TRAINING UPDATE

Lab Location:	SGMC and WOMC	**Date Implemented:**	3/25/25
Department:	Blood Bank	**Due Date:**	4/8/25

DESCRIPTION OF PROCEDURE REVISION

Name of procedure:
Daily Reagent Quality Control
Description of change(s):
Recently, we have had issues at both sites where staff members have failed to perform QC during their shift. Each shift is supposed to verify that QC was performed during the previous shift. In every case where QC was missed, the following shift also failed to identify the omission and complete QC. The procedure was updated to require each shift to look at the daily QC results using SmarTerm function QCR. The requirement was added to the daily duties checklist to remind staff to perform this function. If you note any errors in QC for a previous shift or if QC was not performed, you are required to complete QC and fill out an IQE event.

Adventist HealthCare

Month/Year:

Daily Reports and Tasks Form

Location:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Day Shift																															
Blood Bank Backup (BEX,BBR6,BBR15)																															
Product File List (BBR2, allocated)																															
Rack 1 QC																															
Verify Night Shift QC Reaction Results and Maintenance Tasks																															
Arrange Blood Inventory by Expiration Date																															
Daily Temperatures and Change Charts on Mon																															
Microscope QC																															
Detailed Inventory (BBR2, INV, PLAS/CRYG) First w/e of Mo																															
Transferred unit report to Inova--BBR9 (1st of month)																															
Evening Shift																															
Rack 2 QC																															
Verify Dayshift QC Reaction Results and Maintenance Tasks																															
Verify Day																															
Centrifuge Maintenance																															
Cell Washer Maintenance																															
Plasma Thawer Maintenance																															
Surgery Schedule																															
Adjust Standing Orders As Needed (BBR13)																															
Cell Washer Weekly Maintenance (Date and Tech Code)																															
Plasma Thawer Weekly Maintenance (Date and Tech Code)																															
Monthly Centrifuge QC																															
Discard Reagent Cells >3 Months Old																															
Night Shift																															
Expired Allocation List																															
Blood Bank Expired Crossmatches (BEC)																															
Expired Blood Product List (BBR4)																															
BSU Units on BBR4 to Appropriate Status																															
Issued, Unreported Units List (BBR5)																															
Blood Issue Finalization (BIF)																															
Short Outdate Summary (BBR12)																															
DAT Rack QC																															
Echo Maintenance and QC																															
Verify Evening Shift QC Reaction Results and Maint Tasks																															
Eyewash Check (Date and Tech Code)																															
Discard Old Unit Segments (First Day of Month)																															
Group Lead																															
Review of AbID and Antigen Typing																															
Daily Rh negative Results Report																															
Patient AD Data Update (BBR8)																															
Quality Assurance Report (BBR7)																															
Incomplete Reaction Result Log (BBR18)																															
Merge Log (LO11)																															
Overdue Test Log (LO2) (Weekly)																															
Review of QC Results (QCR)																															
Reagent Receipt QC Weekly (Date and Tech Code)																															
Verification of Backup Monthly (Date and Tech Code)																															

Note: Reports are routinely run on a daily basis. However, some reports may not be generated on weekends, holidays, or days in which workload is unusually high. If the report is not generated for a given day, place a hashmark (/) in the box that corresponds to the day on which the report was not performed.

Supervisor Review: _____ **Date:** _____

AG.F129.10

Rev 3.2025

AHC.BB132 Daily Reagent Quality Control

Copy of version 6.0 (approved and current)

Last Approval or Periodic Review Completed	3/21/2025
Next Periodic Review Needed On or Before	3/21/2027
Effective Date	3/21/2025

Controlled Copy of a Manual ID 20556

Location SGMC & WOMC BB vol 5

Organization Adventist HealthCare

Approval and Periodic Review Signatures

Type	Description	Date	Version	Performed By	Notes
Approval	Lab Director	3/21/2025	6.0	 Nicolas Cacciabeve	
Approval	BB approval	3/21/2025	6.0	Stephanie Codina	
Approval	Lab Director	9/24/2024	5.0	 Nicolas Cacciabeve	
Approval	BB approval	9/24/2024	5.0	Stephanie Codina	
Approval	Lab Director	9/16/2024	4.0	 Nicolas Cacciabeve	
Approval	BB approval	9/16/2024	4.0	Stephanie Codina	
Periodic review	Medical Director	7/16/2024	3.0	 Nicolas Cacciabeve	
Periodic review	BB	7/10/2024	3.0	Stephanie Codina	
Periodic review	Medical Director	7/20/2022	3.0	Nicolas Cacciabeve	
Periodic review	BB	7/19/2022	3.0	Stephanie Codina	
Approval	Lab Director	7/13/2020	3.0	Nicolas Cacciabeve	
Approval	BB approval	7/10/2020	3.0	Stephanie Codina	
Approval	QA approval	7/10/2020	3.0	Leslie Barrett	
Periodic review	Medical Director	11/11/2019	2.0	Nicolas Cacciabeve	
Periodic review	BB	10/4/2019	2.0	Stephanie Codina	
Approval Captured outside MediaLab	Lab Director	10/26/2017	2.0	Nicolas Cacciabeve	Recorded on 7/22/2019 by Leslie Barrett (104977) when document added to Document Control

Periodic review Captured outside MediaLab	Designated Reviewer	10/26/2017	2.0	Nicolas Cacciabeve	Recorded on 7/22/2019 by Leslie Barrett (104977) when document added to Document Control

Approvals and periodic reviews that occurred before this document was added to Document Control may not be listed.

Version History

Version	Status	Type	Date Added	Date Effective	Date Retired
6.0	Approved and Current	Major revision	3/21/2025	3/21/2025	Indefinite
5.0	Retired	Major revision	9/23/2024	9/30/2024	3/21/2025
3.0	Retired	Major revision	7/10/2020	8/4/2020	9/30/2024
2.0	Retired	First version in Document Control	7/22/2019	10/27/2017	8/4/2020

Non-Technical SOP

Title	**Daily Reagent Quality Control**	
Prepared by	Stephanie Codina	Date: 1.20.2012
Owner	Stephanie Codina	Date: 1.20.2012

Laboratory Approval		
Print Name and Title	**Signature**	**Date**
Refer to the electronic signature page for approval and approval dates.		
Local Issue Date:	Local Effective Date:	

TABLE OF CONTENTS

1. PURPOSE

Commercial antisera and reagent red blood cells are tested prior to being placed into use and on each day of use to confirm that they react as expected. Reagents in use are tested with known samples and the results are documented.

2. SCOPE

This procedure applies to commercial antisera and reagent red cells. Each reagent is tested on each day of use.

3. RESPONSIBILITY

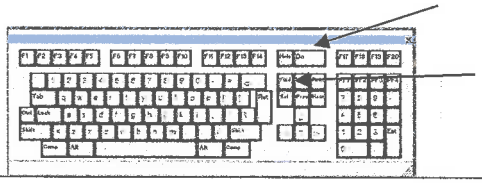
All blood bank staff members must understand and adhere to this procedure for performing reagent quality control.

4. DEFINITIONS

N/A

5. PROCEDURE

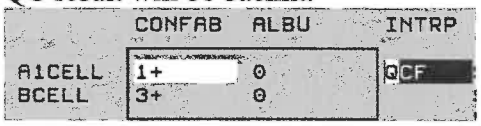
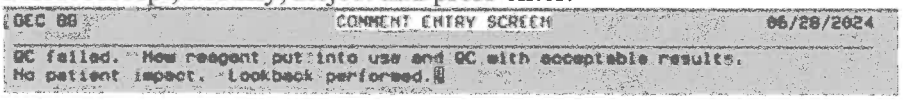
General Notes

Step	Action
1	Quick Notes: AMR = Accept, Reject, Modify
2	Click the picture of the keyboard at the top of the screen to utilize the function keys. 
3	Once the keyboard is open, use your mouse to click the keys needed. The "Find" and "Do" keys are located here. 

Daily Quality Control

Step	Action
1	Remove reagent racks and quality control rack from the refrigerator to allow reagents to come to room temperature.
2	Perform an inspection of reagents. A. Verify that the expiration date of each reagent has not been exceeded. B. Discard expired reagents and any reagents that will expire within 24 hours of quality control procedure. C. Discard reagents that will be depleted during the day. D. Replace discarded reagents with new reagents.
3	Access Sunquest SmarTerm function **QCE** for Quality Control Entry. A. At the "Tech Code" prompt, type your tech code and press "tab." B. At the "Shift" prompt, press "tab." C. At the "Lab ID" prompt, type the correct Lab ID and press tab. a. For SGMC type **SGBB**. b. For WOMC type **WOBB**. D. At the "Bench/Rack" prompt, type the rack ID and press tab. Refer to the appendices for additional guidance.
4	If you are entering a new log or new shipment of reagent, follow the instruction in the section labeled "Reagent Receipt Process." Before continuing to the next step.

Step	Action
5	At the "Main Menu" screen, highlight, **5. Grid Result Entry** and press enter. A. At the "Date" prompt, press enter to default the current date. B. At the "Battery" prompt, type the rack identifier for the rack on which you are performing daily reagent quality control. Refer to the appendices for additional information. C. At the "Retest" prompt, a. Type **N** and press enter if this is the first time QC has been run for the day. b. Type **Y** and enter if QC has already been performed for the current day and is being repeated. Reasons for repeat include: i. New lot or shipment of reagent is being placed into use after QC was performed for the current day. ii. QC failed and is being repeated after corrective actions have been taken. Repeat QC only requires QC of the applicable reagents. You do not have to repeat QC of all reagents.
6	A "Rack Lot Association" screen will appear. Note: the reagents display in alphabetical order. A. Click on the keyboard icon to display the keyboard. B. Click the **Find** key (located on the electronic keyboard) to display the lots of a particular reagent in use. C. Highlight the lot that corresponds to the lot printed on the reagent. Verify the correct expiration date is listed and click enter. If you are placing a new lot of reagent into use, delete the field and type the new lot number into the field. D. Repeat these steps until all reagent lots and expiration dates have been entered. E. For "ROK" always enter a lot of "OK" with no expiration date. This is a computer placeholder for the visual inspection. F. Click on the **Do** key to move to the next screen.
7	The "Grid Result Entry" screen will appear. A. Visually inspect all reagents for evidence of contamination or deterioration (marked turbidity or precipitation of antisera, hemolysis of red cells). B. Enter the visual inspection for each reagent. a. Enter **Y** if the visual inspection passed. b. Enter **N** if the visual inspection failed. Do not use any reagents that did not pass visual inspection. Discard and place a new reagent into use. Write a PI/variance. C. Press the "Enter" key to move to the next grid.
8	Perform QC for the rack per the instructions in the appendices and enter results into the grid.

Step	Action
9	As you enter results, Sunquest will interpret whether QC is acceptable. A. If acceptable, the interpretation will update to "QCP." B. If unacceptable, the interpretation will update to "QCF" and the failed QC result will be backlit.  C. Type the * asterisk key to open the "Modify, Accept, Reject, or Comment" fields. D. Enter a comment if a new lot or shipment of reagent was placed into use (Ex: New shipment of albumin lot 123456 placed into use). E. Accept the result to save.
10	If any of the QC results failed, utilize the "Out of Range Quality Control" section of this procedure to troubleshoot. Sunquest will require a failure code and comment. A. Enter the appropriate Quality Control modifier code from Appendix A. B. At the "Edit Comment" prompt, type "Y." C. Type a comment that outlines the problem, corrective actions, and patient impact. D. Press the **F1** key to save. E. Type the **E** key and enter to exit. F. Select Accept, Modify, Reject and press enter. 

Reagent Receipt Process

Step	Action
1	This process is followed when placing a new bottle or new shipment of reagent into use.
2	Access SmarTerm function **QCE** (QC Entry).
3	Select **1. Lot Entry.**
4	At the "MFG Code" prompt, type one of the following and press the **tab** key. A. **WER** for Werfen/Immucor. B. **ORT** for Ortho. C. **HELM** for Helmer. D. **HETT** for Hettich
5	At the "Lot Number" prompt, type the lot number from the reagent and press the **tab** key.

Step	Action
6	At the "Item(s)" prompt, type the mnemonic that corresponds to the reagent being entered. If more than one reagent has the same lot number (such as with Surgiscreen or Confidence), type each of the mnemonics separated by a comma. A. A1 Cell = A1CELL B. Albumin = ALBU C. Anti-A = ANTIA D. Anti-A,B = ANTIAB E. Anti-B = ANTIB F. Anti-C3b,-C3d = ANTIC3,C3IS,C3RT G. Anti-D4 = ANTID H. Anti-IgG = ANTIG,ANTGIS I. B Cell = BCELL J. Capture LISS = CAPLIS K. Capture R Positive Control = CAPPOS L. Capture R Negative Control = CAPNEG M. Check Cell = CC N. Cell Washer = CELWAS O. Complement Check Cells = C3CC P. Confidence Cell 1, Confidence Cell 2, and Confidence Antibody= CONF1,CONF1C,CONF1G,CONF2,CONF2C,CONF2G,CONFAB Q. Panoscreen Cells = PSCELL,S1C,S1G,S2C,S2G,S3C,S2G R. PeG = PEG S. Polyspecific AHG = PAHG,AHGIS,AHGRT T. RS-3 Strip = RS3,WELL1,WELL2,WELL3,POSCTL U. Serofuge = SEROF
7	Select the lot number to inactivate (the one being taken out of use) or select "New Shipment" from the pop-up menu.
8	Press **tab** to bypass the procedure(s) prompt.
9	At the "Received Date" prompt, type the date on which the reagent/shipment was received in the lab from the Product Received Log and press **tab**.
10	At the "Active Date" prompt, type **T** for today and press the **tab** key.
11	Press **tab** to bypass the "Inactive Date" prompt.
12	At the "Expiration Date" prompt, type the expiration date of the reagent.
13	At the "Quantity" prompt, type the quantity of reagent received from the Product Received Log.

Step	Action
14	Press **tab** to bypass the notes section.
15	Highlight **Accept** and press **enter** to save the lot.
16	When performing QC, you must enter the new lot next to the reagent name on the "Rack Lot Association" screen to officially put the reagent into use.
17	Document the date on which the new lot/shipment of reagent was placed into use on the Product Received Log.

Out of Range Quality Control

Step	Action
1	**DO NOT** report patient results if the quality control result is out of acceptable range.
2	Use problem solving techniques to determine the cause of unacceptable quality control. Correct problems as noted. Techniques include, but are not limited to, the following: A. Verify that the procedure was followed as written. B. Check reagents or control materials for deterioration. C. Verify the proper amount of reagent/control was used for testing. D. Verify instrument function, if applicable. E. Verify that reagents were at room temperature (18-30°C or other temperature defined by the manufacturer) when quality control was performed.
3	Repeat quality control once corrective action has been performed or potential issues have been ruled out. You are only required to repeat QC on the reagents that failed. It may be necessary to reanalyze the failed run or other specimens run since the last acceptable QC results were obtained to ensure results area accurate and reliable.
4	Document the following on the quality control form: A. Evaluation of problem B. Corrective action taken to resolve the situation C. Impact on patient results

Downtime Process

Step	Action
1	Obtain a copy of the "Downtime Blood Bank Quality Control" form that corresponds to the rack on which you are performing QC.

Step	Action
2	Record the date on which QC was performed and the tech completing QC in the designated spots.
3	Record the lot number and expiration date of each reagent that will be quality controlled on the form. A. Verify the expiration date of reach reagent has not been exceeded. B. Discard expired reagents and any reagents that will expire within 24 hours of quality control procedure. C. Discard reagents that will run out during the day. D. Replace discarded reagents with new bottles.
4	Visually inspect all reagents for evidence of contamination or deterioration (marked turbidity or precipitation of antisera, hemolysis of red cells). A. Document the appearance of each reagent on the downtime form. a. Document **S** if the reagent has a satisfactory appearance. b. Document **U** if the reagent has an unsatisfactory appearance. B. Replace reagents with an unsatisfactory appearance. a. Do not use reagents with an unsatisfactory appearance for patient testing. b. Write a PI/Variance to document the reagent problem.
5	Follow the instructions above to set up QC. Document results on the downtime form.
6	Determine whether quality control results are acceptable by comparing the results obtained to the expected values for each tube. Document the QC interpretation by circling Pass or Fail on the downtime form.
7	Enter QC in Sunquest when the computer system is operational. Sunquest will not allow staff to backdate QC. If QC was performed on downtime and it was not entered on the same calendar day it was performed, add a comment indicating QC was performed on downtime and retroactively entered into Sunquest. A. Enter QC per procedure above. B. At the "Accept, Modify, Reject, Comment" prompt, select **Comment.** C. Enter the comment and press the **F1** key to save. D. At the "Command" prompt, type **E** to enter and save. E. At the "Save and Exit: Are you sure?" prompt, type **Y** and enter to save. F. The screen will return to the Accept, Modify, Reject prompt. Accept the results to save.
8	Document the tech code of the person that entered the results and the date of entry on the downtime form.
9	File the completed form in the Blood Bank QC Manual.

QC Verification

Step	Action
1	Each shift is responsible for verifying the QC results of the preceding shift. This must be done at the beginning of each shift.
2	Access the QC results in Sunquest. A. Access Sunquest SmarTerm function **QCR**. B. Select printer **0** to print on screen. C. Select option 7, **Rack Result Report**. D. At the "Lab ID" prompt, type **SGBB** or **WOBB**. E. At the "Modify, Accept, Reject" prompt, select **M** to modify the date. F. Enter the desired **Start Date** and **End Date** and press enter until you get to the "Modify, Accept, Reject" prompt. G. Select **A** to accept.
3	The report will print on the screen. A. Verify that QC has been performed. The Rack ID is listed in the upper, left corner of each report. B. Verify that results are acceptable. C. Verify none of the expiration dates have been exceeded or will be exceeded before QC is run again.
4	QC must be performed/repeated if any discrepancies are noted. Patient impact must be assessed. Notify the supervisor immediately if patient impact was identified.

Weekly QC Review

Step	Action
1	The group lead or designee is responsible for reviewing QC results weekly.
2	Access the QC results in Sunquest. A. Access Sunquest SmarTerm function **QCR** for QC reports. B. Select option **7. Rack Result Report**. C. At the "Lab ID" prompt, type **SGBB** or **WOBB**. D. At the "Modify, Accept, Reject" prompt, you can accept the default or modify to change the date range.

Step	Action
3	The QC results that were performed and documented during the timeframe selected will appear on the screen. Review the results to ensure the following: A. QC was performed each day on which patients were tested. B. QC results were within acceptable limits. C. If outliers are noted, a. Verify the appropriate corrective actions and patient impact are documented. b. Verify that QC was repeated and found acceptable before patient testing was performed. D. If a new lot or shipment of reagent was placed into use, ensure it was properly quality controlled prior to patient testing and documented on the product received log.
4	Document weekly QC review on the Daily Reports and Tasks Form.

6. RELATED DOCUMENTS

SOP: Blood Bank Reaction Grading
SOP: Blood Bank Reagents and Controls Policy
Form: Downtime Blood Bank Quality Control Forms

7. REFERENCES

Ortho Confidence System Manufacturer's Instructions, version e631209724_EN, Ortho Clinical Diagnostics. Raritan, New Jersey. 2018.

8. REVISION HISTORY

Version	Date	Reason for Revision	Revised By	Approved By
		Supersedes SGAH.BB15.000, WAH.BB12.000		
000	10.23.15	Section 5: Changed appearance from "A" and "N" to appearance acceptable "Y" or "N" for clarity. Moved documentation of A_1 and A_2 cell QC to the ABO Discrepancy Worksheet. Footer: Version # leading zero's dropped due to new EDCS in use as of 10/7/13.	SCodina	NCacciabeve
1	10.24.17	Header: Added WAH	LBarrett	NCacciabeve
2	7/10/20	Header: Changed WAH to WOMC Section 5: Replaced ImmuAdd LISS with Gamma PeG	SCodina	NCacciabeve
3	9/6/24	Major Revision: Updated all sections to reflect the new process of entering QC into Sunquest. Added Appendices A, B, and C	SCodina	NCacciabeve

4	9/23/24	Added Appendix A QC Modifier Codes	SCodina	NCacciabeve
5	3/21/25	Added QC Verification Section	SCodina	NCacciabeve
5	3/21/25	Changed SOP prefix to AHC	DCollier	NCacciabeve

9. ADDENDA AND APPENDICES

Appendix A: Quality Control Modifier Codes
Appendix B: Rack 1 QC Instructions
Appendix C: Rack 2 QC Instructions
Appendix D: Rack D QC Instructions

Appendix A
Quality Control Modifier Codes

Code	Translation
AC10	Patient testing suspended
AC28	Reagent change lookback not indicated (No patients tested since last acceptable QC)
AC29	Reagent change lookback performed and acceptable
AC34	Test/assay repeated QC in range
AC39	Reagent repeat with fresh reagent failed, patient testing suspended
NPTR	No patient run between last successful and failed QC run, lookback not indicated
R21	Notified supervisor

Appendix B
Rack 1 QC Instructions

Prompt	SGMC	WOMC
Lab ID	SGBB	WOBB
Rack ID	SG1	WO1
Battery	DRQC1	DRQC1
Downtime Form	Rack 1 Downtime Blood Bank Quality Control Form	

Procedure

Step	Action
Note	Use rack 1 for this quality control testing.
1	Label 12 test tubes with numbers 1 – 12.
2	Add antiserum to each of the test tubes. A. Add 1 drop of anti-A to tubes 1 and 5. B. Add 1 drop of anti-B to tubes 2 and 6. C. Add 1 drop of anti-A,B to tubes 3 and 7. D. Add 1 drop of anti-D, series 4 to tubes 4 and 8. E. Add 1 drop of confidence antibody to tubes 9 and 10. F. Add 1 drop of albumin to tubes 11 and 12.
3	Visually inspect all tubes and verify that all tubes have liquid at approximately the same level.
4	Add red cells to each of the test tubes. A. Add 1 drop of confidence 1 to tubes 1, 2, 3, and 4. B. Add 1 drop of confidence 2 to tubes 5, 6, 7, and 8. C. Add 1 drop of A1 cells to tubes 9 and 11. D. Add 1 drop of B cells to tubes 10 and 12.
5	Gently mix each tube and serofuge for the designated time of the serofuge.
6	Read one tube at a time macroscopically for agglutination using an agglutination viewer and immediately record results in the computer. A. QC1 Grid a. Tube 1 (from left) = Anti-A + Confidence 1 b. Tube 2 = Anti-B + Confidence 1 c. Tube 3 = Anti-A,B + Confidence 1 d. Tube 4 = Anti-D4 + Confidence 1 B. QC2 Grid a. Tube 5 (from left) = Anti-A + Confidence 2 b. Tube 6 = Anti-B + Confidence 2 c. Tube 7 = Anti-A,B + Confidence 2 d. Tube 8 = Anti-D4 + Confidence 2

Step	Action
6 Cont	C. QC3 Grid e. Tube 9 (left top) = Confidence Antibody + A1 Cell f. Tube 10 (left bottom) = Confidence Antibody + B Cell g. Tube 11 (right top) = Albumin + A1 Cell h. Tube 12 (right bottom) = Albumin + B Cell
7	Complete weak D quality control. A. Incubate tubes 4 and 8 at 37°C for 15 minutes. B. Wash the tubes a minimum of 3 times with normal saline. Use of a cell washer is preferred. C. Add 2 drops of IgG to each tube. D. Gently mix the tubes and serofuge for the designated time of the serofuge. E. Read macroscopically for agglutination and immediately record results. a. Tube 4 = Anti-D + Confidence 1 IgG b. Tube 8 = Anti-D + Confidence 2 IgG F. Add 1 drop of check cells to tubes with negative IgG reactions. G. Gently mix and serofuges for the designated time. H. Read macroscopically for agglutination and immediately record results. a. Tube 4 = Anti-D + Confidence 1 CC b. Tube 8 = Anti-D + Confidence 2 CC

Expected Results

Tube Number	Expected Result
1	2+, 3+, 4+
2	2+, 3+, 4+
3	2+, 3+, 4+
4	2+, 3+, 4+
5	0
6	0
7	0
8	0
9	2+, 3+, 4+
10	2+, 3+, 4+
11	0
12	0
4 IgG	0
8 IgG	2+, 3+, 4+
4 CC	2+, 3+, 4+
8 CC	Not Done (9)

Appendix C
Rack 2 QC Instructions

Prompt	SGMC	WOMC
Lab ID	SGBB	WOBB
Rack ID	SG2	WO2
Battery	DRQC2	DRQC2
Downtime Form	Rack 2 Downtime Blood Bank Quality Control Form	

Procedure

Step	Action
Note	Use rack 2 for this quality control testing. Note: It is acceptable to perform immediate spin QC while tubes are incubating.
1	Prepare PeG QC tubes and incubate. A. Label 6 tubes with the following designations: a. 1P b. 2P c. 3P d. 1N e. 2N f. 3N B. Add 2 drops of confidence antibody to each tube labeled with a "P." C. Add 2 drops of albumin to each tube labeled with an "N." D. Visually inspect each tube to verify that reagent is present, and all tubes have a similar volume. E. Add screening cells to the tubes. a. Add 1 drop of Panocell I to tubes 1P and 1N. b. Add 1 drop of Panocell II to tubes 2P and 2N. c. Add 1 drop of Panocell III to tubes 3P and 3N. F. Add 2 drops of PeG to each of the tubes. G. Incubate tubes at 37°C for 10 minutes. H. Wash the tubes a minimum of 3 times with normal saline. Use of an automated cell washer is preferred. I. Add 2 drops of anti-IgG to each tube. J. Gently mix and serofuge for the designated time. K. Read macroscopically for agglutination using an agglutination viewer. L. Immediately record results. M. PEG QC Grid a. Tube 1P (upper left) = Confidence Antibody + Panocell I IgG b. Tube 2P = Confidence Antibody + Panocell II IgG c. Tube 3P = Confidence Antibody + Panocell III IgG d. Tube 1N (upper right) = Albumin + Panocell I IgG e. Tube 2N = Albumin + Panocell II IgG f. Tube 3N = Albumin + Panocell III IgG N. Add one drop of check cells to each negative tube. O. Gently mix and serofuge for the designated time.

Step	Action
1 Cont	P. Read for agglutination using an agglutination viewer. Q. Immediately record results. a. Tube 1P (upper left) = Confidence Antibody + Panocell I CC b. Tube 2P = Confidence Antibody + Panocell II CC c. Tube 3P = Confidence Antibody + Panocell III CC d. Tube 1N (upper right) = Albumin + Panocell I CC e. Tube 2N = Albumin + Panocell II CC f. Tube 3N = Albumin + Panocell III CC
2	Label 12 test tubes with numbers 1 – 10.
3	Add antiserum to each of the test tubes. G. Add 1 drop of anti-A to tubes 1 and 4. H. Add 1 drop of anti-B to tubes 2 and 5. I. Add 1 drop of anti-D, series 4 to tubes 3 and 6. J. Add 1 drop of confidence antibody to tubes 7 and 8. K. Add 1 drop of albumin to tubes 9 and 10.
4	Visually inspect all tubes and verify that all tubes have liquid at approximately the same level.
5	Add red cells to each of the test tubes. E. Add 1 drop of confidence 1 to tubes 1, 2, and 3. F. Add 1 drop of confidence 2 to tubes 4, 5, and 6. G. Add 1 drop of A1 cells to tubes 7 and 9. H. Add 1 drop of B cells to tubes 8 and 10.
6	Gently mix each tube and serofuge for the designated time of the serofuge.
7	Read one tube at a time macroscopically for agglutination using an agglutination viewer and immediately record results in the computer. D. QC1 Grid a. Tube 1 (from left) = Anti-A + Confidence 1 b. Tube 2 = Anti-B + Confidence 1 c. Tube 3 = Anti-D4 + Confidence 1 E. QC2 Grid g. Tube 4 (from left) = Anti-A + Confidence 2 h. Tube 5 = Anti-B + Confidence 2 a. Tube 6 = Anti-D4 + Confidence 2 F. QC3 Grid i. Tube 7 (left top) = Confidence Antibody + A1 Cell j. Tube 8 (left bottom) = Confidence Antibody + B Cell k. Tube 9 (right top) = Albumin + A1 Cell l. Tube 10 (right bottom) = Albumin + B Cell

Step	Action
7	Complete weak D quality control. A. Incubate tubes 3 and 6 at 37°C for 15 minutes. B. Wash the tubes a minimum of 3 times with normal saline. Use of a cell washer is preferred. C. Add 2 drops of IgG to each tube. D. Gently mix the tubes and serofuge for the designated time of the serofuge. E. Read macroscopically for agglutination and immediately record results. a. Tube 3 = Anti-D + Confidence 1 IgG b. Tube 6 = Anti-D + Confidence 2 IgG F. Add 1 drop of check cells to tubes with negative IgG reactions. G. Gently mix and serofuge for the designated time. H. Read macroscopically for agglutination and immediately record results. a. Tube 3 = Anti-D + Confidence 1 CC b. Tube 6 = Anti-D + Confidence 2 CC

Expected Results

Tube Number	Expected Result
1	2+, 3+, 4+
2	2+, 3+, 4+
3	2+, 3+, 4+
4	0
5	0
6	0
7	2+, 3+, 4+
8	2+, 3+, 4+
9	0
10	0
1P IgG	2+, 3+, 4+
2P IgG	2+, 3+, 4+
3P IgG	2+, 3+, 4+
1P CC	Not Done (9)
2P CC	Not Done (9)
3P CC	Not Done (9)
1N IgG	0
2N IgG	0
3N IgG	0
1N CC	2+, 3+, 4+
2N CC	2+, 3+, 4+
3N CC	2+, 3+, 4+
4 IgG	0
8 IgG	2+, 3+, 4+
4 CC	2+, 3+, 4+
8 CC	Not Done (9)

Appendix D
Rack D QC Instructions

Prompt	SGMC	WOMC
Lab ID	SGBB	WOBB
Rack ID	SGD	WOD
Battery	DRQCD	DRQCD
Downtime Form	Rack DAT Downtime Blood Bank Quality Control Form	

Procedure

Step	Action
1	Perform manual Capture quality control. A. Remove one Capture-R RS-3 strip from the protective pouch and place it in the frame holder. a. Return all unused strips, desiccant, and humidity indicator to the pouch and reseal. b. The strip wells should not be used if the humidity indicator shows the presence of moisture by turning from blue to pink. B. Label one side of the strip "P" for positive control. C. Label the other side of the strip "N" for negative control. D. Add 2 drops (100 µL) of Capture LISS to each of the 8 test wells. The LISS will be purple when added to the empty test well. E. Add 1 drop (50 µL) of Capture-R positive control to each of the wells labeled "P." F. Add 1 drop (50 µL) of Capture-R negative control to each of the wells labeled "N." G. The LISS will turn blue in the presence of plasma protein. Retention of a purple color may mean test plasma was not added to the well. H. Tap the strip gently to mix and dislodge any bubbles. I. Incubate the strip in the Immucor Incubator P2 at 37°C for 20-60 minutes. J. Wash the strips per procedure. K. Add 1 drop (50 µL) of well-mixed Capture-R Indicator Cells to each of the wells. Dispense the reagents by holding the dropper at a 45° angle and avoid touching the tips of the dropper. L. Immediately centrifuge the strops for 2 minutes at 530 rcf. M. Place the strip on an illuminated surface and examine for the presence or absence of adherence. N. Grade reactions and immediately record results. O. Capture QC a. Top = Capture-R positive control + wells 1, 2, 3, and positive control. b. Bottom = Capture-R negative control + wells 1, 2, 3, and positive control.
2	It is acceptable to continue with QC while the RS-3 strips are incubating.
3	Perform Anti-IgG Testing A. Label 2 tubes as 1P and 1N B. Add 2 drops of anti-IgG to both tubes. C. Add 1 drop of check cells to tube 1P. D. Add 1 drop of A1 cells to tube 1N.

Step	Action
3 Cont	E. Visually inspect each tube to verify that reagents were added and are at approximately the same level. F. Gently mix each tube and serofuge for the designated time. G. Immediately record results. Anti-IgG a. Tube 1P (top) = Anti-IgG + Check Cells b. Tube 1N = Anti-IgG + A1 Cells
4	Perform Polyspecific AHG Testing A. Label 2 tubes as 2P and 2N B. Add 2 drops of polyspecific AHG to both tubes. C. Add 1 drop of check cells to tube 2P. D. Add 1 drop of B cells to tube 2N. E. Visually inspect each tube to verify that reagents were added and are at approximately the same level. F. Gently mix each tube and serofuge for the designated time. G. Read results macroscopically using an agglutination viewer. H. Immediately record results. AHG a. Tube 2P immediate spin (top) = AHG + Check Cells b. Tube 2N immediate spin = AHG + B Cells I. Incubate tubes for 5 minutes at room temperature. J. Serofuge for the designated time. K. Read results macroscopically using an agglutination viewer. L. Immediately record results. AHG a. Tube 2P 5 Min RT (top) = AHG + Check Cells b. Tube 2N 5 Min RT = AHG + B Cells
5	Perform Anti-C3 Testing a. Label 2 tubes as 3P and 3N b. Add 2 drops of anti-C3b,-C3d to both tubes. c. Add 1 drop of complement check cells to tube 3P. d. Add 1 drop of B cells to tube 3N. e. Visually inspect each tube to verify that reagents were added and are at approximately the same level. f. Gently mix each tube and serofuge for the designated time. g. Read results macroscopically using an agglutination viewer. h. Immediately record results. Anti-C3 a. Tube 3P immediate spin (top) = anti-C3 + Complement Check Cells b. Tube 3N immediate spin = anti-C3 + B Cells i. Incubate tubes for 5 minutes at room temperature. j. Serofuge for the designated time. k. Read results macroscopically using an agglutination viewer.

Step	Action
5 Cont	l. Immediately record results. AHG a. Tube 2P 5 Min RT (top) = AHG + Check Cells b. Tube 2N 5 Min RT = AHG + B Cells

Expected Results

Tube Number	Expected Result
1P	2+, 3+, 4+
1N	0
2P Immediate Spin	2+, 3+, 4+
2N Immediate Spin	0
2P 5 Min RT Incubation	2+, 3+, 4+
2N 5 Min RT Incubation	0
3P Immediate Spin	2+, 3+, 4+
3N Immediate Spin	0
3P 5 Min RT Incubation	2+, 3+, 4+
3N 5 Min RT Incubation	0