APPENDIX AC1

Sample Lesson Plan (for planning purpose only)

LESSON PLAN - VP BIO SENTRY (VPBS) MAINTENANCE OPERATIONS COURSE

PO 201: Maintain VPBS System Equipment

EO	Lesson Title	Total Time
201.01	Perform First Line VPBS Maintenance	200 min

TEACHING POINT(S)	REFERENCE(S)
1. Introduce VPBS Maintenance 2. Perform Preventive Maintenance 3. Troubleshoot the VPBS System 4. Perform Corrective Maintenance	762723, VP Bio Sentry System Maintenance Manual
LESSON INSTRUCTION(S) This lesson will employ instructor led lecture style instruction, demonstrations and student practical exercises.	**TRAINING EQUIPMENT** VPBS System, Partial (X2)
	PRESENTATION(S) EO201.01 Perform First Line VPBS Maintenance.ppt
	HANDOUT(S) N/A

TIME	CONTENT - INTRODUCTION	NOTES
5 min	**OBJECTIVE** **WHAT** This lesson will provide you with the knowledge and skills necessary to carry out first line field level maintenance on the VPBS System. **WHY** You must be able to quickly restore the VPBS System to an operational state. **WHERE** This is extremely important when operating in a theatre where the use of BW agents is a real threat. An inability to efficiently troubleshoot and repair the system could leave you and your VP vulnerable at a critical time.	**Slide 2**

TIME	CONTENT - INTRODUCTION	NOTES
	ABOUT THIS LESSON This lesson will consist of instructor led lecture style instruction with demonstrations, and practical exercises to confirm your ability to perform first line maintenance on the VPBS system. This lesson will cover: • Introduce VPBS Maintenance - including the VPBS System Maintenance Concept, an introduction to the VPBS Maintenance Manual and hazards associated with VPBS maintenance activities. • Perform Preventive Maintenance - procedural steps for scheduled maintenance tasks on system components that may be replaced or replenished in the field • Troubleshoot the VPBS System - will look at the system Built-In-Test and fault location procedures. • Perform Corrective Maintenance - procedural steps for unscheduled maintenance tasks on system components that may be replaced, cleaned or reconfigured in the field. • There is an EC - Restore VPBS System to Operational State – during which you will conduct practical exercise incorporating VPBS troubleshooting and corrective maintenance procedures. In addition to the EC there will be a written progress test at the end of this PO and a final practical Performance Check (PC) on the VPBS System at the end of the course.	**Slide 3**

TIME	CONTENT - BODY	NOTES
15 min	**TP 1 Introduce VPBS Maintenance**	
	1a: Maintenance Concept	**Slide 4 – General**
	Introduction Previously you were taught the maintenance tasks that may be performed by the operational user of the VPBS System. These tasks are generally limited to routine inspection and cleaning of the system. Although effective in prolonging component life, there will be failures and a need to perform system maintenance and repair. The purpose of the following lessons is to describe the VPBS maintenance concepts and identify the preventive/corrective maintenance tasks that may be performed by personnel assigned maintenance responsibilities.	
	Philosophy: • Complete repairs as rapidly and as far forward as possible • Minimum downtime supported by replaceable modules • Line Replaceable Units (LRUs) Replaced at 1st Line • Condition of LRUs verified at 2nd Line • Identify the LRUs to be returned to contractor for repair **Approach:** • Assign basic maintenance tasks that do not require special skills or tools to system users • Assign more complex tasks requiring additional skill and/or tools to system maintainers	**Slide 5**
	Preventive Maintenance • Tasks completed to ensure system availability and/or performance • Normally performed on specific schedule **Corrective Maintenance** • Tasks completed as a result of a system failure or degraded level of performance	**Slide 6**
	1b: Maintenance Manual	

TIME	CONTENT - BODY	NOTES
	Availability … soft and hard copy. A PDF copy available from SMT desktop. 762723 - Comprehensive Maintenance Manual VP BIO Sentry System Table of Contents (TOC) … • Introduction ➢ Controlled Goods and Intellectual Property notifications ➢ Maintenance Concept ➢ Hazardous Material warning … • System Description ➢ System / Subsystem Description & Overview ➢ Theory of Operation & Operating Modes • Controls, Indicators and Connectors ➢ Description of LEDs, Switches and Connectors ➢ Description of Software GUIs • Assemble & Disassemble VPBS System ➢ Procedures to set-up and tear-down VPBS • Decontaminate VPBS Sensor Station ➢ Procedures to decontaminate VPBS equipment • Maintenance Schedule ➢ Preventive maintenance tasks ➢ Personnel required to complete task • Operator Maintenance Tasks ➢ Inspection and cleaning procedures ➢ Storage procedures • Fault Locate VPBS ➢ Based on system BIT notifications ➢ Guide for test procedures and corrective actions • VPBS System Maintenance ➢ LRU removal and installation procedures • Second Line Fault Verification	**Slide 7** **Slide 8** **Linked to Maintenance Manual show TOC in Doc**

TIME	CONTENT - BODY	NOTES
	➢ Test Equipment set-up ➢ Fault verification procedures • Parts List ➢ Illustrations ➢ Equipment nomenclature & part numbers ➢ Manufacturer identification & address • List of Abbreviations **1c: Hazards** Before looking at how to maintain the VPBS equipment, here are the hazards and safety concerns that must be considered when performing maintenance. • Biological and Chemical Agents: first and foremost, remember that the equipment, if contaminated, continues to pose a threat relative to the original attack. • Until such time that the equipment has been decontaminated to Clearance Level, maintenance personnel must treat the equipment as contaminated and follow all protocols related to working with the applicable CBRN hazard. • CARC Painted Equipment: There must be breathing apparatus precautions taken for any rework or maintenance of VP BIO System Enclosures where paint dust is potentially developed. **Note:** Most maintenance can be completed while wearing IPE without any major impact. If the VPBS System has been subjected to any CBRN agents, where possible, the equipment should be decontaminated prior to performing any maintenance actions. • Pinch and Puncture Hazard: be careful when handling various components of the VPBS, especially when wearing NBCD protective equipment. Pinching your gloves may create a puncture that will reduce the level of protection and increase your risk of exposure to NBC agents. • Explosive Gases – Batteries: Although the Battery Assembly batteries are sealed, overcharging may cause the pressure valves to open. Gasses vented from the batteries may be flammable or	**Slide 9** **Slide 10** **Slide 11**

TIME	CONTENT - BODY	NOTES
	explosive. Keep sources of ignition away from the Battery Assembly.	
	• Electrical Shock Hazard: Electrical currents used in VPBS equipment are high enough to cause serious injury or death. Unless directed otherwise in the maintenance procedure, always remove the electrical power before performing maintenance on the VPBS System.	**Slide 12**
	• Heavy Equipment: some of the equipment is very heavy; look for warning signs on the equipment and in the technical publications. Always use proper lifting techniques	**Slide 13**
	• CARC Painted Equipment: There must be breathing apparatus precautions taken for any rework or maintenance of VP BIO System Enclosures where paint dust is potentially developed	**Slide 14**
50 min	**TP 2 Perform Preventive Maintenance**	
	2a: Introduction	
	PM Tasks	
	The following PM tasks are the ones you, the maintainer, are required to do when maintaining the VPBS:	**Slide 15**
	• Detector Concentrator Pump Replacement (plus upstream HEPA Filter) – 1600 operating hours.	
	• PTU or Pressure, Temperature Unit Replacement – 24 calendar months	
	2b: Detector Concentrator Pump and Filter Replacement	**Slide 16**
	Detector Concentrator Pump and upstream HEPA Filter replacement is performed every 1600 operating hours.	**Explain & Demo**
	There is no hour meter on the pump and no automated system to track usage. It is recommended that maintenance and usage records be created for the Detector Concentrator and that SOPs are developed to help ensure accurate record keeping. It is possible that this may become an Operator responsibility.	
	Note: One way to approach this would be to keep a Usage Card in the transit case that houses the Detector Concentrator. Operating hours for deployments (or training) may be extrapolated from the P&C Assembly	

TIME	CONTENT - BODY	NOTES
	Uptime displayed on the SMA Assemblies tab. These usage figures would need to be updated for each deployment and the Usage Card would need to remain with the Detector Concentrator. Pump replacement actions would also be annotated. There is also an hour meter on the PCU, but if the unit is not on a long deployment there is a chance that the Concentrators may not stay with that particular PCU. • Remove the Sensor Station power. ➢ Set the Battery Assembly BAT Switch to OFF. ➢ Set the Power and Control Assembly DC Switch to OFF. ➢ Set the Power and Control Assembly AC Switch to OFF. Remove/Replace The Detector Concentrator Pump • Remove the Detector Concentrator Pump. ➢ Release the two quarter-turn latches and open the Concentrator Assembly Cover. ➢ Disconnect the two Concentrator Pump air lines at the quick disconnects between the pump and the HEPA Filters. The hoses on the pumps are of lengths that allow connection in only one manner so that airflow is correct. ➢ Disconnect the Concentrator Pump power connector on the back of the pump. ➢ Loosen the Concentrator Pump clamp knob. ➢ Slide the Concentrator Pump out of the retaining clamp. ➢ Remove the Concentrator Pump from the Detector Concentrator Assembly by sliding it forward and then up between the Particle Concentrator Blower and the Concentrator Airflow Chamber wall. • Replace the Upstream HEPA Filter. ➢ Remove the filter by pulling it up from the base. ➢ Discard the filter (Remind students to use safe disposal methods). ➢ Install a new filter by pushing it down onto the base. • Replace the Detector Concentrator Pump ➢ Place the Concentrator Pump into the Concentrator Assembly by sliding it down between the Particle Concentrator Blower and the Concentrator Airflow Chamber wall, and feeding the power	

TIME	CONTENT - BODY	NOTES
	connector through the concentrator pump retaining clamp. ➢ Slide the Concentrator Pump into the retaining clamp being careful not to pinch the power connector or wires. ➢ Insure air lines are on the top to allow proper air flow. ➢ Tighten the retaining clamp knob. ➢ Connect the two Concentrator Pump air lines. ➢ Connect the Concentrator Pump power connector. • Close the Concentrator Assembly Cover and secure the two quarter-turn latches. • Power on the Sensor Station and let the self-test run. **2c: Remove/Replace PTU Module** • Remove the Met Assembly from the Sensor Station by pulling the pin at the mid- point of the mast and undo the captive screws in the base and lift off the top portion of the MET. • Remove the old PTU: ➢ Loosen the captive screws on the bottom of the assembly ➢ Separate the bottom section from the solar radiation shield (middle section) ➢ Separate the top section from the radiation shield with a gentle back-and-forth twisting motion ➢ Pull the top section from the radiation shield far enough to reveal the PTU ➢ Remove the PTU by releasing the latch and pulling the module away from the assembly • Replace the new PTU: **Note:** When handling the new PTU, be careful not to touch the white filter cap with your hands or gloves. ➢ Align the base of the PTU with the "D" shaped socket in the top section ➢ Insert the PTU until the latch is engaged ➢ Align the three pads on the top section with the three feet on the radiation shield ensuring the ribbon cable is not twisted ➢ Press the top section and radiation shield together ➢ Connect the ribbon cable to the connector on the bottom	**Slide 17** **Explain & Demo**

TIME	CONTENT - BODY	NOTES
	section, ensuring the ribbon cable is not twisted ➢ Align the bottom section with the rest of the assembly ➢ Tighten the three captive screws taking care not to pinch any loose wires • Reinstall the Met Assembly onto the Sensor Station. • Power on the VPBS System and let the self-test run. The test will report if the MET is not operating properly.	
	2d: PM Practical Exercise	**Slide 18**
	Have students practice: • Detector Concentrator Pump replacement • PTU Module replacement	Split into 4 groups. 2 groups working on Pumps and 2 groups replacing PTU – then switch around
20 min	**TP 3 Troubleshoot the VPBS System**	
	3a: Introduction	**Slide 19**
	Approach The VPBS System provides Built-In-Test (BIT) capabilities to allow the user to quickly isolate faults to the Line Replaceable Unit (LRU) in the field. The process consists of various tests that run against the system at start-up and continuously while operating so that faults can be detected without interrupting the normal operation of the system. Any critical faults that are detected are reported directly to the operator. • Troubleshooting guides based on the BIT information available in the Comprehensive Maintenance Manual. These actions to verify and/or clear a fault ➢ Maintenance actions to correct fault **Indicators** • Power and Status LEDs • System Management Application ➢ Sensor Station Status Window	

<table>
<tr><th>TIME</th><th>CONTENT - BODY</th><th>NOTES</th></tr>
<tr><td></td><td>
Faults Tab & Fault Message Pop-ups
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<tr><td></td><td>
Built-In-Test - ORT

The Operational Readiness Test (ORT) is automatically performed when the Sensor Station is powered-up. It follows a prescribed start-up sequence, providing messages and fault indicators if certain steps in the sequence do not work as expected.
<table>
<tr><th rowspan="2">Activity</th><th colspan="2">Test Result is not as expected</th><th rowspan="2">Observable Activity</th></tr>
<tr><th>BIT Message</th><th>Fault Indicator (red LED)</th></tr>
<tr><td>Apply power</td><td>No</td><td>No</td><td>Power LED On</td></tr>
<tr><td>OS Boots</td><td>No</td><td>No</td><td></td></tr>
<tr><td>Lamp Test</td><td>No</td><td>No</td><td>All LEDs On, then normal</td></tr>
<tr><td>Check RF Modem Power Status</td><td>Yes</td><td>Yes</td><td></td></tr>
<tr><td>Check DET Concentrator Power Status</td><td>Yes</td><td>Yes</td><td></td></tr>
<tr><td>Check SMPL Concentrator Power Status</td><td>Yes</td><td>Yes</td><td></td></tr>
<tr><td>Switch RF Modem ON for 5sec</td><td>No</td><td>No</td><td></td></tr>
<tr><td>Check RF Modem Power Status</td><td>Yes</td><td>Yes</td><td></td></tr>
<tr><td>Switch DET Concentrator ON for 5sec</td><td>No</td><td>No</td><td>DET blowers operate</td></tr>
<tr><td>Check DET Concentrator Power Status</td><td>Yes</td><td>Yes</td><td></td></tr>
</table>
</td><td>Slide 20</td></tr>
</table>

TIME	CONTENT - BODY				NOTES
	Activity	**Test Result is not as expected**		**Observable Activity**	**Slide 21**
		BIT Message	**Fault Indicator (red LED)**		
	Switch SMPL Concentrator on for 5 sec	No	No	SMPL blowers operate	During the training if it is desired that the alarm not sound during start-up, disconnect the alarm cable at the PCU.
	Check SMPL Concentrator Power Status	Yes	Yes		
	Switch Alarm ON for 2 sec	No	No	Alarm (audio/visual) operates	
	Attempt to connect with Control Station, 2 min	Yes	No	Link LED lit when connected	
	Attempt to connect with DET	Yes	Yes		
	Attempt to connect with SMPL	Yes	Yes		
	Receive Data from GPS, 5 sec	Yes	Yes		
	Attempt to connect with MET, 5 sec	No	No		
	Check if PCU Temperature is in range	Yes	Yes		
	Check Battery Voltage	Yes	Yes		
	Check AC and DC Power Input Status	Yes	Yes		
	Built-In-Test – Continuous BIT				**Slide 22**

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<tr><th>TIME</th><th>CONTENT - BODY</th><th>NOTES</th></tr>
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The Continuous BIT tests are automatically performed during Sensor Station operation. There are tests for all the major Sensor Station assemblies. We will cover these in a little more detail when we look at some of the Fault Locate procedures.

• Review Continuous BIT features from slides.

BIT – Power and Data Rack

The internal components of the Power & Data Rack have independent BIT and status reporting capabilities.
<table>
<tr><th>Component</th><th>Indicators (LEDs)</th></tr>
<tr><td>Wireless Access Point</td><td>Power, WLAN (Link/Activity), LAN (Link/Activity)</td></tr>
<tr><td>Ethernet Switch</td><td>Power, 10M (Link/Activity), 100M (Link/Activity)</td></tr>
<tr><td>WIFI Power Injector</td><td>Power</td></tr>
<tr><td>WIFI Power Amplifier</td><td>Power, Tx, Rx</td></tr>
<tr><td>AC to DC Converter</td><td>Power (On, Off, Flashing = abnormal)</td></tr>
<tr><td>UPS Controller</td><td>Input (On,Off), Battery (Charging, Discharging, Charged)</td></tr>
<tr><td>Electro-Optical Module</td><td>Power, Link (not visible without factory level disassembly)</td></tr>
<tr><td>USB to Serial Converter</td><td>Transmit and Receive on Serial Ports(not visible without factory level disassembly)</td></tr>
<tr><td>USB Relay Module</td><td>Status (not visible without factory level disassembly)</td></tr>
</table>
Power Distribution

Sensor Station

• Explain power distribution diagram
</td><td>
Slide 23

Slide 24

Slide 25

Slide 26
</td></tr>
</table>

TIME	CONTENT - BODY	NOTES
	Important note: the power distribution power feedback lines are taken at point of load! Control Station • Explain power distribution diagram **3b: Fault Locate Procedures** • Describe Fault Locate Tables ➢ Where to find it – Section 7 of Maintenance Manual ➢ How to use it • Explain a couple of faults using the Fault Locate table and power distribution diagrams. • Demo the same faults using the VPBS System	**Slide 27** **Slide 28** Point students to Section 7 of 762273 Combined Maintenance Manual. **Slides 29 to 34 contain examples** Explain steps and Demo 1 or 2 faults with the class. Practice will be combined with Corrective Maintenance during TP 5.
45 min	**TP 4 Complete Corrective Maintenance** **4a: Introduction** The intended outcome of troubleshooting is to isolate, and then correct, the problem you have encountered. Corrective Maintenance normally involves replacing, cleaning or reconfiguring a non-serviceable part of the system. The majority of VPBS corrective maintenance tasks will involve replacing a system assembly (LRU) or interconnecting cable. For the bulk of these replacements, you will simply follow the previously covered procedures for assembly and disassembly of the system to the point where the defective assembly can be replaced. There are also a number of internal VPBS components that may be replaced in the field. They include: • Detector and Sampler Concentrator Pumps (Detector covered	**Slide 35**

TIME	CONTENT - BODY	NOTES
	during PM) • Particle Concentrators (Covered during User Maintenance) • Ethernet Bridge (EB) • Access Point (AP) Other corrective maintenance tasks that do not involve replacement include: • Disassembly and cleaning of clogged Particle Concentrators • Reconfiguration of the WiFi Modems (AP & EB) when systems are operating in close proximity to each other **4b: Remove/Replace Sampler Concentrator Pump** Removing and replacing the Sampler Concentrator Pump is similar to the procedure for the Detector Concentrator Pump • Remove the Sensor Station power. ➢ Set the Power and Control Assembly AC Switch to OFF. ➢ Set the Power and Control Assembly DC Switch to OFF. ➢ Set the Battery Assembly BAT Switch to OFF. • Remove the Sampler Concentrator Pump. ➢ Release the two quarter-turn latches and open the Concentrator Assembly Cover. ➢ Disconnect the two Concentrator Pump air lines at the quick disconnects leading in/out the pump. ➢ Disconnect the Concentrator Pump power connector on the back of the pump. ➢ Lift the Concentrator Pump up from the retaining clip. • Replace the Sampler Concentrator Pump ➢ Push the Concentrator Pump down into the retaining clip being careful not to pinch the power connector or wires. ➢ Connect the two Concentrator Pump air lines. Pump hose lengths will prevent misconnection. ➢ Connect the Concentrator Pump power connector. • Close the Concentrator Assembly Cover and secure the two quarter-turn latches.	**Slide 36** **Explain & Demo**

TIME	CONTENT - BODY	NOTES
	• Power on the Sensor Station and let the self-test run. **4c: Particle Concentrator Disassembly and Cleaning** Prior to beginning this procedure the Particle Concentrator must be removed from the applicable Concentrator Assembly. • Disassemble the Particle Concentrator Assembly. Caution: Note the length of the four screws for reassembly. ➢ Remove the four longer screws securing the side block. ➢ Inspect the side block O-ring. If it is crushed, deteriorated, distorted or otherwise damaged, replace the Particle Concentrator. ➢ Remove the eight shorter screws securing the two Particle Concentrator Assembly sections together. Allen key set required. ➢ Pull the Particle Concentrator Assembly sections apart. ➢ Remove the hose assembly from the Particle Concentrator Assembly sections. ➢ Inspect the hose assembly O-ring. If it is crushed, deteriorated, distorted or otherwise damaged, replace the Particle Concentrator Assembly. Note: return the Particle Concentrator Assembly for factory level repair. • Clean the Particle Concentrator Assembly ➢ Clean the Particle Concentrator Assembly by immersing the sections, side block and hose assembly in a mild soap and water solution. ➢ Use a cloth to remove dirt particles, if required ➢ Blow out internal passages with compressed air – inspect – repeat as required. ➢ Use a cloth to dry the Particle Concentrator Assembly. • Reassemble the Particle Concentrator Assembly ➢ Position the hose assembly onto one Particle Concentrator Assembly section. Ensure the hose O-ring is properly seated to prevent damage to the O-ring and get a good seal. ➢ Position the second Particle Concentrator Assembly sector onto the first section and seat the keyways on both sector sides.	**Slide 37** **Explain & Demo**

TIME	CONTENT - BODY	NOTES
	➢ Use the eight shorter screws to secure the Particle Concentrator Assembly sections together. Ensure the screws are snug. ➢ Position the side block and O-ring onto the assembled Particle Concentrator Assembly sections. Ensure the hose O-ring is properly seated to prevent damage to the O-ring. ➢ Use the four longer screws to secure the side block to the Particle Concentrator Assembly sections. **4d: Ethernet Bridge Remove/Replace** • Remove the Sensor Station power. ➢ Set the Power and Control Assembly AC Switch to OFF. ➢ Set the Power and Control Assembly DC Switch to OFF. ➢ Set the Battery Assembly BAT Switch to OFF. • Remove the Sensor Station Ethernet Bridge. ➢ Release the two quarter-turn latches and open the Detector Concentrator Assembly cover. ➢ Remove the knurled nuts (2) securing the Ethernet Bridge to the Detector Concentrator Assembly enclosure. ➢ Disconnect the power and data cable from the Ethernet Bridge ethernet connector (3) by squeezing inwards to release the connector's locking latches. ➢ Disconnect the coax lead from the Ethernet Bridge RF connector (4). ➢ Remove the Ethernet Bridge (1) from the Detector Concentrator Assembly. • Replace the Sensor Station Ethernet Bridge ➢ Position the Ethernet Bridge (1) into the Detector Concentrator Assembly enclosure, being careful not to pinch the cable that runs above the Ethernet Bridge mounting position. ➢ Connect the coax cable to the Ethernet Bridge RF connector (4). ➢ Connect the power and data cable to the Ethernet Bridge ethernet connector (3). ➢ Use the two knurled nuts (2) to secure the Ethernet Bridge to the Detector Concentrator Assembly enclosure. • Close the Detector Concentrator Assembly cover and secure the	**Slide 38** **Explain & Demo**

TIME	CONTENT - BODY	NOTES
	two quarter-turn latches. • Power on and test the Sensor Station. **4e: Access Point Remove / Replace** • To remove the Control Station power and Data Rack Access Point (Modem). Start with all power off.: ➢ Loosen the five thumbscrews (1) and remove the Power and Data Rack (4) front cover. ➢ Disconnect the LAN and RF cables from the Access Point (2). ➢ Loosen the two thumbscrews (3) and remove the Access Point from the Power and Data Rack. • Replace the Control Station Access Point Modem: ➢ Position the Access Point (2) in the Power and Data Rack to align the mounting bracket holes with the two mounting studs. ➢ Tighten the two thumb screws (3) to secure the Access Point to the Power and Data Rack. ➢ Connect the LAN and RF cables to the Access Point. ➢ Install the Power and Data Rack front cover and tighten the four thumbscrews (1). • Verify the Control Station Access Point Modem Operation ➢ Apply power to the Control Station Power and Data Rack and set the applicable PWR Switch to ON. ➢ Check that the Control Station Modem WI-FI LEDs are functioning as follows: (1) PWR1 LED illuminated (2) LAN LED illuminated (3) WLAN LED blinking. ➢ If all LEDs are functioning as indicated, the Control Station Modem WI-FI is operational. **4f: WiFi Reconfiguration** When two VPBS Systems (full systems or partial systems) are working in close proximity to each other (less than 3 kilometres), and transmitting via their WiFi system, there is the possibility that the Sensor Stations will	**Slide 39** **Explain & Demo** **Slide 40**

TIME	CONTENT - BODY	NOTES
	establish a RF communications link with the wrong Control Station. To resolve this conflict, the Service Set Identifier (SSID) and the channel number (frequency) must be changed on one of the systems. **Note:** The Sensor Station(s) of the system that is not changing its WiFi configuration must be powered down during the reconfiguration process. As a default, the applicable VPBio configuration is: • SSID (Network name) = VPBIO1 • Channel Number = 1 • The only way to view the channel is by logging into the access point in the Power and Data Rack. The SMT does not display the SSID or the channel. • There are 11 Channels available; however, the channel frequencies overlap. For optimum separation, the Channels selected should be as far apart as possible. For example, if there are two APs, choose Channel 11 for the second AP. The new SSID may be in any form (up to 32 characters) as long as the AP and EB SSIDs are identical. Recommend that you use **VPBIOx** where "x" is the Channel Number. For example, if Channel 11 is set for an AP, the SSID should be VPBIO11. **Note:** It is highly recommended that the new SSID and Channel number are recorded in a maintenance log or work order. Add a tag to the equipment stating what the SSID and channel number are. Ensure that all settings are returned to the default values (SSID = VPBIO1, Channel = 1) at the conclusion of the VPBS System deployment. **Ethernet Bridge – Sensor Stations** The EB must be reconfigured prior to the AP. Each Sensor Station EB must be programmed before the Control Station AP is changed. If the changes to configuration are made to the AP first the result is the loss of RF connectivity and the inability to configure the EB settings. Prior to beginning this procedure power off the Sensor Stations to be reconfigured. • Ensure all Sensor Stations that are not being programmed are turned off (program one Sensor Station at a time) • Remove the fibre-optic cable from the Sensor Station whose EB is to be configured. It is not necessary to power down the Sensor station prior to removing the fibre optic cable. • Apply power to the Sensor Station containing the EB to be	**Slide 41**

TIME	CONTENT - BODY	NOTES
	configured • Apply power to the Power and Data Rack and the SMT • Launch the SMA and wait for connection to the Sensor Station • Launch the Airborne Control Software - from the Start Menu select Programs>VPBio>Wireless Configuration> Sensor Station WiFi • Verify that there is one entry (OEM-Cfg1) in the Airborne Configuration Center dialogue box by opening the DET CONC lid and verifying the EB is off. (its IP Address should be 192.168.0.x, where "x" can be any number between 2 and 254) • Double click on the device name OEM-Cfg1 • Enter "cfg" as the username and "cfg" as the password ➢ This will bring you to the Configuration Page • On the Configuration Page, go to the Navigation Bar and select "Network" ➢ This will open a number of user selectable Configuration Settings • set the SSID to VPBIO11 (or the desired new SSID) of the EB to which the AP is to connect • Scroll to the bottom of the page and click Save • On the Navigation Bar, Click Reset • Power down the Sensor Station • Reconnect the fibre optic cable Repeat the above steps for each Sensor Station EB that is required to connect to the AP. The EB has been reconfigured the next step is to reconfigure the AP to the new SSID. Reconfiguring the AP is next procedure in this lesson. **Access Point** The Access Point must now be set-up to reconnect with the Ethernet Bridge(s) again. The SSID must be **IDENTICAL** in order to work. You must also choose a new channel that will not interfere with the default settings of the other VPBS system(s) operating in the vicinity. • Apply power to Power and Data Rack and the SMT • Launch AP web server - from the Start Menu select	**Slide 42** **Slide 43** **Slide 44** **Slide 45**

TIME	CONTENT - BODY	NOTES
	Programs>VPBio>Wireless Configuration>Control Station WiFi Configuration	
	• Login to the AP web server - Username = **Maintainer**, Password = **Power@you** ➢ This will bring you to the MOXA set-up page	**Slide 46**
	• Select the IEEE 802.11/IEEE 802.11>Communication link from the left hand side of the web page	
	• Perform the following setting changes: ➢ Channel number = 11 (or the EB VPBIO 11channel number selected) ➢ Network name (SSID) = VPBIO11 (or other desired SSID) • Scroll to the bottom of the page and click Save & Restart • Select the Status link from the left hand side of the web page ➢ This will take you to a Status screen which displays all of the current AP settings	**Slide 47**
	• Verify that Channel Number and SSID settings are correct The AP will now be able to connect to an EB(s) configured with the new SSID.	**Slide 48**
60 min	**TP5 Restore VPBS System to Operational State**	
	Practical Exercise Have students perform troubleshooting and corrective maintenance: • Troubleshoot using Fault Locate procedures • Replace defective LRU or component • Reconfigure WiFi Modems	**Slide 49** Split into 2 groups. Each group works on one fault. Then if time permits, add a 2nd- fault. Step each group through the WiFi reconfiguration procedure.

TIME	CONTENT – BODY	NOTES
5 min	**Review** **Reference: 762723, VP Bio Sentry System Maintenance Manual** **QFC: Questions from Class?** QTC: Questions to Class? Q. How often must the Detector Concentrator Pump be replaced as part of the PM schedule? A. Every 1600 operating hours. (Table 6-1 Preventative Maintenance Schedule) Q. When replacing the Detector Concentrator Pump, what other component should also be changed? A. The upstream HEPA Filter. (Table 6-1 Preventative Maintenance Schedule) Q. What special handling precautions must be used when replacing the MET Assembly PTU Module? A. When handling the new PTU, be careful not to touch the white filter cap with your hands. (8.7.19.2) Q. Which WiFi settings must be modified if two VPBS Systems are operated in close proximity? A. Access Point - SSID and Channel Ethernet Bridge – SSID (Para 8.6) Q. When reconfiguring the WiFi Modems, which modem must be modified first? A. The Ethernet Bridge WiFi settings must be changed prior to modifying the Access Point settings. (Para 8.6) **<u>Conclusion and next Topic</u>** This has been a look at the tasks associated with first line maintenance of the VPBS System. As discussed earlier, these tasks are essential to help ensure the availability of the system equipment when needed. In the next lesson we will take a look at the method for verifying a suspect LRU is actually non-serviceable prior to sending it back to the R&O facility for repair.	**Slide 50** **Slide 51**