

CP4-ER-0018 FRev. 2B	TITLE: Shutdown for the Northeast Plume Containment System	Page 1 of 7
DOCUMENT CATEGORY: Technical		
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NUCLEAR SAFETY REVIEW DOCUMENTATION: N/A per Step 6.1.1.B from CP3-NS-2001	APPROVED BY/DATE (Signature on file): Shay Mitchell – Project Manager of Pump and Treat Operations 3/19/2024	
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REVISION/CHANGE LOG			
Revision/Change Letter	Description of Changes	Pages Affected	Date of Revision/Change
FR0	Initial Bluesheeting	All	10/20/2017
FR1	Non-Intent Revision to Incorporate Bluesheeting Changes	All	12/14/2017
FR2	General revision.	All	5/12/2021
FR2A	Revised to remove activities not applicable to this procedure and to make other non-intent updates.	3-6	3/19/2024
FR2B	Periodic Review has been completed with no changes identified in procedure technical content. Nonintent changes have been incorporated per CP3-NS-2001. Date for review cycle has been reset.	All	5/28/2024

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1.0 PURPOSE AND SCOPE

1.1 Purpose

To define the required equipment and action steps necessary to shut down the Northeast Plume Containment System (NEPCS) that transfers contaminated groundwater to the C-765 or C-765-A Northeast Plume Treatment Units (TU). In the case of an abnormal or long-term shutdown the Pump and Treat Project Manager shall be contacted.

NOTES:

Extraction Well (EW) is used throughout this procedure as in EW-234 and EW-235, unless a difference requires one of them to be specifically identified by number.

TU is used throughout this procedure to indicate C-765 and C-765-A, unless a difference requires one of them to be specifically identified by number.

1.2 Scope

All activities associated with shutting down one or both the NEPCS TU.

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2.0 REFERENCES

2.1 Use References

- CP2-ER-0067, *Health and Safety Plan for the Paducah Plumes Operations and C-613 Sediment Basin, Paducah, Kentucky*
- CP3-OP-0207, *Use of Procedures*
- CP3-SM-1101, *Work Package Development*
- CP4-ER-0017, *Northwest/Northeast Plume Daily Operational Data Collection and Maintenance*
- CP4-ER-0005, *Startup and Normal Operation of the Northeast Plume Containment System*
- NFPA 70E, *Standard for Electrical Safety in the Workplace*

2.2 Source References

- DOE/LX/07-2470&D1, *Operations and Maintenance Plan for the Northeast Plume Containment System Interim Remedial Action at the Paducah Gaseous Diffusion Plant Paducah, Kentucky*
- Text Deleted
- JHA-10844, *Maintenance, Operations, and Testing for the Northwest and Northeast Plume and Water Treatment Operations*
- Text Deleted

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3.0 COMMITMENTS

None

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4.0 PRECAUTIONS AND LIMITATIONS

4.1 Precautions

4.1.1 Text Deleted

4.1.2 Text Deleted

4.1.3 Text Deleted

4.1.4 Text Deleted

4.2 Limitations

None

5.0 PREREQUISITES

5.1 Ensure the system is operating normally, with all pumps, blower, and the level control loop in the Auto mode for this sequence of shutdown steps.

If the pumps, blower, **and/or** the level control loop is **NOT** in the Auto mode, **then** refer to CP4-ER-0005, *Startup and Normal Operation of the Northeast Plume Containment System*, for proper alignment, or as directed by the Operations Manager.

5.2 Obtain the approval of the Pump and Treat Project Manager or designee before executing this procedure.

5.3 Prior to performing the action steps identified in this procedure, the user shall have reviewed this document based upon its Level of Use according to CP3-OP-0207, *Use of Procedures*.

5.4 Prior to performing the action steps identified in this procedure, the performer shall have completed the required applicable training.

5.5 Prior to using this procedure as a work control document, follow the requirements as defined in CP3-SM-1101, *Work Package Development*.

5.6 Any bypass or upset of the treatment process shall be promptly reported according to CP3-ES-0003, *Environmental Incident Reporting*.

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6.0 INSTRUCTIONS

6.1 System Shutdown

NOTES:

Steps must be performed sequentially unless otherwise noted.

These instructions apply to both C-765 and C-765-A TUs.

EW-234 feeds C-765 and EW-235 feeds C-765-A.

Pump and Treat Project Manager or Designee

- 6.1.1 Direct which TU(s) is to be shutdown.

Technician

- 6.1.2 Don personal protective clothing according to CP2-ER-0067, *Health and Safety Plan for the Paducah Plumes Operations, Paducah, Kentucky*.

NOTES:

Even though this is an orderly shutdown of the system, an alarm at the TU for Air Stripper Sump low may occur on the TU control.

Once the EW pump (transfer pump) ceases pumping, the blower and the effluent pump will need to continue to run automatically until all material has ceased flowing through the system. After material has passed through the system the blower and the effluent pump should shutdown automatically.

- 6.1.3 Turn the EW pump to “Off” on the TU Human Machine Interface (HMI).

NOTE:

Steps 6.1.4 and 6.1.5 shall only be performed at the direction of the Pump and Treat Project Manager or Designee.

- 6.1.4 **When** B-340 (air stripper blower) and P-340 (air stripper pump) have ceased operation, **then** set selector switches on the TU Control Panel as follows:

- A. Blower selector switch to “Off”
- B. Air Stripper Pump selector switch to “Off”.

- 6.1.5 Set selector switches on the NEPCS VFD control panel located at the EW as follows:

- A. EW Pump selector switches to “Off”.
- B. EW sump pump selector switch to “Off”.

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NOTE:

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6.2.1 Text Deleted

A. Text Deleted

B. Text Deleted

C. Text Deleted

6.2.2 Text Deleted

6.2.3 Text Deleted

6.2.4 Text Deleted

6.3 Post System Shutdown

Technician

Record operational activities according to CP4-ER-0017, *Northwest/Northeast Plume Daily Operational Data Collection and Maintenance*.

7.0 ACCEPTANCE CRITERIA

None

8.0 POST PERFORMANCE WORK ACTIVITIES

None

9.0 RECORDS

9.1 Records Generated

The following records may be generated by this procedure:

None

Forms are to be completed according to CP3-OP-0024, *Forms Control*.

9.2 Records Disposition

The records are to be maintained according to CP3-RD-0010, *Records Management Process*.

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Appendix A – Acronyms/Definitions

ACRONYMS

EW – Extraction Well

HMI – Human Machine Interface

NEPCS – Northeast Plume Containment System

TU – Treatment Unit

DEFINITIONS

Long-Term Shutdown – Long-Term Shutdowns are normally shut-downs that will last multiple weeks at a minimum and at the discretion of the Project Management and/or Engineering. These shutdowns normally require additional intervention such as resin pickling or removal to prevent bio-fouling or system winterization. These shut-downs are only used to stabilize the system if it is not to be operational for more than two weeks or special maintenance actions as determined by Engineering. These shut-downs will require substantial operator intervention to balance the system once it is to be restored and may require multiple actions such as valve alignment, backwashing, desiccant removal, system flushing, etc.

Technician – The person performing steps in this procedure. The person performing this work could have job functions including but **NOT** limited to the Frontline Supervisor, and Operator or Maintenance Mechanic.