



Safe Work Practices / Procedures / Instruction

Occupational Asbestos Exposure Control Plan

Statement of Purpose and Responsibilities

If a worker is or may be exposed to potentially harmful levels of asbestos, the employer must develop and implement an exposure control plan meeting the requirements of [section 5.54](#). To ensure adequate coordination of the overall plan, the employer must ensure that it is administered by a properly trained person. Compliance with this regulation is mandatory and provides a basis for both employers and workers to work together to solve health and safety issues by successfully identifying potential hazards.

The Asbestos Exposure Control Plan (AECPP) is intended to detect, assess and control any potential health hazard caused by the presence of asbestos identified within our work. The primary focus of the plan is to eliminate accidental worker and/or contractor exposure to asbestos fibres and to ensure the health and safety of workers and visitors. To accomplish these goals, Sonic Drilling Ltd has developed an AECPP. Specific work procedures, general work practices and training to facilitate the implementation of the Plan are an integral part of this document.

Sonic Drilling Ltd is committed to ensuring the well-being of its employees and contractors and to this end has developed an Asbestos Exposure Control Plan (AECPP) for our scope of work in order to satisfy these needs with regard to asbestos issues.

Management Responsibilities:

Management responsibilities include:

- Co-ordination of work activities that relate to asbestos containing areas.
- Informing personnel and contractors of asbestos locations.
- Asbestos identification.
- Inspection and reassessment procedures.
- Program review.
- Safe Work procedures.
- Worker awareness training.
- Ensuring work is carried out using appropriate Safe Work Procedures.
- Ensuring workers at risk have appropriate training.
- Emergency work procedures.
- Waste management.

The owner or the principal contractor must ensure that the WCB receives a Notice of Project at least 24 hours before beginning work on the following types of projects:

- Removing, encapsulating or enclosing friable asbestos building materials.
- Demolishing, dismantling or repairing any part of a structure or building in which insulating materials containing asbestos have been used or in which asbestos-containing products have been manufactured.



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Employee Responsibilities:

Employee responsibilities include:

- Ensuring asbestos containing materials are not damaged or disturbed in areas they occupy.
- Informing supervisors and management of any damage to asbestos containing materials.
- Follow Safe Work Procedures as outlined in this Exposure Control Plan.

What is Asbestos?

Asbestos is a naturally occurring material once used widely in the construction industry. Its strength, ability to withstand high temperatures, and resistance to many chemicals made it useful in hundreds of applications.

However when asbestos is inhaled, it can be harmful and lead to the following diseases:

- asbestosis
- lung cancer
- mesothelioma (cancer of the lining of the chest and/or abdomen).

Asbestos Recognition

Asbestos is the generic name for a group of naturally occurring fibrous minerals. Asbestos colour may range from white to a pale yellow, green or blue. Asbestos fibres are very harmful to the lungs. They may cause lung scarring (asbestosis), lung lining scarring (pleural scarring), cancer of the lung lining (mesothelioma) and lung cancer.

Time lapse before the disease becomes evident may be 20-40 years. Workers who smoke have a 10-15 times greater risk of lung cancer from asbestos exposure than workers who do not smoke.

The high strength, flexibility, heat and chemical resistance, and frictional properties of asbestos led to its widespread use in electrical insulation, high strength asbestos cement products, pipe covering, floor tiling and asphalt. A good measure of the hazard posed by asbestos is its friability - the ease with which it can be crumbled or pulverized. Products with "bound" asbestos do not pose a hazard unless they are cut, sawn, ground or sanded.



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Health Monitoring

Health monitoring for asbestos requires supervisors, employees, and management promptly reporting any suspected exposures or symptoms which can be linked to exposure to asbestos.

These suspected exposures and symptoms shall be reported to Sonic Drilling Ltd First Aid and the Supervisor for further investigation. Chronic exposure to asbestos may increase the risk of lung cancer, mesothelioma, and nonmalignant lung and pleural disorders. Shortness of breath is the primary symptom of health effects due to exposures to asbestos.

Other symptoms include a persistent and productive cough, chest tightness, chest pain, loss of appetite, or a dry, crackling sound in the lungs while inhaling. Cigarette smoking greatly increases the likelihood of a person developing lung cancer as the result of asbestos exposure.

Potential Health Effects of Asbestos

Asbestos has been recognized as a health hazard for people employed in its production and processing for centuries. However, it was not until the late Nineteenth century, with the onset of the Industrial Revolution, that its use became widespread, and it was not until the early part of the Twentieth century that the relationship between the use of asbestos and a variety of health effects became a source of concern to the medical profession.

Since the beginning of this century many serious, debilitating and often fatal diseases have been linked to the respiration of asbestos fibers. Although the mechanism of asbestos related diseases is still not fully understood, it is known that there is normally a long waiting (latency) period between the time of exposure and the occurrence of disease. This latency period can typically be between ten to over forty years.

Asbestosis, Mesothelioma and Lung Cancer are the diseases most commonly associated with asbestos exposure, although several other diseases have been linked to asbestos exposure.

Asbestos Use

Asbestos was inexpensive to mine and has some very useful physical properties. As a result, it has been used in over 3000 different commercial products worldwide.

Some of these physical properties include:

- High temperature resistance
- Tensile strength greater than steel
- Good soundproofing properties
- High chemical resistance
- Good electrical insulating properties
- Good mechanical strength



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Asbestos has been widely used in building construction over many years and some uses continue today. Asbestos products are generally classed into two groups: friable and non-friable.

Friable materials are those that, when dry, can be crumbled, pulverized or reduced to powder using moderate hand pressure. The use of friable materials in construction is banned today but due to its widespread use in the past, these materials are still present in many buildings today. In order to establish a proper AECOP, the possible uses of asbestos must be known.

Risk Identification, Assessment and Control

Supervisors must ensure a risk assessment is conducted by a qualified person on asbestos-containing material identified in the inventory, with due regard for the condition of the material, its friability, accessibility and likelihood of damage, and the potential for fibre release and exposure of workers.

Supervisors also must ensure that a risk assessment has been conducted before any demolition, alteration, or repair of machinery, equipment, or structures where asbestos may be disturbed.

Before work involving asbestos takes place the supervisor must ensure that a qualified person assesses the work activity and classifies it as a **low, moderate, or high risk** activity.

Hazard Control

Supervisors must ensure that a friable asbestos-containing material in the workplace is controlled by removal, enclosure or encapsulation so as to prevent the release of airborne asbestos fibre and must not allow any work that would disturb friable asbestos-containing material unless necessary precautions have been taken to protect workers. If there is a risk to a worker from exposure to a hazardous substance by any route of exposure, the employer must eliminate the exposure, or otherwise control it below harmful levels and below the applicable exposure limit established under the WorkSafeBC regulation [section 5.48](#) by:

- substitution
- engineering control
- administrative control, or
- personal protective equipment.

When selecting a suitable substitute, the employer must ensure that the hazards of the substitute are known, and that the risk to workers is reduced by its use. The use of personal protective equipment as the primary means to control exposure is permitted only when:

- a) substitution, or engineering or administrative controls are not practicable, or
- b) additional protection is required because engineering or administrative controls are insufficient to reduce exposure below the applicable exposure limits, or
- c) the exposure results from temporary or emergency conditions only.

IMPORTANT

The qualified person referenced above must be an occupational health and safety professional with experience in the practice of occupational hygiene as it relates to asbestos management.



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Training

Worker training is a regulated requirement for all individuals that may have cause to come into contact with asbestos containing materials during the normal course of their work. The training for workers that may inadvertently disturb asbestos containing materials will typically be less involved than that of contracted workers, who will be required to show that they have had the relevant training.

Sonic Drilling Ltd personnel will be required to recognise any damaged materials or debris that they may encounter and report their findings immediately to their supervisor for action.

All contract employees working in areas containing asbestos containing materials will be responsible for adequately training their workers to deal correctly with the hazard.

The training program will be carried out by an asbestos specialist with expertise in the area and should include:

- An asbestos awareness program, including health effects and elements of risk.
- Training in the use of protective clothing and equipment, work procedures and air monitoring.
- An appreciation of current WCB Regulations.
- The use of respirators and their maintenance.
- An awareness of the company AECP.

Documentation

All documentation that is related to training and instruction must be maintained for a minimum of 3 years. Additionally, records of corrective actions to control asbestos fibre release, written work procedures and all written WorkSafeBC notifications must be maintained for a minimum of 3 years as well as documentation of asbestos-containing materials inventories and risk assessments, inspections and air monitoring results for a minimum of 10 years.

Sonic Drilling Ltd must maintain documentation of asbestos-containing materials inventories and risk assessments, inspections and air monitoring results for a minimum of 10 years.

Program Review

The Asbestos Exposure Control Plan (AECP) must be reviewed annually for the following:

- The capability of **Sonic Drilling Ltd** to disseminate the program to incoming contractors
- The effectiveness of the program as it applies to ensuring employees and contractors are not exposed to airborne asbestos fibres
- Document control

The annual review will be done in consultation with the Joint Occupational Health and Safety Committee.



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Safe Work Procedures

The employer must ensure that procedures for handling or using asbestos-containing material prevent or minimize the release of airborne asbestos fibres and must ensure that the procedures for control, handling or use of asbestos are in accordance with procedures acceptable to WorkSafeBC.

The procedures must address:

- containment of asbestos operations where applicable
- control of the release of asbestos fibre
- provision, use and maintenance of appropriate personal protective equipment and clothing
- means for the decontamination of workers, and
- removal of asbestos waste and cleanup of asbestos waste material
- The procedures must provide a worker with task-specific work direction that addresses both hazards and necessary controls.

If workers unexpectedly discover a material they believe may be asbestos where they are working (e.g.: inside a pipe chase), they must alert their supervisor immediately.

The supervisor will take immediate actions including:

- alerting workers in the vicinity to the presence of the material,
- removing the workers from the environment where exposure may occur,
- restricting access to the area and posting warning notices,
- contacting an approved asbestos removal contractor to take a sample, and provide an assessment,
- where necessary, coordinating the removal or encapsulation of the asbestos
- filing a complete report to head office.

In circumstances where it is necessary that work continue in the hazard area, workers who may be affected by the presence of asbestos will be provided with written procedures and protective clothing and equipment, which must be used.

Also see Sampling and Assessments

Note: To remove Asbestos a worker requires knowledge of the type of asbestos, knowledge of the proper choice and use of PPE and Respirators, understanding of containment procedures and knowledge of proper handling, storage and waste removal procedures. **For type 3 removals, training is a legal requirement.**

DO NOT REMOVE OR DISTURB ASBESTOS CONTAINING MATERIAL. IF YOU ARE INSTRUCTED TO DO SO, STOP WORK AND CONTACT YOUR SUPERVISOR. ONLY LOW RISK ABATEMENT ACTIVITIES WILL BE UNDERTAKEN. HIGH RISK ABATEMENT PROCEDURES WILL BE CONTRACTED OUT.



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Asbestos “Low Risk” Work Activity Procedures

Low-risk work activities include working near undisturbed friable asbestos-containing materials. Another example is moving asbestos-containing waste material that is contained within a cleaned, sealed bag and then double-bagged involved in such activities should have some knowledge of the hazards of asbestos and the location of the materials.

Supervisors must clearly identify all locations of asbestos containing materials, and ensure that all workers have been instructed in any work procedure restrictions needed to prevent contact with asbestos-containing materials.

Asbestos “Moderate-risk” Work Activities

Activities that carry a moderate risk of exposure to airborne asbestos fibres include:

- Using hand tools to cut, shape, drill, grind, or remove non-friable manufactured products containing asbestos, e.g., asbestos cement pipe
- Drilling (with wetting agents, or with local exhaust ventilation) through non-friable asbestos-containing materials
- Backing mounting screws out of asbestos cement products and removing the boards or tiles intact
- Buffing floor tiles with a coarse disc
- Collecting asbestos samples for laboratory analysis
- Analyzing samples of asbestos or asbestos-containing materials in a laboratory
- Removing any part of a false ceiling to gain access to a work area (for example, during inspection) when friable asbestos containing materials are, or are likely to be,
 - lying on the surface of the false ceiling
- Removing drywall materials where joint-filling materials containing asbestos have been used
- Removing vinyl-asbestos floor coverings or other non-friable materials where the procedures do not create any friable waste
- Removing an entire piece of equipment or pipe with the asbestos-containing material remaining effectively intact (“wrap and cut” procedure)
- Demolishing a block wall (of cement, for instance) that has asbestos debris in its cavity
- Note: The amount of asbestos contamination found when the cavity is open may change the risk level to high.
- Dismantling a treated enclosure at completion of an asbestos removal project
- Setting up and removing a glove-bag apparatus for the removal of pipe insulation when the insulation is in good condition
- Using a prefabricated glove bag to remove asbestos insulation from piping systems
- Note while the area outside a glove bag is considered a moderate-risk area, the work activity inside a glove bag is considered high-risk; if a glove bag is torn or punctured, the risk level outside the bag automatically increases and the site-specific emergency procedures must be implemented.



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Clean-up activities that carry a moderate risk of exposure to airborne asbestos fibers include:

- Using a HEPA-filter vacuum to clean ceiling tiles or light fixtures with light to moderate contamination
- Using a HEPA-filter vacuum to clean an area before setting up an enclosure
- Dismantling a treated enclosure at completion of an asbestos removal project
- Setting up and removing a glove-bag apparatus for the removal of pipe insulation when the insulation is in good condition
- Using a prefabricated glove bag to remove asbestos insulation from piping systems
- Note While the area outside a glove bag is considered a moderate-risk area, the work activity inside a glove bag is considered high-risk; if a glove bag is torn or punctured, the risk level outside the bag automatically increases and the site-specific emergency procedures must be implemented.

Asbestos “Moderate-risk” Procedures

Anyone involved in any moderate-risk work activity must follow written work procedures similar to those described here. To ensure that anyone in or near the work area is not exposed to airborne asbestos fibers, the following must be done:

1. Clearly mark the designated work area boundary by placing barricades, fences, or similar structures around the work area.
2. Place signs around the work area warning people not to enter the area unless authorized to do so.
3. Wear appropriate protective clothing:
4. Wear a respirator fitted with a “100” (HEPA) filter.
5. Do not use compressed air to clean up or remove dust or materials from work surfaces or clothing.
6. Use polyethylene (poly) drop sheets and seal windows, doorways, and other openings to prevent the spread of asbestos dust to other work areas.
7. Before starting any work that is likely to disturb friable asbestos-containing materials on the surfaces of anything in the work area, clean up the friable materials by damp-wiping or using a vacuum cleaner equipped with a HEPA-filtered exhaust.



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8. During the work, clean up dust and waste (wetted if possible) using a vacuum cleaner equipped with a HEPA-filtered exhaust, or by wet-sweeping or mopping.

9. Immediately upon finishing the work, complete the following tasks:

- Wet drop sheets and barriers.
- Fold them to contain any remaining dust.
- Bag or place them in a sealable container.
- Dispose of them as asbestos waste.

10. Before leaving the work area, complete the following tasks:

- Clean protective equipment and clothing by damp-wiping or using a vacuum cleaner equipped with a HEPA-filtered exhaust before taking them outside the contaminated work area.
- Leave any protective clothing worn in the work area in the designated storage area or facility for cleaning, or place disposable protective clothing in a sealable container and dispose of it as asbestos waste. Launder non-disposable clothing

11. Place asbestos waste in a sealable container and label the container to identify its contents, hazard(s), and the necessary precautions for handling the waste materials. To prevent any interference with the work activity, do not allow containers of asbestos waste to accumulate in the work area. Remove containers from the work area at the end of each work shift, if not more often, and ensure that the containers remain under effective control if they are stored at the worksite before being disposed of.

12. Before removing asbestos waste containers from the work area, clean their external surfaces by wiping with a damp cloth or using a vacuum cleaner equipped with a HEPA filtered exhaust. Double bagging is a good practice.

13. After completing the work, provide the owner or employer occupying the area with documentation stating that it is safe for unprotected workers to re-enter the work area.

Decontamination of Workers

Our company as well as sub-contractor procedures must have written decontamination procedures for the provision and use of hygiene facilities and decontamination procedures whenever we/they perform moderate or high risk work with asbestos.

Waste Handling and Disposal

All asbestos waste and other waste contaminated with asbestos, including disposable protective clothing and equipment must be placed into sealed containers and labeled as containing asbestos.

This must be performed in the designated work area. The containers must be cleaned with a damp cloth or vacuum-cleaner with a HEPA-filtered exhaust prior to removal from the designated work area. Once sealed and cleaned, the asbestos waste must be disposed of promptly at an authorized landfill.



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DEMOLITION (Asbestos Removal)

The preceding and following procedures must be followed when determining if any materials on the demolition site contains asbestos:

1. The employer or contractor is responsible for determining if materials containing asbestos are present at the job site before work begins.
2. If asbestos materials are found, only trained and qualified workers must remove and dispose this material before any work begins.

If during work activities, materials are found to contain asbestos, all work must be stopped immediately and must be reported to the supervisor.

Refer to the list below showing possible locations of asbestos.

Exterior Surfaces

- Deck under sheeting
- Cement asbestos board siding & under sheeting
- Roof felt & shingles
- Window putty

Interior Surfaces

- Sprayed-on acoustical ceilings
- Acoustical tiles
- Textured paint
- Heat reflectors (woodstoves)

Appliances

- Refrigerators, freezers, portable dishwashers
- Toasters, slow-cookers
- Ovens, hair dryers (not shown) & portable heaters (not shown)

Electrical Equipment

- Lamp sockets
- Outlet and switchboxes
- Insulation on knob and tube wiring
- Recessed lighting
- Main panel and fuse boxes

Insulation

- Loose blown-in full insulation
- Batt insulation

Built-in Equipment

- Water heaters
- Range Hoods
- Clothes dryers
- Dishwashers

Flooring

- Heat source-covering
- Air duct-lining
- Door and cover gaskets
- Pipe-lagging
- Wall gaskets and lining

Heaters & Piping

- Heat source-covering
- Air duct-lining
- Door and cover gaskets Pipe lagging
- Wall gaskets and lining

Miscellaneous

- Cat box aggregate (sand or clay)
- Fireplace logs
- Asbestos hot pads
- Asbestos gloves



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Sampling and Assessments

The first step towards safeguarding workers is to conduct an asbestos hazard assessment.

The assessment involves collecting representative samples of materials throughout the work area.

The following steps are the components of the sample collection method conducted for the work area. These procedures are also to be used to collect additional samples for specific projects or additional sampling of unidentified materials should that be necessary.

- All persons working in the immediate area of the sampling will be informed as to the nature of the work being carried out and suitable precautions will be taken to prevent them from being exposed to airborne asbestos fibres. If practicable, only the person collecting the material (sample) should be present in the area.
- A representative sample shall be taken from within the suspect material by penetrating the entire depth of the material. One sample should be taken from each different floor or area of material of different appearance. Mechanical insulation must be sampled on all straight runs, elbows and fittings on piping as well as from tanks, vessels and furnaces.
- The material should be sampled when the area is not in use. Only persons needed for sampling should be present in the immediate area.
- The material to be sampled must be sprayed with a light mist of water to prevent fibre release during sampling and the material must not be disturbed any more than absolutely necessary.
- The use of a respirator during sampling is normally required, since significant amounts of airborne fibres can be generated during sampling of deteriorating materials.
- If pieces of material break off during sampling, the contaminated area must immediately be cleaned up with a vacuum cleaner equipped with a **High Efficiency Particulate Aerosol (HEPA)** Filter or by wet cleaning. Small amounts of material must be placed in plastic ziplock bags, labelled, sealed and disposed of as asbestos waste, using the approved waste disposal procedure.

Samples shall be submitted to a qualified laboratory for analysis. Laboratories selected shall use a combination of both Polarized Light Microscopy (PLM) and Dispersion Staining following the Analytical Method 205 of the Workers' Compensation Board of British Columbia.

The laboratory selected will have a Quality Assurance Program in place consisting of:

- Intra-laboratory re-analysis of samples.
- Regular checks for contamination.
- Regular calibration of microscopes.
- Complete sample records and storage of samples and records.

In addition, all personnel performing analysis will have been trained in a documented and thorough in-house training program or an approved accredited Asbestos Analysis course.



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Documentation of Results

The results (whether positive or negative for asbestos containing) shall be documented in a readily accessible format and shall be available to personnel, contractors and any workers likely to come into contact with asbestos containing materials during the course of their work.

The report should include:

- A list of all materials containing asbestos.
- Comprehensive results of sample analysis.
- Description by area or location of all sample locations.
- A list of materials requiring prompt removal due to severe deterioration.
- A list of materials requiring minor removal or repair due to slight deterioration.

The hazard assessment report will be in the custody of the AECF Supervisor, who will inform all workers likely to disturb any asbestos containing material. This will permit them to use appropriate procedures to protect both themselves and other building occupants from the release of any airborne asbestos fibres. Ready access to all sample analysis results and this AECF plan must be provided to all workers who may come into contact with asbestos during the course of their employment.

Visual Re-Evaluation

All asbestos containing materials identified in the survey shall be re-inspected visually on a regular (minimum requirement is annually) basis. The re-inspection shall be performed by either the same person who carried out the initial survey or by a technical expert. Further samples will not be needed, but the re-evaluation must encompass all factors originally noted and should concentrate on any signs of deterioration, delamination or disturbance by workers, renovation or construction activity. In the event of disturbance of friable material by water leak, structural failure or other unforeseen occurrence, all asbestos in the area shall be re-evaluated promptly.

Any recommendations made as a result of these inspections will include details regarding the priority, nature and extent of any corrective actions.

Common corrective actions are:

- Encapsulation of damaged or exposed materials.
- Repair of damaged asbestos materials.
- Removal of damaged or exposed materials.

It is essential that maintenance procedures and contract documents include information regarding the presence of asbestos containing materials. Consideration must be given to the need for protection of all personnel, contractors and service workers that may be affected by this work.



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HAZARD AND EXPOSURE ASSESSMENT SUMMARY

Building / Area:

Total Area (m²): _____ Number of Persons: _____

Type of Construction: _____

Use: _____

Sprayed-on Material: Yes _____ No _____ Date: _____

This form should be completed even in the absence of sprayed or textured asbestos containing materials and should be kept on file for future reference.

Materials

Location of Material (Identify room or space and location and surface area in m² of material):

Location	Area
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Asbestos Content: Yes _____ No _____

Type of Asbestos: _____ (State % where determined _____ %)



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Exposure Assessment

Carry out an exposure assessment in each room or space where sprayed or textured asbestos containing materials are located. Mark the appropriate rating.

Factors

Condition of Material

- A. Good condition _____
- B. Minor damage _____
- C. Poor condition _____

Water Damage

- A. No water damage _____
- B. Minor water damage _____
- C. Moderate to major water damage _____

Exposed Surfaced Area

- A. Insulation not exposed _____
- B. 10% or less exposed _____
- C. More than 10% exposed _____

Accessibility

- A. Not accessible _____
- B. Rarely accessible _____
- C. Accessible _____

Potential For Disturbance

- A. Low _____
- B. High _____

Air Plenum and Air Stream

- A. No air plenum or air stream _____
- B. Air plenum or air stream _____

Friable: Yes _____ No _____



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Definitions

- Good condition means no water damage, physical damage or deterioration.
- High potential means that ACM is exposed or accessible, in an air plenum or airstream, or is subject to vibration.
- Friable means a material which, when dry, can easily be crumbled or powdered by hand.

Analysis

Corrective Action: Yes _____ No _____

Risk Classification (Indicate risk to workers and provide explanation for classification)

- Low** Explain: _____
- Moderate** Explain: _____
- High** Explain: _____

Remarks / Comments

Additional sheets may be attached.