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CP4-ER-0028 FRev. 3A	**TITLE**: NWNE Pump & Treat Systems Federal Facility Agreement Semi-Annual Report Calculations	Page 1 of 9

DOCUMENT CATEGORY: ☒ Administrative ☐ Technical

LEVEL OF USE: ☒ Information Level ☐ Reference Level ☐ Continuous Use

FUNCTIONAL AREA: Environmental Remediation **SUBJECT MATTER AREA:** Northwest and Northeast Plume Pump and Treat Operations	**SUBJECT MATTER EXPERT**: Austin Buckhalter- Environmental Restoration Technical Support
NUCLEAR SAFETY REVIEW DOCUMENTATION: Non-intent Change - N/A per CP3-NS-2001, Appendix A.	**APPROVED BY/DATE** (Signature on file): Joe Tarantino –Environmental Remediation Manager 5/23/2022
REQUIRED REVIEW DATE (or expiration date for temporary change): 8/31/2024	**EFFECTIVE DATE**: 5/24/2022

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	12/5/2017
FR2	Changed the procedure from “Technical” to “Administrative”. Corrected the procedure title. Added additional notes prior to section 6.1. Corrected note prior to section 6.1.3. Corrected file location referenced in section 6.2.2	All	7/17/2018
FR3	General revision due to required review date.	All	8/31/2021
FR3A	Change the word “Affective” to “Effective”	5 and 8	5/23/2022

TABLE OF CONTENTS

1.0 PURPOSE AND SCOPE

1.1 Purpose

The purpose of this procedure is to provide guidance to standardize the process of calculating operational data in support of Federal Facility Agreement (FFA) semi-annual reports and/or other applicable request for information specific to the Paducah Gaseous Diffusion Plant (PGDP) Pump and Treatment operations.

1.2 Scope

This procedure is applicable to organizations involved in generating information containing calculated Trichloroethene/Trichloroethylene (TCE) removed quantities, gallons of ground water extracted, and operational uptime from operating data for inclusion in the FFA semi-annual report and/or other applicable request for information specific to the PGDP Pump and Treatment operations. This procedure only applies to entering and maintaining operational data for the PGDP Pump and Treat Operations facility.

2.0 REFERENCES

2.1 Use References

- CP3-EN-0213, *Design Analysis and Calculations*
- CP3-OP-0207, *Use of Procedures*
- CP4-ER-0017, *Northwest/Northeast Plume Daily Operational Data Collection and Maintenance*

2.2 Source References

- CP2-ER-0046, *Paducah Plume Operations Maintenance, Sampling and Analysis, and Calibration and Testing Plan*
- CP2-ER-0067, *Health and Safety Plan for the Paducah Plumes Operations and C-613 Sediment Basin, Paducah, Kentucky*
- CP3-ES-1003, *Developing, Implementing, and Maintaining Data Management Plans*
- CP4-ER-0016, *Monthly, Quarterly, and Annual Maintenance at the C-612 Northwest Plume Groundwater System*
- DOE/OR/07 1253, *Operations and Maintenance Plan for the Northwest Plume Groundwater System Interim Remedial Action Plan at PGDP Paducah, Kentucky*
- DOE/OR/07 1535, *Operations and Maintenance Plan for the Northeast Plume Groundwater System Interim Remedial Action Plan at PGDP Paducah, Kentucky*

3.0 COMMITMENTS

None

4.0 RESPONSIBILITIES

As described in Section **6.0**.

5.0 GENERAL INFORMATION

5.1 Operational data is collected in the field according to CP4-ER-0017, *Northwest/Northeast Plume Daily Operational Data Collection and Maintenance* and/or other operational procedures, as applicable.

5.2 Operational sampling and analytical data management are conducted according to the appropriate Sample Management Organization (SMO) procedures and is **NOT** covered under this procedure.

5.3 Due to Northwest/Northeast (NW/NE) Treatment Facility modifications, the spreadsheet represents current conditions.

5.4 Prior to performing any action steps identified in this procedure for the first time, review this document based upon its level of use according to CP3-OP-0207, *Use of Procedures*.

5.5 Prior to daily use, verify that the procedure is current.

Project Manager of Pump and Treat Operations or Designee

6.0 INSTRUCTIONS

NOTES:

For calculating TCE volumes, FFA semi-annual reporting end dates are June 30th and December 31st.

For providing gallons extracted and/or downtimes for the FFA semi-annual report, the FFA semi-annual reporting end dates apply.

For other information request regarding gallons extracted, downtime, or other operational information, the document author will provide verification of the appropriate downtime.

Flow rate is calculated as total gallons pumped for the reporting period (gallons) divided by the total time in the reporting period (time unit).

Daylight savings time is **NOT** accounted for in the spreadsheet.

Operating and removal efficiencies are calculated to reflect two systems for Northeast Plume (such as, C-765 and C-765-A separately).

Average operating efficiency of C-765/C-765-A is calculated over the entire reporting period for Northeast Plume (both systems combined).

6.1 Maintaining Project Information

6.1.1 Scan completed or approved project documentation (operational data forms, documentation of maintenance, calibrations, monthly metrics, analytical data, equipment information, etc.) and/or pertinent project information.

NOTES:

Access to the project folder is limited.

Project Manager of Pump and Treat Operations or designee grants access to the project folder, on an as needed basis.

Project information should be placed into the folder on a weekly basis.

6.1.2 Place **and** maintain scanned project documentation into the project folder on the plant's computer network.

NOTE:

This folder is currently located at S:\Env Services\Environmental Remediation\Pump and Treat Operations.

6.1.3 **If** the project folder can **NOT** be located and/or access to folder needs to be granted, **then** contact Environmental Remediation Manager for clarification and/or granting permission through the appropriate Internet Technology personnel.

6.2 Data Posting in Excel File

NOTE:

The steps described in Section **6.2, 6.3, and 6.4** should be completed each week for the previous week's information.

6.2.1 Obtain flow rate, planned or unplanned maintenance activities, and down time data generated during daily operations contained in CP4-ER-0017-F02, *Daily NWNEP Operational Data Collection and Maintenance Form,* according to CP4-ER-0017.

6.2.2 Open file "Northeast Northwest Flow Total Summary and TCE Calc (Effective 03022021)". This file is currently found on the S:\Env Services\Environmental Remediation\Pump and Treat Operations. Chg A

6.3 Flow Totals

NOTES:

The flow total readings for EW-232 and EW-233, which correspond to the Northwest Treatment Unit (NWTU), are entered in the "NW Flow Totals" tab.

All data entered into the spreadsheet from form CP4-ER-0017-F02 (for example working days) must be typed in bold.

6.3.1 In the column grouping labeled "EW-232" enter the flow total reading from the flowmeter for EW-232 into the column labeled "Flow Total Reading" and the corresponding collection date in the column labeled "Date".

6.3.2 In the column grouping labeled "EW-233" enter the flow total reading from the flowmeter for EW-233 into the column labeled "Flow Total Reading" **and** the corresponding collection date in column labeled "Date".

6.3.3 To update the non-working days (weekends, holidays, etc.), highlight the cells in the columns labeled "Flow Total Reading" for the previous weekend corresponding to EW-232 and EW-233, **and** copy the formulas to the clipboard.

6.3.4 Highlight the non-working days (weekends, holidays, etc.) that is being updated, **and** paste the formulas.

NOTES:

The flow total readings for EW-234 and EW-235, which correspond to the North East Treatment Units (NETU) C-765 and C-765-A, respectively, are entered in the "NE Flow Totals" tab.

All data entered into the spreadsheet from CP4-ER-0017-F02 (for example working days) must be typed in bold.

6.3.5 In the column grouping labeled "EW-234" enter the flow total reading from the flowmeter for EW-234 (FT-234) into the column labeled "Flow Total Reading" **and** the corresponding collection date in column labeled "Date".

6.3.6 In the column grouping labeled "EW-235," enter the flow total reading from the flowmeter for EW-235 (FT-235) into the column labeled "Flow Total Reading," **and** the corresponding collection date in the column labeled "Date".

NOTES:

The flow totals for the non-working days (weekends, holidays, etc.), the daily flow totals, and the monthly flow totals are populated by formulas.

The monthly total and daily total update automatically, but the formulas for the non-working days (weekends, holidays, etc.) flow totals must be manually implemented.

6.3.7 To update the non-working days (weekends, holidays, etc.), highlight the cells in the columns labeled "Flow Total Reading" for the previous weekend corresponding to EW-234 and EW-235, **and** copy the formulas to the clipboard.

6.3.8 Highlight the non-working days (weekends, holidays, etc.) that is being updated, **and** paste the formulas.

6.4 Uptime Percent

NOTES:

Any recorded downtime is rounded to the closest quarter hour.

The daily uptime hours and percent uptime are populated by the spreadsheet.

6.4.1 The daily hours of downtime for the NWTU are entered in the column labeled "Downtime (hours)".

6.4.2 Document reason for daily downtime in the column labeled "Comments" **and** delineate whether the downtime is planned or unplanned.

6.4.3 The daily hours of downtime for the C-765/EW-234 are entered in the column labeled "Downtime C-765/EW-234 (hours)".

6.4.4 The daily hours of downtime for the C-765-A/EW-235 are entered in the column labeled "Downtime C-765-A/EW-235 (hours)".

6.4.5 In the column labeled "Comments", document the reason for daily downtime for both C-765/EW-234 and C-765-A/EW-235 treatment units; time of shutdown(s) and restart(s); **and** delineate whether the downtime is planned or unplanned.

6.5 TCE Influent and Effluent Concentrations

NOTES:

Section **6.5** is for the monthly data entry of the TCE influent and effluent concentrations at the NW and NE treatment units.

Section **6.5** is to be completed when lab results are received for any previous month.

The monthly average amount of TCE removed by the Northwest Treatment Unit is entered in the "NW – TCE Calcs" tab.

The month corresponding to the data entry is in the column labeled "Date".

The sampling data from the SMO is obtained on a monthly, quarterly, semi-annual, and annual basis.

Duplicate samples are included in the entire data set for averaging purposes.

6.5.1 Obtain sampling data required by the Operations and Maintenance Plans from the SMO.

6.5.2 Calculate average influent and effluent TCE concentration for the reporting period utilizing all samples including duplicate samples.

NOTE:

The monthly average amount of TCE removed by the NWTU is located on the "NW – TCE Calcs" worksheet tab.

6.5.3 Enter the influent TCE concentration from HV082 into the column labeled "HV082 TCE (µg/L or ppb)".

6.5.4 Enter the effluent TCE concentration from HV171 into the column labeled "HV171 TCE (µg/L or ppb)." The spreadsheet will populate the rest of the values.

NOTE:

The monthly average amount of TCE removed by the NETUs is located on the "NE – TCE Calcs" worksheet tab.

6.5.5 Enter the influent TCE concentration from SP-234 into the column labeled "SP-234 TCE (µg/L or ppb)" for NETU C-765/EW-234.

6.5.6 Enter the influent TCE concentration from SP-235 into the column labeled "SP-235 TCE (µg/L or ppb)" for NETU C-765-A/EW-235.

6.5.7 Enter the effluent TCE concentration from CERCLA Outfall 001 (C001) into column labeled "C001 (µg/L or ppb)". The spreadsheet will populate the remaining values.

6.6 Data Review and Preparation

6.6.1 Verify with the document author the reporting period for the TCE removal, uptime, planned/unplanned maintenance, etc.

6.6.2 Prior to document transmittal, ensure the data for the applicable timeframe is included in a calculation package developed according to CP3-EN-0213, *Design Analysis and Calculations,* for the FFA semi-annual report, or as requested.

6.6.3 Provide planned or unplanned maintenance activity and duration for the FFA semi-annual report, or as requested.

6.6.4 Ensure all required information has been provided to the document author or requestor.

6.6.5 Archive data spreadsheet information in a protected area on the common drive.

7.0 RECORDS

7.1 Records Generated

The following records may be generated by this procedure:

Data Calculation Spreadsheet titled "Northeast Northwest Flow Total Summary and TCE Calc (Effective 03022021)" Chg A

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

7.2 Records Disposition

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

Appendix A – Acronyms/Definitions

ACRONYMS

FFA – Federal Facilities Agreement

NE/NW – Northeast/Northwest

NETU – Northeast Treatment Unit

NW/NE – Northwest/Northeast

NWTU – Northwest Treatment Unit

PGDP – Paducah Gaseous Diffusion Plant

SMO – Sample Management Organization

TCE – Trichloroethene/Trichloroethylene

DEFINITIONS

None