# CHAAP Data Verification

**Laboratory and SDG#: TADenver 280-149116** **AECOM Chemist: Jared DeSadier**
**Date Verified: 6/25/2021** **AECOM ITR: Jeff Aust**
**Guidance: DoD QSM Version 5.1 (January 2017)**
**Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2018)**
**Applicable Analytical Methods: 8260B, 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034**

| Sample Identification # | Date Collected | Date Received | Matrix | Analysis |
|---|---|---|---|---|
| SHGW03-21A | 5/26/2021 | 5/27/2021 | Water | VOCs (8260B), Nitrate, Nitrite (353.2), MEE (RSK-175), Sulfate (9056A), DRO (8015C) |
| SHGW02-21A | 5/26/2021 | 5/27/2021 | Water | VOCs (8260B), Nitrate, Nitrite (353.2), MEE (RSK-175), Sulfate (9056A) |
| SHGW05-21A | 5/26/2021 | 5/27/2021 | Water | VOCs (8260B), Nitrate, Nitrite (353.2), MEE (RSK-175), Sulfate (9056A) |
| TB052621 | 5/26/2021 | 5/27/2021 | Water | VOCs (8260B) |
| PZ020-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |
| G0077-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |
| G0078-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |
| PZ017R-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |
| PZ021-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |
| PZ007-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |
| G0024-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |
| G0017-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |
| G0045-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |
| G0086-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |
| PZ018-21A | 5/26/2021 | 5/27/2021 | Water | Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034) |

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**Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2018)**
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## 1.0 Laboratory Case Narrative \ Cooler Receipt Form

| Verification Criteria | Yes | No | N/A |
|---|---|---|---|
| Were any DoD QSM deviations noted in the laboratory case narrative? | X | | |
| Were DoD QSM corrective actions followed if deviations were noted? | X | | |
| Were any issues noted in the cooler receipt form? | X | | |

The case narrative indicated that some MS/MSD, LCS/LCSD and surrogate recoveries were outside evaluation criteria, and some analytes were detected in method blanks. These issues are discussed further in the ADR report. No qualification of data for blank contamination was required for nondetect analytes or those with a native concentration greater than five times the blank concentration. Qualification of data based on holding time was not required for dissolved gas samples as they were analyzed within the acceptable window for unpreserved samples.

The case narrative also indicated that the RPD between the primary and confirmation column for some explosives samples was above evaluation criteria and some dissolved gas VOAs were received with headspace greater than 6 mm. These issues are discussed further in Section 7.0. Some samples were further preserved by the lab upon receipt. No qualification was required.

The cooler receipt form indicated analyses were not marked on the COC for samples PZ017R-21A, PZ021-21A, and PZ020-21A. Samples were logged according to the received containers per the AECOM chemist and no qualification of data was required. The cooler receipt form also indicated that two samples were received outside of temperature criteria. This issue is discussed further in the ADR report.

No other issues were noted in the case narrative or cooler receipt form.

## 2.0 Sample Documentation

| Verification Criteria | Yes | No |
|---|---|---|
| Were all samples documented correctly on the chain-of-custody (COC) and samples labels? | | X |
| Were all sample identifications (IDs) documented correctly on sample labels? | | X |
| Did samples listed on COCs match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |

See Section 1.0.

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## 3.0 Instrument Performance Check (Tuning)

| Method 8260B Instrument Tuning Criteria (Filename) | MS1_2711.D | | |
|---|---|---|---|
| Instrument: | VMS_MS1 | | |
| Date of Tuning: | 6/4/2021 | | |
| | Yes | No | N/A |
| Was instrument tuning completed prior to calibration? | X | | |
| Were all samples analyzed under an acceptable 12 hour clock tune? | X | | |
| Were ion relative abundances for each target mass within the required intensity limits listed in Table 4 of SW-846 Method 8260B? | X | | |

| Method 8260B Instrument Tuning Criteria (Filename) | MS1_2743.D | | |
|---|---|---|---|
| Instrument: | VMS_MS1 | | |
| Date of Tuning: | 6/5/2021 | | |
| | Yes | No | N/A |
| Was instrument tuning completed prior to calibration? | X | | |
| Were all samples analyzed under an acceptable 12 hour clock tune? | X | | |
| Were ion relative abundances for each target mass within the required intensity limits listed in Table 4 of SW-846 Method 8260B? | X | | |

## 4.0 Initial Calibration

| Method 8260B Initial Calibration Criteria | | | |
|---|---|---|---|
| Instrument: | VMS_MS1 | | |
| Date of Calibration: | 6/4/2021 | | |
| | Yes | No | N/A |
| Option 1: RSD for each analyte ≤ 15%? | X | | |
| Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$? | X | | |
| Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$? | | | X |
| If non-linear regression was used were 6 points used for second order and 7 points for third order? | | | X |

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**Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2018)**
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| **Method 8330A Initial Calibration Criteria** | | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Calibration:** | **3/2/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was at least a five point calibration completed for all analytes prior to sample analysis and one option below? | X | | |
| Option 1: RSD for each analyte ≤ 20%? | X | | |
| Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$? | | | X |
| Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$? | | | X |
| If non-linear regression was used were 6 points used for second order and 7 points for third order? | | | X |

| **Method 8330A Initial Calibration Criteria** | | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Calibration:** | **5/1/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was at least a five point calibration completed for all analytes prior to sample analysis and one option below? | X | | |
| Option 1: RSD for each analyte ≤ 20%? | X | | |
| Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$? | | | X |
| Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$? | | | X |
| If non-linear regression was used were 6 points used for second order and 7 points for third order? | | | X |

| **Method 8330A Initial Calibration Criteria** | | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X5** | | |
| **Date of Calibration:** | **5/1/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was at least a five point calibration completed for all analytes prior to sample analysis and one option below? | X | | |
| Option 1: RSD for each analyte ≤ 20%? | X | | |
| Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$? | | | X |
| Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$? | | | X |
| If non-linear regression was used were 6 points used for second order and 7 points for third order? | | | X |

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**Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2018)**
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| **Method 8330A Initial Calibration Criteria** | | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X5** | | |
| **Date of Calibration:** | **5/2/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was at least a five point calibration completed for all analytes prior to sample analysis and one option below? | X | | |
| Option 1: RSD for each analyte ≤ 20%? | X | | |
| Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$? | | | X |
| Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$? | | | X |
| If non-linear regression was used were 6 points used for second order and 7 points for third order? | | | X |

| **Method RSK-175 Initial Calibration Criteria** | | | |
|---|---|---|---|
| **Instrument:** | **VGC_J** | | |
| **Date of Calibration:** | **6/24/2020** | | |
| | **Yes** | **No** | **N/A** |
| Was at least a five point calibration completed for all analytes prior to sample analysis and one option below? | X | | |
| Option 1: RSD for each analyte ≤ 25%? | X | | |
| Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$? | X | | |
| Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$? | | | X |
| If non-linear regression was used were 6 points used for second order and 7 points for third order? | | | X |

| **Method 9056A Initial Calibration Criteria** | | | |
|---|---|---|---|
| **Instrument:** | **WC_IonChrom13** | | |
| **Date of Calibration:** | **6/14/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was a minimum of three standards and a calibration blank used for ICAL? | X | | |
| Was $r^2 \geq 0.99$? | X | | |

| **Method 9056A Initial Calibration Criteria** | | | |
|---|---|---|---|
| **Instrument:** | **24811** | | |
| **Date of Calibration:** | **6/11/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was a minimum of three standards and a calibration blank used for ICAL? | X | | |
| Was $r^2 \geq 0.99$? | X | | |

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| Method 350.1 Initial Calibration Criteria | | | |
|---|---|---|---|
| **Instrument:** | **WC_Alp 4** | | |
| **Date of Calibration:** | **6/11/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was a minimum of three standards and a calibration blank used for ICAL? | X | | |
| Was $r^2 \geq 0.99$? | X | | |

| Method 353.2 Initial Calibration Criteria | | | |
|---|---|---|---|
| **Instrument:** | **WC_Alp 2** | | |
| **Date of Calibration:** | **6/4/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was a minimum of three standards and a calibration blank used for ICAL? | X | | |
| Was $r^2 \geq 0.99$? | X | | |

| Method 351.2 Initial Calibration Criteria | | | |
|---|---|---|---|
| **Instrument:** | **WC_Astoria** | | |
| **Date of Calibration:** | **6/2/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was a minimum of three standards and a calibration blank used for ICAL? | X | | |
| Was $r^2 \geq 0.99$? | X | | |

| Method 9060A Initial Calibration Criteria | | | |
|---|---|---|---|
| **Instrument:** | **WC_SHI4** | | |
| **Date of Calibration:** | **6/8/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was a minimum of three standards and a calibration blank used for ICAL? | X | | |
| Was $r^2 \geq 0.99$? | X | | |

## 5.0 Initial Calibration Verification [(ICV) Second Source]

| Method 8260B ICV Criteria (Filename) | MS1_2732.D | | |
|---|---|---|---|
| **Instrument:** | **VMS_MS1** | | |
| **Date of Initial Calibration Verification:** | **6/4/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each calibration? | X | | |
| Were all reported analytes within ± 20% of true value? | X | | |

| Method 8330A ICV Criteria (Filename) | 03020037.D | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Initial Calibration Verification:** | **3/3/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each calibration? | X | | |
| Was the ICV for all analytes within ± 15% of the true value? | X | | |

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| **Method 8330A ICV Criteria (Filename)** | **020-1401.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Initial Calibration Verification:** | **5/1/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each calibration? | X | | |
| Was the ICV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A ICV Criteria (Filename)** | **019-1401.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X5** | | |
| **Date of Initial Calibration Verification:** | **5/2/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each calibration? | X | | |
| Was the ICV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A ICV Criteria (Filename)** | **028-2301.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X5** | | |
| **Date of Initial Calibration Verification:** | **5/2/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each calibration? | X | | |
| Was the ICV for all analytes within ± 15% of the true value? | X | | |

| **Method RSK-175 ICV Criteria (Filename)** | **06242011.D** | | |
|---|---|---|---|
| **Instrument:** | **VGC_J** | | |
| **Date of Initial Calibration Verification:** | **6/24/2020** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each calibration? | X | | |
| Was the ICV for all analytes within ± 25% of the true value? | X | | |

| **Method 9056A ICV** | **WC_IonChrom13** | | |
|---|---|---|---|
| **Date of Initial Calibration Verification:** | **6/14/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis? | X | | |
| Was the ICV for all analytes within ± 10% of the true value? | X | | |

| **Method 9056A ICV** | **24811** | | |
|---|---|---|---|
| **Date of Initial Calibration Verification:** | **6/11/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis? | X | | |
| Was the ICV for all analytes within ± 10% of the true value? | X | | |

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| **Method 350.1 ICV Criteria** | **WC_Alp 4** | | |
|---|---|---|---|
| **Date of Initial Calibration Verification:** | **6/11/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis? | X | | |
| Was the ICV for all analytes within ± 10% of the true value? | X | | |

| **Method 353.2 ICV Criteria** | **WC_Alp 2** | | |
|---|---|---|---|
| **Date of Initial Calibration Verification:** | **6/4/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis? | X | | |
| Was the ICV for all analytes within ± 10% of the true value? | X | | |

| **Method 351.2 ICV Criteria** | **WC_Astoria** | | |
|---|---|---|---|
| **Date of Initial Calibration Verification:** | **6/2/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis? | X | | |
| Was the ICV for all analytes within ± 10% of the true value? | X | | |

| **Method 9060A ICV Criteria** | **WC_SHI4** | | |
|---|---|---|---|
| **Date of Initial Calibration Verification:** | **6/8/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis? | X | | |
| Was the ICV for all analytes within ± 10% of the true value? | X | | |

## 6.0 Continuing Calibration Verification (CCV)

| **Method 8260B Beginning CCV Criteria (Filename)** | **MS1_2744.D** | | |
|---|---|---|---|
| **Method 8260B Ending CCV Criteria (Filename)** | **MS1_2773.D** | | |
| **Instrument:** | **VMS_MS1** | | |
| **Date of Calibration Verification:** | **6/5/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 12 hours of analysis time? | X | | |
| Were all reported analytes and surrogates within ± 20% of true value? | X | | |
| Were all reported analytes and surrogates within ± 50% of true value for the end of analytical batch CCV? | X | | |

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| **Method 8330A CCV Criteria (Filename)** | **06030012-3.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Calibration Verification:** | **6/3/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A CCV Criteria (Filename)** | **06030024-6.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Calibration Verification:** | **6/3/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A CCV Criteria (Filename)** | **06030038-9.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Calibration Verification:** | **6/4/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A CCV Criteria (Filename)** | **06040007-9.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Calibration Verification:** | **6/4/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

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**Guidance: DoD QSM Version 5.1 (January 2017)**
**Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2018)**
**Applicable Analytical Methods: 8260B, 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034**

| **Method 8330A CCV Criteria (Filename)** | **06040021-3.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Calibration Verification:** | **6/4/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A CCV Criteria (Filename)** | **06040034-6.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Calibration Verification:** | **6/5/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A CCV Criteria (Filename)** | **06040046-8.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X3** | | |
| **Date of Calibration Verification:** | **6/5/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A CCV Criteria (Filename)** | **06040007.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X5** | | |
| **Date of Calibration Verification:** | **6/4/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

# CHAAP Data Verification

**Laboratory and SDG#: TADenver 280-149116** **AECOM Chemist: Jared DeSadier**
**Date Verified: 6/25/2021** **AECOM ITR: Jeff Aust**
**Guidance: DoD QSM Version 5.1 (January 2017)**
**Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2018)**
**Applicable Analytical Methods: 8260B, 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034**

| **Method 8330A CCV Criteria (Filename)** | **06040015.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X5** | | |
| **Date of Calibration Verification:** | **6/4/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A CCV Criteria (Filename)** | **06050007-8.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X5** | | |
| **Date of Calibration Verification:** | **6/5/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A CCV Criteria (Filename)** | **06050020-1.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X5** | | |
| **Date of Calibration Verification:** | **6/5/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

| **Method 8330A CCV Criteria (Filename)** | **06050026-7.D** | | |
|---|---|---|---|
| **Instrument:** | **CHHPLC_X5** | | |
| **Date of Calibration Verification:** | **6/5-6/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 15% of the true value? | X | | |

# CHAAP Data Verification

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**Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2018)**
**Applicable Analytical Methods: 8260B, 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034**

| **Method RSK-175 CCVRT Criteria (Filename)** | **004F0401.D** | | |
|---|---|---|---|
| **Instrument:** | **VGC_J** | | |
| **Date of Calibration Verification:** | **6/1/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 25% of the true value? | X | | |

| **Method RSK-175 CCV Criteria (Filename)** | **021F2101.D** | | |
|---|---|---|---|
| **Instrument:** | **VGC_J** | | |
| **Date of Calibration Verification:** | **6/1/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 25% of the true value? | X | | |

| **Method RSK-175 CCV Criteria (Filename)** | **035F3501.D** | | |
|---|---|---|---|
| **Instrument:** | **VGC_J** | | |
| **Date of Calibration Verification:** | **6/1/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 25% of the true value? | X | | |

| **Method RSK-175 CCV Criteria (Filename)** | **054F5401.D** | | |
|---|---|---|---|
| **Instrument:** | **VGC_J** | | |
| **Date of Calibration Verification:** | **6/1/2021** | | |
| | **Yes** | **No** | **N/A** |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 25% of the true value? | X | | |

# CHAAP Data Verification

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**Date Verified: 6/25/2021** **AECOM ITR: Jeff Aust**
**Guidance: DoD QSM Version 5.1 (January 2017)**
**Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2018)**
**Applicable Analytical Methods: 8260B, 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034**

| Method RSK-175 CCV Criteria (Filename) | 066F6601.D | | |
|---|---|---|---|
| Instrument: | VGC_J | | |
| Date of Calibration Verification: | 6/2/2021 | | |
| | Yes | No | N/A |
| Was the CCV analyzed daily before sample analysis? | X | | |
| Was the CCV analyzed every 10 field samples and at the end of the analysis sequence? | X | | |
| Was the CCV for all analytes within ± 25% of the true value? | X | | |

| Method 9056A, Instrument: WC_IonChrom13, All CCVs on 6/14/2021 | Yes | No |
|---|---|---|
| Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence? | X | |
| Were the CCVs for all analytes within ± 10% of the true value? | X | |

| Method 9056A, Instrument: WC_IonChrom13, All CCVs on 6/16/2021 | Yes | No |
|---|---|---|
| Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence? | X | |
| Were the CCVs for all analytes within ± 10% of the true value? | X | |

| Method 9056A, Instrument: 24811, All CCVs on 6/16/2021 | Yes | No |
|---|---|---|
| Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence? | X | |
| Were the CCVs for all analytes within ± 10% of the true value? | X | |

| Method 350.1, Instrument: WC_Alp 4, All CCVs on 6/11/2021 | Yes | No |
|---|---|---|
| Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence? | X | |
| Were the CCVs for all analytes within ± 10% of the true value? | X | |

| Method 353.2, Instrument: WC_Alp 2, All CCVs on 6/4/2021 | Yes | No |
|---|---|---|
| Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence? | X | |
| Were the CCVs for all analytes within ± 10% of the true value? | X | |

| Method 351.2, Instrument: WC_Astoria, All CCVs on 6/2/2021 | Yes | No |
|---|---|---|
| Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence? | X | |
| Were the CCVs for all analytes within ± 10% of the true value? | X | |

| Method 9060A, Instrument: WC_SHI4, All CCVs on 6/8/2021 | Yes | No |
|---|---|---|
| Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence? | X | |
| Were the CCVs for all analytes within ± 10% of the true value? | X | |

## 7.0 Sensitivity

| Sensitivity Criteria | Yes | No | N/A |
|---|---|---|---|
| Was the laboratory sensitivity consistent with project (QAPP) requirements? | X | | |
| Did all analytes meet sensitivity requirements? | X | | |

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## 8.0 Internal Standard (IS) Recoveries

| Method 8260B Criteria | Yes | No | N/A |
|---|---|---|---|
| Were internal standards spiked for all samples and standards? | X | | |
| Were internal standard areas within -50% to + 100% of the ICAL midpoint standard area? | X | | |
| Were retention time ± 30 seconds from the retention time of the midpoint standard of the ICAL? | X | | |

## 9.0 Additional Qualifications

| Additional Qualification Criteria | Yes | No | N/A |
|---|---|---|---|
| Were common laboratory contaminants detected? | | X | |
| Was professional judgment used to qualify data (if yes, list below)? | X | | |

The RPD between the primary and confirmation column for some explosives samples was above evaluation criteria. Qualification of data is shown in the table below; results were reported from primary column unless otherwise noted.

| Sample ID | Analysis | Analyte | RPD | Qual |
|---|---|---|---|---|
| G0017-21A | Explosives | 2-amino-4,6-dinitrotoluene | 154.4 | **J** |
| G0086-21A | Explosives | RDX | 45.0 | **J** |
| PZ018-21A | Explosives | 4-amino-2,6-dinitrotoluene | 65.0 | **J** |
| G0077-21A | Explosives | RDX | 65.2 | **J** |
| PZ017R-21A | Explosives | HMX | 91.6 | **J** |
| PZ017R-21A | Explosives | 2,6-dinitrotoluene | 81.4 | **J** |
| PZ021-21A | Explosives | HMX | 80.3 | **J** |
| PZ021-21A | Explosives | 2,6-dinitrotoluene | 88.1 | **J** |
| PZ020-21A | Explosives | RDX | 50.2 | **J** |

Sample G0045-21A was received with headspace greater than 6 mm in its sample VOAs. Qualification of data is shown in the table below.

| Sample ID | Analysis | Analyte | Qual |
|---|---|---|---|
| G0045-21A | RSK-175 | Methane | **J** |

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## 10.0 Completeness

| Completeness Criteria | Yes | No | N/A |
|---|---|---|---|
| Were any data rejected during the verification process? | | X | |
| Were any samples lost, broken, or in any other manner in not verified? | | X | |
| Were requested sample analyses performed, the correct analyte lists used, and correct sample preparation and analyses methods and units utilized? | X | | |