of control limits the laboratory must determine the cause and perform corrective action. The first step is to run a system check with the GC software. The recommended maintenance is performed and recorded in the instrument maintenance log book.

Projected Detection Limit

Per the method, and the field conditions, an 8-hour sample will typically permit a sample volume of 480 liters to be collected, which will allow a detection limit in the range of 0.06 ug/m3. This meets the air level not to be exceeded referenced to in the Plan of 0.001 mg/m3 = 1.0 ug/m3 (NIOSH REL).

REFERENCE:

NIOSH Method 5503: http://www.cdc.gov/niosh/docs/2003-154/pdfs/5503.pdf