

# SAFE WORK PROCEDURE

## Operation of Aspen Aerials A-62 Under Bridge Inspection Unit

**NOTE:** This procedure is intended as a guideline only. Refer to the Standard Operating Procedures for the A-62 Under-Bridge Inspection Unit, and other related documentation for detailed Operating Instructions. If you require additional information, contact The Public Works Safety, Health and Operator Training Branch:

105 – 1155 Pacific Avenue, Phone: 986 - 3122, Fax: 986 - 7106

### GENERAL

This procedure is intended to ensure all necessary steps are followed, protecting the employees involved, other staff, and the general public from potential injury or damage resulting from the operation of this equipment and the performance of related tasks.



**ⓘ OPERATING PRECAUTION ⓘ**  
 THIS MACHINE CAN MOVE RAPIDLY.  
ALL OPERATORS MUST EXERCISE EXTREME CAUTION.  
KNOW YOUR APPROACH LIMITS BEFORE OPERATING ANY FUNCTION



### APPLICATIONS

Under Bridge Inspections take place throughout the year. Many factors can influence the safe operation of this equipment, and as a result rigorous standards have been instituted and must be observed at all times.

### PROTECTIVE MEASURES, etc.

- All training requirements for staff must be met and maintained prior to beginning work. For operators of the A-62, the following applies as per ANSI 92.8 (1998): Operators must have at least **8 Hours actual operating experience over the last 90 days on the specific equipment being used.** Refer to the following:

Minimum 8 Hrs actual machine operation	Training required to maintain valid certification
Within the last 90 days	Certification remains valid
>90 days, but less than 120 days	4 Hours directly observed operation for recertification
>120 days, but less than 150 days	8 Hours directly observed operation for recertification
>150 days, but less than 180 days	16 Hours directly observed operation for recertification
>180 days, but less than 210 days	20 Hours directly observed operation for recertification
>210 days	32 Hours directly observed operation for recertification

**NOTE: All operators must be re-certified by a qualified trainer every three (3) years.**

- Follow all relevant operating procedures.
- The chassis and vehicle mounted aerial device must be inspected daily: a qualified employee visually inspects the unit prior to each work shift in accordance with the Standard Operating Procedures, to ensure that it is safe to use, and the appropriate documentation has been completed.
- Perform a daily Holding Valve Test as detailed in the Standard Operating Procedure.
- Notify the Winnipeg Fire Paramedic Service about work location and applicable work times.
- Erect applicable temporary traffic control signs in accordance with The Manual of Temporary Traffic Control.
- Ensure that the Pilot Vehicle is parked a suitable distance (10 to 15 metres) behind the Under Bridge Inspection Truck at all times when the bucket is deployed. This will lessen the potential severity of a vehicle impact from behind.
- Use suitable and approved Personal Protective Equipment (PPE), including fall protection devices, personal flotation devices (PFD), and other PPE as required by the task at hand.
- Enter and exit the bucket only as instructed.
- Live (hard-wired) 2-way radio contact shall be maintained between the Bucket Operator and/or Top-Man at all times.
- Ensure that a complete Bucket Evacuation Kit is in the bucket (working platform) at all times.
- All visitors and/or all un-experienced personnel required to ride in the bucket, must participate in a **mandatory** "Visitor Orientation" from a certified operator, prior to entering the bucket and have their attendance recorded.

## **SAFE WORK PROCEDURE**

### **Operation of Aspen Aerials A-62 Under Bridge Inspection Unit (continued)**

#### **SUPERVISOR RESPONSIBILITY**

- Ensure that only trained and certified employees operate the A-62 Under-Bridge Inspection Unit. Other training necessary to the job includes fall protection and emergency bucket evacuation.
- Ensure that all appropriate inspection and servicing requirements for the chassis and vehicle mounted aerial device are met at all times.
- Notify the Winnipeg Fire Paramedic Service about work location(s) and applicable work schedules prior to initiating work to ensure timely response in the event of an emergency.
- Ensure that employees use suitable and approved Personal Protective Equipment (PPE), including fall protection/restraint devices, personal flotation devices (PFD), and other PPE as required by the task at hand.
- Ensure that all applicable procedures are followed at all times.
- Ensure that the maintenance and use of every vehicle mounted aerial device shall comply as appropriate, with: CSA C225-00 Vehicle Mounted Aerial Devices and other relevant standards, including ANSI Standard 92.8 (R1998).
- Where it is necessary to move the vehicle mounted aerial device with an employee on such a device, the person in charge ensures that the vehicle mounted aerial device is being observed until it is no longer in motion.

#### **EMPLOYEE RESPONSIBILITY**

No employee shall use a vehicle mounted aerial device, including the A-62 Under-Bridge Inspection Unit, unless:

- authority has been received from the person in charge to use it;
- the employee has been trained, instructed, and is certified in its safe and proper use; and
- a qualified employee, or the person in charge, visually inspects the unit prior to each work shift in accordance with the Standard Operating Procedures, to ensure that it is safe to use, and the appropriate documentation has been completed.

Employees operating a vehicle mounted aerial device, including the A-62 Under-Bridge Inspection Unit, must ensure the following:

- All necessary Personal Protective Equipment (PPE) has been inspected for use, and is in place prior to operating the equipment.
- Every employee shall report to the person in charge, as soon as practicable, any defect or condition in a vehicle mounted aerial device or related equipment that may, in the opinion of that employee, create a hazard.
- Any accident with a vehicle mounted aerial device must be reported immediately, to ensure that there are no damages that will impact upon its safe operation.
- No employee shall use a vehicle mounted aerial device that has a defect or condition that, in the opinion of that employee, may endanger the employee or any other employee, or endanger a member of the general public until the unit has been examined by a qualified person and declared to be safe and fit for operation.
- No employee shall work on a vehicle mounted aerial device in rain, snow, hail or an electrical or wind storm that is likely to be hazardous to the safety or health of the employee, or others, except where the work is required to remove a hazard or to rescue an employee.
- Tools, equipment and materials used on vehicle mounted aerial device shall be arranged or secured in such a manner that they cannot be knocked off the work platform accidentally.
- Where it is necessary to move the vehicle mounted aerial device with an employee on such a device, the person in charge ensures that the vehicle mounted aerial device is being observed until it is no longer in motion.
- Inspect all fall protection equipment, including anchor rings immediately prior to use (on a daily basis).
- Every platform, hand-rail, guardrail and work area on a vehicle mounted aerial device shall be kept free of accumulations of ice and snow while the vehicle mounted aerial device is in use.
- The floor of a vehicle mounted aerial device used by an employee shall be kept free of grease, oil or other slippery substance and of any material or object that may cause an employee to slip or trip.
- Ensure that a complete and functional Bucket Evacuation Kit is in the bucket (working platform) at all times.

## **SAFE WORK PROCEDURE**

- Use suitable and approved Personal Protective Equipment (PPE), including fall protection devices, personal flotation devices (PFD), and other PPE as required by the task at hand.
- fall protection must be worn at all times when in the bucket (working platform), and a Personal Flotation Device (PFD) must be worn when working over water.
- Ensure that all visitors and/or all un-experienced personnel required to ride in the bucket, participate in a **mandatory** "Visitor Orientation" from a certified operator, prior to entering the bucket and attendance is recorded.

## A62 VISITOR ORIENTATION revised May 2016

**NOTE: This document is intended to inform visitors of the general hazards involved with the use of the Aspen Aerials A62 Bridge Inspection Unit. In no way is this document intended to be used as a training tool or allow any individual to operate this unit. If you require additional information, contact The Public Works Safety, Health and Operator Training Branch:**

**105 – 1155 Pacific Avenue, Phone: 986 - 3122, Fax: 986 - 7106**

### GENERAL

This procedure is intended to ensure all necessary steps are followed, protecting the individual involved, other staff, and the general public from potential injury or damage resulting from the operation of this equipment and the performance of related tasks.



### **ⓘ OPERATING PRECAUTION ⓘ**

***This machine can move rapidly New and even experienced operators must exercise extreme caution.***  
**KNOW YOUR APPROACH LIMITS before operating any function.**



### APPLICATION

The Under Bridge Inspection unit is a unique piece of equipment in which many factors can influence the safe operation. Visitors must be aware of the hazards present, PPE required, protective measures required along with the basic use of this units communications system

### HAZARDS PRESENT

- Pinch Points
- Slips, Trips, Falls
- Electrocutation
- Drowning
- Collisions with vehicles (roadway, waterway, railway)
- Platform isolation

### PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

- Safety Footwear
- Hard Hat
- Fall Protection Harness , Shock Absorbing Lanyard, Carabiner
- Safety (traffic) Vest
- Personal Flotation Device (as required)
- Respiratory Protection (as required)
- Eye Protection (as required)
- Hearing Protection (as required)

### PROTECTIVE MEASURES

- Wear all required PPE
- Stay tied off at all times when in bucket
- Pinch points between the bucket and bridge piers and bridge underside are always a concern. **KEEP ALL BODY PARTS WITHIN BUCKET UNLESS PERMITTED BY BUCK OPERATOR.**

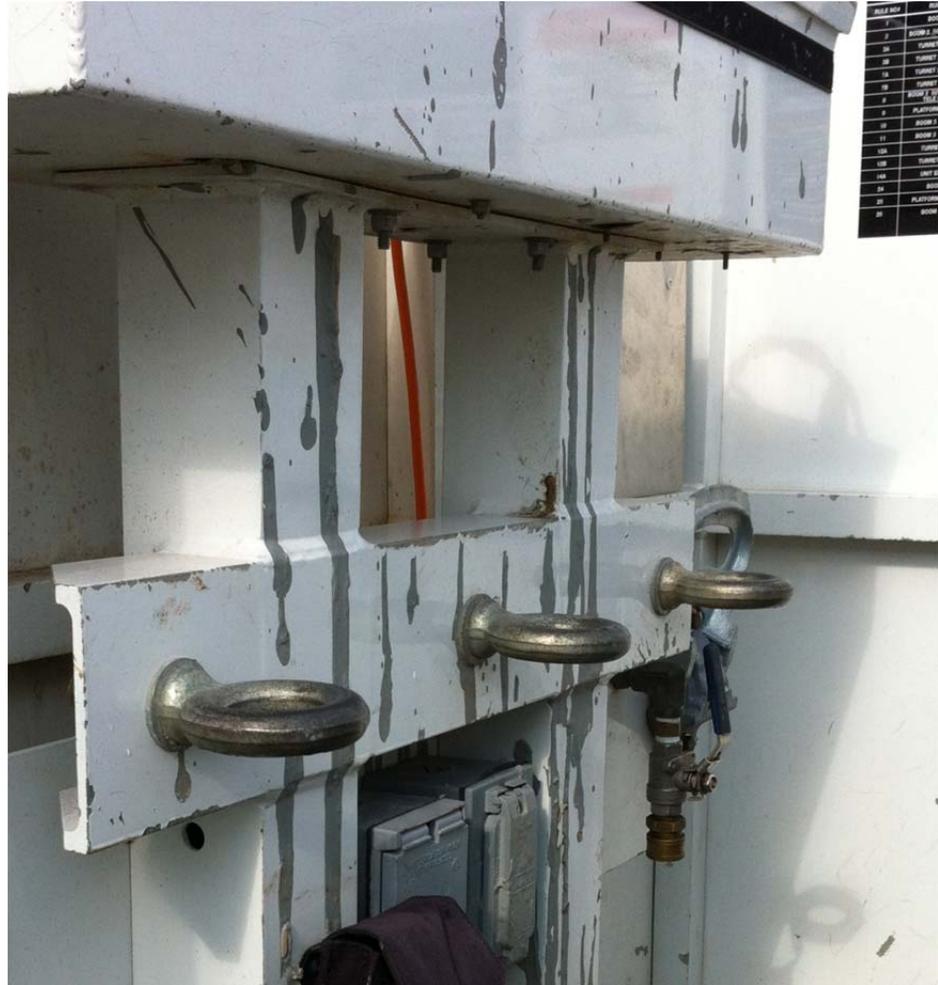
**EMERGENCY SITUATIONS:** Communication between the A62 bucket and the top man is maintained through video and audio surveillance. Should you ever need to communicate with the top man, speak loudly and clearly into the intercom. If no response is experienced ensure dial knob is “On” and toggle switch is on “Speaker”. Bucket Operator will point out intercom a familiarize you with the system.



## Emergency Bucket Evac training for Under-bridge Crane

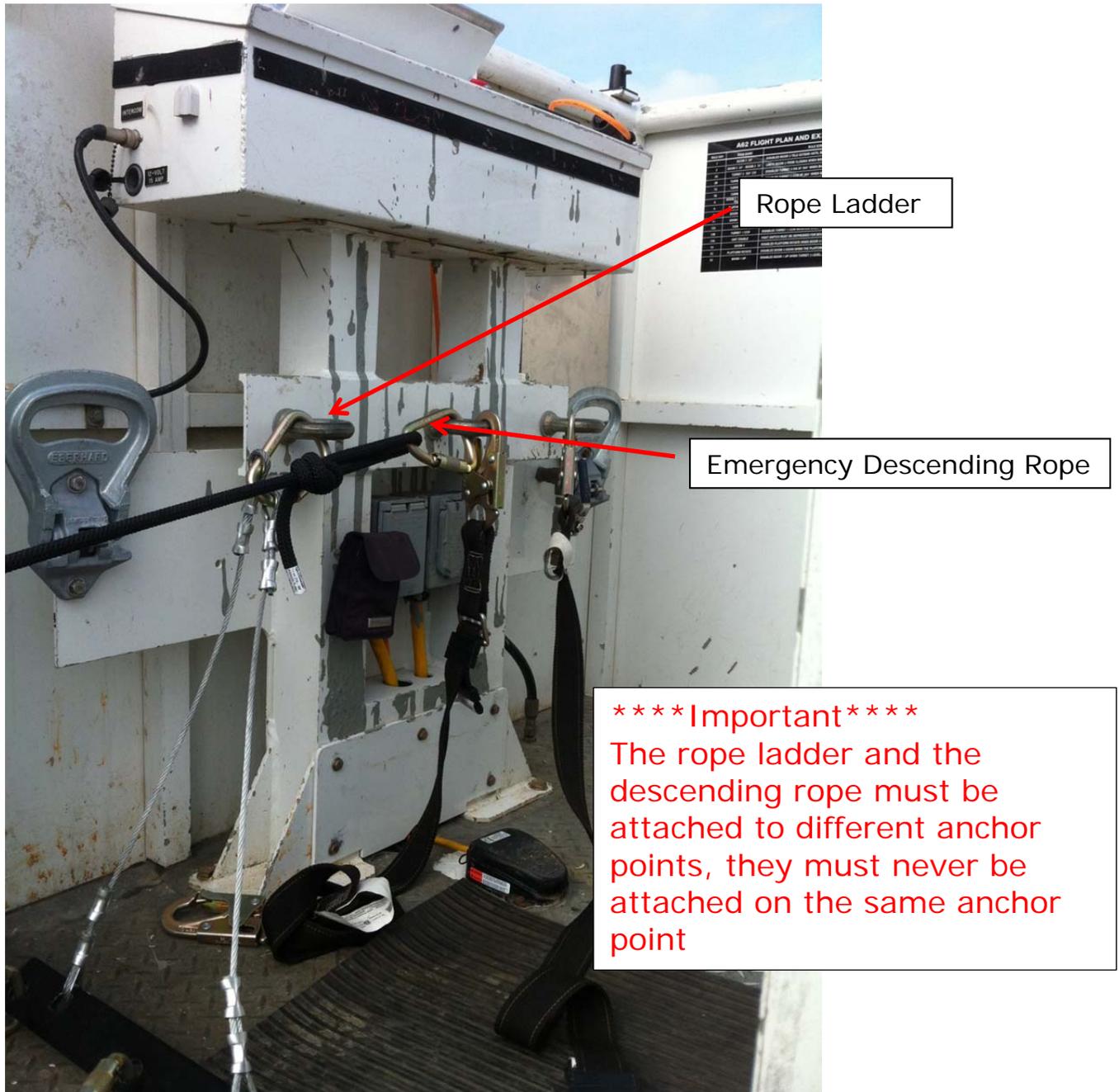
Instructor is to perform the following:

- Have trainees check all equipment on the ground, this includes harnesses, rope, lanyards, descending device(Anthon), rope ladder and Grigri.
- All anchor points must be checked( as per pre-trip inspection) prior to elevating bucket



NO.	DESCRIPTION
1	ROOM 1
2	ROOM 2
3	ROOM 3
4	ROOM 4
5	ROOM 5
6	ROOM 6
7	ROOM 7
8	ROOM 8
9	ROOM 9
10	ROOM 10
11	ROOM 11
12	ROOM 12
13	ROOM 13
14	ROOM 14
15	ROOM 15
16	ROOM 16
17	ROOM 17
18	ROOM 18
19	ROOM 19
20	ROOM 20
21	ROOM 21
22	ROOM 22
23	ROOM 23
24	ROOM 24
25	ROOM 25

Evacuation equipment is to be connected to the anchor points while the bucket is at ground level



- Bucket is elevated to no higher than 8 metres(25 feet) for the purpose of bucket evacuation, lower elevations for 1<sup>st</sup> time trainees
- All evacuation training is to be done in a controlled environment, never as a field exercise

- Training to take place with Operator Training or Safety Branch personnel present
- Instructor is to remain in bucket at all times to ensure safe attachment of all lanyards, safety line, ropes and descending devices
- 1<sup>st</sup> time trainees will practice threading the Anthron(descending device), locking it off and sitting in the harness before entering the platform
- Safety line is attached to the back D-ring for bucket evac training only and manned by ground person qualified to assist using the Grigri
- Trainee must demonstrate correct attachment to harness and use of the Anthron before entering the platform
- Attachment of descending device(Anthon) must be checked by the instructor for correct attachment before the employee leaves the bucket



- Employee or non-city of Winnipeg staff must demonstrate how to use the Anthron(descending device) before exiting the bucket

**Trainees must follow these steps as outlined in the safe work procedure**

- Ensure that all personal lanyards are secured to harnesses and bucket anchors.
- Check bucket evacuation equipment is secured to anchor points.
- Attached the Anthron (descending device) to the front D-ring of harness.



**NOTE: Bucket gate must remain closed until all evacuation equipment is secured to bucket anchors.**

- Ensure rope and ladder are hanging freely and are not tangled with each other or anything else.
- Thread repelling rope through the attached Anthron, ensuring to leave enough slack to exit the bucket easily, and then "lock off" Anthron

**Instructor is to ensure the Anthron is threaded correctly. Trainee must demonstrate the correct use of Anthron before leaving the bucket and descending.**

- Unhook personal lanyard from your harness
- Turn and back out of bucket, ensure three point contact with the exterior bucket handles and step.
- Climb down rope ladder until slack is out of repelling rope.
- Sit into your harness and move rope ladder out of your way, to ensure that you do not get tangled when beginning your decent.



- Unlock Anthron with operating hand and keep rope in non-operating hand down at your hip.

**NOTE: Only operate the Anthron with one hand and keep the other down by hip to avoid the potential of your non-operating hand being pulled into the Anthron**

- Squeeze Anthron slowly to begin a controlled descent and always watch below as you are descending to avoid impacting the ground too hard
- Remove safety line from back D-Ring when on the ground
- On the ground, unhook Anthron from front D-ring and move to a safe location.

**NOTE: If there are remaining passengers in the bucket DO NOT unthread Anthron from repelling rope, as remaining passengers will pull up the rope with Anthron attached and repeat the evacuation procedure until all passengers are out of the bucket.**

- Each person must demonstrate a bucket evac 3 times perfectly to the instructors satisfaction or to the Instructors satisfaction
- All necessary PPE is to be worn at all times

**Outcome:**

Trainee must demonstrate:

- Proper check of all equipment, including harness
- Proper attachment of all equipment to anchor points(ladder, descending rope)
- Proper operation of descending device(Anthron) and locking it off
- Proper descending technique with confidence

<b>JOB HAZARD ANALYSIS (J.H.A.)</b>		<b>Task Name:</b> A62 Under Bridge Inspection Unit – Bucket Evacuation	<b>Task ID:</b>
<b>Job:</b> Evacuating A62 Under Bridge Inspection Unit's bucket in the case of emergency or equipment malfunction		<b>Date Developed:</b> December 3, 2013	
<b>Date Revised:</b>		<b>Training Requirements:</b>	
<b>Hazards Present</b>  Collisions with vehicles (roadway, waterway, railway) Slips, trips, falls Electrocution Drowning Pinch Points	<b>Applies To: (Department/Division/Branch/Section)</b>  Public Works/Engineering/Bridge Operations	First Aid Fall Protection & Bucket Evacuation Class 3 Drivers License w/ Air Brakes A62 Operators Permit MTTC Use & Care of PFD's Use & Care of Fire Extinguishers	
<b>Tools/Equipment Required</b> Mobile Self Elevating Platform (A62)	<b>Materials Required</b> Bucket evacuation equipment	<b>Personal Protective Equipment (PPE) and required safety devices</b> Gloves Hard Hat Safety footwear Safety Vest Harness c/w shock absorber & lanyard Carabiners Eye Protection Personal Floation Device (PFD)	
<b>Step #</b>	<b>Sequence of Steps</b>	<b>Potential Accidents or Hazards</b>	<b>Recommended Safe Job Procedure</b>
1	Pre-trip bucket evacuation equipment	Evacuation equipment failure causing injury or fatality to passenger(s)	Pre-trip the bucket evacuation equipment prior to travelling to site, fill out required documentation.

2	Stow equipment properly in their correct bags and transport to site in the above deck vented compartment on the A62	Equipment failure due to damage or corrosion causing injury or fatality to passenger(s)	Stow and transport equipment properly.
3	Upon arrival to site, when safe to do so, transfer bucket evacuation equipment into bucket	In event of an emergency, no means of egress	Confirm contents of evacuation equipment in platform.
4	Inspect & don all required PPE	Injury to worker	Inspect & don all required PPE in accordance to manufacturer's instructions, City of Winnipeg Policy & Provincial Regulations.
5	Complete orientation with any new and/or inexperienced passengers	Cause evacuation delay, causing injury or fatality to passenger(s)	Orient new and/or inexperienced passengers on the use of the A62 and inform of the possible need to evacuate the bucket in case of emergency.
6	Operate mobile self-elevating platform	Mechanical failure and/or injury to worker and/or public	Operate unit in accordance to manufacturer's instructions, City of Winnipeg Policy & Provincial Regulations
7	Emergency and/or Equipment malfunction	Injury or fatality to passenger(s)	Commence bucket evacuation procedures.
8	Kill power to bucket	Unplanned/unexpected movements to bucket, causing injury or fatality to passenger(s)	Confirm that the bucket has no power.
9	Confirm all personal lanyards are still attached to bucket anchors	When bucket gate is opened, potential to fall out of bucket before hooking up to evacuation equipment	Confirm lanyards are attached to bucket anchors.
10	Inform A62 driver of the emergency and that you will be commencing bucket evacuation procedures.	Unplanned/unexpected movement of entire unit, causing collision with structure and potential injury or fatality to passenger(s)	Confirm driver knows of intent to evacuate bucket.
11	Unpack evacuation equipment and attach to anchors in bucket.	Injury or fatality to passenger if not connected correctly.	Confirm equipment is anchored correctly.

12	Attach Anthron (descending device) to front D-Ring of harness of first passenger to evacuate bucket.	Injury or fatality to passenger if not connected correctly.	Confirm Anthron is connected correctly to the front D-Ring.
13	Open gate to bucket and throw unattached ends of evacuation equipment out of the bucket one at a time.	<ul style="list-style-type: none"> <li>- Fall from bucket causing injury or fatality to passenger</li> <li>- Entanglement of evacuation equipment delaying and/or preventing evacuation causing injury or fatality to passenger(s)</li> </ul>	<ul style="list-style-type: none"> <li>- Confirm lanyard is still connected to bucket anchor prior to opening gate</li> <li>- Throw evacuation equipment out of the bucket one at a time to prevent entanglement.</li> </ul>
14	Thread repelling rope through Anthron and "Lock Off".	Threaded incorrectly will not allow passenger to descend.	Ensure Anthron is threaded correctly as per diagram stamped on Anthron itself.
15	Turn, back out of bucket, climb down rope ladder until slack is out of repelling rope and sit into your harness.	<ul style="list-style-type: none"> <li>- Slip/fall out of bucket if not maintaining 3 point contact</li> <li>- Entanglement with rope ladder and repelling rope preventing descent.</li> </ul>	Once sitting into harness, move ladder out of the way to prevent entanglement.
16	Unhook personal lanyard.	Unable to descend if hooked up.	Confirm lanyard is unhooked.
17	Unlock Anthron with operating hand keeping rope down at your hip with non-operating hand.	<ul style="list-style-type: none"> <li>- Descent prevented if Anthron is not unlocked.</li> <li>- Non-operating hand could be pulled into Anthron if not down by hip.</li> </ul>	Ensure proper positioning of hands.
18	Squeeze Anthron slowly to begin descent.	<ul style="list-style-type: none"> <li>- Squeeze Anthron too hard activating brake, preventing descent.</li> <li>- Descend too fast and impact the ground.</li> </ul>	Squeeze Anthron slowly for controlled descent.

Developed By:	1. Michael Terleski	2.	3.
Mgmt Co-Chair Approval:	Original Signed By:	Worker Co-Chair Approval:	Original Signed By:

The information in this procedure does not take precedence over applicable government regulations, with which all employees should be familiar.