THE NATION'S URANIUM PROCESSING FACILITY

Preparer:

11/21/24

Nicholas A. Prewitt
BNI ES&H Industrial Hygienist

Date

Approval

12/04/24

Robert C. Drake
UPF BNI ES&H Manager

Date

12/02/24

Gary J. Cough
UPF Site Manager

Date

12/04/24

Cathy Flavin
Acting UPF Project Director

Date

01/02/2025

Effective Date

This document has been reviewed by a Y-12 DC/ RO and has been determined to be UNCLASSIFIED, not UCNI, and contains no CUI based upon current classification guidance. This review does not constitute a review for CUI outside of classification guidance and does not constitute clearance for Public Release.
Name: Chuck Heatherly Date: 12/04/24

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REVISION LOG

Revision 2

☒ Intent ☐ Non-Intent Implements PRMS Requirements: ☒ Yes ☐ No

- These changes are in response to Action 5 of Condition Report 25774-000-GCA-GAM-04830, *OFI-Clarity and Detail can be Added to Permit Invoking Command Media to Improve the Flow-Down of Requirements and to Establish Traceability (CAA-SH-801768-FY24-013)*
  - Added direction on providing the necessary documentation for other types of permits associated with confined space entry
- This revision incorporates the changes identified in and supersedes PRCN-Y73-95-802-R01-01,02, and 03
- Re-arranged roles and responsibilities in Section 2.0, *Responsibilities*, to improve the readability of the procedure
- Added section 5.0, *Air Monitoring*
- Added section 6.0, *Ventilation Plan*
- Added 9.0, *Energy Isolation and Lockout/Tagout*
- Incorporated ANSI/ASSE Z117.1-2009 requirements
- Added section 10.0, *Training*
- Added definitions of Cold Worker and Hot Worker
- Other changes include:
  - Updated references and acronyms
  - Editorial changes

Revision 1

☒ Intent ☐ Non-Intent Implements PRMS Requirements: ☒ Yes ☐ No

- An evaluation determination has been performed confirming this Command Media implements no quality requirements, as tracked in the Programmatic Requirements Management System (PRMS).
- This procedure has been edited to clarify the requirement for posting NPCSs on rebar wall structures (Section 3.3) in response to CR 01798, UPO-F1-*CNS has Not Adequately Implemented Requirements Pertaining to Identification and Classification of Confined Spaces and Authorization to Enter Confined Spaces (ASRP-C&ESH-5.23.2019-839039).*
- This procedure has been edited to include the copyright statement on all pages

Previous revisions on record

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1.0 INTRODUCTION

1.1 Purpose

This procedure establishes the responsibilities for personnel involved in evaluating, preparing, supervising, entering, and attending a Confined Space at the Uranium Processing Facility (UPF) Project. It was developed in accordance with Occupational Safety and Health Administration (OSHA) Standard 29, Code of Federal Regulations (CFR) §1926.1200, *Confined Spaces in Construction* and ANSI/ASSE Z117.1-2009, *Safety Requirements for Confined Spaces* for the purpose of implementing and maintaining an effective confined space entry program.

1.2 Scope

This procedure applies to UPF personnel, including contractors and subcontractors, who may be required to enter a Permit-Required Confined Space (PRCS) or Non-Permit-Required Confined Space (NPCS) or support a confined space entry.

This document describes the measures required to:

- Prevent unauthorized entry into confined spaces.
- Identify and evaluate confined space hazards.
- Provide safe entry operations and rescue for confined spaces.

2.0 RESPONSIBILITIES

2.1 Site Manager

The Site Manager is responsible for:

- Providing support, facilities, and other resources necessary to effectively carry out this procedure
- Ensuring required training is provided for employees based on assigned duties in this procedure (i.e., Entry Supervisor, Authorized Entrant, Attendant, and Non-Entry Rescue [NER])
- Ensuring that this procedure is implemented

2.2 Project Industrial Hygienist

The Project Industrial Hygienist (PIH) or designee is responsible for:

- Implementing and administering this procedure, in conjunction with the Site Manager
- Conducting and documenting an annual review of the Confined Space Entry Program to ensure that the location, hazards, and controls are current for each confined space
- Serving as the final authority in matters related to the identification, evaluation, and classification of NPCSs and PRCSs
- Assisting the confined space Attendant and Entry Supervisor with continuous or periodic monitoring, as required

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- Assigning a qualified Environment, Safety, and Health (ES&H) Representative to fulfill limited PIH responsibilities, as necessary
- Reviews training of confined space-authorized personnel and evaluates confined space identification, entry protocol, and emergency rescue equipment
- Establishing the ventilation plan, when required, to enable conned space entries

2.3 Environmental Safety and Health Representative

The ES&H Representative is responsible for:

- Supporting and administering this procedure, in conjunction with the Site Manager and PIH
- Performing initial atmospheric testing.
- Assisting the confined space Attendant and Entry Supervisor with, completion of permits, and pre-entry briefings, as required
- Completing limited PIH duties, as necessary

2.4 Project Superintendent

The Project Superintendent is responsible for:

- Reviewing and approving confined space classifications within their area(s) of responsibility
- Ensuring that NPCSs and PRCSs are properly identified with a required signage
- Notifying ES&H of any confined space configuration or operational status change that may require a reclassification of the space

2.5 Entry Supervisor

The Entry Supervisor is responsible for:

- Implementing and enforcing the confined space entry requirements for workers under their supervision
- Verifying personnel who support a confined space entry activity are current with required training

2.6 Attendant

The Attendant is responsible for overseeing entry into PRCSs.

2.7 Authorized Entrants

Employees who enter PRCSs are responsible for understanding and complying with the requirements of this procedure.

2.8 Employee

Employees who are not authorized or trained to enter a confined space must not enter any posted or suspected confined space.

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3.0 CONFINED SPACE CLASSIFICATION PROCESS

3.1 Identification of Confined Spaces

When a known or suspected confined space is identified, the Site Manager or designee notifies ES&H, who then conducts an evaluation of the space. As a result of this evaluation, the space will be classified as one of the following:

- Not a confined space
- NPCS
- PRCS.

All confined spaces shall be treated as permit spaces until determined to be otherwise.

3.2 Requesting a Confined Space Evaluation/Classification

As construction advances, new spaces may be created, changes may occur in the use and configuration of existing spaces, and existing confined space signs may deteriorate or become displaced.

IF anyone identifies these or similar conditions, THEN the following actions should be taken:

- IF a suspect space is confined AND you cannot confirm that a confined space classification was conducted, THEN DO NOT enter the space
- Contact supervision to determine if the space was evaluated and classified
- IF supervision cannot provide a confirmation, THEN request that ES&H classify the space (see **Figure 1**)

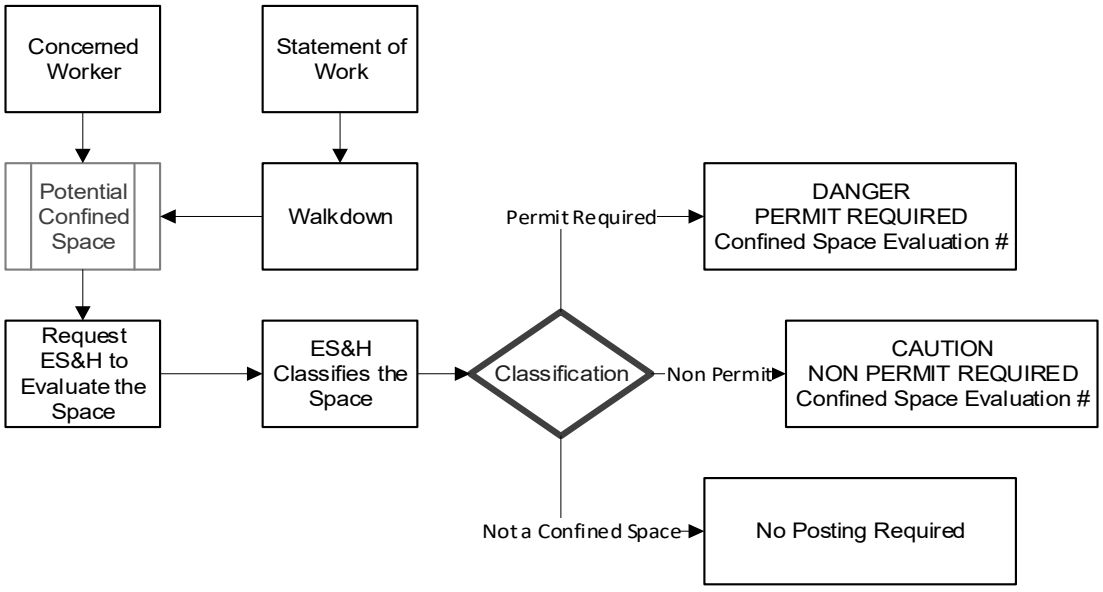

Figure 1. Evaluation/Classification of a Confined Space

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3.3 Confined Space Postings/Signs

NOTE: *NPCS signage is NOT required on rebar wall structures, similar rebar structures, or gloveboxes. The Entry Supervisor shall evaluate the means of access/egress, the environmental conditions and brief the affected project personnel regarding the health and safety requirements related to the specific entry. NPCS and PRCS signage is NOT required for spaces where inadvertent entry is not possible (i.e., confined spaces equipped with covers that require specialty tools to be removed, confined spaces that have entry points at locations that cannot be physically reached, etc.)*

Each NPCS and PRCS is assigned a unique identification number. This number and the space's classification are identified on a sign located at or near access/entry points to the classified space. Signs should also include the following information:

- For an NPCS:

CAUTION
NON-PERMIT CONFINED SPACE
DO NOT ENTER Without Authorization
Contact Your Entry Supervisor Prior to Starting Work

- For a PRCS:

DANGER
PERMIT-REQUIRED CONFINED SPACE—DO NOT ENTER
Contact Your Entry Supervisor Prior to Starting Work

4.0 CONFINED SPACE ENTRY PROCESS

4.1 General Requirements for Any Confined Space:

The Entry Supervisor performs the following:

- Determines if conditions are acceptable for a confined space entry
- Authorizes, oversees, and terminates entry
- Responds when new or changing conditions are identified that may necessitate changes to the entry documentation
- Notifies an ES&H Representative of changes within the confined space that may require a reclassification or reevaluation of that confined space and/or the entry documentation
- Reviewing the completed UCN-23272, *Classification of Potential Confined Spaces* and completing UCN-23273*, Confined Space Entry Evaluation*
- Understanding the hazards associated with each entry
- When conditions or work activities are outside the limits specified on the Entry Evaluation, or could introduce a hazard not addressed on the original evaluation, then it shall be immediately revoked

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- A new Entry Evaluation shall be issued whenever changing work conditions or work activities introduce hazards into the confined space that were not addressed by the original evaluation
- IF the Entry Supervisor changes during the job, THEN the replacement Entry Supervisor shall also sign the permit and receive a turnover that ensures that entry operations are consistent with the requirements of the entry permit

Authorized Entrants perform the following:

- Review and sign (if applicable) the confined space Entry Evaluation/Permit
- Ensure that the required equipment (e.g., personal protective equipment [PPE], ventilation, communication, lighting) is operable prior to and during entry
- Understand the application, proper use, and limitations of safety equipment required during confined space entry (e.g., rescue equipment, monitor alarms)

4.2 Non-Permit Confined Space Entry Process

A trained and qualified Entry Supervisor must oversee the work AND ensure that the space remains an NPCS.

The Entry Supervisor performs the following:

- Reviews UCN-23272 to ensure the confined space configuration has not changed and that no potential hazards were introduced
- Ensures a copy of the classification must be available at the confined space work location
- Reviews the planned work with the workers
- Confirms the activity will not introduce unanticipated hazards into the confined space
  - IF the work introduces an unanticipated hazard, THEN the Entry Supervisor shall contact ES&H to reevaluate the confined space
- Completes UCN-23273, Part 1, Sections A, B, and D with an ES&H representative
- For Section D, check the “NPCS” entry box and sign

NOTE: *Monitoring is warranted when hazardous material or gases, heavy vehicle traffic, or other sources are outside the confined space but in close enough proximity to impact the safety of Entrants.*

Entrants perform the following:

- Enter the confined space only when authorized by the Entry Supervisor
- IF hazardous conditions arise, THEN notify other Entrants, immediately exit the confined space, AND notify the Entry Supervisor

4.3 Permit-Required Confined Space Entry Process

There are three types of PRCS entries:

1. Permit Required

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2. Alternate Entry Process (used when the only hazard is a potential hazardous atmosphere that can be fully controlled by the use of ventilation)
3. Temporary Reclassification to NPCS (used when there is no potential for a hazardous atmosphere and all other serious hazards are eliminated without entering the confined space)

PRCS Entries:

The Entry Supervisor performs the following:

- Obtains the corresponding UCN-23272 and requests a confined space permit number from ES&H
  - IF no classification exists, THEN contact an ES&H representative to complete a classification.
- Reviews the hazards and controls identified in UCN-23272
- Discusses planned work with an ES&H Representative AND uses UCN-23273 to document the hazards and controls for the specific conditions present at the time of entry and any that may be introduced by the planned work
- Determines with assistance from the ES&H Representative, if either the Alternative Entry Process or Temporary Reclassification as an NPCS applies to the entry
- Verifies Y-12 Emergency Services (i.e., Rescue Services) are available and the methods for summoning them are in place and operable
- Verifies Attendants and Authorized Entrants are trained for their duties regarding Permit-Required Confined Spaces
- Ensures Attendants and Authorized Entrants have received training in the use of rescue equipment and atmospheric testing equipment that may be used during entry
- Verifies specified tests have been conducted, necessary permits have been obtained, and specified hazard controls (listed on UCN-23273) are in place prior to authorizing the entry
- Terminates entry and cancels or suspends the permit when an unanticipated condition arises in or near the PRCS
- Obtains the necessary entry support equipment (refer to **Section 8.0, *Equipment/Communications***, for further information)
- Eliminates any conditions that would make the removal of a confined space cover unsafe BEFORE removing the cover (e.g., guard the opening with a railing, temporary cover, or other temporary barrier that will prevent a fall through the opening and protect workers inside the confined space from dropped objects)
- Obtains any required hazard control documents that work in conjunction with the confined space entry permit (Energy Isolation Permit, Work Authorization, etc.). These must be provided to ES&H to be documented on the confined space entry permit prior to entry into the space
- Requests the air quality of the confined space be measured by a trained worker with a calibrated direct-reading instrument that measures oxygen content and detects flammable gases, flammable vapors, and potential toxic air contaminants (in that order)

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- Documents the results of air monitoring on UCN-23273
- Ensures continuous air monitoring is required.
- Ensures the ventilation plan is implemented as described by the PIH, when required
- Manages forced-air ventilation, as follows:
  - Ensures that air supply is from a clean source and does not increase the hazard in the confined space
  - Initiates ventilation at the entry of the confined space
  - Provides continuous ventilation until all workers have left the confined space
  - Directs ventilation to the immediate areas where workers are located
- Verifies all required hazard controls and rescue measures are in place
- Conducts a pre-entry briefing for the entry team regarding the hazards, required controls, rescue plan, and communication process for the confined space
- IF air quality is within requirements, all control measures are in place, and all permit requirements are met, THEN sign the permit AND authorize entry
- Cancels the confined space Entry Permit when the work is completed or at the end of the shift, whichever comes first, AND returns the permit to ES&H

NOTE: *Normal ambient air concentrations are as follows:*

- *Oxygen 20.9%*
- *Lower explosive limit [LEL] 0%*
- *Carbon monoxide 0 parts per million [PPM]*
- *Hydrogen sulfide 0 PPM*

IF there are deviations, THEN consult ES&H prior to entry.

The Attendant performs the following:

- Reviews and signs the confined space Entry Permit UCN-23273 as the attendant
- Reviews the classification
- Understands the hazards associated with each entry, including information on the mode, signs, symptoms, and consequences of exposure to a posted hazard
- DOES NOT perform other duties while acting as an Attendant
- Remains outside the space during entry and/or rescue operations until relieved by another Attendant
- Communicates any changing conditions or hazards (e.g., monitoring alarms, changing conditions near or in the confined space) to the Entry Supervisor
- Maintains a continuous and accurate count of Authorized Entrants into and out of the confined space
- Communicates with Authorized Entrants to monitor their status and alert them of the need to evacuate a confined space
- Monitors activities both in and out of the confined space to ensure unauthorized individuals do not enter
- Notifies Authorized Entrants and the Entry Supervisor if an unauthorized individual attempts to enter the space

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- Evaluates atmospheric testing, as required by the permit, to ensure the safety of Authorized Entrants
- Orders the evacuation of a confined space under the following conditions:
  - Atmospheric testing equipment sounds an alarm
  - A prohibited condition (e.g., loss of ventilation system or other safety equipment) arises
  - Observation of nearby activities that may negatively affect the confined space atmosphere
  - Authorized Entrants exhibit conditions/behaviors associated with hazard exposure (e.g., dizziness, confusion, illness)
  - A situation that could endanger the Authorized Entrants occurs outside of the confined space
  - An Authorized Attendant's ability to effectively and safely perform his/her duties is compromised
  - Other hazardous conditions arise.
- Prevent workers from entering the confined space until forced-air ventilation has eliminated any hazardous atmosphere
- Continuously monitor the atmosphere within the confined space to ensure forced-air ventilation prevents the accumulation of a hazardous atmosphere
- Suspend entry immediately IF the following conditions occur:
  - The air quality changes and triggers an alarm
  - Authorized Entrants experience any sign or symptom of a hazardous atmosphere or personal illness (e.g., dizziness, confusion)
  - New hazards not addressed in the permit are introduced or recognized

The Entry Supervisor performs the following:

- Determines how a hazardous atmosphere developed during entry (if applicable) AND implements actions to protect workers from the hazardous atmosphere before subsequent entries take place
- Closes the space
- Terminates/cancels the permit AND returns it to ES&H

The Authorized Entrant performs the following:

- Sign UCN-23273 upon entry
- Implement controls as required by the entry permit
- Communicate changing conditions or unforeseen hazards to the Authorized Attendant
- Remove tools and equipment AND exit the confined space when work is complete
- Alert the Authorized Attendant and other Authorized Entrants to evacuate the PRCS when the following conditions occur:
  - Someone recognizes any warning signs or symptoms of exposure
  - Someone recognizes a dangerous situation or unanticipated hazard
  - Atmospheric testing equipment sounds an alarm

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  - Someone detects a prohibited condition (e.g., loss of ventilation system or safety equipment failure)
- Exit the PRCS as quickly and as safely as possible
- Maintain communication with the Authorized Attendant to enable him/her to monitor Authorized Entrant status

4.4 Confined Space Alternate Entry

An alternate entry procedure is still a Permit-Required condition but allows for entry without the implementation of an NER or stand-by rescue plan.

The following requirements must be met for an Alternate Entry procedure:

- All physical hazards indicating a permit required condition must be eliminated or isolated by engineering controls so that the only hazard posed by the confined space is an actual or potential hazardous atmosphere
- Continuous forced-air ventilation (alone or combined with exhaust ventilation) is sufficient to keep the confined space safe for entry
- Authorized Entrants can exit the space safely if the ventilation system stops working
- Continuous air-monitoring indicates a safe atmosphere
- The work to be performed does not introduce additional hazards

The Entry Supervisor, Attendant, and Authorized Entrants follow the steps for a PRCS entry EXCEPT for those that pertain to NER gear and rescue.

4.5 Temporary Reclassification of PRCS

A space classified as a PRCS may be reclassified as an NPCS when BOTH of the following conditions are met:

- All hazards indicating a permit required condition within the space can be eliminated or isolated without entry into the space
- The PRCS poses no actual or potential atmospheric hazards

NOTE: *Control of atmospheric hazards by forced-air ventilation does not constitute elimination of the atmospheric hazard. Temporary reclassification is not an option in this scenario.*

IF these conditions are met, THEN ES&H may reclassify the confined space as an NPCS for the duration of one shift. This reclassification is noted on UCN-23273. If any other hazard control document is used as the basis to reclassify a Permit-Required Confined Space, this must be documented on UCN-23273. Examples of these documents could be Energy Isolation Permits, Pressure Testing Plans, Work Authorizations, or other types of permits.

IF it is necessary to enter the PRCS to eliminate hazards, THEN such entry must be performed as a PRCS entry until testing and an evaluation demonstrate that the hazards within the PRCS have been eliminated.

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The Entry Supervisor performs the following:

- Ensures workers exit a space temporarily reclassified as NPCS immediately if hazards arise
- Contacts ES&H to reevaluate the confined space to determine whether or not it must be reclassified as a PRCS or can remain in the temporary NPCS status
- Terminates/cancels the permit AND returns it to ES&H

5.0 AIR MONITORING

5.1 General Criteria

Before entry into a confined space, necessary testing shall be conducted for hazardous atmospheres by ES&H.

- If ventilation systems are used, the space must be tested initially prior to turning ventilation on
- Atmospheric testing may be waived by ES&H for confined spaces where it has been established through a current formal hazard identification and evaluation that no atmospheric hazards exist
- Testing of confined spaces shall be conducted in a manner that represents the atmosphere throughout the confined space where entrants may be present
- Where personnel must enter the confined space to complete atmospheric testing, the space shall be treated as a Permit-Required Confined Space

6.0 VENTILATION PLAN

The ventilation plan must be documented either as an attachment to the entry permit or in Section F*, Hazard Elimination, Isolation*, and Control of UCN-23273. The following information may be necessary to establish a ventilation plan:

- Dimensions of space (i.e., diameter, height, volume)
- Diagram of space (i.e., plan and side view, access and egress points)
- Ventilation flow rate criteria (i.e., requirements considering Air Changes per Hour (ACH) or number of hot work operators)
- Number of entrants
- Scope of work (i.e., hot work vs. cold work)
- Ventilation equipment utilized

6.1 Ventilation Flow Rate Criteria

Confined Space ventilation, when required, shall meet more conservative of the following:

- 10 ACH, or
- Sum of Hot & Cold Worker ventilation airflow rates
- 50 Cubic Feet per Minute (CFM) per Cold Worker + 2000 CFM per Hot Worker

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NOTE 1: *Example: Three (3) Hot Workers are working inside a tower:*

Dimensions: (diameter = 10ft; height = 100ft); Volume = (5ft)2 x π x 100ft = 7850ft3

10 ACH = 7850ft3 x 10 ACH/60 min = 1308 ft3/min (CFM)

Ventilation for 3 Hot Workers = 3 x 2000 CFM = 6000 ft3/min (CFM)

Conclusion: Ventilation must meet 6,000 ft3/min (more conservation rate)

NOTE 2: *If 10 ACH is the more conservative requirement but cannot be met (typically occurs in very large vessels such as a large crude tank), then EPC/Subcontractor shall, with ES&H or IH staff endorsement, provide at least 50 CFM for each Cold Worker and 2000 CFM for each Hot Worker*

For some non-enclosed spaces (e.g., trenches), it may not be possible to calculate volume. Objective is to provide enough fans with total capacity to provide at least 50 CFM for each Cold Worker and 2000 CFM for each Hot Worker

7.0 EMERGENCY RESCUE SERVICES

7.1 General Requirements

The Entry Rescue Service used by the UPF Project is the Y-12 Fire Department (Alarm Room, 865-576-1889).

- The Y-12 Fire Department will determine the elements of the rescue plan based on the confined space classification and planned scope
- The identified elements of the rescue plan must be in place or immediately available prior to making the entry

7.2 Rescue Process

The Entry Supervisor shall:

- Notify the Y-12 Fire Department at least 24 hours prior to the planned entry. When relying solely on entry rescue (i.e., no NER), this ensures the Y-12 Fire Department will have sufficient time to conduct a pre-entry walk down, if requested. Entry cannot begin or continue if the Y-12 Fire Department is committed to another emergency.
- Cancel the entry if the Y-12 Fire Department cannot support it.
- Ensure that Entrants exit the Confined Space if the Y-12 Fire Department cannot support entry but entry has already begun.
- Document the notification to Rescue Services of entry and/or termination of entry on the confined space Permit.

NOTE: *Response times must be commensurate with the risk to an Entrant (e.g., atmospheres that are Immediately Dangerous to Life and Health [IDLH] require onsite Rescue Services to facilitate rescue and eliminate delays that may be caused by extra communication steps).*

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8.0 EQUIPMENT/COMMUNICATIONS

8.1 Equipment

Use of the following equipment is required prior to and during Confined Space entry activities:

- Air Monitoring Equipment: A calibrated, direct-reading instrument must be available for the PRCS entry. Instruments are maintained by the Industrial Hygiene department
- Ventilation: Confined space ventilation equipment must be available to obtain and maintain acceptable entry conditions in a PRCS

NOTE: *Equipment should be listed on the confined space Permit.*

8.2 Communication

A means of communication must be available to keep the Attendant in constant contact with the Entrants when direct visual contact cannot be maintained. Communication with rescue and emergency services is also needed (when applicable). The Plant Shift Superintendent (865-574-7172) will be the emergency director for communication with rescue and emergency services.

9.0 ENERGY ISOLATION AND LOCKOUT/TAGOUT

All energy sources which are potentially hazardous to confined space entrants shall be secured, relieved, disconnected and/or restrained before personnel are permitted to enter the confined space. All work activities involving the isolation of hazardous energy must be conducted in accordance with Y17-95-64-801*, UPF Energy Isolation Management (EIM) – Lockout/Tagout (LOTO).*

9.1 Isolation

Methods and means shall be selected and used to prevent flammable, toxic, irritating, or oxygen displacing gases, vapors, and liquids from entering the space. All hazardous material, high pressure, high temperature, and other piping that could be reasonably expected to introduce a hazard shall be isolated by utilizing blinding, disconnection, removal, or double block and bleed as needed to prevent entry of materials(s) and hazardous contaminant(s).

A confined space shall be isolated to prevent entry of material(s) and hazardous contaminants using one or more of the following methods:

- Inserting a blank between two flanges, sized for the proper pressure in piping nearest to the confined space
- Depressurizing and disconnecting contaminant supply line(s) and providing a blank or blind on piping sized for the pressure leading into the confined space
- Misaligning pipe(s) at connection(s) closest to the confined space and/or capping blinding, and/or plugging ends

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- Utilizing two blocking valves with an open vent or bleed valve between the blocking valves. If the bleed valve is not the same diameter as the line, then the bleed point should be monitored periodically during the work shift

9.1.1 Pipelines or similar conveyances between the confined space and point(s) of isolation shall be drained, cleaned, or flushed of hazardous material and known hazardous contaminants as necessary.

9.1.2 Precautions shall be taken to ensure whenever drains, vents or piping are left open reversal of flows, or air contamination from adjacent processing, or chemical handling, cannot enter the confined space.

9.1.3 In confined spaces where complete isolation is not possible, provisions shall be made to isolate the space to the extent possible and control all other processes so the entry team is not in danger and an evaluation can be conducted utilizing UCN-23273. If an atmospheric hazard potential exists, continuous monitoring shall be conducted during the entry.

9.1.4 Special precautions shall be taken when entering double walled, jacketed, or internally insulated confined spaces that may discharge hazardous material through the vessel's internal wall.

10.0 TRAINING

10.1 Entrant

Entrants into NPCS and PRCS are required to be trained on the hazards and controls associated with confined space entry.

They must be trained to fulfil their corresponding roles and responsibilities to meet the requirements of this procedure.

10.2 Entry Supervisor

Entry supervisors shall be trained on the process for obtaining a confined space entry evaluation and the roles and responsibilities to meet the requirements of this procedure.

Entry supervisors will be re-trained annually.

11.0 ANNUAL REVIEW

This program will be evaluated by the PIH or designee at least once per year to ensure it is effective and employees who are participating in entry operations are protected from Confined Space hazards. The annual evaluation will consist of a review of regulations, procedure content, and canceled permits. Procedural reviews will be performed by completing UCN-23306, *UPF Command Media & Guidance Document Periodic Review* in accordance with Y15-95-235, *UPF Command Media*.

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12.0 RECORDS

Records generated by this Document shall be maintained in accordance with Y15-95-800, *UPF Document Management*.

The following records are generated:

Record or Form Number	Record Title	System/ Location	Document Type
UCN-23272	*Classification of Potential Confined Spaces*	InfoWorks	CSC
UCN-23273	*Confined Space Entry Evaluation*	InfoWorks	CSEP
Document Specific	*Confined Space Program Annual Review*	InfoWorks	RP

13.0 REFERENCES

13.1 Source References

4SM-6BH-10000, *NS&E Environmental, Safety and Health Management System Manual (Bechtel Manual)*

10 CFR 851, *Worker Safety and Health Program*

ACGIH, 2016, *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*

13.2 Interfacing References

OSHA Standard 29, CFR §1926.1200, *Confined Spaces in Construction*

ANSI/ASSE Z117.1-2009, *Safety Requirements for Confined Spaces*

OSHA Standard 29, CFR §1926.57, *Ventilation*

Y15-95-235, *UPF Command Media*

Y15-95-800, *UPF Document Management*

Y17-95-64-801, *UPF Construction Phase System and Equipment Safety Lockout/Tagout*

13.3 Forms

UCN-23272, *Classification of Potential Confined Spaces*

UCN-23273, *Confined Space Entry Evaluation*

UCN-23306, *UPF Command Media & Guidance Document Periodic Review*

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14.0 SUPPLEMENTAL INFORMATION

Appendix A, *Acronyms and Definitions*

Attachment 1, *Flow Diagram of Confined Space Entry*

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Acronyms

Definitions

Acceptable Entry Conditions	The necessary prerequisite conditions that ensure that involved workers can safely enter into and work within the PRCS.
Attendant	An individual stationed outside one or more PRCSs who assesses the status of Authorized Entrants and who must perform the duties specified in this procedure.
Authorized Entrant	An employee who is authorized to enter a Confined Space.
Barrier	A physical obstruction that blocks or limits access.
Blanking or Blinding	The absolute closure of a pipe, line, or duct by fastening a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the solid plate.

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Cold Worker	Worker in a confined space who is performing work that does not generate airborne contamination (e.g., inspection, scaffold building, etc.).
Confined Space	A space that fits the following criteria: • Is large enough and so configured that a worker can bodily enter it • Has limited or restricted means for entry and exit • Is not designed for continuous employee occupancy
Confined Space Entry Permit	The written or printed document that allows and controls entry into a Confined Space.
Control	The action taken to reduce the level of any hazard inside a Confined Space using engineering methods (e.g., by ventilation) to maintain the reduced hazard level; also refers to the engineering methods used for this purpose. **NOTE:** *PPE is not a control.*
Controlling Contractor	This is the employer with the overall responsibility for construction at the worksite. Bechtel National, Inc. (BNI) is the Controlling Contractor on the UPF Project unless otherwise identified in contracting documents.
Early Warning System	This is the method used to alert Authorized Entrants and Attendants when an engulfment hazard may be developing. Examples of early-warning systems include but are not limited to: • Alarms activated by remote sensors • Lookouts with equipment for immediately communicating with the Authorized Entrants and Attendants
Emergency	Any occurrence (including any power failure, hazard control, or monitoring equipment), either internal or external to the Permit Space, that could endanger Entrants.
Engulfment	Engulfment means the surrounding and effective capture of a person by a liquid or finely-divided self-moving solid substance that can cause death via asphyxiation by filling or plugging the respiratory system or that exerts enough force on the body to cause death by strangulation, constriction, or crushing.
Entry	The action by which any part of a person passes through an opening into a confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the Entrant's body breaks the plane of an opening into the space, regardless of whether such action is intentional or if any work activities are actually performed in the space.
Entry Employer	Any employer (i.e., BNI, subcontractors) who decides whether an employee whom they direct will enter a permitted space.

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Entry Rescue	Occurs when a rescue service enters a Permit Space to rescue one or more employees.
Entry Supervisor	The qualified person (e.g., superintendent) responsible for: • Determining if acceptable entry conditions are present at a Permit Space where entry is planned. • Authorizing entry and overseeing entry operations. • Terminating entry as required by this standard.
Hazard	A physical hazard or hazardous atmosphere (see the following entry for definitions)
Hazardous Atmosphere	An atmosphere that may expose workers to the risk of death, injury, acute illness, incapacitation, impairment of one's ability to self-rescue (i.e., escape unaided from a PRCS) from one or more of the following causes: • Flammable gas, vapor, or mist in excess of 10% of its lower flammability limit (LFL) • Airborne combustible dust at a concentration that meets or exceeds its LFL **NOTE 1:** *This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.* **NOTE 2:** *The terms LFL and LEL are used interchangeably. Monitoring equipment can be used accordingly (i.e., LEL results may be recorded as LFL).* • Atmospheric oxygen concentration below 19.5% or above 23.5% • Atmospheric concentration of any substance for which a threshold limit value (TLV) is established by the American Conference of Governmental Industrial Hygienists (ACGIH) or for which a permissible exposure limit (PEL) is established by OSHA and that could result in employee exposure in excess of its TLV or PEL. **NOTE 3:** *The lower exposure limit between the limit established by the ACGIH TLV and the limit established by OSHA PEL is being applied.* **NOTE 4:** *An atmospheric concentration of any substance that is not capable of causing death, incapacitation, and impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.* • Any other atmospheric condition that is IDLH
Host Employer	The employer that owns or manages the property where the construction work is taking place. Consolidated Nuclear Security (CNS) is the host for all preexisting confined spaces on the UPF Project. BNI is the host for all new Confined Spaces created/installed on the UPF Project.

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Hot Worker	Worker performing welding, burning, cutting, brazing, soldering, and arc air gouging. The following tasks are considered as “hot work” for purpose of ventilation requirements: Painting, coating or epoxy (lamination) application, chemical cleaning, using thinners/solvents/other flammable materials, cleaning hydrocarbon sludge or other contaminants.
Immediately Dangerous to Life and Health (IDLH)	Any condition that would interfere with an individual’s ability to escape unaided from a PRCS (self-rescue) and that poses a threat to life or would cause irreversible, adverse health effects.
Inerting	Displacing the atmosphere in a Permit Space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible,
Isolate or Isolations	The process by which a PRCS is removed from service and is completely protected against the release of energy and material into the space by such means as blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; Lockout/Tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.
Limited or Restricted Means for Entry or Exit	A condition that has a potential to impede a worker’s movement into or out of the Confined Space.
Lower Explosive Limit (LEL)	The minimum concentration of a substance in air needed for an ignition source to cause a flame or explosion.
Monitor or Monitoring	The process used to identify and evaluate the hazards after an Authorized Entrant enters the space and to check for changes that is performed in a periodic or continuous manner after the completion of the initial testing or evaluation of that space.
Non-Entry Rescue (NER)	Occurs when a rescue service, usually the Attendant, retrieves employees from a Permit Space without entering the Permit Space.
Non-Permit Confined Space (NPCS)	Any space that meets the definition of a Confined Space but does not meet the definition of a PRCS.
Oxygen Deficient Atmosphere	An atmosphere containing less than 19.5% oxygen by volume.
Oxygen Enriched Atmosphere	An atmosphere containing more than 23.5% oxygen by volume.

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Permit-Required Confined Space (PRCS) Program	Any space that meets the definition of a Confined Space and has one or more of the following characteristics: • Contains or has the potential to contain a hazardous atmosphere • Contains a material that has the potential to engulf an Entrant • Has an internal configuration in which an Entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section • Contains any other recognized potential serious safety hazard
Physical Hazard	An existing or potential hazard that can cause death or serious physical damage, which includes but is not limited to explosives; mechanical, electrical, hydraulic, and pneumatic energy; radiation; temperature extremes; engulfment; noise; and inwardly converging surfaces. Physical hazards also include chemicals that can cause death or serious physical damage through skin or eye contact (rather than through inhalation).
Prohibited Condition	Any condition in a PRCS that is not allowed by the permit during the period when entry is authorized. A hazardous atmosphere is a prohibited condition unless the employer can demonstrate that PPE will provide effective protection for each employee in the Permit Space, and the employer provides the appropriate PPE to each employee.
Qualified Person	One who possesses a recognized degree, certificate, or professional standing or who has extensive knowledge, training, and experience to successfully demonstrate his or her ability to solve or resolve problems related to the subject matter, the work, or the Project.
Representative Permit Space	A mock-up of a Confined Space that has entrance openings that are similar to and are of similar size, configuration, and accessibility to the Permit Space into which Authorized Entrants will move.
Rescue	Retrieving and providing medical assistance to one or more employees who are in a Permit Space.
Rescue Service	The personnel designated to rescue employees from Permit Spaces
Retrieval System	The equipment (including a retrieval line, chest or full-body harness, wristlets or anklets, if appropriate, and a lifting device or anchor) used for NER of persons from PRCSs
Serious Physical Damage	An impairment or illness in which a body part is made functionally useless or is substantially reduced in efficiency. Such impairment or illness may be permanent or temporary and includes but is not limited to loss of consciousness, disorientation, or other immediate and substantial reduction to mental efficiency. Injuries involving such impairment would usually require treatment by a physician or other licensed health-care professional.

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Site Manager	The individual with managerial responsibility for the activities of the jobsite and support areas.
Test or Testing	The process by which the hazards that may confront the Entrants of a Permit Space are identified and evaluated. Testing includes specifying the tests that will be performed in the Permit Space. **NOTE:** *Testing enables employers to devise and implement adequate control measures for the protection of authorized Entrants and determine if acceptable entry conditions are present immediately prior to and during entry.*
Ventilate or Ventilation	Controlling a hazardous atmosphere using continuous forced-air mechanical systems that meet the requirements of OSHA Standard 29, CFR §1926.57, Ventilation, or equivalent.

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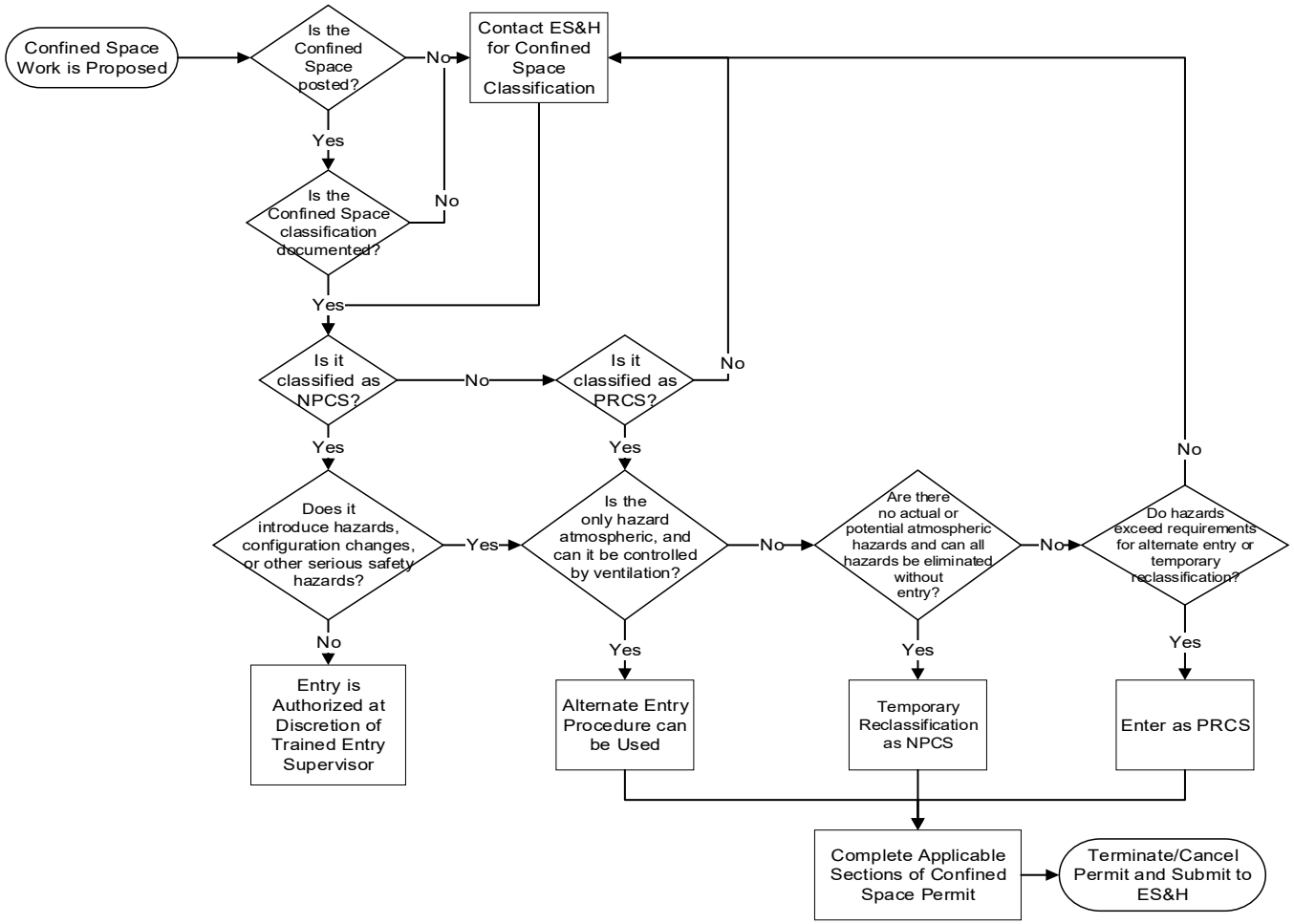
ATTACHMENT 1
Flow Diagram of Confined Space Entry



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