July 2012 - BEAR SAFETY SITE AUDIT REPORT

Agnico-Eagle Mining

Meliadine Lake Camp

Meliadine Lake, Nunavut

Andy McMullen's

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Meliadine Lake Camp
Bear Safety Site Audit - July 19th, 2012

The purpose of a "BEAR*WISE*" bear safety site audit is to assist clients who wish to make their camps safe for their employees and keep wildlife out. Based on over 20 years experience working with mining/exploration industry in the Northwest Territories and Nunavut, "BEAR*WISE*" is able to offer practical and workable solutions to deal effectively with wildlife safety issues.

The audit is not a fault finding mission. "BEAR*WISE*" notes potential problems and acknowledges the positive efforts which the client is taking that contribute to a wildlife safe camp.

The Meliadine Lake bear safety site audit focused on four key areas:

- Greywater – non-sewage wastewater
- Garbage Management – including Incineration and garbage handling practices
- Kitchen Management Practices – including food handling and storage
- Camp Layout and Design – including structure spacing, skirting, lighting and windows

During the site audit BEAR*WISE* was accompanied by Agnico Eagle Mining (AEM) Environmental Department staff – Martin Archambault, Philip Roy and Jimmy Kilabuk, as well as Nunavut Department of Environment (DOE) officers, Chris Hamlyn and Joe Savikataaq Jr.. Before leaving site BEAR*WISE* discussed initial audit findings with Meliadine Lake Site Supervisor Guylain Boucher and AEM Environmental Department staff Martin Archambault and Philip Roy looking for practical ways to address teh identified problems..

Key recommendations:
Based on it's evaluation of conditions and practices as they existed on July 19th, 2012, BEAR*WISE* recommends the following:

Greywater

1. Install the Rhino wet waste interceptor as planned.
2. Continue with plans to divert all greywater to the sewage treatment plant.

Garbage Management

Incinerator

1. Repair and operate the second new incinerator as soon as possible.
2. Continue AEM`s good practice of using dedicating trained personnel for incineration and waste management.
3. Ensure that any incinerator operator receives training in the proper operation of the incinerator according to manufacturer's instructions.
4. Consider implementing a temporary incinerator night shift for periods when larger than normal amounts of waste are expected, i.e., drill site cleanups, so that wastes do not accumulate.

Segregation and Diversion of Waste

1. Receptacles used to collect various wastes should be clearly labelled to encourage waste sorting at the source. Labels that include illustrations of the waste to be placed in the receptacles are more effective than text only.
2. Continue the excellent practice of using transparent bags in receptacles used for the collection of incinerator waste and hazardous wastes. This helps with incinerator operator safety.
3. Continue to incinerate all food and beverage containers.
4. Continue to limit the amount of waste-generating materials brought onto site.

Outside Garbage Storage

1. Do not proceed with plans to modify and place large yellow bins outside of AEM and drill contractor shops for the purposes of collecting food-related wastes.
2. Develop a garbage pickup and incineration schedule that prevents the accumulation of garbage and eliminates any storage of food-related waste outside.
3. Store any food-related waste that cannot be burned immediately inside the shipping container within the incinerator building.
4. Clearly label all yellow waste bins with a “no food waste” warning.
5. Communicate well thought out waste management practices to all employees, contractors and visitors on the Meliadine site.

Kitchen Garbage

1. Keep up the excellent work.
2. Store the garbage trailer inside the incinerator building at night.
3. Consider lining the trailer with an easily cleaned material such as sheet metal.

Camp Layout and Design

1. Instruct and remind emergency response team members to approach with extreme caution when responding to reports of a bear within a potential entrapment area of camp.
2. Complete skirting of dining building and replace skirting near the exit to the smokers room.
3. Add access doors to building skirting so that workers can get under buildings and secure the skirting as soon as they are done.
4. Consider using wire mesh to cover access doors in the skirting of the kitchen and dining buildings. Being able to see under these buildings makes it easier to detect problems that may attract wildlife.
5. Consider installing windows in or adjacent to any exit doors that lack them.

Details and further recommendations are included in the body of this report.

GREYWATER

Background: Few people give much consideration to greywater, the non-sewage wastewater, as a potential bear attractant. However experience shows that cooking fats, food particles and soaps contained in this wastewater make it a powerful wildlife attractant. Failure to properly manage greywater discharge is an invitation to trouble.

Often greywater discharges are located behind the kitchen or a short distance away from camp, out of view, especially at night, from the main camp activity areas. Bears and other wildlife are able to gain access to these areas and are often able to make repeated visits before they are detected. Once rewarded at the greywater discharge site, the bears turn their attention to the camp. For this reason each audit starts with the greywater discharge point and works back to the kitchen and camp waste management locations.

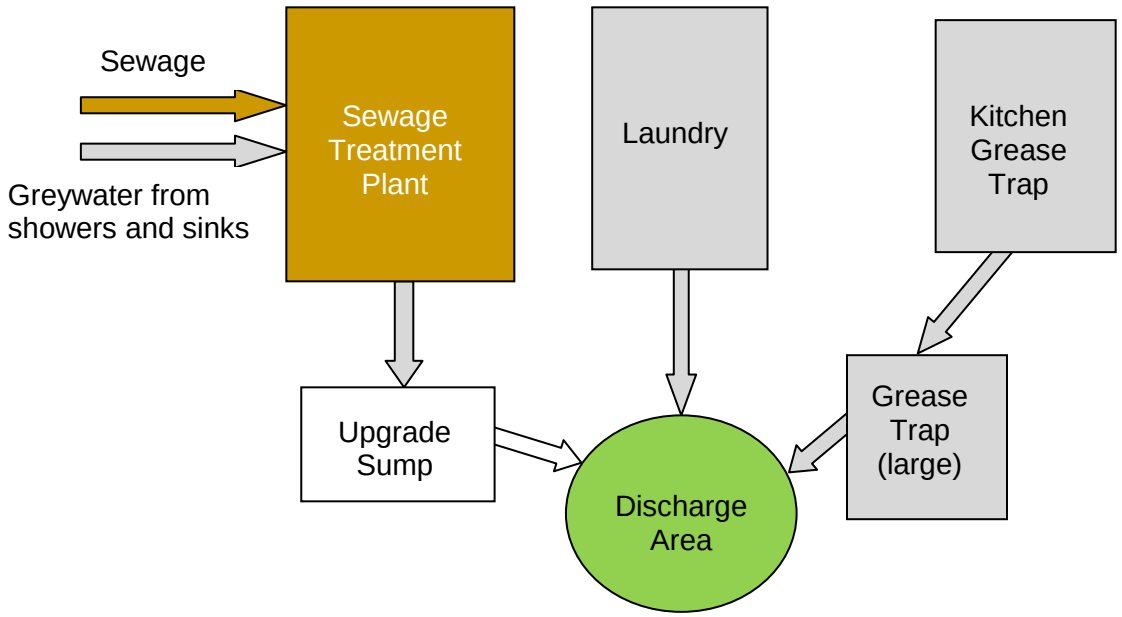
The installation of a grease interceptor downstream of kitchen sinks can significantly reduce the volume of these powerful bear attractants that get to the discharge point. Odours are decreased and the life span of the discharge area increases.

Findings:

Greywater from three separate sources at the Meliadine Lake Camp ends up at the discharge area (see figure 1). Water from showers and sinks flow to the sewage treatment plant where it is treated along with the brown water (sewage). Once treated the water from the sewage plant flows to a settling tank called a, “upgrade sump”. The discharge water from this sump flows into the discharge area.

Greywater from the laundry facility flows directly to the discharge area, greywater from the kitchen facility flows through two grease traps, an in-line grease interceptor

Figure 1: Meliadine Camp Greywater System – July 19, 2012



located below one of the kitchen sinks (see Photo 1) and a large grease trap (see Photo 2) and then to the discharge area.

Inspections of the greywater discharge area indicated that the two grease traps are preventing cooking grease residue and food particles from getting to the greywater discharge area (see photo 4 on page 6). However the in-line interceptor in the kitchen may be undersized as a lot of grease is getting to the large trap.

Photo 1. In-line grease interceptor

Photo 2. Large grease trap in kitchen discharge line.

AEM has identified the need to improve grease interception at the kitchen and is in the process of installing a “Rhino wet waste interceptor” upstream of the kitchen sinks grease interceptor (see figure2). This technology is proven effective in capturing food particles and grease before they get to the grease trap, thus the Rhino will improve the effectiveness of the in-line grease interceptor trap as well. This should reduce the amount of cooking greases flowing to the large grease trap reducing the maintenance required.

Figure 2. Rhino wet waste interceptor

Once the issues with the kitchen in-line interceptor are resolved AEM plans to eliminate the large grease trap and have the kitchen grey water flow directly to the sewage treatment plant for processing. BEARWISE was informed that it is AEM’s goal is to have all greywater flow to the sewage treatment for processing before it is released into the environment, this will practice should eliminate the problems normally associated with the greywater discharge area.

Photo 4. Greywater discharge area Meliadine Camp

GREYWATER RECOMMENDATIONS

1. Install the Rhino wet waste interceptor as planned.
2. Continue with plans to divert all greywater to the sewage treatment plant.
3. Keep up the excellent work.

GARBAGE MANAGEMENT

Poor garbage management is the root cause of most wildlife problems in camps. Proper garbage management is crucial to prevent serious consequences for both people and wildlife. Yet the job of collecting and incinerating garbage is often not stressed enough; this is an extremely important job.

Bears that get human food or food-waste may become aggressive in their attempts to get more and can cause significant property damage. In rare cases these bears have injured people. However most often it is the bear that is killed. Dealing with a bear on site can cost considerable time and money and disrupt other aspects of camp operations.

To prevent problems with bears and other wildlife, food garbage should be incinerated after each meal and never stored outside. Food should be consumed in the kitchen/dining building or designated lunchrooms, not taken back to accommodation units.

Experience from across the Arctic shows that what many consider to be a "wildlife problem" is actually a garbage problem or, worse yet, the deliberate feeding of wildlife.

Incinerator

Background: Incinerate means to burn to ashes. The only effective way to accomplish this is through the use of a properly operated and maintained oil-fired forced air incinerator. Proper incineration only occurs when the operator adheres to the manufacture's operating instructions. Failure to follow these directions can:

1. reduce the incinerator's operating life significantly.
2. result in incomplete combustion and burning of waste. This can increase the amount of pollutants being released into the environment.
3. increase operating costs.

When proper operating procedures are followed the incinerator rarely attracts wildlife. Else wise, a strong attractant can result.

Incinerator Location

Ideally the incinerator should be located in a building/structure attached by an enclosed walkway to the kitchen/accommodation complex, the greatest source of wildlife attractants (food and food wastes). With this set up food waste goes from generation to incineration without having to go outside, thereby reducing potential wildlife problems in camp significantly.

If it is not possible to attach the incinerator building to the kitchen/accommodation complex, the incinerator should be located as close as practical to this building. Placing the incinerator close to this main source of attractants reduces the manpower, time and equipment needed to deal effectively with garbage.

Findings:

The Meliadine Lake camp currently has two incinerator sites; they are referred to as the "old incinerator" and the "new incinerator building".

The old incinerator is an older model Westland diesel-fired single-chambered incinerator which is housed inside a modified shipping container. The old incinerator is poorly located as it is hidden from view (see Photo 5) making it hard for camp personnel to detect wildlife at or approaching the incinerator.

The location of the **old incinerator** may also have resulted in site inspections being done less frequently than required. The need for increased inspections of the old incinerator site was evident during the BEAR*WISE* audit.

Photo 5. The "old Incinerator" site at Meliadine

A wooden box containing food-related garbage was found behind the old incinerator shipping container (see Photo 6), containing two bags of food cans that had not been rinsed of food waste. Although the top of the box was covered with a piece of plywood, this would do little to prevent wildlife being attracted to the box. Larger wildlife such as bears could readily gain access to the garbage within the box.

Photo 6. Garbage found behind the old incinerator.

A second wooden box was found inside the incinerator building (shipping container) that also contained garbage (see Photo 7), burned and unburned food-related waste.

Photo 7. Contents of garbage box found inside old incinerator building

The area around the base of the incinerator was a mess and needs to be cleaned (see Photo 8).

The man door of the old incinerator enclosure was not closed so foxes have had easy access to food-related wastes inside. This and the careless handling of waste inside the shipping container are reasons why the majority of wildlife sightings recorded by Meliadine camp are foxes near or at the old incinerator.

The **new incinerator** site is better located and maintained. Located on the same pad and at the same level as the north side of the camp complex, camp managers can easily look from the ends of the accommodation wings N and V to check that the incinerator doors are closed at night and that no garbage is left outside. As well any wildlife approaching or near the incinerator is detected more easily.

Photo 8. Base of old incinerator

The new incinerator building is constructed using shipping containers and wood framing (see Photo 9.) One of the shipping containers is used to store any garbage that cannot be immediately placed into an incinerator.

Photo 9. Meliadine new incinerator building

The new incinerator building houses two diesel-fired forced air incinerators that have secondary burning chambers (see Photo 10). Only one of the incinerators was operational at the time of the BEAR*WISE* audit but AEM noted that the second would be repaired and running soon.

Photo 10. New Meliadine incinerator

Photo 11. Contents after a burning cycle

The types of incinerators used at Meliadine were developed for burning animal carcasses. Based on an inspection of the incinerator after a complete burning cycle, it appears that they burn camp wastes effectively (see Photo 11). However with only one unit operational, waste produced by the current camp population accumulates. AEM needs to get the second unit operational as soon as possible.

Having properly trained operators dedicated to the task of waste management is crucial to the efficient operation of the incinerator. The Meliadine Lake camp does have an incinerator operator. This good practice should continue.

The amount of smoke (see Photo 12) inside the incinerator building when the incinerator lid was opened may indicate a proper cool-down period before opening the lid is not occurring. Further training may be required

Photo 12. Incinerator lid in the open position

Until the second incinerator is operational AEM indicated that it will continue to burn cardboard waste in the old incinerator. No food-related waste is to be burned in the old incinerator; only cardboard and paper.

INCINERATOR RECOMMENDATIONS

1. Repair and operate the second new incinerator as soon as possible.
2. Continue AEM`s good practice of using dedicating trained personnel for incineration and waste management.
3. Ensure that any incinerator operator receives training in the proper operation of the incinerator according to manufacturer's instructions.
4. Consider implementing a temporary incinerator night shift for periods when larger than normal amounts of waste are expected, i.e., drill site cleanups, so that wastes do not accumulate.

SEGREGATION AND DIVERSION OF WASTE

Background: Specifically identified waste containers located throughout the camp facilities allow waste to be segregated at the source. Then less time needs to be spent sorting and separating wastes at the incinerator area. Segregating food-wastes from cardboard, non-burnable or recyclable wastes aids in the efficient operation of the incinerator and helps meet environmental standards. Use of transparent bags in the waste containers increases incinerator operator safety by allowing the contents to be inspected for possible hazardous materials (aerosols, batteries, sharps etc.) without having to spill out the contents of the bags.

Findings:

Meliadine Lake has a program in place to segregate and divert camp wastes. Clean wood, metal, electrical waste and rubber and plastic are segregated and collected using large yellow bins (see Photo 13) located in the shop and contractor areas of camp. Full

bins are taken to a designated recyclable area located southwest of camp. There the contents are inspected and placed into the appropriate containers or piles.

Photo 13. Large waste bins.

The yellow bins are labelled for segregation but the lettering has faded considerably and is barely readable. All bins should be re-labelled using a high contrast colour.

Incinerator type waste such as paper and food related garbage from the kitchen, offices, shops and common areas are collected in a variety of waste receptacles, ranging from metal garbage cans to cardboard boxes (see Photo 14 & 15). Some receptacles are labelled indicating the type of waste to be placed inside, but most are not. Waste receptacles that are intended for the collection of incinerator type waste are lined with a clear plastic bag; however so too are receptacles for batteries, aerosols and metals.

Photo 14 & 15. Range of waste containers used to collect incinerator waste

BER*WISE* has noted at other exploration sites that segregation of waste is problematic if waste receptacles are not clearly marked.

The segregation and collection of recyclable wastes such as food containers (food cans, milk jugs) and returnable beverage containers for the purpose of sending them out to collection centers creates wildlife attractants if these containers are not completely

rinsed of any food residues, especially if they are not stored securely. Meliadine camp limited the amount of returnables that come onto site. All food-related containers at Meliadine are collected with incinerator waste and sent directly to the incinerator for burning. Once through a burn cycle, these containers are free of food odours and no longer a wildlife attractant. The burned containers are segregated from the incinerator ash and placed into metal drums for storage and transport off-site.

Segregation and Diversion of Waste Recommendation(s)

1. Receptacles used to collect various wastes should be clearly labelled to encourage waste sorting at the source. Labels that include illustrations of the waste to be placed in the receptacles are more effective than text only.
2. Continue the excellent practice of using transparent bags in receptacles used for the collection of incinerator waste and hazardous wastes. This helps with incinerator operator safety.
3. Continue to incinerate all food and beverage containers.
4. Continue to limit the amount of waste-generating materials brought onto site.

OUTSIDE GARBAGE STORAGE BOXES

Food related waste should **NEVER** be stored outside. Leaking and torn bags in any storage box cause it to become a wildlife attractant. Even though the box may be emptied of its contents, odours remain. Odours, not the sight of the box, attract wildlife. Stored garbage adds another step in the waste management process since it must be moved again before ultimate disposed, so no time or labour is saved.

As well, stored garbage is often greater than what can be put into the incinerator in a single load. Consequently bags are left beside the incinerator until the first load is done and the attendant goes back to put in another load. In the meantime bears and other wildlife have ready access to this food reward, sometimes repeatedly. This quickly creates a problem. Often the final result is a dead bear.

Findings:

At the time of the BEAR*WISE* site audit the Meliadine camp did not have any outside storage boxes for incinerator type waste. This is the best practice.

However BEAR*WISE* was informed that Meliadine camp is planning to collect incinerator waste (including food wastes) in large yellow bins placed outside of AEM and drill contractor shops. Prior to placing the yellow bins in these areas, plans are to make the bins more bear resistant by making modifications similar to what was done at Meadowbank last winter (See Photo 16). **This is not a wise plan!**

The modified bins may make it more difficult for wildlife to access the garbage inside but only if the lids and access doors are securely closed. Experience from other sites, including AEM`S Meadowbank site, indicates that this is not always done (see Photo 17).

Photo 16. Example of bin modification from Meadowbank.

Photo 17. Lids are routinely found in this position.

At the time of the Meliadine audit AEM had placed a steel shipping container in the **Orbit Drilling** shop area so that garbage from shop and drill sites could be temporarily stored until it was picked up and taken to the incinerator building. As seen in Photo 18 & 19 even a very secure container would be rendered useless if people do not use it as intended. BEAR*WISE* found the door to the shipping container open and half a dozen bags of garbage on the ground immediately in front of the door. More garbage was on the ground on the south side of the container. There was evidence showing that at least some of the bags found contained food-related waste.

Photo 18 & 19. Garbage improperly stored at Orbit shop area

In bear country no food or food-related garbage should be stored outside.

All food-waste garbage should be kept indoors until it can be picked up and taken to the incinerator. Food-related waste from lunches and snacks should be stored in appropriately sized containers (metal garbage cans) inside the shops until it can be picked up and taken directly to the incinerator building. Better coordination between the drill contractors and the environment department is needed to ensure that the incinerator team is notified of garbage coming in from remote sites so that someone is there to pick

it up and take it directly to the incinerator building. If the garbage can not be immediately placed in an incinerator, it can be securely stored in the shipping containers at the incinerator building that are intended for that purpose.

The yellow bins should only be provided for the collection of non-food related waste such as clean cardboard, wood, metal, electrical waste and other non-incinerator waste. Bins should be labelled clearly with ``no food allowed`` warning.

At the **Boart Longyear** shop garbage is stored in a plywood box located outside of shop (see Photo 20 & 21). Three bags of food-related waste were found in the garbage box, this indicates that garbage pickup is not being done frequently enough.

Photo 20 and 21. Boart Longyear garbage box and contents.

The **environmental office** did not have any garbage stored outside of it but a fair amount had accumulated inside the building (see Photo 22). This accumulation was blamed on the failure of the janitor to take the garbage to the main complex for disposal. The collection of food-related wastes from all sites should be the responsibility of the incinerator crew; adding a step between generation and final disposal invites problems. Although relatively secure from wildlife, the accumulated garbage is a sign of problems with the scheduling of garbage pickup.

Photo 22. Garbage found in Environmental office

On July 21st a bag of food-related waste was placed outside of the **geology tent** frame (see Photo 23 This garbage was still there on the 22nd. People from the geology tent and the incinerator crew must have common understanding about garbage management expectations.

Photo 23. Garbage outside geology tent

Garbage issues at the **Meliadine site** are widespread. Almost every open top box or barrel inspected during the site audit contained coffee cups or beverage containers. Even an empty cardboard box left outside of the main dry entrance had been converted into a garbage box (see Photo 24).

Waste management at the Meliadine Lake site requires significant improvement.

Photo 24. Box outside of dry entrance.

Outside Garbage Storage Recommendation(s)

1. Do not proceed with plans to modify and place large yellow bins outside of AEM and drill contractor shops for the purposes of collecting food-related wastes.
2. Develop a garbage pickup and incineration schedule that prevents the accumulation of garbage and eliminates any storage of food-related waste outside.

3. Store any food-related waste that cannot be burned immediately inside the shipping container within the incinerator building.
4. Clearly label all yellow waste bins with a “no food waste” warning.
5. Communicate well thought out waste management practices to all employees, contractors and visitors on the Meliadine site.

KITCHEN

Background: Though enticing smells from cooking food may attract wildlife, the kitchen is most often located in the center of camp and is quite active. A first time wildlife visitor to camp would be reluctant to enter the kitchen area unless it had received a food reward from another location in camp or from another camp.

Though a bear may be cautious in approaching a kitchen located in the middle of camp, failure to properly manage attractants at this location can be all it takes for the bear to overcome its fear. The most common kitchen attractant management issues are:

- food storage
- cooking grease
- garbage
- barbeques.

Problematic **food storage** practices include storing food outside or defrosting meats on countertops. Wildlife will easily get food that is stored outside. Chest freezers located outside should be secured in such a way that bears and other wildlife cannot get into them. Meats should be thawed inside the fridge for both health and wildlife reasons.

Cooking grease is one of the most powerful bear attractants. This grease should be collected after each meal and incinerated with the kitchen garbage. The area around the cook stoves and grills needs regular cleaning to prevent cooking greases from building up on the surrounding walls and floor. As well the ventilation fans and hoods must be cleaned regularly to prevent grease from accumulating. The outside exhaust covers and the walls below them must also be inspected and cleaned regularly so that these do not become bear attractants.

Kitchen garbage is high in odours and contains plenty of food rewards; it is a strong bear attractant. A bear that receives a positive food reward will be very difficult, if not impossible, to deter. In order to prevent kitchen garbage from becoming a problem, it should be collected and incinerated after each meal.

Improperly maintained **barbeques** are strong bear attractants. Although the majority of propane units come equipped with a removable drip tray intended to make cleaning the units easier, rarely are these trays removed and cleaned. Then the barbeque quickly becomes a strong wildlife attractant with its grease and food smells. **Failure to clean the grills and inside of the barbeque poses both a wildlife attractant risk and a human health risk.**

Storing the barbeque inside a secure building when not in use helps too. This may prevent bears and other wildlife from accessing the barbeque. Remove the propane tank to prevent safety issues.

Kitchen Findings:

Food Storage

Meliadine Lake camp appears to be properly managing food storage and handling; no issues were found during the 2012 audit.

Food Storage Recommendation(s)

1. Keep up the excellent work.

Cooking Grease

Cooking grease was being put into the kitchen waste and incinerated routinely. There was no indication that cooking grease was being collected and stored in the kitchen from meal to meal.

Used cooking grease from the deep fryer unit (see photo 25) is collected in five gallon plastic pails and sent to the incinerator building for burning.

The walls around the cook grills and kitchen exhaust fans are covered with stainless steel panels and were free of cooking grease.

The exhaust fan cover located on the outside of the kitchen building was not included in the site audit but site services should inspect the cover for grease accumulation every couple of months and clean it with a grease cutter or a strong solution of bleach and water when necessary.

Photo 25 Meliadine camp deep fryer unit

Cooking grease residues from cleaning dishes flows to a grease trap as previously discussed in the greywater section of this report. Refer to the greywater section for recommendations on how cooking grease and food particles in dishwater might be better captured.

Cooking Grease Recommendation(s)

1. Continue to collect the small amounts of cooking grease from grills after each meal and incinerate this with kitchen garbage.
2. Schedule the changing of deep fryer oil so that the oil can be collected and incinerated immediately.
3. Regularly inspect the exhaust fan cover for grease accumulation and clean when needed.
4. Keep up the excellent work.

Kitchen Garbage

Kitchen garbage is collected in waste containers lined with clear plastic bags. Full bags are removed and stored inside a garbage storage room next to the kitchen loading dock (see Photo 26). The closing mechanism on the garbage rooms outside access door is a piece of plywood and a screw. This is not a secure closing mechanism and would provide little resistance to a bear wanting to get inside.

Photo 26. Kitchen garbage room location.

Photo 27. Meliadine garbage trailer

The incinerator operator picks up garbage from this location on a regular basis and transports it to the incinerator building using a small open trailer (see Photo 27). The plywood bottom and sides of the garbage trailer absorbs odours of liquid spills from leaking garbage bags. These odours result in the trailer becoming a wildlife attractant.

Kitchen Garbage Recommendation(s)

1. Keep up the excellent work.
2. Store the garbage trailer inside the incinerator building at night.
3. Consider lining the trailer with an easily cleaned material such as sheet metal.

Barbeque Findings

No barbeque unit was seen at the Meliadine Lake camp. If there is a barbeque on site or if AEM plans to bring one into the Meliadine camp, cautions provided earlier in background information for this section of the audit report should be heeded.

Barbeque Recommendation(s)

1. None. No barbeque on site.

CAMP LAYOUT AND DESIGN

Background: Proper layout of a camp, regardless of its size, helps prevent problems with bears. The key factors to consider in making the camp bear safe are as follows:

I. Provide adequate spacing between structures to reduce places that may conceal bears. A minimum of two meters spacing between structures is recommended so a bear will not feel trapped when startled. This spacing provides the bear with an obvious escape route. As well, those people who deter a bear have more routes to get the bear out of camp.

II. Skirt buildings and elevated stairways to prevent bears from crawling under them. Often bears that gain access to a camp undetected will take refuge under buildings when startled. The area under unskirted buildings provides the bear with safe cover and a cool place to rest while waiting for things to calm down.

III. Light building exits, pathways and outside work areas to allow people to move about camp safely after dark. Although lighting is not an effective deterrent, it does allow people to spot bears more easily at night.

IV. Place windows in a door or adjacent to it. This allows people to check for bears before going outside. During the long daylight hours of summer, people tend to cover these windows with garbage bags or tin foil to block the light; this removes the ability to check for bears. If window coverings are necessary, they should be movable to allow a person to check before exiting.

Findings:

The **spacing** and layout of buildings at the Meliadine site does raise concerns. The dead end spaces between the accommodation wings N & V and O & P could become areas of wildlife entrapment when trying to deter bears out of camp. The spacing of buildings and shipping containers in the Orbit and Boart Longyear shop areas also present a potential for wildlife entrapment. Wildlife surprised within these areas could feel trapped as the spacing of buildings does not allow for an unobstructed view for easy escape. Bears surprised in this area could become quite aggressive and dangerous. Wildlife responders need to be very careful when working in areas of potential wildlife entrapment.

As more buildings are added to the Meliadine Lake site the potential to create additional areas of wildlife entrapment may occur. Keep this in mind when planning the placement of buildings. If entrapment areas are created, then wildlife responders must be made aware of them and take special precautions when responding to reports of wildlife in these areas.

Skirting. The majority of the buildings in the main Meliadine Lake accommodation complex are skirted to ground level. A variety of methods are used (see Photos 28, 29, & 30) but all are adequate. The older portion of the camp complex (see Photo31) is not skirted but plans are to replace Weather Haven wing in the near future.

Photos 28, 29 & 30. Examples of skirting used at Meliadine Lake camp.

Photo 31. Weather Haven wing

Although the majority of the main complex is appropriately skirted, some areas need attention. One is at the NE corner of the dining building where the geo-textile fabric skirting has not been completed (see Photo 32).

Another is near the main complex exit to the smoking

Photo 32. Unfinished skirting NE corner of dining building

room (see Photo 33). Electrical work under the main complex required the temporary removal of a section of the plywood skirting; it has not been replaced.

Photo 33. Section of skirting removed and not replaced.

The need to remove skirting is avoided by providing access doors in the skirting. BEAR*WISE* was not able to locate any access doors in the main complex skirting.

Office and shop buildings detached from the main camp complex are built close enough to the ground to prevent easy refuge by wildlife.

The new incinerator building is skirted to ground level.

Lighting. Outside lighting is provided at exits and outdoor work areas within the Meliadine site.

Windows. Exit doors on the new buildings at Meliadine Lake camp have windows within doors (see Photo 34). However the majority of the older buildings do not. With the lack of windows in older buildings, employees must be reminded to be cautious when exiting buildings. Windows allow people to look for wildlife before exiting and could prevent surprise encounters with wildlife as well as increase the safety of people approaching the door from outside.

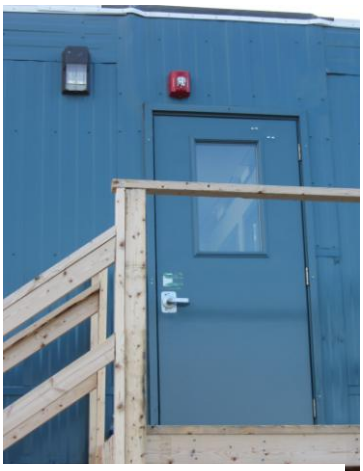


Photo 34. Lighting and window at exits

Camp Layout and Design Recommendation(s)

1. Instruct and remind emergency response team members to approach with extreme caution when responding to reports of a bear within a potential entrapment area of camp.
2. Complete skirting of dining building and replace skirting near the exit to the smokers room.
3. Add access doors to building skirting so that workers can get under buildings and secure the skirting as soon as they are done.
4. Consider using wire mesh to cover access doors in the skirting of the kitchen and dining buildings. Being able to see under these buildings makes it easier to detect problems that may attract wildlife.
5. Consider installing windows in or adjacent to any exit doors that lack them.
6. Keep up the excellent work.

LUBRICANT & CHEMICAL STORAGE

Background: Bears are attracted by many non-food odours such as fuel, rod grease, lubricating oils, anti-freeze and other chemicals. Store these in a way that odours are minimized and bears and other wildlife cannot get into them. Check for leaking containers or drums frequently. Clean up any spills immediately.

Findings:

Most chemicals that could be harmful to or attract wildlife are stored indoors or in shipping containers. For the most part the doors to these structures were closed when not in immediate use; however some people still need to be reminded of the importance of closing doors.

Lubricant and Chemical Storage Recommendation(s)

1. Keep up the excellent work.