



**UPF PROJECT PROCEDURE**

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### Revision History

<b>Revision</b>	<b>Reason/Description of Change</b>
07	This revision is a complete re-write, therefore no revision bars are shown. This revision further establishes guidance and instructions for the safe hoisting of personnel in platforms suspended on load lines from cranes or derricks.
06	Adopted initial issue from Bechtel Core Process 219 at its current revision 6.

## UPF Suspended Personnel Platforms

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## UPF Suspended Personnel Platforms

**1.0 PURPOSE**

To establish the requirements for the use of suspended personnel platforms (man baskets), equipment requirements, and the operating practices for the safe hoisting of personnel in platforms suspended on load lines from cranes or derricks.

**2.0 GENERAL****2.1 Description**

This procedure is applicable to suspended personnel platform activities that take place on the Uranium Processing Facility (UPF) construction site and support areas, to include subcontractors.

**2.2 Acronyms**

CM	Construction Manager
DS	Discipline Superintendent
FSM	Field Safety Manager
FSR	Field Safety Representative
PFE	Project Field Engineering Manager
PIC	Person In-Charge
SPP	Suspended Personnel Platforms

**2.3 Definitions**

**Critical Lift:** Lifts are categorized according to the requirements found in procedure Y17-95-64-871, *UPF Construction Hoisting and Rigging Work Operations*. The lifting of a personnel platform is categorized as critical because of the safety and protection of personnel being transported.

**Lift Plan:** Documents containing the necessary information to safely lift/hoist a personnel platform (a Critical Lift).

**Person-In-Charge (PIC):** An individual, generally the Rigging Supervisor/Superintendent or designee in the context of this procedure, who oversees suspended personnel platform lift(s). The PIC has overall control and responsibility for conducting a lifting operation.

**Suspended Personnel Platform:** A platform specifically designed and engineered for lifting personnel with a crane load line (see section 4.4, *Platform Criteria*).

**3.0 RESPONSIBILITIES**

**3.1 Construction Manager** – has the overall responsibility for ensuring the implementation of this procedure, ensuring that all project personnel actively participate; and provides worker support, facilities, and other resources necessary to effectively carry out this procedure.

**3.2 Field Safety Manager** – has the overall authority for interpretation of the regulations associated with the procedure and the interpretation of the procedure as to intent and application.

**3.3 Field Safety Representative** – has the responsibility of compliance oversight with the procedure through periodic field inspections and is responsible for supplying technical

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advice and interpretation of the environmental, safety, and health codes included in this procedure.

- 3.4 Discipline Superintendent** – is responsible for being thoroughly familiar with this procedure and their individual responsibilities regarding compliance with and implementation of this procedure. The DS shall support the development of plans for critical lifts and ensure a lift plan is prepared, reviewed, and approved prior to proceeding with the lift operations.
- 3.5 Project Field Engineer** – is responsible for:
- Ensuring a plan is in place to address the rigging loads for equipment and materials.
  - Overseeing the preparation of rigging plans, the design of lifting systems, and temporary structural systems required to perform lifts of personnel platforms.
  - Reviewing and approving critical lift plans in accordance with Y17-95-64-871, *UPF Construction Hoisting and Rigging Work Operations* and this procedure prior to lifting of personnel in a suspended personnel platform.
- 3.6 Rigging Engineer** – is responsible for:
- Preparing rigging plans, calculations, and specifications for rigging material and lifting equipment controlled by the construction PFE.
  - Reviewing and approving critical lift plans (including subcontract rigging submittals) in accordance with procedure Y17-95-64-871, *UPF Construction Hoisting and Rigging Work Operations* prior to the start of work.
- 3.7 Qualified Crane Operator** – A qualified crane operator is an individual who has obtained crane operator certification through a testing organization recognized by a nationally accrediting agency, and is qualified to operate cranes in accordance with Y17-95-64-873, *UPF Qualification of Construction Crane and Equipment Operators*.
- The Qualified Crane Operator is responsible for operating cranes on the UPF construction site and support areas.
  - Have knowledge of the crane and selected equipment, including limitations and capacities related to the lifting of suspended personnel platforms.
- 3.8 Rigger** – The Rigger is responsible for:
- Having the training and qualification per Y17-95-64-874, *UPF Rigger, Signal Person, & Competent Person Rigger Qualification* to perform rigging activities at the UPF construction site and support areas.
  - Understanding the rigging hardware and its limitation.
  - Rigging the SSP so as to have strength and stability when lifting personnel and equipment.
- 3.9 Rigging Supervisor/Superintendent** – is an individual with rigging experience and demonstrated technical skills and who is responsible for:
- Supporting the development of plans for critical lift operations.
  - Ensuring a lift plan is prepared, reviewed, and approved prior to proceeding with the lift operations.
  - Reviewing and approving critical lift plans.
  - Supervising performance of the work.
  - Acting as the PIC for critical lifts.
  - Ensuring adequate inspection and maintenance of equipment.

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- Delegating an individual to act as a PIC as needed.

**3.10 Person-In-Charge** – is an individual possessing the skills and experience applicable to the hoisting and rigging operation to be performed.

The Person-In-Charge is responsible for:

- Assessing operations to provide planning, selection of equipment, instruction, and supervision as necessary for safe execution of the task.
- Ensuring adequate inspection and maintenance of equipment has been carried out per this procedure.
- Ensuring an effective process is in place for reporting defects and incidents and taking necessary corrective actions.
- Assisting with the planning and control of rigging work operations.
- Supervising the performance of the rigging work operations.
- Stopping any lift/haul operation if a potential danger is likely to arise if the operation were to continue.
- Being present for all SPP lifts.

**3.11 Workers** – are responsible for knowing, understanding, and complying with the requirements of this procedure that apply to the work they perform.

## 4.0 PROCESS

### 4.1 Risk Evaluation

Hoisting employees in a personnel platform is prohibited except when the use of conventional means of reaching the work site, such as personal hoist, ladder, stairway, mobile elevated work platform, or scaffold, would be more hazardous or would not be possible because of structural design or work site conditions. If it is determined by the CM, with concurrence from the FSM and PFE, that a suspended personnel platform will be used over other conventional means, then the requestor shall:

1. Conduct a risk evaluation before a lifting plan is prepared using form UCN-23252, *Suspended Personnel Platform Risk Evaluation* to document the results of the evaluation.
2. Obtain signed approval on the evaluation from the CM, FSM, and PFE prior to proceeding with any use of a suspended personnel platform.
3. Attach the completed form to the critical lift plan and associated work package.

### 4.2 Rigging Plan Preparation

Once the SSP Risk Evaluation has been performed and approved, Rigging Engineer develops a critical lift plan that includes selection of the personnel platform, the crane, and capacity calculations using the weight of the rigging, platform, and estimated platform working load.

### 4.3 Pre-Work Lifts and Inspections

Prior to lifting personnel the following lifts and inspections are to be performed:

- *Proof Test Lift* – shall be performed prior to a work sequence, where one or more lifts of an occupied personnel platform are planned in order to accomplish a work task, or after any repair or modification to platform or rigging components.

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- *Trial Lift* – shall be made at the beginning of each shift in which personnel will be hoisted.
- *Occupied Test Lift* – shall be performed prior to each lift, with personnel and material/tools on board, to verify the securing and balance of the platform.

**4.3.1 Suspended Platform Capacity Proof Test**

1. The platform and rigging must be proof tested to 125% of the platform's rated capacity.

**NOTE:** The proof test may be done concurrently with the trial lift.

2. With the test load evenly distributed on the platform, lower the platform by controlled load lowering, brake, and hold in a suspended position for a minimum of five (5) minutes.
3. After proof testing, the PIC must inspect the platform and rigging to determine if the test has been passed.
4. Document the results of the Proof Test in Section 5 of UCN-23253, *Suspended Personnel Platform Safety Checklist*.
5. Personnel hoisting must not be conducted until the PIC determines that the platform and rigging have successfully passed the proof test.

**4.3.2 Trial Lift**

1. At the beginning of each shift, a trial lift with the unoccupied personnel platform loaded at least to the anticipated lift-weight must be made from ground level, or any other location where employees will enter the platform, to each location at which the platform is to be hoisted and positioned.
2. Where there is more than one location to be reached from a single set-up position, perform either:
  - (a) Individual trial lifts for each location, or
  - (b) A single trial lift, in which the platform is moved sequentially to each location.

**Note:** Select a method that is the same as to be used to hoist the personnel.

3. Perform a trial lift immediately prior to each shift in which personnel will be hoisted. In addition, the trial lift must be repeated prior to hoisting employees in each of the following circumstances:
  - (a) The equipment is moved and set up in a new location or returned to a previously used location.
  - (b) The lift route is changed, unless the PIC determines that the new route presents no new factors affecting safety.
4. The PIC must determine that:
  - (a) Required safety devices and operational aids are activated and functioning properly.
  - (b) Nothing interferes with the equipment or the personnel platform in the course of the trial lift.
  - (c) The lift does not exceed 50% of the equipment's rated capacity at any time during the lift.
  - (d) The load radius to be used during the lift has been accurately determined.
5. Immediately after the trial lift, the PIC must:
  - (a) Conduct a visual inspection of the equipment, base support or ground, and personnel platform, to determine whether the trial lift has exposed any defect or problem or produced any adverse effect.

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- (b) Confirms that, upon the completion of the trial lift process, the test weight has been removed.
- (c) Document the results of Trial Lift, and the results of Post-Trial Inspection in Section 5 of UCN-23253, *Suspended Personnel Platform Safety Checklist*.

#### 4.3.3 Occupied Test Check

##### 1. Immediately prior to each lift:

- (a) Hoist the platform a few inches with the personnel and materials/tools on board and inspect by the PIC, to ensure that it is secure and properly balanced.
- (b) The following conditions must be determined by the PIC to exist before the lift of personnel proceeds:
  - Hoist ropes are free of deficiencies.
  - Multiple part lines are not to be twisted around each other.
  - The primary attachment is centered over the platform.
  - If the load rope is slack, inspect the hoisting system to ensure that all ropes are properly seated on drums and in sheaves.

2. If any deficiencies are found with the equipment that pose a safety hazard, stop the lift and tag the equipment with a “Danger - Defective Tool/Equipment - Do Not Use” tag and report the situation to supervision. Keep equipment out of service until maintenance personnel are able to inspect, repair, and validate the repair.

3. Document the results of the “Occupied Test Lift Inspection on Section 6 of UCN-23253, *Suspended Personnel Platform Safety Checklist*.”

#### 4.4 Platform Criteria

A personnel platform (man basket) shall be designed and configured as follows:

1. The personnel platform and attachment/suspension system used for hoisting personnel has been designed by a qualified person, familiar with structural engineering.
2. The system used to connect the personnel platform to the equipment allows the platform to remain within 10 degrees of level, regardless of boom angle.
3. The suspension system is designed to minimize tipping of the platform due to movement of employees occupying the platform.
4. The personnel platform itself (excluding the guardrail system and personal fall arrest system anchorages), has the capability of supporting, without failure, its own weight and at least five (5) times the maximum intended load.
5. All welding on a personnel platform and its components is performed by a certified welder familiar with the weld grades, types and material specified in the platform design.
6. Personnel platforms, equipped with a guardrail system, meet the requirements of UPF-CP-212, *UPF Fall Prevention and Protection*, and provide enclosure at least from the toe-board to mid-rail with either solid construction material or expanded metal having openings no greater than ½ inch.
7. Ensure personnel platform fall arrest system anchorage points are designed/engineered for that use.
8. A grab rail is installed inside the entire perimeter of the personnel platform except for access gates/doors.
9. Access gates/doors. If installed, access gates/doors of all types (including swinging, sliding, folding, or other types) shall:



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- (a) Not swing outward. If due to the size of the personnel platform, such as a 1-person platform, it is infeasible for the door to swing inward and allow safe entry for the platform occupant, then the access gate/door may swing outward.
  - (b) Be equipped with a device that prevents accidental opening.
10. Headroom is sufficient to allow employees to stand upright in the platform.
  11. In addition to the use of hard hats, provide overhead protection on the personnel platform when employees are exposed to falling objects. Such platform overhead protection cannot obscure the view of the operator or platform occupants (such as wire mesh that has up to ½ inch openings), unless full protection is necessary.
  12. All platform edges are smooth enough to prevent injury, if exposed to employee contact.
  13. A plate, or other permanent marking, is conspicuously posted on the platform, posting the weight of the platform and its rated capacity.

#### 4.5 Devices

1. Equipment (except for derricks and articulating cranes) with a variable angle boom must be equipped with all of the following:
  - (a) A boom angle indicator, readily visible to the operator, and
  - (b) A boom hoist limiting device.
2. Articulating cranes must be equipped with a properly functioning automatic overload protection device.
3. Equipment with a luffing jib must be equipped with:
  - (a) A jib angle indicator, readily visible to the operator, and
  - (b) A jib hoist limiting device.
4. Equipment with telescoping booms must be equipped with a device to indicate the boom's extended length clearly to the operator, or have measuring marks on the boom.
5. Anti-Two-Block. A device, which automatically prevents damage and load failure from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component) shall be used. The device(s) must prevent such damage/failure at all points where two-blocking could occur.
6. Controlled Load Lowering. The load line hoist drum must have a system, other than the load line hoist brake, which regulates the lowering rate of speed of the hoist mechanism. This system is required when lifting personnel.
  - (a) Free fall of the load line hoist is prohibited; the use of equipment in which the boom hoist mechanism can free fall it also prohibited.
7. Personnel hoisting operations must not begin unless the devices listed above are in proper working order. If a device stops working properly during such operations, the operator must safely stop operations. Personnel hoisting operations must not resume until the devices are again working properly. Alternative measures are not permitted.

#### 4.6 General Work Practices

1. Hoisting of the personnel platform must be performed in a slow, controlled, cautious manner, with no sudden movements of the equipment or the platform.
2. Platform occupants must:
  - (a) Keep all parts of the body inside the platform during raising, lowering, and horizontal movement. This provision does not apply to an occupant of the platform when necessary to position the platform or while performing the duties of a signal person.

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- (b) Not adjust working height by standing or sitting on the top/mid rails, or use any other means/device to raise their working height.
- (c) Not pull the platform out of plumb in relation to the hoisting equipment.
- 3. Do not load the platform in excess of its rated capacity. The platform is only to be used for workers, their tools, and the materials needed for their work.
- 4. Employees being hoisted must remain in direct communication with the signal person (where used), or the operator.
- 5. Before employees exit or enter a hoisted personnel platform that is not landed, secure the platform to the structure where the work is to be performed, unless it can be demonstrated that securing to the structure would create a greater hazard.
- 6. When a platform is tied to the structure, the operator shall not move the platform until the operator receives confirmation that it is freely suspended.
- 7. Use tag lines when necessary to control the platform.
- 8. The equipment operator must remain at the equipment controls, on site, and in view of the equipment, at all times while the platform is occupied.
- 9. Environmental conditions.
  - (a) When wind speed (sustained or gusts) exceeds 20 mph personnel platform lifts shall be terminated until safe conditions exist where the lift can resume.
  - (b) Other weather (e.g.; lightning, rain/snow). A qualified person must determine if, in light of indications of dangerous weather conditions, or other impending or existing danger, it is not safe to lift personnel. If it is not, the lifting operation must not begin (or, if already in progress, must be terminated).
- 10. Fall protection.

Employees occupying the personnel platform must be provided and use a personal fall arrest system attached to an acceptable anchorage point
- 11. Other load lines.
  - (a) Performing lifts with any other of the equipment's load lines, while personnel are being hoisted, is prohibited.
  - (b) Factory-produced boom-mounted personnel platforms that incorporate a winch as original equipment. Loads are permitted to be hoisted by such a winch while employees occupy the personnel platform only where the load on the winch line does not exceed 500 pounds, where the weight does not exceed the wench capacity and the combined load of the platform and winch does not exceed the rated capacity of the platform.

#### 4.7 Pre-Lift Meeting/Brief

1. Immediately prior to the personnel lift, a pre-lift meeting will be held to discuss the operation, roles and responsibilities, and safety topics associated with the lift. During the pre-lift meeting, discuss the completed *Suspended Personnel Platform Safety Checklist*.
2. Personnel required to attend the meeting include:
  - Equipment operator
  - Rigger
  - Signal person
  - Employee(s) to be lifted
  - Supervisor responsible for the lift
  - PIC

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3. The Pre-lift meeting should include a STARRT briefing. The following aspects should be discussed:
- The critical lift plan
  - Avoidance of overhead cables/wires;
  - Avoidance of protruding objects, structures;
  - Avoidance of falling materials;
  - Training requirements;
  - Power supply (where applicable);
  - Inspection & testing;
  - General access arrangements;
  - Interface with other operations;
  - Potential changes to work patterns;
  - Weather conditions;
  - Any other guidance or conditions bearing on the lift.

#### 4.8 Repairs

After any repair or modification of the suspended personnel platform, or the platform and rigging, they will be proof-tested to 125% of the platform's rated capacity by holding the platform in suspension for five (5) minutes.

The platform will not be used for hoisting personnel until the proof-testing requirements are satisfied.

#### 5.0 RECORDS

All records generated as a result of this procedure are maintained in accordance with Y15-101, *Records and Controlled Documents*, and Y15-95-800, *UPF Document Management*.

- UCN-23253, *Suspended Personnel Platform Safety Checklist*
- UCN-23252, *Suspended Personnel Platform Risk Evaluation*

#### 6.0 REFERENCES

##### 6.1 Source References

- OSHA 29 CFR 1926.1431, *Crane or Derrick Suspended Personnel Platforms*
- OSHA 29 CFR 1926 Subpart M, *Fall Protection*
- ANSI B30.10, *Hooks*
- ANSI B30.5, *Mobile and Locomotive Cranes*
- Bechtel ES&H Core Process 219, *Suspended Personnel Platforms*

##### 6.2 Interfacing References

- Y17-95-64-871, *UPF Construction Hoisting and Rigging Operations*
- Y17-95-64-873, *UPF Qualification of Construction Crane and Equipment Operators*
- Y17-95-64-874, *UPF Rigger, Signal Person, & Competent Person Rigger Qualification*
- Y17-95-64-823, *UPF Safety Task Analysis and Risk Reduction Talk/Job Hazard Analysis Program (STARRT/JHA) Process*
- UPF-CP-212, *UPF Fall Prevention and Protection*
- UPF-CP-234, *UPF Utilities Clearance*