



METALS BALING IN NUNAVUT

PRACTICAL RESOURCE 2018



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Qikiqtaaluk Business
Development Corporation



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QIKIQTAAALUK CORPORATION
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DISCLAIMER

This Resource is for information purposes only and constitutes general information relating to metal baling of legacy waste in Nunavut, including site set up, site safety, and a reference regarding which items can and cannot be baled. It does not constitute professional engineering advice, nor health and safety advice, and you may not rely on the contents of this Resource as such.

This Resource does not include instructions on the operations of the baler equipment. All operators must read and abide by the service and operating manuals of the baler equipment at all times. This Resource is not exhaustive and operators need to take all measures necessary to ensure their own safety and the safety of their team and the public. Individuals and organizations that undertake baling activities do so at their own risk.

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ABOUT THIS RESOURCE

The Qikiqtaaluk Business Development Corporation (QBDC) is a wholly-owned subsidiary company of the Qikiqtaaluk Corporation (QC). QC is the Inuit birthright development corporation created by the Qikiqtani Inuit Association – a Designated Inuit Organization established under the Nunavut Agreement. QBDC supports Qikiqtani communities to develop their capacity and self-reliance through strategic partnerships and innovative investments that address the essential infrastructure deficit and enhance local Inuit business and individual career development.

Over 2017 and 2018 QBDC lead the delivery of a metal waste clean-up project in Cape Dorset. Six residents were hired and trained in the proper

methods to safely remove hazardous waste from vehicles and old appliances, bale scrap metals, and prepare the bales and hazardous waste for backhaul to a southern recycling depot. All on-site work was completed by local hires.

The overarching goal of the Cape Dorset metal waste clean-up project was to demonstrate a viable alternative delivery model led by Inuit that promotes socio-economic return on investment. This project developed several training materials to support community-driven metal clean-up projects. This baling reference was developed as part of the project. This reference document is specific for the 500 CL Car Logger.

ACKNOWLEDGEMENTS

The metal clean-up project brings a multi-level governmental approach inclusive of the Federal Government, Territorial Government, Municipal Government, and Inuit Partners. This project was made possible by the following funders and contributors.

Financial Contributions

- Polar Knowledge Canada
- Government of Nunavut
- Qikiqtaaluk Corporation
- Kakivak Association
- Municipality of Cape Dorset

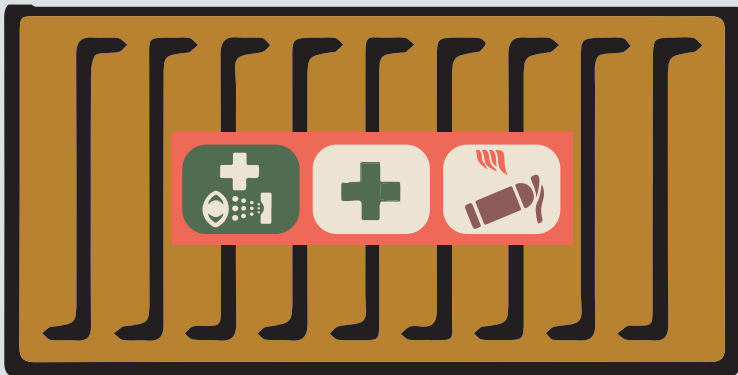
In-Kind Support

- Automotive Recyclers of Canada
- Municipality of Cape Dorset
- Qikiqtaaluk Business Development Corporation
- Government of Nunavut
- plusArctic
- Kudlik Construction

A special thanks goes out to Allen Mellos, John Hussey, Steven Pootoogook, Ashoona Ashoona, Pitseolak Koomwatook, Pitseolak Pudlaq, Tytoosie Pudlat, Itulu Qinnuajuak, and Mosha Ragea. Without their help and dedication this project would not have been possible.



SITE PREPARATION



An equipment storage area at the work site is recommended to securely store all materials on-site. A shipping container is suitable for this purpose.



PUBLIC SAFETY

Public and worker safety is paramount. To make the worksite as safe as possible always:


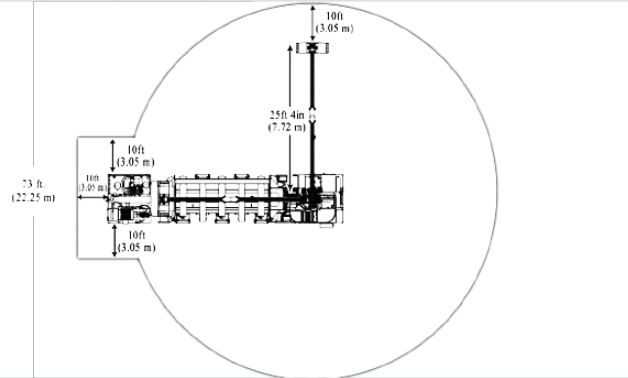
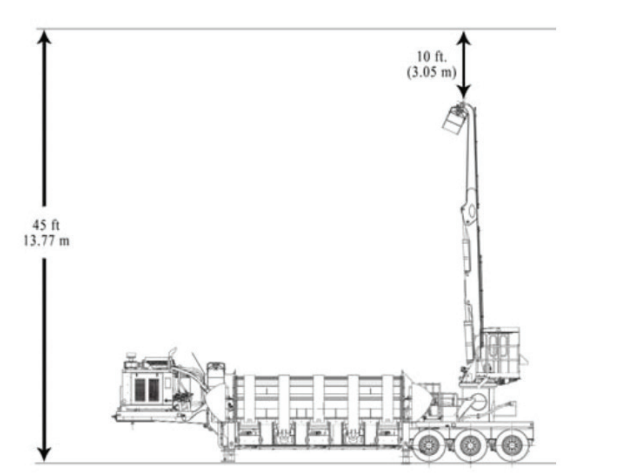
- Follow the workplace health and safety policies and procedures.
- Wear and use appropriate personal protective equipment.
- Work in a way that won't hurt you or any other worker.
- Report any hazards on the job site to your supervisor.

Signs are required at the entrance(s) to the work area identifying that public is not to enter and all authorized personnel is required to wear the appropriate PPE including, safety goggles, steel-toed boots, safety vest and a hard hat. No smoking signs must also be placed at the site and on the baler.

SIGN	LOCATION	EXAMPLE
DO NOT ENTER	ENTRANCE(S) OF DUMPSITE	
REQUIRED PPE: 1. EYE PROTECTION 2. SAFETY FOOTWEAR 3. HARD HAT 4. SAFETY VEST	1. ENTRANCE OF DUMPSITE 2. WITHIN WORKSITE AREA	 1. EYE PROTECTION 2. SAFETY FOOTWEAR 3. HARD HAT 4. SAFETY VEST
NO SMOKING	1. WITHIN WORKSITE AREA 2. ON THE BALER	

BALER SITING AND SET-UP

ITEM	REQUIREMENT	EXPLANATION
BALER LOCATION	WITHIN DUMPSITE	<p>The metals baled must first be depolluted of contaminants. Even after being depolluted there is still risk the metals contain residual oils, gasoline, etc. The land within the metal dumpsite is zoned as industrial. Containing the baling activities within the dumpsite reduces risk of spreading contaminants outside the industrial dumpsite zone. Locating the baler near the scrap metal will increase efficiency of operations because the metal will not need to be brought to the baler by a loader.</p>
GROUND CONDITIONS	LEVEL AND COMPACT GROUND DRY GROUND	<p>The baler needs to be level to operate effectively and safely.</p> <p>Ground conditions under the baler should be dry. Wet ground conditions make spill clean up more challenging. Wet ground transports contaminants at a faster rate than dry ground.</p>
CONTAINMENT SYSTEM UNDER THE BALER	OLD TANK CUT IN HALF (LENGTHWISE)	<p>The baler rams require oil lubricant which will drip onto the ground. To stop ground contamination something must be underneath the rams to catch the oil. An old water or oil tank cut in half with each half placed on the ground underneath the rams is a great way to do this. The tanks need to be emptied of any oil at the end of each day. The oil needs to be properly disposed of. The tanks need to be covered during the night to stop any water from collecting inside the tank and becoming contaminated.</p> <div><p>Lay tank halves under the rams in two locations</p></div>

ITEM	REQUIREMENT	EXPLANATION
CLEARANCE AROUND THE BALER	ACCESS TO ENGINE AREA	<p>Access to the engine for frequent maintenance and operation checks is necessary. If a ladder is not readily available on site, a metal bale with a grill on top or an old tank may be suitable.</p> <div><p>Old tank acting as access step</p></div>
	MINIMUM 35 FOOT (11.5 M) RADIUS BARRIERS AROUND EQUIPMENT	<p>The grapple has a 35 foot radius. Ensure this radius does not contain any materials that could be damaged the grapple. Pylons should be set out to create a minimum 35 feet (11.5 m) setback from baler. Can also use caution tape to rope off area. All workers should stay outside the pylons while the baler is in operation.</p> <div></div>
CLEARANCE OVERHEAD	NOTHING OVERHEAD	<p>Do not site baler under power lines, communication lines, etc. The grapple extends 35 ft vertically</p> <div></div>

SITE SAFETY

Site Personnel PPE Required:

Any personnel within the dumpsite should confirm their tetanus vaccine is up-to-date. All personnel must wear a minimum of the following PPE:

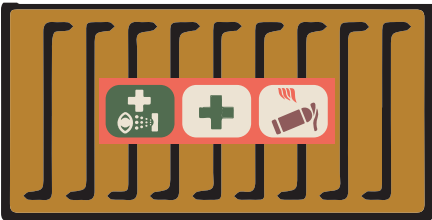
- Safety Glasses
- Hard Hat
- Steel toed boots/puncture proof soles
- Reflective vest
- Work gloves



Safety Equipment Required:

All safety equipment should be placed in a central location for easy access during working hours and stored away at night in the on-site storage container:

- Fire extinguishers
- Eye wash station
- First aid kits
- Spill kits
- No smoking signs
- Emergency meeting point with signs identifying location
- Equipment barriers such as pylons



SAFETY ITEM	LOCATIONS
FIRE EXTINGUISHERS	<ul style="list-style-type: none">• In baler cab• Next to barrier around equipment• In safety equipment storage area
EYE WASH STATION	<ul style="list-style-type: none">• In safety equipment storage area
FIRST AID KIT(S)	<ul style="list-style-type: none">• In safety equipment storage area
SPILL KITS	<ul style="list-style-type: none">• Next to barrier around equipment• In safety equipment storage area
PYLONS	<ul style="list-style-type: none">• Along the safety barrier (35 foot radius)
NO SMOKING SIGNS	<ul style="list-style-type: none">• In baler cab• In safety equipment storage area
EMERGENCY MEETING POINT	<ul style="list-style-type: none">• Safe and accessible location away from site

GETTING THE METAL READY FOR BALING

Considerations for baling scrap metals, vehicles, and appliances:

- Maximum length of metal that can be put into the baler is 15 feet.
- Heavy steel cannot go in the baler.
- If shipping the bales to a southern location for resale, try not to mix non-metal material with the metals. Bales consisting of only metal will increase the market value of the bale.
- Separate any valuable metals such as catalytic convertors before baling.

Vehicles

All vehicles must be depolluted before baled. To depollute vehicles workers must be properly trained and certified for depolluting old vehicles. The following must occur before the vehicles can be crushed:

- Oil removed
- Gas remove
- Antifreeze removed
- Washer fluid removed
- Mercury switch removed
- Battery removed
- Tires removed
(to increase the resale value of the bale),
- Lead weights from tires removed
- Some truck beds will need to be cut to reduce length less than 15 feet





Scrap Metal

- No prep work required



Oil Drums and Tanks

- Oil drums and tanks must be drained of any oil
 - Oil drums and tanks must be open



Propane Tanks

- Propane tanks must be empty
- Propane tanks valves must be open



Composite Material / White Goods

If shipping the bales to a southern location for resale, items such as fridges and freezers that contain material other than metal should not be baled with scrap metal. Fridges and freezers should be baled separately and may need to be compressed a few times in the baler. Before fridges and freezers can be baled someone certified in ozone depleting substances must remove the following:

- Remove compressor and drain mineral oil
 - Remove refrigerant



HEAVY STEEL CANNOT BE BALED

Heavy steel will puncture the baler chamber. Heavy steel cannot be baled such as:

- Loader buckets
- Structural steel (for example I-beams)
- Dozer tracks
- Thick pipe
- Steel grates
- Rebar

WHAT TO DO WITH THE BALES

Onsite Long-term Storage

Bales can be used for perimeter fencing and to partition segregated waste areas within the dumpsite.

Safe Stacking

Stack bales to a maximum of 3 bales high in a pyramid shape

Siting

Bales can be used as a partition to segregate different waste locations (tires, paints, etc.)

Shipping

Metal bales can be backhauled to a southern port for recycling. The value of the metal bale depends on the purity of the metal and the current market value. Metal market value has averaged \$150/tonne. The average cost of backhaul from the Qikiqtani Region is \$200/tonne. This equates to an estimated net cost to backhaul of \$50/tonne.

Safe Temporary Stacking

Stack bales to a maximum of 3 bales high in a pyramid shape

Siting

Stack bales within the dumpsite. If stacked outside the dumpsite additional approvals and permits may be required.

Stack bales to be easily accessible for relocating to searift area.



If you have any questions about the information contained in this reference document please do not hesitate to contact us:

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