CHAAP Data Verification

Laboratory and SDG#: TADenver 280-159332 **AECOM Chemist: April McLeod**
Date Verified: 3/31/2022 **AECOM ITR: Jared Grogan**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Sample Identification #	Date Collected	Date Received	Matrix	Analysis
G0081-8	3/1/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0082-8	3/1/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0024-8	3/1/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0096-8	3/2/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0296-8	3/2/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
PZ020	3/1/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0077-8	3/1/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0078-8	3/1/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0094-8	3/1/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
PZ018-8	3/2/2022	3/3/2022	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-8	3/2/2022	3/3/2022	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 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Sample Identification #	Date Collected	Date Received	Matrix	Analysis
PZ021-8	3/2/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
PZ019-8	3/2/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
PZ019-8-MS/MSD	3/2/2022	3/3/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)

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		

Although not stated in the case narrative, the collection dates for samples G0096-8 and G0296-8 were reported by the laboratory as 3/1/2022; however, the COC indicates these samples were collected on 3/2/2022.

The case narrative indicated that some MS/MSD recoveries were outside evaluation criteria. A surrogate recovery for Explosives was above evaluation criteria; however, target analytes were non-detect and results were not qualified. Sulfide was detected in a blank sample; however, all associated sample results were non-detect and results were not qualified. These issues are discussed further in the ADR report.

The case narrative also indicated that the RPD between the primary and confirmation column for some explosives samples was above evaluation criteria. This issue is discussed further in Section 7.0. Some samples were further preserved upon receipt. No qualification was required.

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

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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	

3.0 Initial Calibration

Method 8330A Initial Calibration Criteria			
Instrument:	**CHHPLC_X3**		
Date of Calibration:	**1/4/2022**		
	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:	**1/5/2022**		
	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

CHAAP Data Verification

Laboratory and SDG#: TADenver 280-159332 **AECOM Chemist: April McLeod**
Date Verified: 3/31/2022 **AECOM ITR: Jared Grogan**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 8330A Initial Calibration Criteria			
Instrument:	**CHHPLC_X5**		
Date of Calibration:	**3/2/2022**		
	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:	**3/3/2022**		
	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:	**9/24/2021**		
	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 ≤ 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:	**3/16/2022**		
	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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Date Verified: 3/31/2022 **AECOM ITR: Jared Grogan**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 350.1 Initial Calibration Criteria			
Instrument:	**WC_Alp 4**		
Date of Calibration:	**3/18/2022**		
	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 350.1 Initial Calibration Criteria			
Instrument:	**WC_Alp 4**		
Date of Calibration:	**3/19/2022**		
	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:	**3/15/2022**		
	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_GAL1**		
Date of Calibration:	**2/22/2022**		
	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_SHI3**		
Date of Calibration:	**3/11/2022**		
	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		

CHAAP Data Verification

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Date Verified: 3/31/2022 **AECOM ITR: Jared Grogan**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

4.0 Initial Calibration Verification [(ICV) Second Source]

Method 8330A ICV Criteria (Filename)	01040020.D		
Instrument:	CHHPLC_X3		
Date of Initial Calibration Verification:	1/4/2022		
	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)	01040038.D		
Instrument:	CHHPLC_X3		
Date of Initial Calibration Verification:	1/5/2022		
	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)	03020019.D		
Instrument:	CHHPLC_X5		
Date of Initial Calibration Verification:	3/3/2022		
	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)	03020028.D		
Instrument:	CHHPLC_X5		
Date of Initial Calibration Verification:	3/3/2022		
	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)	014F1201.D		
Instrument:	VGC_J		
Date of Initial Calibration Verification:	9/24/2021		
	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_IonChrom11		
Date of Initial Calibration Verification:	3/16/2022		
	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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Date Verified: 3/31/2022 **AECOM ITR: Jared Grogan**
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Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 9056A ICV	**WC_IonChrom13**		
Date of Initial Calibration Verification:	**3/16/2022**		
	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	**WC_IonChrom13**		
Date of Initial Calibration Verification:	**3/17/2022**		
	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 350.1 ICV Criteria	**WC_Alp 4**		
Date of Initial Calibration Verification:	**3/18/2022**		
	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 350.1 ICV Criteria	**WC_Alp 4**		
Date of Initial Calibration Verification:	**3/19/2022**		
	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:	**3/15/2022**		
	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:	**3/20/2022**		
	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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Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 351.2 ICV Criteria	WC_GAL1		
Date of Initial Calibration Verification:	2/22/2022		
	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_SHI5		
Date of Initial Calibration Verification:	3/14/2022		
	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		

5.0 Continuing Calibration Verification (CCV)

Method 8330A CCV Criteria (Filename)	03100049_50.D		
Instrument:	CHHPLC_X3		
Date of Calibration Verification:	3/11/2022		
	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)	03100061_62.D		
Instrument:	CHHPLC_X3		
Date of Calibration Verification:	3/11/2022		
	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)	03110015_16.D		
Instrument:	CHHPLC_X3		
Date of Calibration Verification:	3/11/2022		
	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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Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 8330A CCV Criteria (Filename)	**03110026_27.D**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**3/11/2022**		
	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)	**03110038_39.D**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**3/12/2022**		
	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)	**03120011_12.D**		
Instrument:	**CHHPLC_X5**		
Date of Calibration Verification:	**3/12/2022**		
	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)	**03120023_24.D**		
Instrument:	**CHHPLC_X5**		
Date of Calibration Verification:	**3/12/2022**		
	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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Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 8330A CCV Criteria (Filename)	03150007_8.D		
Instrument:	CHHPLC_X5		
Date of Calibration Verification:	3/15/2022		
	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)	03150019_20.D		
Instrument:	CHHPLC_X5		
Date of Calibration Verification:	3/15/2022		
	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)	03150025_26.D		
Instrument:	CHHPLC_X5		
Date of Calibration Verification:	3/16/2022		
	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 RSK-175 CCV Criteria (Filename)	002F0201.D		
Instrument:	VGC_J		
Date of Calibration Verification:	3/10/2022		
	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)	017F1701.D		
Instrument:	VGC_J		
Date of Calibration Verification:	3/10/2022		
	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		

CHAAP Data Verification

Laboratory and SDG#: TADenver 280-159332 **AECOM Chemist: April McLeod**
Date Verified: 3/31/2022 **AECOM ITR: Jared Grogan**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method RSK-175 CCV Criteria (Filename)	**017F1701.D**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**3/10/2022**		
	Yes	**No**	**N/A**
Was the CCV for all analytes within ± 25% of the true value?	X		

Method RSK-175 CCVRT Criteria (Filename)	**028F2801.D**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**3/10/2022**		
	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)	**030822f01.D**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**3/8/2022**		
	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 CCVRT Criteria (Filename)	**031F3101A.D**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**3/3/2022**		
	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 CCVRT Criteria (Filename)	**017F1701.D**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**11/16/2021**		
	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

Laboratory and SDG#: TADenver 280-159332 **AECOM Chemist: April McLeod**
Date Verified: 3/31/2022 **AECOM ITR: Jared Grogan**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 9056A, Instrument: WC_IonChrom13, All CCVs on 3/17/2022	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 3/18/2022	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 3/18/2022	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 3/19/2022	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 3/13/2022	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 3/15/2022	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_GAL1, All CCVs on 3/14/2022	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_SHI5, All CCVs on 3/14/2022	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_SHI5, All CCVs on 3/15/2022	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	

6.0 Sensitivity

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

CHAAP Data Verification

Laboratory and SDG#: TADenver 280-159332 **AECOM Chemist: April McLeod**
Date Verified: 3/31/2022 **AECOM ITR: Jared Grogan**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

7.0

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		

Sulfide was detected in a blank sample; however, all associated sample results were non-detect and results were not qualified.

The RPD between the primary and confirmation column for some below; results were reported from primary column unless otherwise noted.

Sample ID	Analysis	Analyte	RPD	Qual
G0096-8	Explosives	MNX	44.1	**J**
G0296-8	Explosives	MNX	45.6	**J**
G0077-8	Explosives	RDX	66.7	**J**
G0094-8	Explosives	MNX	69.7	**J**
G0094-8	Explosives	1,3-Dinitrobenzene	79.8	**J**
PZ021-8	Explosives	HMX	47.5	**J**

8.0 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		