UPF Dropped Object Prevention

THE NATION'S URANIUM PROCESSING FACILITY

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Effective Date

Implements Quality Requirements

☒None ☐BNI ☐CNS ☐BNI & CNS

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This document has been reviewed by a Y-12 DC / UCNI-RO and has been determined to be UNCLASSIFIED and contains no UCNI. This review does not constitute clearance for Public Release.
Name: Neal Mowery Date: 05/01/19

REVISION LOG

Revision	Description	Intent	Non Intent
1	1.0 Intent changes made to emphasize primary control use as shall versus should. 2.1 Establish consequence management as a Management responsibility. 2.4 Supervisor responsibilities requiring detail in Job Hazard Analysis (JHA). 3.3.2 Replaces “should use” with “shall” to make use of primary controls mandatory. 3.3.4 Adds language to clarify and give specific examples for material hoisting. An evaluation determination has been performed confirming this Command Media implements no quality requirements, as tracked in PRMS. This revision is responsive to Condition Report (CR): 25774-000-GCA-GAM-01196, Dropped Object Trend – RCA. This revision is a major re-write; therefore, no revision bars were used.	X	
0	Initial Issue	N/A	

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this procedure is to establish requirements for the prevention of dropped objects (tools and materials) while performing work at elevation on the Uranium Processing Facility (UPF) construction site and support areas.

1.2 Scope

This procedure applies to work being performed with tool and materials including operation of equipment at elevation, the mitigating controls for dropped object prevention, and the response to a dropped object incident in the event it occurs. This includes, but is not limited to:

- Management commitment
- Employee responsibilities
- Required safe work practices
- Training
- Reaction to an incident
- Ensuring compliance with the plan

2.0 RESPONSIBILITIES

2.1 Site Manager

The Site Manager is responsible for the following:

- Ensuring the implementation of this procedure and demonstrating management commitment in the prevention of dropped objects.
- Providing worker support, facilities, and other resources such as tool lanyards and tethers, rated hoisting bags and individual training necessary to effectively carry out this procedure.
- Establishing and applying the consistent management of consequences for workers and line supervision when an object is dropped while working at heights. The consequence will relate directly to the use of prevention methods and controls, and the severity potential of the dropped object.

2.2 Environment, Safety and Health (ES&H) Manager

The ES&H Manager is responsible for the following:

- Ensuring compliance oversight with the procedure through periodic field inspections.
- Providing technical advice and interpretation of the environmental, safety, and health codes included in the procedure.
- Developing and maintaining electronic assessments of this procedure.

2.3 ES&H Representative

The ES&H Representative is responsible for the following:

- Ensuring compliance oversight with the procedure through periodic field inspections.
- Providing technical advice and interpretation of the environmental, safety, and health codes included in the procedure.

2.4 Supervisor (e.g., Discipline Superintendent, Foreman, General Foreman)

The Supervisor is responsible for the following:

- Conducting a risk assessment of work areas for potential dropped objects and ensuring that dropped object hazards and prevention methods are detailed in the Job Hazard Analysis (JHA) for the related work packages.
- Assessing their respective work areas for potential dropped object hazards and evaluating the implemented controls for effectiveness.
- Reporting all dropped objects and assisting in the investigation of dropped-object incidents.
- Actively participating in investigations and in the corrective actions process required to prevent recurrence of dropped objects.

2.5 Subcontract Technical Representative (STR)

The STR is responsible for the following:

- Being familiar with this procedure and how it affects the work of UPF subcontractors.
- Ensuring the requirements of this procedure that are applicable to subcontractors are being implemented.
- Reporting all dropped objects for subcontractors and participating in the investigation of dropped-object incidents.
- Actively participating in improvements and in the corrective actions process required to prevent recurrence of dropped objects.
- Monitors subcontractor compliance with this procedure.

2.6 Worker

Prior to beginning work activity, workers are responsible for the following:

- Ensuring dropped object protection is properly performed and maintained per JHA.
- Reporting issues to supervisors and ES&H Representative to ensure deficiencies are corrected.
- Reporting dropped-object incidents to supervisor if they occur.

3.0 PROCESS

3.1 Worksite Evaluations

Dropped object prevention is in effect when individual or crew is working above others regardless of elevation.

The following are requirements to assess work area:

- Prior to starting elevated work, the location shall be assessed by the Supervisor and work crew members to ensure that housekeeping is acceptable and all dropped item prevention tools are in place.

  This includes ensuring the area is equipped with the following based on the task being performed:
  - material handling ropes
  - wheel wells
  - material bags
  - storage areas
  - containers with a closure mechanism
  - debris netting (see 3.3.1, Debris Netting)
- Any deficiencies in the workplace noted shall be corrected prior to the start of work and the Supervisor deems that work area is acceptable to commence work.
- Supervisor shall ensure that work area is clear of potential dropped objects prior to end of shift.

3.2 Line-of-Fire Protection

3.2.1 Work Planning/Communication

- Personnel shall communicate to coworkers and other affected personnel of the overhead hazards associated with their work tasks. Whenever possible, crews will not work below each other unless it is required to safely complete the work task (e.g., siding activities, Tower Crane Operations).

NOTE: *This does not apply to tower crane operators. Tower Crane Operators are in constant communication with Bellman.*

- Communications between workers above and below should document the discussion on their STARRT card (UCN-23162, *Safety Task Analysis Risk Reduction Talk (STARRT) Card*).

3.2.2 Barricades for Personnel Protection

- Barricades with hazard and ownership signage shall be properly erected and maintained in accordance with UPF-CP-214, *UPF Barricades and Signs*, when an overhead hazard exists. If employees cannot be adequately protected using the mentioned methods below, then the Supervisor shall administratively control the hazard by removing affected personnel from the line of fire.
- Dropped items do not normally fall straight down and often can be deflected and end up outside a planned work zone. A minimum requirement for barricade erection is: 1 foot out for every 2 feet up. Any situation that cannot meet the minimum requirement must be evaluated by the superintendent and documented on STARRT card.

3.3 Tool and Material Handling

Utilizing safe work practices while handling tools and material when working at elevation is essential in preventing dropped or falling objects.

3.3.1 Debris Netting

NOTE: *This does not apply to tower crane cab or access/egress to the cab. Controls are captured in Y17-95-64-872, UPF Cranes Use and Operation.*

- Elevated work areas (e.g., scaffolds/aerial lifts) shall be outfitted with debris netting (Pearl Weave) applied from the deck to the top guard rail with cable ties (or other suitable means). The primary function of the netting is to prevent loose items from being dropped or kicked from the elevated work platform deck.
- Installed debris netting shall not be removed or modified without prior authorization from the area superintendent and ES&H Lead or delegate and documented on the STARRT Card (UCN-23162 or CFN-1268, *UPF Tower Crane Operations STARRT Card*).

3.3.2 Tool Lanyards

- When working at elevation tool lanyards or other approved device(s) (e.g., Motorola Radio Chest Pack HLN6602A) shall be the primary control used.
- Tool lanyards or other approved device(s) shall be securely affixed to the tool/device per the manufacturer's instructions and attached to the user or a secondary anchorage point (depending on the weight/type of tool). Lanyards and other tethering devices shall only be affixed by a competent person who has been trained in the practice.

3.3.3 Rope and Well Wheels

Employees shall not carry tools or materials while climbing ladders. Materials will be raised and lowered, where applicable, using either rope or well wheels in conjunction with project approved material bags. Ropes for hoisting shall be sized such that the capacity meets or exceeds 125% of the wheel rating. Safety hooks shall be installed on the end of the ropes so that they can be hooked directly to the handle of the project issued material bag.

3.3.4 Material/Canvas Bags

- Loose materials and small tools shall be placed in a project approved material/canvas bag and raised or lowered with a rope. The preferred style of material bag is a type that closes at the top to secure the tools and materials in the bag, and have a rated capacity which is embossed or affixed.
- Do not load the canvas bag beyond the capacity of the bag.
- Only those tools and materials necessary for the task at hand shall be contained in material bags in the work area. The bag shall be secured to a fixed object to prevent the bag from tipping and spilling its contents.

3.3.5 Positive Control

Workers should be trained on proper tool and material handling techniques, including the "twist method" when passing material. This method involves the employee twisting the material upon receiving prior to the sender releasing the material. This method helps to ensure that the receiver has control of the material before the sender releases it.

Example: A carpenter is passing a scaffold pole to a coworker. As he passes the pole, the receiver grabs it and twists it from the sender's hand. The sender does not release the pole until the receiver has control of it.

3.4 Tool and Material Storage

Non-essential tools and materials should not be stored or staged at elevation (on scaffold decks or mezzanine levels). Supervisors shall address unnecessary tools and materials in the work area during their worksite evaluations and general housekeeping assessments.

3.4.1 Debris Netting Maintenance

Debris netting on all elevated work platforms shall be maintained in order to prevent dropped or falling objects. Daily inspections of work areas should include the debris netting to ensure installation and completeness. When and where the netting is in need of repair, the carpenters shall be contacted to make repairs.

3.4.2 'Hitchhikers'

The potential exists for a 'hitchhiker' to become a falling object hazard when the load they are hidden on is hoisted/moved/installed. Workers must inspect loads to ensure loose tools or materials (e.g., bolts) do not become 'hitchhikers'.

3.5 Training and Coaching

3.5.1 UPF Site Orientation

The requirements and expectations set forth in this procedure shall be addressed with all employees during orientation. Topics regarding dropped item prevention shall include safe work practice instruction such as positive tool and material control, the required use of tool lanyards, tool and material storage, and scaffolding housekeeping and maintenance.

3.5.2 Supervisor Training

All Supervisors (e.g., Craft Foremen and General Foremen) shall be given training (i.e., Safely Speaking topics) on their responsibilities and methods to prevent dropped objects at their work locations.

3.5.3 Safety Task Analysis Risk Reduction Talk (STARRT) Card Briefings

At the beginning of each shift, prior to starting work, each crew supervisor/lead shall conduct a STARRT Card briefing with their respective crews. The prevention of dropped objects shall be discussed and documented as it applies to the scope of their work.

3.6 Reacting to a Dropped Object Incident

- All dropped-object incidents shall be reported and evaluated. If the severity of the event warrants, investigate per UPF-CP-108, *UPF Event Management and Investigation,* at the discretion of the ES&H Manager.
- Dropped object incidents that have controls established for personnel protection (e.g., barricades) shall be evaluated to ensure the proper implementation and adequacy of those controls were in place prior to the dropped object incident.

3.7 Compliance Assessments

Compliance with the controls of this procedure will be assessed via informal daily walk downs by managers, superintendents, supervisors and with the support and participation of the Zero Incident and People Based Safety Team members. Personnel shall be knowledgeable of the hazards and approved controls for the site.

4.0 RECORDS

None

5.0 REFERENCES

5.1 Source References

UPF-CP-200, *UPF General Safe Work Practices*

UPF-CP-212, *UPF Fall Prevention and Protection*

UPF-CP-215, *UPF Floor and Wall Openings/Holes*

Y17-95-64-823, *UPF Safety Task Analysis and Risk Reduction Talk/Job Hazard Analysis Program (STARRT/JHA) Process*

Y17-95-64-831, *UPF Scaffold Control and Management*

Y17-95-64-837, *UPF Housekeeping*

Y17-95-64-871, *UPF Construction Hoisting and Rigging Work Operations*

ANSI/ISEA 121-2018, *American National Standard for Dropped Object Prevention Solutions*

5.2 Interfacing References

CFN-1268, *UPF Tower Crane Operations STARRT Card*

UCN-23162, *Safety Task Analysis Risk Reduction Talk (STARRT) Card*

UPF-CP-108, *UPF Event Management and Investigation*

UPF-CP-214, *Barricades and Signs*

Y17-95-64-872, *UPF Cranes Use and Operation*

6.0 SUPPLEMENTAL INFORMATION

Appendix A, *Acronyms and Definitions*

APPENDIX A
Acronyms and Definitions

ACRONYMS:

ES&H	Environment, Safety and Health
JHA	Job Hazard Analysis
STARRT	Safety Task Analysis Risk Reduction Talk
STR	Subcontract Technical Representative
UPF	Uranium Processing Facility

DEFINITIONS:

Dropped Object	Any tool or piece of material that, through loss of positive control, falls to a level lower than the elevation on which the work is being performed. **NOTE:** When the object stays within the confines of the immediate work area (same elevation), inside the area protected with debris netting or Pearl Weave, and does not cause damage to plant equipment or injury to personnel, the object is not considered a “dropped object”. When the object falls to a lower level, even if the area is barricaded to keep personnel out, this shall still be considered a “dropped object”.
Hitchhiker	An improperly stored, loose object that has been covered/hidden underneath, on top of, or inside other materials. This can include loose items left in structural steel beam webs, inside tube steel/piping, left on junction boxes, valves, etc.
Tools and Materials	Objects inclusive of tools, materials of construction, radios, backpacks, food, beverages, communication devices, PPE, and similar items that are required to complete a work task or provides sustenance.