CHAAP Data Verification

Laboratory and SDG#: TADenver 280-137609-1 **AECOM Chemist: Jared DeSadier**
Date Verified: 7/27/2020 **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, 8015C, 9034

Sample Identification #	Date Collected	Date Received	Matrix	Analysis
G0102-20A	6/11/2020	6/12/2020	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0045-20A	6/11/2020	6/12/2020	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0017-20A	6/11/2020	6/12/2020	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0105-20A	6/11/2020	6/12/2020	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0080-20A	6/11/2020	6/12/2020	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
PZ005-20A	6/11/2020	6/12/2020	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
NW052-20A	6/10/2020	6/12/2020	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
Source 2020	6/11/2020	6/12/2020	Water	VOCs (8260B), Explosives (8330A)
TB01-061120	6/11/2020	6/12/2020	Water	VOCs (8260B)
TB02-061120	6/11/2020	6/12/2020	Water	VOCs (8260B)
SHGW03-20A	6/11/2020	6/12/2020	Water	VOCs (8260B), Nitrate, Nitrite (353.2), MEE (RSK-175), Alkalinity (2320B), Sulfate (9056A), DRO (8015C)
SHGW02-20A	6/11/2020	6/12/2020	Water	VOCs (8260B), Nitrate, Nitrite (353.2), MEE (RSK-175), Alkalinity (2320B), Sulfate (9056A)
SHGW05-20A	6/11/2020	6/12/2020	Water	VOCs (8260B), Nitrate, Nitrite (353.2), MEE (RSK-175), Alkalinity (2320B), Sulfate (9056A)
PZ007-20A	6/11/2020	6/12/2020	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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Sample Identification #	Date Collected	Date Received	Matrix	Analysis
PZ012-20A	6/10/2020	6/12/2020	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		

The case narrative indicated that some MS/MSD recoveries were outside evaluation criteria and some analytes were detected in blank samples. These issues are discussed further in the ADR report.

The RPD between the primary and confirmation column for some explosives samples was above evaluation criteria. This issue is discussed further in Section 9.0. Some CCV %Ds were outside of evaluation criteria. This issue is discussed further in Section 6.0.

The cooler receipt form indicated that a sample was received one day after the other samples. Holding time criteria was met for all samples and no qualification of data was required.

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	

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3.0 Instrument Performance Check (Tuning)

Method 8260B Instrument Tuning Criteria (Filename)	P1658A.D		
Instrument:	VMS_P		
Date of Tuning:	6/1/2020		
	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)	P2505.D		
Instrument:	VMS_P		
Date of Tuning:	6/20/2020		
	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_P		
Date of Calibration:	6/1/2020		
	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

Verification Criteria for DRO instrument SGC_U2a on 1/17/2020	Yes	No	N/A
Was at least a 5-point calibration completed for all analytes prior to sample analysis?	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 $r^2 \geq 0.99$?	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:	**3/4/2020**		
	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 ≤ 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:	**3/4/2020**		
	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 ≤ 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:	**3/18/2020**		
	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 ≤ 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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Method 8330A Initial Calibration Criteria			
Instrument:	**CHHPLC_G2_LUNA**		
Date of Calibration:	**5/14/2020**		
	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 ≤ 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_G2_LUNA**		
Date of Calibration:	**5/14/2020**		
	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 ≤ 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:	**5/16/2020**		
	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_IonChrom7**		
Date of Calibration:	**6/3/2020**		
	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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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, 8015C, 9034

Method 9056A Initial Calibration Criteria			
Instrument:	**WC_IonChrom7**		
Date of Calibration:	**6/25/2020**		
	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:	**WC_IonChrom7**		
Date of Calibration:	**6/29/2020**		
	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:	**6/16/2020**		
	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:	**6/18/2020**		
	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:	**6/19/2020**		
	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_SHI2**		
Date of Calibration:	**6/26/2020**		
	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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5.0 Initial Calibration Verification [(ICV) Second Source]

Method 8260B ICV Criteria (Filename)	P1670.D		
Instrument:	VMS_P		
Date of Initial Calibration Verification:	6/1/2020		
	Yes	No	N/A
Was the ICV analyzed after each calibration?	X		
Were all reported analytes within ± 20% of true value?	X		

Verification Criteria for DRO instrument SGC_U2a on 1/17/2020 17:13	Yes	No
Was the ICV analyzed daily, before sample analysis?	X	
Were all reported analytes within ± 20% of the true value?	X	

Method 8330A ICV Criteria (Filename)	03040015.D		
Instrument:	CHHPLC_X3		
Date of Initial Calibration Verification:	3/4/2020		
	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)	03040033.D		
Instrument:	CHHPLC_X3		
Date of Initial Calibration Verification:	3/5/2020		
	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)	03180016.D		
Instrument:	CHHPLC_X3		
Date of Initial Calibration Verification:	3/18/2020		
	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)	05140016.D		
Instrument:	CHHPLC_G2-LUNA		
Date of Initial Calibration Verification:	5/14/2020		
	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)	05140026.D		
Instrument:	CHHPLC_G2-LUNA		
Date of Initial Calibration Verification:	5/15/2020		
	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)	010F1001.D		
Instrument:	VGC_J		
Date of Initial Calibration Verification:	5/16/2020		
	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_IonChrom7		
Date of Initial Calibration Verification:	6/3/2020		
	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_IonChrom7		
Date of Initial Calibration Verification:	6/25/2020		
	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_IonChrom7		
Date of Initial Calibration Verification:	6/29/2020		
	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:	6/16/2020		
	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 353.2 ICV Criteria	WC_Alp 2		
Date of Initial Calibration Verification:	6/18/2020		
	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:	6/19/2020		
	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_SHI2		
Date of Initial Calibration Verification:	6/26/2020		
	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)	P2506.D		
Method 8260B Ending CCV Criteria (Filename)	P2533.D		
Instrument:	VMS_P		
Date of Calibration Verification:	6/20/2020		
	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	

The opening CCV %D for dichlorodifluoromethane (22.6%) was outside of evaluation criteria with a high bias. Associated sample results were nondetect and no qualification of data was required. The closing CCV %D for bromomethane (-60.7%) was outside of evaluation criteria with a low bias. Associated results that required qualification are shown in the following table.

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Sample ID	Analysis	Analyte	Qual
SHGW02-20A	VOCs	Bromomethane	**UJ**
SHGW03-20A	VOCs	Bromomethane	**UJ**
SHGW05-20A	VOCs	Bromomethane	**UJ**
Source 2020	VOCs	Bromomethane	**UJ**

Verification Criteria for DRO instrument SGC_U2a on 6/30/2020 10:51	**Yes**	**No**
Was the CCV analyzed daily before sample analysis?	X	
Was the CCV analyzed every 10 samples and at the end of the analysis sequence?	X	
Were all reported analytes within ± 20% of true value?	X	

Verification Criteria for DRO instrument SGC_U2a on 6/30/2020 16:21	**Yes**	**No**
Was the CCV analyzed daily before sample analysis?	X	
Was the CCV analyzed every 10 samples and at the end of the analysis sequence?	X	
Were all reported analytes within ± 20% of true value?	X	

Method 8330A CCV Criteria (Filename)	**06220007-9.D**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**6/22/2020**		
	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)	**06220020-1.D**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**6/22/2020**		
	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)	**06220032-3.D**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**6/22/2020**		
	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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Method 8330A CCV Criteria (Filename)	**06220036-7.D**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**6/23/2020**		
	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)	**06220046-7.D**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**6/23/2020**		
	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)	**06220053-4.D**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**6/23/2020**		
	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)	**06230007-8.D**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**6/23/2020**		
	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 280-137609-1 **AECOM Chemist: Jared DeSadier**
Date Verified: 7/27/2020 **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, 8015C, 9034

Method 8330A CCV Criteria (Filename)	**06230015-6.D**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**6/23/2020**		
	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)	**06230022-3.D**		
Instrument:	**CHHPLC_G2_LUNA**		
Date of Calibration Verification:	**6/24/2020**		
	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)	**06230034-5.D**		
Instrument:	**CHHPLC_G2_LUNA**		
Date of Calibration Verification:	**6/24/2020**		
	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)	**06230044-5.D**		
Instrument:	**CHHPLC_G2_LUNA**		
Date of Calibration Verification:	**6/24/2020**		
	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 280-137609-1 **AECOM Chemist: Jared DeSadier**
Date Verified: 7/27/2020 **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, 8015C, 9034

Method 8330A CCV Criteria (Filename)	**06240007-8.D**		
Instrument:	**CHHPLC_G2_LUNA**		
Date of Calibration Verification:	**6/24/2020**		
	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)	**06240017-8.D**		
Instrument:	**CHHPLC_G2_LUNA**		
Date of Calibration Verification:	**6/25/2020**		
	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)	**06240028-9.D**		
Instrument:	**CHHPLC_G2_LUNA**		
Date of Calibration Verification:	**6/25/2020**		
	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 CCVRT Criteria (Filename)	**033F3601a.D**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**6/16/2020**		
	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 280-137609-1 **AECOM Chemist: Jared DeSadier**
Date Verified: 7/27/2020 **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, 8015C, 9034

Method RSK-175 CCV Criteria (Filename)	003F1701.D		
Instrument:	VGC_J		
Date of Calibration Verification:	6/17/2020		
	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)	015F2901.D		
Instrument:	VGC_J		
Date of Calibration Verification:	6/17/2020		
	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)	019F1901.D		
Instrument:	VGC_J		
Date of Calibration Verification:	6/18/2020		
	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)	031F3101.D		
Instrument:	VGC_J		
Date of Calibration Verification:	6/18/2020		
	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 280-137609-1 **AECOM Chemist: Jared DeSadier**
Date Verified: 7/27/2020 **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, 8015C, 9034

Method RSK-175 CCV Criteria (Filename)	**048F4801.D**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**6/18/2020**		
	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_IonChrom7, All CCVs on 6/3/2020	**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_IonChrom7, All CCVs on 6/25/2020	**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_IonChrom7, All CCVs on 6/29/2020	**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 6/16/2020	**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 6/18/2020	**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 6/19/2020	**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_SHI2, All CCVs on 6/26/2020	**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	

CHAAP Data Verification

Laboratory and SDG#: TADenver 280-137609-1 **AECOM Chemist: Jared DeSadier**
Date Verified: 7/27/2020 **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, 8015C, 9034

7.0 Internal Standard (IS) Recoveries

Methods 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		

8.0 Sensitivity

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

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
G0080-20A	Explosives	4-amino-2,6-dinitrotoluene	**52.8**	**J**
G0080-20A	Explosives	2-amino-4,6-dinitrotoluene	**70.1**	**J**
PZ005-20A	Explosives	2-amino-4,6-dinitrotoluene	**124.1**	**J**
G0017-20A	Explosives	Tetryl	**119.0**	**J**

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		