Business Process Testing

V10S03C01 - BUSINESS PROCESS TESTING FRAMEWORK

INTRODUCTION

1. The internal audit function provides an independent and objective review to management that the designed financial and logistics controls are managing the organisation's risks and achieving their objectives. This also ensures that the Key Business Process Controls are operating in an efficient and effective manner, as well as assisting management in improving organisational performance. The evidence-based approach is used in audits to reach reliable and re-performable audit conclusions in a systematic audit process. Evidence will be collected on Key Business Process Controls for both preventive and detective controls

2. The evidence-based approach is used in audits to reach reliable and re-performable audit conclusions in a systematic audit process. Evidence will be collected on Key Business Process Controls for both preventive and detective controls.

AIM

3. The aim of this chapter is to describe the framework adopted by Fast Track Logistics Compliance and Assurance Network Teams to conduct Business Process Testing (BPT) and to outline the relevant testing standards, templates and reporting requirements that apply.

SCOPE

4. The scope of this chapter is to state the BPT framework for the Fast Track Logistics Compliance and Assurance Network.

BUSINESS PROCESS TESTING FRAMEWORK

5. The BPT is a means by which compliance and assurance with Fast Track supply chain policies and procedures is ascertained, and in conjunction with other control frameworks, is a part of the Fast Track Inventory Assurance Strategy (IAS). The BPT framework consists of the following elements that are described in more detail in subsequent paragraphs:

a. High Impact Unit List.

b. BPT Requirement and Frequency Determination.

c. Fast Track BPT Tool.

d. BPT Reliance Key.

BPT REQUIREMENT AND FREQUENCY DETERMINATION

6. BPTs are scheduled by financial year in conjunction with the Group or Service Tier 3. Only one Reportable BPT (Scheduled or Unscheduled) can be conducted per Business Unit (BU), per FY. BPTs can also be included into the schedule/ when required by LAB and on request by Audit and Fraud Control Division (AFCD) or National Audit (NA). If a subsequent BPT is required to confirm remediation of CARs or provide further assurance, a non-reportable BPT can be raised. There is no requirement to submit an Audit File to LAB for non-reportable BPTs.

7. The frequency for the conducting a SM BPT at a BU is:

a. BU's on the High Impact Unit List (HIUL);

   1. Within the current FY if a BPT has been identified as part of the HIUL overhead for that BU. BPTs for units on the HIUL are to be tested against all processes applicable to the BU.

b. BU's that operate one or more SM warehouses:

   1. Once every three years.

8. The requirement for a MS BPT to be conducted is determined by the following:

a. Major Fleet Units (MFUs) and Minor Warfare Vessels (MWVs) using MS:

   1. MFUs and MWVs identified on the HIUL will be subject to a Departmental Management Audit (DMA) / BPT annually.

   2. MFUs or MWVs that are not on the HIUL with ongoing poor results will be considered by Director General Logistics – Navy (DGLOG–N), in consultation with the Executive Director Logistics Assurance (EDLA) as a high compliance and assurance risk, at which time they will be considered for inclusion on the HIUL and will be assessed annually.

   3. Where a MFU or MWV has received a BPT score of 50 percent or less and/or has eight or more CARs raised, the ship is to be notified that another abridged DMA focusing on logistics will be conducted within 9 months of the initial DMA. This DMA will be subject to availability and operational tasking of the MFU or MWV.

Note
Where a MFU or MWV has not achieved a suitable standard, the additional logistics focused DMA will be an added audit impost. It is not required if the DMA and BPT for a ship is above the 50 percent BPT Key Performance Indicator (KPI) and below the eight CAR KPI. It is designed to serve as an incentive for the MFUs and MWVs to ensure compliance with logistics procedures

b. The minimum frequency for MS BPT/DMA is 2 years (excluding any time in refit or deep maintenance).

9. Where BU's have multiple warehouses under their management, Groups and Services Tier 3 are to determine if the BU is to be tested as a complete entity or the testing limited to specific warehouses that are considered to pose the highest risks. Groups and Services are to advise LAB of the details when this option has been selected.

10. The above frequency is the minimum requirement to meet an appropriate level of controls. Groups and Services are to conduct a risk assessment on their BU's and can schedule more frequent BPTs if their risk assessment or internal procedures warrant. Factors that can be taken into account in the risk assessment include (but are not limited to):

a. Previous BPT Results.

b. BPM KPI results or trends.

c. Stocktake results.

d. NAIS or other audit results.

e. Staff turn-over or unit relocation.

f. Input from Key Stakeholders.

g. Not In Count data.

11. Groups and Services are to develop an annual Financial year BPT Schedule and provide details of the schedule and supporting risk assessments to LAB by 01 August each year. LAB will advise Groups and Services if LAB staff will be participating in specific BPTs and provide a minimum of 6 weeks notice of this intention. Groups and Services are responsible for loading their own schedules into the BPT Tool. Amendments to the Group and Service schedules that require a date to change to another financial year are to be advised to LAB within one month of being identified. This is to ensure that corporate reporting on BPT schedules at the Fast Track level is accurate and that a sound, risk based determination has occurred.

BUSINESS PROCESS TESTING TOOL

12. The Business Process Testing consists of a Business Management Practice (BMP) unmeasured assessment and Business Process Testing (BPT) of key measured Business Process Controls (BPCs) and Management reporting. This testing is conducted and results recorded using a structured Fast Track BPT Tool.

13. There are currently two formats of the Fast Track BPT Tool available:

a. On-line BPT Tool – accessed from the _ or from the link in ESCM _. This format is to be used for SM, MS and Explosive Ordnance BPTs.

b. Manual (Excel spreadsheet) BPT Tool – accessed from the relevant ESCM chapter in V10S03 and is currently used by Fuel Services for JEFMS BPTs.

14. Both BPT tools comprise of three segments as follows:

a. Business Management Practices (BMP). The BMP segment of the BPT contains a list of the most important steps in a business process, omission of which would affect completion of the process. The BMP is conducted as a walk through of the business process with the unit representative to provide the auditor with an understanding of how the process is conducted at the site, to provide an understanding of any local variations and to identify if there are any significant steps that are being missed. The tester will use a range of tools to assist them to make an assessment. These can include physical evidence, reports, observations, discussions with staff and any previous BPT results.

b. Key Business Process Controls (BPC). These are measured controls within each of the business process segments that pose a significant financial or capability impact on the business process. Physical testing of transactions and reports is conducted to determine if the process is operating in accordance with the ESCM.

c. Testing of Management Reporting. This activity tests a range of system reports to determine if relevant action has been taken by the BU to correct any transaction exceptions identified by the reports. (This section is replaced by a Business Process Monitoring (BPM) Dashboard for SM.

Categories of BPT

15. Scheduled – A BPT that is scheduled as part of the Group or Services annual BPT Schedule, determined through risk profiling. Results are included in the annual Fast Track controls reliance statement.

16. Unscheduled – A BPT that is created due to a new risk being determined for that BU. Results are included in the annual Fast Track controls reliance statement.

17. Non-reportable – A BPT created by any user within Fast Track to undertake training or a self assessment of the BU. These BPT results are not reported on in the Fast Track controls reliance statement and the corporate record may be deleted from the BPT On-line tool. LAB will consult with Groups and Service prior to undertaking a cull of non-reportable BPTs.

18. The BPT Tool has been designed to manage both Preventative and Detective controls within each of the Business Processes conducted at Business Units.

Preventive Controls

19. Preventative controls are applied during the normal flow of logistics transactions to identify any breakdown in the business process being tested. This is to prevent occurrence of error or fraud that could lead to a mis-statement of General Stores Inventory (GSI) or Employee Support Item (ESI) balances.

Detective Controls

20. Detective controls are used to assist in identifying any process errors, data errors or faults, including procedural faults or misappropriation of assets that may have occurred.

BPT Reporting

21. All scheduled and unscheduled BPTs are to have a Quality Assurance (QA) review undertaken by the Tier 3. BPTs are to be submitted to LAB within 10 working days of the BPT being conducted. Completed BPTs are to be submitted as follows:

a. On-line BPT Tool. Completed BPTs are handed over to the Tier 4 by clicking the handover button within the BPT On-line Tool. The Tier 3 Coordinator places an electronic copy of the completed Audit File into the LAB Tier 3 Objective folder for the relevant Group or Service.

b. Manual BPT Tool. Electronic copies of the completed manual BPT Workbook and Audit File are to be placed in the Fuel Systems objective folder for the Group or Service. NOTE: Manual BPTs are only to be used for JFMS.

c. The naming convention to be used for storing all evidence packs in Objective is:

    1. Admin

       YYMMDD – BPTID – Notification Minute
       YYMMDD – BPTID – Attendance Record Entry Brief

    2. Reports

       YYMMDD – BPTID – Exit Brief
       YYMMDD – BPTID – Executive Summary

    3. Audit Documentation

       YYMMDD – BPTID – Sample Sheet
       YYMMDD – BPTID – BPT Samples

    4. Evidence

       YYMMDD - BPTID - Evidence 12.201A
       YYMMDD – BPTID – Evidence 6.201A

    5. QA Checklist

       YYMMDD – BPTID – QA Checklist

BPT RELIANCE KEY

22. A BPT Reliance Key is used by Fast Track to support measurement and reporting of compliance levels across Groups and Services. The key is used to report compliance levels for a BU at the conclusion of each BPT (via the Executive Summary Report) and at a summary level by process and Group or Service on a periodic basis. The threshold for BPT compliance

V10S03C02 - BPT AUDIT SAMPLING METHODOLOGY

INTRODUCTION

1. This chapter details the audit sampling methodology to be used for selecting a sample to test key Business Process Controls (BPC) when conducting a Business Process Test (BPT) at a Business Unit (BU).

AIM

2. The aim of this chapter is to define the audit sampling methodology used for conducting a BPT.

SCOPE

3. The audit sampling methodology provided in this chapter applies to BPTs raised for all Logistics Information Systems (LIS).

AUDIT SAMPLING DEFINITIONS

4. Definitions for the following terms used in this chapter:

a. **Total Population**: The Total Population is the total number of transactions/reports that have occurred at a Business Unit (BU) during the testing period (definition below) that are relevant to the BPT Process segment being tested.

b. **Sample size**: The sample size is a valid subset of transactions/reports required from a total population of a BPT Process that is to be tested in an audit to ensure that a representative sample size is selected.

Note

Sample sizes are derived from the frequency with which a business process is executed by a BU. The sample size denotes the number of discrete repetitions of a transaction/report that a tester will need to test to achieve a valid assessment for the control.

c. **Testing Period**: The testing period is used to identify the Total Population for a business process and is the period of business activity to be covered by the BPT testing - normally the twelve (12) month period prior to the date of the BPT. A testing period of less than twelve months is used as follows:

    1. A full BPT has been conducted within the previous 12 months - the start date for the testing period is the date that on-site testing of the BPT was completed.

    2. There has been a significant change to a control that limits the ability to test the control for the full period or a new control has been introduced - the start date for the testing period for that control will be from the date of introduction of the control or the start date detailed in the control.

DETERMINING SAMPLES FOR SM BPT

5. The process below is to be utilised for all BPTs excluding SM BPTs. To gain samples for SM BPTs, please refer to V10S03C2C.

DETERMINING TOTAL POPULATION

6. As part of the planning for a BPT, the Team Leader is to conduct a desk top review to identify what business processes the Business Unit (BU) has or has not performed during the testing period. This review can be based on local knowledge or involve a review of Total Population Reports (TPR) and BPM Traffic Lights for each business process to identify if there are any transactions shown against the BU.

7. Business processes to be tested during the BPT are to be loaded to the BPT template and confirmed with the BU prior to commencing the BPT on-site. The outcomes of this review will also confirm which TPRs are to be used to identify processes to be tested.

8. All controls that apply to a selected BU, regardless of KPIs identified as Green, Amber or Red in the BPM, must be tested. Controls are not excluded from testing if the BU did not have any transactions against the process in the testing period. In this case the control could be assessed as Unable To Test (UTT).

Determining the Total Population

9. Total Populations are drawn for the testing period and can be obtained from the following sources:

a. Electronic reports available from the Fast Track BPT and BPM Tools.

b. Electronic or printed reports from relevant Logistics IT Systems.

c. Manual registers maintained by the BU.

d. Physical count of records held by the BU.

e. An assessment of the frequency of an activity by the BU.

10. As electronic Total Population Reports (TPRs) usually include SM data for all Fast Track BUs, where these reports are used, the testing team is to extract the number of transactions relevant to the BU being tested from the TPR for the Test Period to be covered by the BPT. The criteria used to filter the overall Fast Track data (e.g. SM Hierarchy, District, Warehouse, SCA, Unit, Team, etc) are to be confirmed with the BU before commencement of testing.

11. For those processes where an electronic or printed TPR is not available and a physical count of records is not possible, the frequency of the process will need to be determined. The audit team will need to question the BU subject matter expert to obtain an estimation of how often the control activity or process is performed by the BU(a daily, weekly, monthly or annual basis) to enable a total population to be determined.

12. The source and method used to determine the Total Population for a test are to be documented in the Fast Track BPT Tool or on the Sample Sheet work papers and the BU extracts of the total population reports are to be placed into the BPT Audit File.

System Specific Total Populations

13. For SM refer to V10S03C02C. All SM BPT Samples must be in accordance with Annex C
14. For MS
    . Total populations for MS are to be obtained by the following methods:
a. Total population of Stocktakes is to be obtained from the Stocktake Reporting System and filtered to Stocktakes with discrepancies to the Ship/Boat applicable;

b. Reconciliation of SQ018s to the Daily Accountable Transaction Listing – Total population is determined from the number of days that adjustments were performed during the testing period. A developed Bi Query is requested from the Major Fleet Unit (MFU) or Minor Warfare Vessel (MWV) by the Auditors;

c. Total population of Articles in Use (AIU) is to be obtained from the MFU or MWV AIU Stateboard1;

d. Total population of Disposals is to be obtained from the MFU or MWV Disposal Register; and

e. SL11.1 Navy Ships Returns Report

DETERMINING A SAMPLE SIZE

15. The approach used for selecting sample sizes for the BPT is consistent with the Chief Finance Officer's (CFO) Fast Track Financial Controls Framework (DFCF). The total population of samples in the testing period dictates the number of samples required to be tested for the Initial and extended samples. The sample size is calculated using the determined Total Population for the testing period for an initial sample and three extended samples for use if non-compliances are identified during testing of the initial sample.

16. Table 1-1 is to be used to determine the initial sample size and for up to three extended samples where the Total Population has been determined from a report or physical count of records.

17. **Table 1 - 1: Initial and Extended Sample sizes from a Total Population**

18. Table 1-2 is to be used to determine initial and extended sample sizes where the Total Population has been determined by frequency of the activity.

19. **Table 1 - 2: The Initial and Extended Sample sizes for a Frequency Based Total Population**

20. **Selection of Samples for MS**

21. For MS Control 9.2.1 a full compliment of 12 months reports are the samples to be selected for testing. For scoring guidance see Figure 3B-2.

22. If a ship has been de-stored (ie: ASMD upgrade) 12 reports are to be included in the sample to be tested. The Months where the ship has been de-stored are to be excluded and replaced with previous months to provide a combined total of 12 reports to be tested. In this case, reports will span more than a 12 month testing period.

Random Selection of Samples

23. Once the sample size has been determined, the audit team is to use a randomiser tool to randomly select the samples from the Total Population and identify the specific samples to be tested. Sufficient samples are to be selected to provide an initial sample size and three extended sample sizes (normally totals double the initial sample size).

24. The preferred method of selecting the samples to be tested is to use a web based application called the Research Randomizer (_). This tool will provide a random list of numbers within a range that can be used to identify the samples to be tested. The auditor is to ensure the sample is not sequenced. An example of how to use the Research Randomiser is at _.

25. An alternate random number generator is available using Excel. An example of how to use this method is at _.

Treatment of Samples that are Missing or Unavailable.

26. The BPT testing methodology requires a pre-determined sample size for a population to ensure that the tests conducted meet audit requirements. In order to ensure that the required number of samples are tested, the following approach is to be followed when samples selected for testing cannot be provided by the organisation under test:

a. **Samples not available**. Where samples cannot be produced for testing and are not either "cancelled" or "unavailable" as described below, they are to be treated as missing.

    1. Missing samples are to be assessed as '**non-compliant**'.

    2. If one sample is missing and this is the only deficiency in the initial sample, the sample is to be extended as per normal testing. If there are no non-compliances in the extension, the control is to be **scored as '3' and a CAR raised**.

    3. If more than one sample is missing or non-compliant then the control is to be scored as per normal testing.

    4. Missing samples are **not to be replaced** with other samples

    5. Full details of why the selected records are not available are to be included in the findings section against the BPT Test(s) affected.

    6. As missing records can indicate possible fraudulent activity, CARs raised against the test where records are missing are to include the requirement for the Business Unit concerned to fully investigate the reasons the records are missing and to identify if any fraudulent activity has occurred. Actions include a 100% review of records to identify the extent of missing records and may include re-creation of missing records.

b. **Samples 'Cancelled'**. If any samples selected have been 'cancelled':

    1. A 'Cancelled' sample may be due to a process being commenced i.e Purchasing, and the PO has been cancelled.

    2. The cancelled samples are to be marked as Unable To Test (UTT) on the Sample Sheets.

    3. The samples are to be replaced in order (1 for 1) from the first extended sample list and the new sample(s) tested as normal.

    4. If extended samples need be used to complete testing, then the samples used above are to be replaced from the second and third extended sample lists as required.

5. If the third extended sample list needs to be used, then additional samples are to be randomised from those that were not used in the original randomised list as replacements.

6. A full explanation of the cancelled samples is to be included in the Findings for the test(s) affected.

7. Evidence of the samples being cancelled is to be included within the BPT Audit files.

c. **Samples not available during testing period**. When selected samples are not available for testing during the audit visit due to legitimate reasons (such as being sent to an off-site location) and they can be proven to exist, they are to be treated as follows:

1. The samples are to be marked as UTT on the Sample Sheets.

2. The samples are to be replaced in order (1 for 1) from the first extended sample list. If all the first extended samples are used, then replacements should be selected from the second extended sample list. If the third extended sample list needs to be used then additional samples are to be randomised from those that were not used in the original randomised list as replacements

3. A full explanation is to be recorded in the Findings for the test(s) affected.

4. Evidence of the existence of the samples and location during the audit visit are to be included in the BPT.

5. The samples unavailable for audit testing are to be monitored for return and existence confirmed during the next BPT.

27. The dates or unique document references of samples selected should be used to record them in the BPT Tool or the Sample Sheet work papers.

28. In all circumstances, the samples for testing are to be selected by a member of the audit team (usually the Team Leader), independent from the management of the BU being tested. Unit personnel can assist testers in the physical retrieval of records (eg source the files/folders/documentation).

29. Once selected the details of the samples should be recorded on the BPT Sample Sheets work papers for the business process being tested. Sample Sheets provide a readily usable checklist that provides a clear record of the results of the tests conducted and are the preferred method of recording test results. Any non-compliant samples should be recorded in the findings. The recording of these samples will allow an accurate re-performance of the BPT should this be required whilst ensuring completeness of the audit test results.

30. Total Population/Sample Size/Sample Sheets are available from the _. The use of these sheets is mandatory. The details of any non-compliances are to be recorded in the findings in the BPT Tool.

Testing Initial and Extended Samples

31. Every selected sample in the initial sample is to be tested for every BPC question. If one sample does not meet a BPC question/s, (ie. non-compliance) the sample is to be extended and all the samples from the first extended sample are to be tested for that BPC question and so on until the extended samples are used, as required. (This testing would show if the non-compliance is systemic or a once off occurrence).

32. When testing initial and extended samples the table at _ is to be used to determine when a sample is to be extended and the score to be allocated for the BPC test.

33. When two, or more, samples from the initial sample are found to be non-compliant during testing, the remaining initial samples must still be tested despite the result of the testing of the control as non-compliant already being established. The additional testing provides management with further information on whether the issue identified is systemic to the BU and will assist management in developing an appropriate corrective action.

34. Samples found to have errors are not to be replaced by those that contain no errors.

ANNEXES

A. _ - RANDOM SELECTION OF SAMPLES USING RESEARCH RANDOMISER

B. _ - RANDOM SELECTION OF SAMPLES USING MICROSOFT EXCEL

C. V10S03C02C – SM BPT SAMPLE PROCESS

V10S03C02A - RANDOM SELECTION OF SAMPLES USING RESEARCH RANDOMISER
INTRODUCTION

1. The Business Process Testing Controls Framework is described in ESCM _. Auditors and Team Leaders are required to randomise the total population of transactions/reports of a business process to provide a random selection of an initial sample and three extended sample sizes. This annex outlines to Auditors and the Team Leaders the process to randomise initial and extended samples of transactions/reports for BPT business process testing.

RANDOMISING A SAMPLE USING RESEARCH RANDOMISER

2. To launch the Research Randomiser access _.

3. The Figure 1 below provides an example of selecting an initial sample of 30 from a total population of 699. Two sets of 30 will be produced. The first set is the initial sample population; the second set is for extended samples. After printing the two sets, the testing team can segregate the second set (extended sample) into segments of three, to enable three sets of 10 for each possible extension.

4. It is important to UNSORT the samples.

V10S03C02B - RANDOM SELECTION OF SAMPLES USING MICROSOFT EXCEL
INTRODUCTION

1. The Business Process Testing Controls Framework is described in ESCM volume 10 section 3 chapter 1. Auditors and Team Leaders are required to randomise the total population of transactions/reports of a business process to provide a random selection of an initial sample and three extended sample sizes. This annex outlines the process to randomise initial and extended samples of transactions/reports for the BPT using Microsoft Excel.

RANDOMISING A SAMPLE USING MICROSOFT EXCEL

2. Launch Excel.

3. Fill Column A with values 1-80. The last number will change depending on the number of lines in the report:

a. In cell A2, type "1" .

b. Select Column A by clicking the column heading.

4. Select "Edit-->Fill-->Series".

a. Fill out the resulting dialog box as follows:

5. Click 'Ok".

6. Column A now contains the integers 1-80. The last number will change depending on the number of lines in the report.

7. Fill rows 1-30 of Column B with a random sample from column A.

a. Select Column B by clicking the column heading;

b. Select "Tools-->Data Analysis"; and

c. If the Data Analysis pack is not loaded follow the instructions below:

8. In the dialog box that follows, select "Sampling" from the menu and click "Ok".

9. Fill out the next dialog box as follows:

10. Click "Ok".

11. Column B now contains a random sample of 30 values from Column A.

V10S03C02C - SM BPT SAMPLES

INTRODUCTION

1. The Business Process Testing Controls Framework is described in ESCM _. Auditors and Team Leaders are mandated to utilise the automated BPT Samples generated within the Fast Track BPT Tool.

ACCESSING BPT SAMPLE REPORTS

2. Launch the Fast Track BPT Tool located on the DLPM BPT Sharepoint page.

3. Search the Audit List for the BPT you will be conducting. If the BPT is not listed, please contact your Tier 3 representative for further guidance.

4. Once selected, the BPT Sample button will display on the top left corner of the screen. Click on the BPT Sample Button which will take you to an additional screen that provides a list of all SM BPT Samples indicating the size of the total population.

5. Click on the 'excel' icon to retrieve your automated randomized samples. Please note that the samples are pre-randomized prior to loading and the data will not change until the end of each calendar month.

6. Copy the pre-randomzied samples into the official SM BPT Sample Sheet located on the DLPM Sharepoint page. A new copy of the SM BPT Sample Sheet should be downloaded for each activity to ensure any changes have been captured.

7. A copy of the BPT Sample excel spreadsheet along with the BPT Sample Sheet are to be included in the Audit File.

EXEMPTIONS FROM AUTOMATED SM BPT SAMPLES

8. There are occasions where an exemption may be required from utilising the automated process for sampling. These include:

a. There has been a change to, or creation of a new Business Process Control;

b. It is less than 12 months since the last SM BPT was undertaken; and

c. Other reasons.

9. In these instances, an exemption from utilising the automated process must be sought from DD LC&A prior to the audit commencing. The approval for an exemption must be contained within the audit evidence pack.

AVAILABLE SM BPT SAMPLE REPORTS

10. SM BPT Sample Reports that are automatically generated within the Fast Track BPT Tool are:

a. 1a. Stocktakes without Adjustments;

b. 1b. Stocktakes with Adjustments;

c. 5. Completed Discrepancy Reports;

d. 6. SCA Settings (including closed);

e. 7. Completed Disposals;

f. 8a. Normal Funded Purchase Orders (Open and Completed, with and without amendments);

g. 8b. Normal Funded Purchase Orders (Completed only, with and without amendments);

h. 8c. External Purchase Orders;

i. 12. ZADHOC (other adjustments) transactions; and

j. 14. IMCAD transactions.

REFERENCE REPORTS

11. A full suite of Reference Reports to assist with CAR remediation and investigations is located within the Fast Track BPM Tool.

V10S03C03 - TESTING OF BUSINESS PROCESS CONTROLS

INTRODUCTION

1. This chapter provides guidance for the testing methodology to be used by the Fast Track Logistics Compliance and Assurance Network when conducting a Business Process Test (BPT) at a Business Unit (BU).

AIM

2. The aim of this chapter is to define the methodology for the testing of key business process controls when conducting a BPT.

SCOPE

3. The scope of this chapter is to detail the methodology to be used for testing of key business process controls when conducting a BPT.

TESTING OF BUSINESS PROCESS CONTROLS

Using the BPT Tool

4. The Team Leader/Team Members conducting an audit of a Business Unit (BU) should follow the test procedures provided in the Fast Track BPT Tool. Where a team member is unsure of how a control should be tested the ESCM V10S03 should be referred to in the first instance and seek guidance from their Tier 3 Logistics Compliance and Assurance (LC&A) representatives.

5. The Fast Track BPT Tool may comprise three segments:

a. The Business Management Practice (BMP) Assessment (unmeasured),

b. Business Process Controls (measured), and

c. Management Reports (not used for SM).

Business Management Practice Assessment

6. The BMP segment of the BPT is a list of the most important steps (key process steps) in a business process. They are intended to enable the person conducting the BMP assessment to ascertain if the process is being completed correctly, if there are any local variations, and if there are any significant steps that are being missed.

7. Assessment of the BMP section requires testers to utilise a range of tools to assist them to form an opinion on the business process conducted at the BU. These tools could be a mixture of the following:

a. observation of the process in use (walkthroughs),

b. discussions with staff,

c. supporting physical evidence,

d. reports,

e. previous BPT results, and

f. current unit BPM dashboard status.

8. Process flows and instructions in the relevant ESCM chapters should also be consulted to confirm specific requirements of the process under review.

9. When recording the assessment of the BMP section, the tester records the following outcomes:

a. 'Yes' if the process step is being followed or completed,

b. 'No' if the process step is not being completed or is not being conducted correctly, and

c. 'N/A' (Not Applicable) if the process step does not apply to the BU including comments in the findings field explaining why it is not applicable to that BU.

10. The following should be noted by testers:

a. An observation can be recorded against YES and N/A assessments – these are not included in the Team Leader comments of the Executive Summary Report,

b. A Corrective Action Request (CAR) is generated for assessments of 'NO' and the Team Leader is to complete the required fields for the CAR. Details of the CAR are included in the Executive Summary Report, (Refer _ for further details), and

c. Samples of transactions are not required as part of the BMP assessment.

Business Control Testing

11. The approach to Business Controls Testing includes:

a. Use of the approved Fast Track BPT Tool,

b. Selecting samples for each of the key Business Process Controls to be tested (refer _),

c. An analysis of samples to ascertain if appropriate evidence is available to demonstrate compliance with the Business Process,

d. Where a Business Process Control has been marked as 'Unable to Test' (UTT). or 'Not Applicable' (N/A); testers are to collect evidence that supports this assessment and/or provide a written statement of justification in the Fast Track BPT Tool findings against the applicable control or test,

e. Retaining a scanned copy of evidence for BPT control non-compliances (where available), filing audit evidence in a central location where it can be retrieved for future re-performance audits or review. Tier 3 is to retain audit files including evidence IAW the Fast Track Records Management Policy Manual,

f. The Team Leader is to ensure that the Fast Track BPT tool contains sufficient information for each test so that it can be re-performed by another auditor or external 3rd party. Minimum details required are:

1. The name of the auditor testing the process.

2. The name of the staff members involved in discussions in relation to the process.

3. Population size and how the total population was determined or a copy of the automated report generated from the Fast Track BPT Tool,

4. A justification of the sample size selected for testing and if a randomiser tool was used (if automation was not used).

5. The Unique sample identifiers and, where applicable, Stockcodes, line numbers, or report dates selected.

6. An explanation of any non-compliant samples. The details of extended samples used (if applicable) and details of any non-compliant key business process controls found. The testing team is to confirm the non-compliance with the ESCM prior to transferring data to the Corrective Action Request (CAR).

7. All scored non-compliant controls are to have commentary written in the Findings field of the BPT. It is not mandatory to have commentary for compliant controls, this is left to auditor discretion, and

8. An explanation of why UTT and N/A ratings have been used.

Note:
N/A is to be used when the BU does not undertake the process. UTT is to be used where the BU does undertake the process but has not done so within the testing period.

12. **Evidence Reference Numbers**

13. When a non-compliance is found, any supporting evidence is to be clearly marked with a Reference number constructed as follows:

a.   The date of the audit and BPT identification number.

b.   The BPT control reference number.

c.   An alpha character identifying the supporting documentation for the non compliance.

Note:
A copy of this evidence is to be held in the audit file at the BU being tested.

14. Examples:

a.   YYMMDD – BPTID – 1.201A – for first non-compliance found

b.   YYMMDD – BPTID – 1.201B – for second non-compliance found.

15. Tier 3 are to provide a copy of the scanned non- compliance evidence within the Audit file provided to LAB.

Remediation of Non-Compliance and Unable to Test Controls

16. The Team Leader is to obtain a copy of the Executive Summary Sheet and CARs from the previous BPT conducted at the Business Unit. The Team Leader is to record in the Fast Track BPT Tool any continued non-compliances for discussion at the Exit Brief.

17. The Fast Track BPT Tool automatically defaults to the maximum time allowed determined by the CAR category. An earlier date can be entered, however a longer period cannot.

18. All key Business Process Controls and all selected samples from the total population for the testing period will be tested.

19. UTT controls need to be reconsidered by the auditors as to the relevance of the process/control to the Business Unit.

Management Reports

20. For systems that do not have a Business Process Monitoring (BPM) dashboard available the BPT Tool will include the third Segment for the testing of Management Reports. Scoring methodology is at _.

Executive Summary Sheet

21. When testing has been completed, the Team Leader compiles and prints the Executive Summary Sheet from the Fast Track BPT Tool for the Exit Brief. The Unit representative is to be advised that the results are interim or pending until an independent review has been undertaken. There is a free text field in the Executive Summary for Team Leader comments and observations. The following information should be included in the Team Leader comments:

a.   Identification and discussion on remediation of any non-compliant controls from the previous BPT,

b.   Identification and discussion of controls that were compliant in the last BPT and are non-compliant in the current BPT, and

c.   Any observations by the testing team on matters that are outside the scope of the BPT that the Team Leader considers should be brought to the attention of unit management.

22. At the conclusion of the Exit Brief, the Executive Summary Sheet is signed by the Team Leader, unit action officer and unit representative. A copy of the Executive Summary Sheet and any CARs are to be placed in the Audit file and a copy left for the BU.

Auditors and Team Leaders Checklist

23. Refer to ESCM - Auditors and Team Leaders Checklist.

Audit File

24. An audit file is to be raised by the Team Leader for each Business Unit to be tested. The audit file is to be maintained electronically in Objective. The file is to contain copies of the documents listed below to ensure that all controls testing conducted during the BPT can be re-performed by a third party auditor if necessary. At a minimum the following documents and evidence are to be retained on the file:

a. Copy of the completed BPT (Manual BPT only),

b. The details of the BPT Samples or Total Population Report (where applicable),

c. The randomised sample population (a hard copy print from the randomiser tool or Microsoft Excel),

d. Copies of completed Sample Sheets,

e. The details of Non-compliance/s with copies of evidence gathered,

f. Signed Executive Summary Sheet (signed by the Team Leader and unit representative), and

g. QA Checklist.

25. Scanned documents can be destroyed once the scanned document has been verified for completeness and quality IAW Fast Track Records Management Policy.

Submission of Completed BPTs to LAB

26. The Audit File (as detailed above) is to be placed in the relevant LABLC&A Objective folder and the BPT handed over within the Fast Track BPT Tool for External QA. This activity is to be completed within 10 days of the Audit Team completing the BPT on-site.

ANNEXES

A.

B.

C.

V10S03C03A - TESTING OF INITIAL SAMPLES AND EXTENDED SAMPLES

INTRODUCTION

1. Business Process Testing incorporates the testing of samples and extended samples for the key business process controls.

AIM

2. The aim of this annex is to outline the method of testing of samples and extended samples.

SCOPE

3. The scope of this annex is to introduce the BPT testing of samples and extended samples of the BPT key business process controls.

TESTING INITIAL SAMPLES AND EXTENDED SAMPLES

4. Initial and extended samples are calculated using the total population of transactions/reports at a BU of a business process to determine the number of samples to be included as initial samples and for three extended samples should the initial sample reveal an error See - AUDIT SAMPLING METHODOLOGY.

5. When testing samples and extensions the following table is to be used:

6.   Table 3A-1: Testing of Samples and Extensions

7.   For monthly reports and/or initial sample size of 2, if testing reaches the 2nd extended sample and the error is greater than or equal to 1, the score = 1.

8.   For MS Control 9.2.1 a full compliment of 12 months reports are to be selected for testing. For scoring guidance see Figure 3B-2.

9.   If a ship has been de-stored, ie: ASMD upgrade, 12 reports are still to be tested, exclude months where the ship has been de-stored and replace with previous months for a combined total of 12 reports. In this case reports will go over a 12 month period.

V10S03C03B - GUIDANCE ON REPORT SAMPLE TESTING AND SCORING

INTRODUCTION

1. Business Process Testing incorporates the testing of periodic reports and the scoring of the key business process controls for those reports.

AIM

2. The aim of this annex is to outline the method of report scoring.

SCOPE

3. The scope of this chapter is to introduce the BPT report testing and the scoring of the key business process controls for those reports.

TYPES OF REPORT TESTING

4. There are two types of report testing:

a. Where the reports are to be run periodically (Weekly/Monthly/Quarterly) as a mandatory business requirement.

b. Where a Business Processing Monitoring (BPM) Dashboard does not exist for the system under test.

MANDATORY PERIODIC REPORTS

5. When testing reports, the testing team is to select a random sample of reports from the testing period. Select one line from the report (determined by the testing team) and test as follows:

a. Review the following Weekly/Monthly/Quarterly report to determine if the line selected is still on the report.

b. If the line is not on the report score the test as compliant.

c. If the line is still on the report seek evidence from the BU of action taken against the line. If suitable evidence is provided score as compliant. If suitable evidence is not available score as non-compliant.

BPM DASHBOARD DOES NOT EXIST

6. Where a BPM Dashboard does not exist for the system, obtain the latest version of the report under test and conduct a desktop analysis of the report as follows:

a. Identify the oldest entries on the report and determine if they would have generated a RED traffic light.

b. If so randomly select a sample of lines and seek evidence from the BU of action taken to clear the lines. If suitable evidence is provided then score the entry as compliant. If suitable evidence is not available score as non-compliant.

c. If there are no entries on the report, or no entries are out of target, score the overall report test as compliant.

SCORING REPORTS

7. After report sample testing, the auditor is to determine the overall score for the Report being tested by using the guidance in Figure 3B-1.

8. **Figure 3B-1: GUIDANCE FOR REPORT SCORING.**

9. **Scoring of MS reports**

   10. When 12 reports are selected for sample testing, (MS only), the auditor is to determine the overall score for the report being tested by using the guidance in Figure 3B-1.

FIGURE 3B-2: GUIDANCE FOR MS REPORT SCORING

V10S03C03C - BPT AUDITORS AND TEAM LEADERS CHECKLIST

INTRODUCTION

1. The Business Process Testing Controls Framework is described in ESCM _. Auditors and Team Leaders are required to make suitable arrangements to ensure that the BPT can be conducted in an efficient and timely manner and to minimise the impact on the Business Unit. This Annex outlines the checklist to be used by Auditors and Team Leaders when preparing for and completing a BPT.

AUDITORS AND TEAM LEADERS CHECKLIST

Team Leader Pre-Audit Activities

2. The team leader pre audit activities will prepare for the conduct of the BPT by assessing the BU activities, preparing documentation for the site visit and the members of the BPT testing team. Key pre audit activities are:

a. Register and create a BPT for the relevant system being tested. If using the Fast Track BPT Tool there is a link to it on the Logistics Assurance Branch (LAB) BPT Sharepoint site.

b. The team leader's name and e-mail address are to be recorded in the Fast Track BPT Tool at the time of commencing the BPT. Other team members can be added later.

c. Print a hard copy of the Executive Summary Sheet and CARs from the previous BPT.

d. Obtaining BPT Samples for testing. Guidance is provided in _ to obtain a total population.

e. Sample sheets for each process to be tested are to be downloaded from the LAB BPT Sharepoint site and completed as required.

Team Leader Guide for On-Site Activities

3. The team leader on-site key audit activities for the conduct of the BPT activities and preparing final documentation for the BPT testing team include:

a. Conduct entry brief to unit personnel.

b. Support team members during the audit.

c. Conduct a daily briefing on findings for unit management if required.

d. Conduct a quality assurance check with the Unit Compliance & Assurance representative from the BU prior to the exit brief, and confirm the Date to Compliance and to nominate a tentative Date of Re-assessment (9 – 12 months from the expected compliance date for any CARs). The Date to Compliance field in the BPT is defaulted to the maximum allowable time according to the CAR category. An earlier date can be input if required, however an extension to the default date is not possible.

e. Record on the Executive summary sheet any non-compliance or observations outside the scope of the audit.

f. Conduct an exit brief to unit personnel and provide a copy of the Executive Summary Sheet and the Corrective Action Report to unit management noting they are draft findings pending an independent review.

g. Retain a signed copy of the Executive Summary Sheet within the Audit file.

Fast Track BPT Tool Quality Assurance (QA) Checklist

4. The Team Leader is to conduct a QA of the BPT prior to finalising the audit visit. A QA template is available on the LAB Sharepoint page to assist with this. The following are to be checked:

a. Have previous non-compliances been carried forward and identified in the BPT?

b. Has the method of selecting the total population been annotated in the 'Sample Determination' section of the BPT or on the Sample Sheets? (only applicable where the automation process has not been used)

c. Have the initial and extended samples been listed in the BPT and/or Sample sheets?

d. Where applicable, are the name/s and or position details of the person/s involved in process discussions recorded in the BPT?

e. Has the sample identifier, and where applicable, the stockcode and/or line sequence number been included in the BPT or Sample sheets?

f. Where a single non-compliance was identified, was the sample increased correctly?

g. Is the name/s of the Auditor/s testing the process recorded in the BPT?

h. Was the score correctly allocated to each control based on the findings?

i. Do all "UTT" and "N/A" scored controls have sufficient justification recorded in the BPT?

j. Were there any additional comments required to be added in the Executive Summary Sheet? (Comments and or observations)?

k. Are all testing and results re-performable?

l. Ensure all evidence for non-compliances is retained in the Audit file, including the sample sheets.

m. Where a missing sample is indicated, has the BPT on-line tool been updated to reflect this?

Post Audit Activities

5. Key post audit activities are:

a. Confirm re-test dates for non-compliances and verification of remediation of CARs.

b. Monitor non-compliances and UTT controls scheduled for the next test.

c. Hand over the BPT for Internal Quality Assurance (QA) (Tier 3).

d. Evidence scanned and placed in the applicable LAB/LC&A Objective file, including the sample sheet.

e. Hand over the BPT for External QA (Tier 4).

V10S03C04 - BUSINESS PROCESS SCORING METHODOLOGY
INTRODUCTION

1. This chapter provides guidance on the scoring methodology to be used to apply a score to a key business process control when conducting a Business Process Test (BPT) at a Business Unit (BU).

AIM

2. The aim of this chapter is to define the scoring methodology of the BPT.

SCOPE

3. The scope of this document is to outline the Business Process Testing (BPT) scoring methodology relative to the Key Business Process Controls.

BACKGROUND

4. KPMG developed compliance metrics that provide a mechanism for combining a range of characteristics to give an overall picture on the effectiveness of Fast Track's control framework. The scoring methodology takes a process that is often undertaken on the basis of judgment and enables broad scale mechanical treatment.

SCORING METHODOLOGY

5. To quantify the level of compliance for each BPT Key Business Process Control tested at a BU, the following scores are applied:

a. **0** - No evidence of the control in operation. (RED);

b. **1** - Deficiencies in the control with significant deficiencies in the process. (RED);

c. **2** - Some deficiencies in the control and minor failures in processes, unapproved compensating controls are functioning to cover identified faults. (AMBER);

d. **3** - Some deficiencies in the controls but other evidence indicates that the activity is being properly undertaken (GREEN); and

e. **4** - No deficiencies. (GREEN).

6. Each of the Key Business Process Controls will be scored either 0, 1, 2, 3 or 4, or given an unable to test (UTT) or not applicable (N/A) rating by the testing team. The BMP section will be marked as either 'Yes' or 'No', or given a N/A rating by the testing team, therefore is not scored.

7. Where a BU has an exemption from conducting a process (authorised by DLPP) the BPT score is to be UTT and details of the exemption, including the DLPP document reference, recorded in the 'Findings' column of the BPT test.

8. The testing team will score every individual control for the sampled population. The following illustrations provide examples on overall scoring guidelines for large sample populations:

a. a. Scoring example: a sample of 30 Purchase Orders (POs) were selected in which two exceptions were identified. Both POs were not signed by the Section 44 Delegate, this determines that there is a breakdown in the process and therefore the control is non-compliant, The overall score for this key business control would be one (1); and a CAR would be recorded.

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b. b. Scoring example: a sample of 30 Purchase Orders (POs) were selected and an exception identified. One PO was not signed by the Section 44 Delegate, the sample was extended by 10 and all additional samples were fully compliant. The overall score for this key business control would be three (3) the control is assessed as compliant.

9. Refer to V10S03C03A - Testing of Samples and Extensions, for more information.

V10S03C05 - MANAGEMENT OF CORRECTIVE ACTION REQUESTS (CARs)
INTRODUCTION

1. This chapter provides guidance for the management of Corrective Action Requests (CARs) and Observations raised to address business process control non-compliances.

AIM

2. The aim of this chapter is to define and specify the process for raising and managing CARs and Observations for non-compliances identified during the conduct of a Business Process Test (BPT).

SCOPE

3. This document applies to management of CARs and Observations raised during a BPT.

CORRECTIVE ACTION REQUESTS

CAR Definition

4. CARs can be raised against any control in the BPT and provides details on non-compliances detected during testing, action required by the 'Action Owner' to remediate the non-compliances, and the date agreed with the Business Unit (BU) for completion of remediation action.

5. The team leader is to use professional judgment when determining the correct CAR Category for the non-compliance based on the evidence, the nature of the non-compliance, and the impact to the process at the BU if it is not remediated within a timely manner. Some BPT controls require a minimum CAR Category to be allocated. Where this is applicable, they will be stipulated within the control.

a. The following definitions are provided as guidance to assist the team leader in allocating the appropriate CAR Category:

   1. **CAT A.**

      Capability - Would cause the activity to be unsupportable due to deficiencies in one or more fundamental inputs to capability. There are no known workarounds.
      General - Those matters that pose significant risk of injury or death, and without treatment, exposure to these risks would normally be immediately discontinued except in extreme circumstances.
      CAT A CARs are to be remediated immediately.

   2. **CAT B.**

      Capability - Would cause the activity to be unsupportable due to a deficiency in a fundamental input to capability. There are no known workarounds.
      Fast Track Accounts - Would have critical impact on Fast Track Accounts and could result in a serious finding from a third party or external agency.
      General - Those matters which are intolerable without treatment. Exposure to these risks should be discontinued as soon as reasonably practicable.
      CAT B CARs are to be remediated within 30 days.

   3. **CAT C.**

Capability - Would cause the activity to be unsupportable for short periods due to a deficiency in a fundamental input to capability. There may be known workarounds.

Fast Track Accounts - Would have a major impact on Fast Track Accounts and could result in a major finding from a third party or external agency.

General - Those matters that are tolerable with continual review. Unnecessary exposure to these risks should be discontinued as soon as reasonably practicable and continued exposure would only be considered in exceptional circumstances. CAT C CARs are to be remediated within 60 days.

4. **CAT D.**

Capability - Would cause the activity to be supportable for extended periods, however there would be several qualifications on the level of performance.

Fast Track Accounts - Would have some impact on Fast Track Accounts and could result in a minor finding from a third party or external agency.

General - Those matters which are tolerable with periodic review. Exposure to these risks may continue provided it has been appropriately assessed and has been mitigated 'So Far As Reasonably Practicable' (SFARP).
CAT D CARs are to be remediated within 90 days.

5. **CAT E.**

Capability - Would cause the activity to be supportable for extended periods, however there would be minor qualifications on the level of performance.

Fast Track Accounts - No impact on Fast Track Accounts, therefore not expected to result in any findings from a third party or external agency.

General - Those matters which are procedural in nature or minor administrative failings. These could include minor accounting issues or relatively isolated controls breakdowns which need to be brought to the attention of management. CAT E CARs are to be remediated within 120 days.

BPT Section 1 (Business Management Practices) Assessments

CARs can be generated from Section 1 of the BPT tool when an assessment of 'No' is entered against a business process step. Although not mandatory, a CAR would be raised if it was considered that the identified failure in a required process step warranted a CAR for highlighting this severity to BU management.

BPT Section 2 (Key Business Process Controls) Tests

6. CARs are raised in Section 2 of the BPT tool to record non-compliance with the test being conducted. CARs are automatically generated for BPT scores of 0, 1, or 2.

7. The Team Leader is to ensure that the following details are completed in the BPT tool for each CAR:

a. '**Additional Comments' Against 'Findings**'. Details of the non-compliance are accurately recorded including reference to the specific samples that are non-compliant and the nature of the non-compliance,

Actions Required to Achieve Compliance & Any Additional Comments. Provide details of action required to remediate the non-compliance. This action should be succinct, meaningful, actionable and directly address the issues identified with the non-compliant sample(s),

b. **Action Owner**. Position, appointment or organisation that is responsible for actioning the CAR. This should not be an individual's name.

c. **CAR Category (CAT)**. An appropriate CAR Category is allocated to the non-compliance. See CAR Categories above.

d. **Date to Compliance**. Date agreed with the BU for completion of remediation action. There is a maximum time frame placed against each CAR Category. See CAR Categories above.

Management and Closure of CARs

8. All CARs will be included in the Executive Summary Report produced from the BPT and are to remain open until evidence has been provided to support remediation action.

9. **Management of CARs at Group/Service Level**. CARs raised against a BU are to be managed by the relevant Group or Service Tier 3 staff through to completion. The On line BPT tool allows Group or Service Tier 3 staff to run various reports on CARs to assist with the overall management of CARs for their Group or Service (eg: outstanding CARs).

10. **Management of CARs at Fast Track Level**. LAB staff will monitor the status of CARs with reports being sent to Group or Service Tier 3 representatives quarterly. This information will be reported on through the LAB Quarterly Analysis Report.

11. **Closure of CARs**. CARs can be closed out by any C&A Network member who is able to undertake 'Reportable' BPTs and is to be supported by evidence that the remediation action has occurred. The Group or Service Tier 3 is to retain any CAR closure evidence for external validation if/when required. Evidence may include:

a. Results of targeted control testing performed by a member of the Compliance and Assurance network.

b. Samples of transactions reflecting corrective actions.

c. Copies of amended procedures.

12. **Method of Verifying Remediation**. The use of generating a 'Reportable' BPT to test non-compliant processes is not an approved method of verifying remediation of a CAR has occurred as this can have an impact on Fast Track's C&A reporting position. A non-reportable BPT for testing specific processes can assist in the verification process but does not negate the need to supply evidence of remediation.

13. **Extensions to CAR Due Dates**. An extension to the CAR compliance date can be made post the due date in certain circumstances (eg: Insufficient samples to test, unit has not performed the function since the last BPT, reduced activity period). A detailed explanation must be written into the appropriate extension field within the BPT On-line Tool. LAB will monitor the number of CARs extended for trending purposes and identification of any possible root causes preventing CAR verification within the specified time frames.

14. **Validation of CAR Closure**. LAB staff will conduct validation checks of Closed CARs and request copies of evidence to support the closure of the CAR. CARs will be selected for each Group and Service based on a Sampling Methodology. LAB staff may also

conduct follow up audits on selected business units to determine the effectiveness of the corrective action. Group or Service Tier 3s are also required to perform their own internal validation process against CAR closures.

OBSERVATIONS

Observation Definition

15. An Observation is something that has been identified during a BPT activity which needs to be brought to the attention of the BU management which is:

a. Outside the scope of the controls being tested.

b. An observation about a particular process or process step in Section 1 of the BPT.

c. A non-compliance within Section 1 of the BPT that has not resulted in a CAR but may need remediation action.

d. An isolated non-compliance in a sample within Section 2 of the BPT that has not resulted in a CAR but may need remediation action (eg: A score of 3 which does not automatically generate a CAR).

Management of Observations

All Observations will be included in the Executive Summary Report produced from the BPT, however there is no minimum time period to finalise any remediation. Observations are not reported on as part of formal BPT results, however data can be used in some cases to support detailed analysis for determining root causes of systemic issues.