



**ENVIRO-VAC™**

SAFE, COST  
EFFECTIVE ABATEMENT  
& DECONTAMINATION  
SOLUTIONS

**40** YEARS CELEBRATING  
**40 YEARS**  
IN BUSINESS



ENVIRO-VAC™ - a trusted leader for over 40-years in the hazardous materials abatement and decontamination industry. Our success is directly attributable to our dedicated staff and their ability to understand and solve our clients needs resulting in long term relationships, built on trust.

**SAFETY IS OUR STRENGTH.  
WE GUARANTEE IT!**

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# Company Overview

ENVIRO-VAC® is a leading integrated services company offering a complete range of decontamination & hazardous materials abatement services to our valued customers throughout Canada in their various commercial, marine and industrial settings including; Shopping Malls, Hospitals, High Rise Buildings, Military, Oil & Gas, Petrochemical, Fertilizer, Chemical, Pulp & Paper Mills, Ships, Shipyards & Marine facilities, Steel Structures, Power Generation & Mining sectors.

## OUR CORE CAPABILITIES AND SERVICES INCLUDE:

- Arsenic and Cyanide decontamination
- Asbestos abatement
- Contaminated dust , metals dust - Mercury-PCB decontamination & remediation
- Combustible dust vacuuming using explosion proof vacuum loaders
- Industrial vacuum services
- Lead paint and coatings - non-destructive testing & removal
- Mercury remediation
- Mould remediation
- Shrink-wrap containments
- Smoke damaged concrete - controlled media blast cleaning

Enviro-Vac takes great pride in being industry leaders and are dedicated to providing a variety of innovative hazardous materials abatement solutions to our clients. Our turn-key, hazardous materials abatement methods and procedures are designed to meet and exceed stringent environmental regulations without sacrificing safety or quality.

### GUARANTEED PERFORMANCE

All hazardous waste will be removed and handled in an environmentally compliant manner in accordance with scope of work, regulatory guidelines and best practices. Remedial work will be undertaken in a professional and safety conscious manner with the interest of the client first and foremost.

The company has the financial capabilities to take on numerous large projects simultaneously over extended periods of time. Enviro-Vac is a charter member of the Advisory Committee for National Standards and a member of the Hazardous Materials Association.

**Our corporate structure** distinguishes us within the abatement & decontamination industry, providing an unrivalled measure of competency, speed and capability. It also provides unsurpassed resources to embrace innovations and technologies that help us meet the unique needs of our clients and projects.

## CORPORATE HIERARCHY OVERVIEW

Paragon Remediation Group Ltd. dba ENVIRO-VAC®. A privately held company directed by a strong and innovative remedial team with its principal shareholders having an active participation in the day to day management of the company. Enviro-Vac is one of the largest privately owned, turn-key hazardous materials abatement & decontamination companies in Canada and has been in operation since 1976.

All members of this team have extensive experience in hazardous materials abatement & surface decontamination projects and are committed to safety and a continuous improvement of safety culture. We will ensure that all work performed exceeds the standard procedures and applicable guidelines for work of this nature.

### QUALIFICATIONS

Enviro-Vac's qualified project management team will successfully lead our team to execute the work as described and meet deadlines on time and on budget. Regulators define a "qualified person" as one who has appropriate knowledge and experience in the management and control of asbestos hazards through education and training, and has experience in the management and control of asbestos hazards. It is not sufficient for a qualified person to simply demonstrate credentials that certain courses have been taken or certain experience has been obtained. The necessary knowledge and experience must be evident in the quality of the work undertaken. That is a given at Enviro-Vac.

### CORPORATE PRINCIPALS & CONTINUITY

The key to our multi-disciplined service is our people

ENVIRO-VAC leaders excel at what they do and the top three directors of the company have over 90-years of combined asbestos abatement experience. Our infrastructure & collective experience is one of our strongest assets.

**Jim Klassen, Partner & CEO**

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Bringing over 40 years of executive leadership as founder, president and now CEO, of an organization that has consistently defined the business, Jim plays a prominent role in the asbestos abatement industry sitting on the Board of Directors at the Hazardous Materials Association and a long time committee member at the Workers Compensation Board of British Columbia's Asbestos Advisory Board. Jim has been

instrumental in developing and establishing regulatory controls for asbestos, lead & mould abatement in Canada and, has contributed considerable expertise and time toward the development and implementation of various environmental standards manuals & safety training programs. Jim continues to orchestrate the evolution of Enviro-Vac and is a charter member of the Advisory Committee for National Standards.

**Steve Parks, Partner & President**

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As President of Enviro-Vac, Steve Parks has actively led the company to its current status as one of the largest environmental contractors in the country specializing in hazardous materials abatement, shrink-wrap containments & industrial vacuum services. - Steve

has over 25 years of experience in the management of often complex abatement contracts and partnering agreements and is responsible for the development of profitable business and client relationships with our major clients Canada wide.

**Mike Baker CEC, Partner & Industrial Services Manager**

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Mike joined the Enviro-Vac team in the year 2000 and manages our industrial sector Canada-wide. Mike brings over 25 years of environmental and general contracting experience to our clients in helping them find the solutions to their environmental service

requirements. Having started as an estimator / project manager, Mike brings those cost estimating skills as well as strategic planning / implementation capabilities to our valued clients.

**KEY PARTNERS, MANAGERS & FACILITATORS**

- **Greg Petersen**, Shareholder & Project Manager
- **Ray Zondag**, Shareholder & Project Manager
- **Emma Gibson** B.Sc/CSO Head of Health & Safety - Project Facilitator/Coordinator
- **Trish Drover**, CRSP Environmental/ Health and Safety Coordinator
- **Chris Mitsche** BA/CSO, Project Facilitator/Coordinator
- **Russell Gustafson**, Manager Calgary office
- **Kevin Foley**, Business Development/ Project Facilitator
- **Larry Adams**, Victoria, BC Manager.
- **Steve Maurer**, Business Development/ Project Facilitator
- **Grahame Sanderson** AScT, PMP, Strategic Account Manager

All have extensive experience in hazardous materials abatement, field management and design and are integrated management leaders. This team is integral in the development of work plans & schedules, and co-ordinate all site activities.

## OUR MISSION

To be problem solvers. To be recognized for providing the highest quality decontamination & abatement contracting solutions in a safe, environmentally responsible and cost effective processes in an ever-changing Canadian marketplace.

Our goal is to provide exceptional results beyond expectation through dedicated leadership, diverse experience and specialized training. We pledge to offer to our clients and to our personnel a safe and creative working environment that enhances profitability and decreases costs.

We are committed to our mission, and our vision is to deliver encompassing excellence to our varied clients through people, partnerships, safety and performance.

## CODE OF CONDUCT

Our code of conduct & ethics is a written document available for all to see. It is a guide to the responsibilities we share as employees of Enviro-Vac. The code is not an all-embracing manual that addresses every ethical issue that may arise. It is not a summation of laws and policies that apply in the hazardous materials abatement industry and it does not replace good personal judgment. Significantly, our code of conduct & ethics serves as a guide to help make the right decisions.

## OUR PROCESS

An Enviro-Vac proposal will be based on what it takes to get the job done right, not optimistic assumptions. A good client relationship starts with a clear, realistic proposal. You will know what is being offered from the very beginning, before we start the job.

Effective hazardous materials abatement & decontamination techniques require innovative, meticulous and efficient preparation and execution. Enviro-Vac personnel are experienced in a wide variety of abatement applications. Workers are certified

and trained in environmental, health and safety regulations and experience ongoing training and safety updates.

### **SPEED IS CRUCIAL**

Hazardous materials abatement, by its very nature, is disruptive. Tight scheduling and adequate resources are needed to assure minimal downtime. Enviro-Vac understands that time is money. Completion schedules are taken seriously at Enviro-Vac and job sites can be scheduled on a 24-hour clock

to facilitate fast turnaround for businesses.

Enviro-Vac has excellent asbestos general liability Insurance.

A comprehensive general liability Insurance with asbestos, lead, mould environmental impairment inclusions, automobile and Workers Compensation Insurance and contract bonding.

### **PROFESSIONAL PREPARATION**

The experience that comes from preparing thousands of

job sites has taught Enviro-Vac workers to do it right and with great care. Enviro-Vac maintains excellent working relationship with industrial hygienists and air monitoring firms who help us ensure project safety.

We at Enviro-Vac take our work very seriously. There is no other way to handle hazardous materials abatement & decontamination. Enviro-Vac constantly reviews the progress of all our job sites. Continuous site communication, monitoring and documentation of safe work processes forms are an important component of all our projects.

## THE ENVIRO VAC PROCESS

### Initiation

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- Project review
- Clarify / Confirm scope of work / Examine survey / Action items
- Risk assessment / Mitigation plan
- Communication plan

### Planning

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- OH&S, Environmental & Wellness requirements / Considerations / Standards / Initiatives. JSA's / Safety Plans, Job-specific procedures, Task Hazard analysis, Environmental monitoring & Emergency preparedness
- Project schedule / Critical path management
- Project plan and budget
- Team assignments / inspections / Air-monitoring
- Optimal labour utilization

### Execution

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- Mobilization
- Risk management
- Process compliance / comprehensive safety checklists, safety inspections, effective communications, meetings, on-the-job coaching & mentorship, employee engagement, collaborative approach to safety & education
- Scope change control & communication
- Critical path schedule management

### Control

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- Internal and external auditing (third party)
- Labour & material cost guidelines / Tracking / Trend reporting
- Critical path reviews
- Quality & safety
- Performance / Cost / Schedule reporting

### Closout

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- Visual Inspections
- Third party inspection
- Air testing & clearance
- Waste disposition
- Demobilization
- Project sign-off

# Health & Safety

Health & safety are central to everything we do, starting with pre-job planning and continuing through to job execution and debriefing. An internal responsibility system permeates all levels of our organization and is deeply ingrained in our organization's health and safety culture. We track and measure the safety performance of our employees against industry best practices and strict company requirements and always strive for continuous improvement.

The focus is to continually improve the health & safety of all personnel who work at industrial, commercial & marine facilities and to protect the environment in which we work. An important component is to require that all sub-contractors who provide services at these facilities participate in a contractor safety management program.

## PRE-QUALIFIED

Enviro-Vac meets and maintains the highest safety, regulatory and insurance requirements through rigorous safety auditing. We are pre-qualified with the following networks who offer some of the most comprehensive contractor database and management tools available in the Canadian market to transform data management and due diligence assurance efforts for purchasers of contracted services. These contractor screening consortiums are respected global resource for connecting corporations with safe, reliable contractors in safety oriented & capital-intensive industries.



## COR CERTIFIED

Enviro-Vac personnel complete a comprehensive, structured training curriculum providing assurances that they perform hazardous materials abatement operations responsibly and safely. We are committed to working with our valued clients to develop systematic approaches to protect people, property and the environment. We understand that in the hazardous materials abatement & decontamination industry, safety deserves the highest priority and to that end are COR Certified.

The COR certification process is a distinctive and strategic approach to workplace safety and a company-wide commitment to reduction of the human and financial costs of workplace injuries. The program encourages companies to implement and maintain health & safety management systems that exceed regulatory requirements through annual auditing standards.

*“ Safety is a Culture.  
Encourage others  
to work safe.”*

*– Steve Parks, President & Safety  
Committee Chair*

# Services

## ASBESTOS ABATEMENT

Asbestos is used in many common building materials including sprayed on insulation, fireproofing and soundproofing in literally tens of thousands of buildings across Canada. It is used in ships, mines, refineries, schools, offices, warehouses, sports arenas, airport terminals and many other private and public structures. Millions of Canadians are endangering their health by breathing asbestos-laden air, unaware of their daily contact. It has been known for 45 years that asbestos is a carcinogen, a cancer causing agent that creates fibrous changes and scarring in lung tissue. While the latency period for asbestos-induced lung cancer is 15-30 years, most victims die within two years of the first symptom. But lung cancer is not the only hazard associated with asbestos. Physicians are now seeing cancers caused by asbestos fibers that have migrated to other parts of the body.

The obvious solution is to render our collective environments as free from the dangers of asbestos as is possible. From the first site inspection, to the final disposal of the hazardous material, Enviro-Vac can provide all services associated with asbestos abatement.



*The experience that comes from preparing thousands of asbestos abatement projects has taught Enviro-Vac workers to do it right and with great care. Enviro-Vac maintains an excellent working relationship with industrial hygienists and air monitoring firms who help us ensure project safety.*

### AUTOMATED EQUIPMENT

Enviro-Vac uses mobile decontamination units, automated vacuum loaders and automated bagging systems to increase efficiency.

### ASBESTOS ABATEMENT & SAFETY

A safe and healthful workplace depends on effective management to ensure that hazards are identified and that effective physical and administrative protections are established and maintained. Enviro-Vac ensures that safety of the workers and care for the environment are always a priority. We have a strong safety culture and program with shared a belief that is led from the top through to the boots on the ground.

## ASBESTOS ABATEMENT AT POWER GENERATING STATION DURING PEAK OPERATIONS

The special requirements of a power industry client may be significantly different than those of a pulp & paper industry client however, challenges can be comparable. Our experienced and highly trained workforce ensures abatement in and around live, sensitive operations can take place without or with minimal disruption to normal plant activities. Enviro-Vac has specialized Power System Safety Protection (PSSP) levels 2 and 3 for work in substations or near high voltage power. High voltage training topics include:

- Grounding
- Blocking
- Switching
- Limits of Approach and more

## DECOMMISSIONING & DECONTAMINATION

### PROBLEM SOLVERS

If you are in the preliminary stages of planning a decommissioning project call us to discuss how we can help. We recognize the value in pre-project planning and are available to assist in developing comprehensive decontamination strategies, programs and budgets. Our 40-years of broad-based decontamination experience can offer valuable insight and can often recognize potential for unidentified risk as well as provide a rigorous but practical decontamination approach that will provide the highest guarantee of success for each project.

Enviro-Vac can provide innovative and turn-key services to safely, economically and successfully undertake the abatement & decontamination of commercial, industrial & marine facilities.

## INDUSTRIAL CLEANING

### INTEGRATED TURN-KEY SERVICES FROM A SINGLE SOURCE

Enviro-Vac's vacuum cleaning operation removes combustible heavy metals dust, sand, grain, resins, coke, fly ash, powder and dozens of other materials for customers on regular cleaning schedules and during regularly scheduled outages. Enviro-Vac employs the same professional decontamination approach to meeting client and regulatory requirements, as we do in our hazardous materials abatement services. We specialize in cleaning and encapsulating areas of your plant that your customers and most of your employees may never see but they'll certainly notice the results in better lighting, cleaner air, and a safer working environment. At Enviro-Vac we've been cleaning industrial and commercial facilities for over forty years. We specialize in offering a professional industrial vacuum service in the following segments:

- Ships / Plant / Mine Decontamination
- Combustible Dust / Heavy Metals Dust
- Facility Cleaning and Decontamination
- Materials Extraction / Dust Control From Descaling Operations / Ballast Tanks

- Materials Extraction During Tube, Pipe & Tank Cleaning
- Cleanup of Conveyor Spills
- Bulk Material Removal / Recovery
- Recovery Boiler Cleaning / Dust down
- Paper Plant Facility Cleaning and Decontamination



Enviro-Vac's use of HEPA vacuum loaders and automated baggers for decontamination of facilities and plants has been a trademark of the company since 1976. We have a number of industrial vacuum loaders in varied sizes and can accommodate most projects.

Enviro-Vac has provided solutions to organizations of all sizes for an endless number of diverse applications and have set the highest standards for reliability and "on budget - on time" performance in a variety of industrial and specialized markets.

## SELF CONTAINED, MOBILE DECONTAMINATION UNITS

### RAPID MOBILIZATION & PROFESSIONAL DECONTAMINATION UNITS

For remote sites where electricity and water are unavailable or where numerous, mobile decontamination facilities are required, Enviro-Vac have designed proprietary, climate controlled, custom built, decontamination trailers up to 53' in length, for the complete decontamination of personnel involved in the abatement of hazardous materials. We can provide mobile or static trailers with 3 or 4-stage decontamination chambers including showers where personnel can wash-up & decontaminate.

The decontamination trailers (DCU) are self-contained and decontamination rooms come complete with self contained high efficiency water filtration systems for workers to decontaminate when working with hazardous materials such as heavy metals dust, lead, arsenic and asbestos particles. DCU includes progressive routing through a series of air-locked control chambers eventually providing access to a change room where "street clothes" can be found. Trailers are complete with electric generators, water supply, filtered waste tanks and HEPA negative air pressure filtration system.



## HAZARDOUS MATERIALS ABATEMENT

### ON OR OFF THE WATER

Enviro-Vac's core services are founded in the safe and compliant remediation of environmental issues, including hazardous materials abatement, removal & decontamination at marine facilities & on ships where the level of

difficulty is often substantially compounded. Our company’s internal culture of excellence ensures that abatement projects on ships are approached with state-of-the-art technology and performed in a responsible and professional manner. If you’re faced with an abatement or decontamination problem on a vessel, our teams can offer quick mobilization to provide a compliant and safe abatement process. We work collaboratively with our clients to provide cost-effective, safe and innovative abatement solutions for Military, Ferries, Barges & Tugs and specifically include the following services:

- Asbestos Abatement
- XRF Point & Shoot Lead Testing – Instant Analysis
- Lead Coatings Abatement
- Mercury & PCB Decontamination
- Ballast Tanks Abrasive Blast Cleaning / Vacuum Extraction of Lead Coatings Waste

## CONFINED SPACES

### ABRASIVE BLASTING ON SHIPS & CONFINED SPACE

Confined spaces can be found in almost any workplace including below or above ground and are common on ships. Enviro-Vac’s use of HEPA vacuum loaders, automated baggers and methods using abrasive blasting and HEPA vacuum recovery / ventilation during forepeak and ballast tank cleaning on ships leads the way when it comes to solving the problem of safely and efficiently carrying out the removal of lead coatings, PCB & other toxic coatings from inside confined spaces on ships.

Because of the hazardous nature of confined space entry, we’ve developed a rigorous Confined space program as defined in ENVIRO-VAC’S OH&S MANUAL to safely complete work in confined spaces and have specially trained & certified teams who utilise proven procedures to manage the risks associated with ballast tank cleaning and confined space entry permits on other similar applications.

## LEAD, PCB & TOXIC COATINGS / PAINT

ENVIRO-VAC has achieved Certification through University of California Berkeley and is the only known Canadian company that is fully compliant with EPA Certification, Section 402, Toxic Substance Control Act.

### CONFINED SPACE POLICY

All confined spaces shall be considered immediately dangerous to life and health until proven otherwise. This policy applies to all Enviro-Vac personnel involved with duties relating to Confined Space Entry.

The hazards of confined spaces are often unrecognizable without specialized equipment, and may inflict severe consequences if proper entry procedures are not followed.



“Point & Shoot” lead testing & analysis. The company has obtained certification through the Nuclear Safety Commission (CNSC) after completing multiple operator certifications and a “Radiation Safety Training Program” required to operate a newly acquired state-of-the-art XRF gun that is the preferred source for lead paint inspections and abatement due to its ability to measure buried layers of leaded paint and provide instant analysis.

## MERCURY HAZARD WARNING

Mercury is a virulent poison; it is very toxic to humans even in small doses. It is readily absorbed through the respiratory tract or through unbroken skin. It acts as a cumulative poison since only small amounts of the element can be eliminated at a time. The present accepted threshold limit for Mercury in air is 0.05 mg m<sup>-3</sup>. (NB. air saturated with mercury vapor at 20°C exceeds the toxic limit by 100 times). Mercury exposure can affect the central nervous system, kidneys and liver and affects the ability to feel, see, hear, taste and move. High concentration of vapor may cause a metallic taste, nausea, abdominal pain, vomiting, diarrhea and headache.

- Shipping: Secondary containment or “Overpacks” must be used on all apparatus containing mercury e.g. manometers, McLeod Gauge, mercury switches, mercury diffusion pumps and gas meters (generally phased out in favor of the safer oil diffusion pump). Care must be taken with mercury in glass thermometers.
- Only vacuums designed specifically for mercury should be used to clean up spilled mercury.
- When spilled, mercury breaks into many small droplets that can be dispersed over a large area: avoid spreading mercury contamination by restricting access to the spill area and only use the designated cleaning tools (e.g. mercury approved vacuum).
- If mercury has spilled onto a hot surface (hot steam pipe, heating element) evacuate the room, as high concentrations of vapor could be present.

*Major Spill & Decontamination – Call Enviro-Vac Head Office: 1-888-296-2499*

## ENVIRO-VAC SHRINK-WRAP CONTAINMENTS

Enviro-Vac’s engineered & durable shrink-wrap containment systems have provided solutions to organizations of all sizes for an endless number of diverse applications. Enviro-Vac consistently sets the highest standards for reliability and “on budget - on time” performance in a variety of industrial and specialized markets including Weather Wrap for winterization of scaffolds or structures to keep the cold wind and snow out.

## ENVIRONMENTALLY FRIENDLY

Enviro-Vac's shrink-wrap is an environmentally friendly method of containing hazardous

materials and creating airtight negative pressure enclosures. The shrink-wrap keeps airborne contaminants IN and the rain, snow and wind OUT. This reduces downtime due to weather and other external factors.

Enviro-Vac's shrink-wrap is a state-of-the-art specially formulated, high strength polyethylene film that shrinks when heat is applied. The heated plastic film shrinks to create a perfect fit around any object, framework, or engineered scaffolding, is fire retardant, and has UV inhibitors.



*The Ultimate  
Environmental  
Containment System*

## INDUSTRIAL & COMMERCIAL USES

HAZMAT containments, restoration, construction, renovation, painting, sandblasting, demolition, hot work projects, winterization, fire/water damage, shipping and general containment/enclosures/scaffold-netting.

## MOULD REMEDIATION

Mould contamination is a common occurrence in water damaged buildings and a proven serious health risk. Immediate mould remediation is key. If the building has had current or past water damage, particularly to building materials, a microbial investigation by professional mould consultants is warranted and should be performed by a consulting company with microbiology or toxicology experience. Enviro-Vac has an obligation to avoid conflicts of interest and will not perform any consulting services. Third party professionals should be utilized .

Enviro-Vac has the expertise and resources to handle all other aspects of mould remediation projects - from start to finish. Enviro-Vac can provide full turn-key services and effective solutions to mould problems that may arise in your building. We have the expertise to conduct thorough and comprehensive mould abatement using state-of-the art techniques and industry accepted procedures.

One of the most important factors in any mould abatement project is the need for 3rd party liability. This is a system of quality control and documentation that Enviro-Vac with its network of resources can provide. Enviro-Vac is one of very few companies in Canada capable of providing comprehensive liability insurance that DOES NOT have exclusions for asbestos or mould and INCLUDES environmental liability coverage for pollution.

## RAPID RESPONSE & DEPLOYMENT OF RESOURCES

Providing 40-years of discrete, often unique emergency decontamination requirements for every type of building, facility, power plant, pulp mill, mine & ships.

### RAPID DEPLOYMENT

Rapid deployment of resources, successfully delivering and out sourcing if required, all the necessary components of trained personnel, and a variety of equipment required for a major asbestos, lead or mercury cleanup event. Equipment consisting of, but not limited to; large mobile decontamination trailers, HEPA industrial vacuum loaders and automated baggers, scaffold & shrink-wrap containment systems, skid-steers, forklifts, power generators and lighting towers, man-lifts, waste disposal bins, roll-off trucks, special waste stream disposition and much more.

### EFFECTIVE RAPID RESPONSE REQUIREMENTS

Hazardous materials abatement is a highly regulated and specialized industry... you can depend on Enviro-Vac to:

- Provide an effective risk-assessment, exposure control / customized safe work plan,
- Mobilize resources and skilled workers from various locations if required,
- Work with or provide pre-qualified third-party environmental consultants,
- Isolate & contain the contaminated area - install negative pressure shrink-wrap containments if / when required,
- Provide on-site cleaning and decontamination-recovery of salvageable items,
- Provide structure / facility decontamination – 24/7 shifts if required.

The rapid deployment of mobile decontamination trailers and HEPA industrial vacuum loaders can play a significant role in the successful, abatement and cleanup of asbestos, lead or other contamination.

Regardless of contamination levels, Enviro-Vac will ensure abatement and decontamination methods and procedures meet and or exceed regulatory requirements.





# Case Studies

## ARSENIC DECONTAMINATION

### ARSENIC TRIOXIDE & CYANIDE DECONTAMINATION IN CANADA'S SUB-ARCTIC

**Yellowknife, NWT** – An abandoned gold mine was found to be contaminated with substantial amounts of arsenic trioxide, asbestos & sodium cyanide. The above ground facilities and buildings needed to be demolished and a thorough decontamination of the structures were required prior to deconstruction.

### THE ENVIRO-VAC SOLUTION

- Develop Risk-Assessments, Exposure Control Plans & JSA's
- Install engineered shrink-wrap containment & negative pressure systems
- Install mobile decontamination trailers, industrial vacuum loaders and automated baggers

### SPECIALIZED REMEDIAL ACTION & TECHNICAL APPROACH

Work was completed using high-risk abatement / decontamination methods utilizing engineered, fire-rated shrink-wrap containments that were installed over and around facilities that required decontamination. Containment structures were placed

under negative pressure to draw air and any potential contaminants and dust inward to prevent any leakage to the environment. In addition, all of the air inside the fire-rated, shrink-wrapped enclosure was filtered through high-efficiency filters before being released.

The initial process of arsenic trioxide and asbestos removal was done with a specially designed, diesel powered HEPA hazardous debris vacuum which picks up the contaminants and places the contaminated debris into sealed containers through the use of automated baggers thus ensuring the contaminated material does not come into contact with workers or the atmosphere. Surfaces within the buildings were vacuumed & washed, inspected and tested to confirm complete decontamination. All material collected is packaged,

cleaned and removed from the structure.

Enviro-Vac continued to place the highest priority on the health and safety of workers, especially due to the extreme hazard of Arsenic trioxide. The preservation of the environment is always a close second to the wellbeing of the personnel on all Enviro-Vac projects. An intensive, all-embracing and meticulous environmental safety & health monitoring method was developed specifically for this project and utilized through all phases of the project - by third party consultants.

## THERMAL STRESS

### **TRANSALTA UTILITIES CORP. EDMONTON: CONSULTANTS – GOLDER ASSOCIATES**

Remove and replace existing refractory with respect to reducing hazardous airborne contaminants. Remove asbestos containing cement material and replace with 8 lb density mineral wool insulation to existing boiler buck stays at the Sundance Power Plant without having the boiler shutdown. Hot work completed:

- Remove and reapply approx 7,300 square feet of cladding
- Remove and reapply asbestos insulation from various valves
- Construct approx 26,000 square feet of hoarding c/w decontamination facility to allow for high risk, hot removal of asbestos insulation from 17 Buck Stays. Enclosure was constructed with a shrink-wrap made of 9-mil thermo plastic high strength polyethylene. Workers were equipped with all the latest state-of-the-art cooling & PPE and worked to a threshold limit value of 25% work / 75% rest, each hour.

Project was completed over duration of approx 5-months at an approx value of \$1.2 Million

### **CITY OF VANCOUVER: CONSULTANTS – GLEN CUMYN, SFE ENVIRONMENTAL**

Asbestos abatement from boiler in an active Steam Plant. The steam plant had to remain active and required Enviro-Vac abatement crews to remove the asbestos insulation under extreme heat conditions as per WCB high-risk work conditions utilizing air-conditioned decontamination rooms, ice vests, negative air systems and multiple rotating shifts.

### **UNIVERSITY OF BRITISH COLUMBIA (UBC)**

Underground high pressure steam Lines required high-risk asbestos abatement utilizing pressure demand, confined space work procedures. The area encompassed several kilometers with access / egress points restricted to approximately thirty manholes. Work procedures required vacuum loaders for material extraction and air movement in addition to large industrial vacuum trucks for negative air, Kool-Vest for heat stress & Kevlar gloves

for worker protection. A Roll-Gliss hook-up system for emergency worker extraction was utilized at this active campus. Project required several months to complete.

### **ST. PAUL'S HOSPITAL: CONSULTANTS – STAN PRICE, ASTECH CONSULTANTS**

Perform asbestos abatement in an occupied hospital while maintaining operation of the boiler room. Project required the removal of asbestos insulation from steam pipes within boiler room and associated interstitial spaces. Work was performed as per WCB high-risk procedures utilizing heat stress controls. Project was completed in two weeks.

## ASBESTOS ABATEMENT

### **ASBESTOS CONTAMINATED SOIL REMEDIATION**

**Surrey, BC** – An active gypsum manufacturing facility discovered they had a large area of gypsum waste containing asbestos mixed with soil at the back of their property. The waste had accumulated over the years before the dangers of asbestos were known and now required remediation due to communication wires buried in the waste. Excavators could not be used due to the presence of the communication wires that could not be disrupted. Enviro-Vac was asked to provide a solution.

### **RISK-ASSESSMENTS**

Before cleanup of asbestos-contaminated soil could commence, a comprehensive risk-assessment and exposure control plan were developed which required in part, an evaluation of the contaminated ground cover and included, numerous soil samples to determine the percentages of asbestos and presence of other potentially harmful compounds within the soil. Additionally, an evaluation was required to determine the depth of the soil contamination and formulate a safe scope of work that would not damage buried communication cables or cause asbestos and/or other contamination present to become air-borne. Removal of asbestos contaminated ground cover can pose a significant risk to air quality if not properly removed.

### **THE ENVIRO-VAC SOLUTION**

Working with the clients Environmental Health & Safety Department and engineering staff, Enviro-Vac developed a suitable plan to meet the necessary schedule, safely and on budget. Enviro-Vac developed procedures for removal of contaminated ground and utilizing diesel powered industrial vacuum loaders with self contained automated baggers, removed the contaminated soil to a depth of approx six feet for a total weight of approx 250 tons. Contaminated soil was bagged in 1-meter super sacks and safely disposed of.

As the work area was highly visible to the public all abatement work was done underneath a specially erected shrink-wrap containment barrier installed by Enviro-Vac.

# Strategic Alliances

## INDIGENOUS PARTNERSHIPS

Enviro-Vac has a long history of working with First Nations communities having developed partnerships and strategic alliances with many First Nations groups. We work closely with them to better understand and serve the needs of aboriginal communities across Canada. We are committed to working with members in the community to leave behind a legacy of skilled trades people and help First Nations' people strengthen their capacity in the area of environmental remediation and hazardous materials abatement.

Enviro-Vac has formed a partnership with **Stalkaya Environmental Ltd.**, a majority owned Squamish First Nations Company specializing in decommissioning, demolition and decontamination of buildings, structures and contaminated lands. We are guided by a Four Pillars approach to partnership that was developed by the Squamish Nation to ensure equitable benefits are agreed upon, and gained, by corporate partners and the community. The integrated model uses First Nations partnerships and companies including educational institutions and training facilities to recruit, coach, train, and place aboriginal workers within our highly trained work force whenever applicable on our projects.



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