



AUSTRALIAN RAIL TRACK CORPORATION LTD

31 May 2013

Australian Rail Track Corporation Limited ("ARTC") – Interstate Access Undertaking (2008 IAU), effective 1 August 2008 - Independent Internal Audit of Performance Indicators

REVIEW FINDINGS

In accordance with the 2008 IAU approved by the ACCC, ARTC is required to incorporate into its annual internal audit process a review of performance indicator reporting according to Clause 8.2(b), which states:

"ARTC will incorporate into its annual internal audit process a review of Performance Indicator reporting. The internal audit will be conducted by ARTC's internal auditor, which will be an entity independent of ARTC. The auditor will prepare a written report on the process and the reporting of the Performance Indicators together with a finding on the measurement of the Performance Indicators. ARTC will publish the findings on its website and make the report available to the ACCC upon request."

ARTC instructed its internal auditors, Ernst & Young (E&Y), to conduct an independent review based on agreed procedures of performance indicator reporting ("procedures assessment") occurring within the 12 month period of reporting between 1 October 2010 and 30 September 2011. The exceptions of the agreed procedures are shown at Attachment 1. ARTC has also included a broad description of the process used by ARTC for KPI reporting at Attachment 2. A summary of the KPI's is included at Attachment 3.

As a general statement in relation to the procedures assessment, it should be noted that the procedures were agreed in advance. In the previous assessment, it was noted that the agreed upon procedures used in the 2010 audit did not fully reflect changes implementing agreed actions reported in the 2009 audit. As such, the agreed upon procedures adopted for the current assessment (2011) have been amended to reflect the processes and reporting carried out in the 2011 reporting period.

The procedures assessment performed by E&Y tested ARTC public reporting in relation to 416 data points in the audit period. In general terms, ARTC considers that the exceptions identified minor variances from documented procedures but importantly determined that the results published on the ARTC website were correct and did not require amendment as a result of the exceptions identified. The variations against procedures identified were minor technical variations.



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ARTC's response with regard to specific exceptions noted by the auditors is as follows:-

KPI's 1-15:

P1: Exceptions were noted.

It should be noted that as a result of this audit for the 2008/09 period, some reporting procedural changes have been implemented. One of these changes is that ARTC commenced the creation of 'snapshots' of data used to create the quarterly ACCC KPI reports, the first one of these being created for the December 2009 quarter. These snapshots are required because whilst the KPI data is current at the time of reporting, ARTC's RAMS operational reporting system is a dynamic reporting tool and rightly permits post reporting period adjustments to be made by appropriate staff to correct initial data errors as part of ARTC's ongoing data quality review.

In this audit, the auditors found some discrepancies between the ACCC Snapshot database and the *ACCC Report [Qtr][Year].xls* spreadsheet for the March 2011 and September 2011 quarters.

In establishing the snapshot database to replicate the data for the audit process, not all links to files were removed resulting in the snapshot database sourcing some data from live systems. This, with some data format adjustments, led to exceptions in the validation process.

The procedure has been amended to specify storage of the snapshot database on CD thus ensuring no linkages to live systems.

The information reported on the ARTC website has been verified by ARTC as correct.

P2: No exceptions noted

P3: Availability 0 exceptions (exclusions) noted
Services 2 exceptions (exclusions) were noted.

The "*dbo.KPITrainInclusions.kti_Commodity*" field is being limited to the following values; ('Bulk', 'Express', 'Industrial', 'Intermodal', 'Passenger').

The "*KPIOperationalCorridors.corridor_name*" field is limited to the following values; ('East - West', 'Melbourne -Brisbane', 'Melbourne - Sydney', 'Sydney - Brisbane').

The limitations noted are required to correctly calculate the data for reporting. These limitations are not specifically referenced in the relevant ARTC procedure and the procedure is to be updated to specify these in the future.

The information reported on the ARTC website has been verified by ARTC as correct.



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P4 & P5: 1 Exception noted in each

A value with a decimal of ".5" was rounded down instead of up in "KPI_DW_Data".

The rounding difference has been addressed.

There is no material impact on the published data

KPI 10: Transit Time KPI

P6: No exceptions noted

KPI 11: Temporary Speed Restriction KPI

P7: No exceptions noted

KPI 12: Track Condition KPI

P8: 1 Exception noted

The Sydney to Brisbane data in September 2011 differs between the provided workbook and the "TQI_Data" table.

The value in the snapshot database was incorrect. Data had been sourced from the live system as a result of a link not being removed (as explained in the comments for procedure P1).

The procedure has been amended to specify storage of the snapshot database on CD thus ensuring no linkages to live systems.

The information reported on the website was verified by ARTC as being correct.

KPI's 13-15: Network availability KPI's

P9:

For quarters June 2011 and September 2011, no exceptions noted. The procedure could not be completed for the December 2010 and March 2011 quarters as the "Dynamis_Data" input files could not be located.

During the audit, the auditors were advised and subsequently published in their final report that the snapshot spreadsheets were not stored, as data had not changed from the previous period.



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Following the publication of the final audit report, an examination of the published Network Availability graphs by ARTC revealed that there was a change evident in the Cootamundra to Crystal Brook graph between Dec 2010 and Mar 2011 quarters. A subsequent investigation by ARTC has confirmed that the data stored in the "Network Capability Data Warehouse" database, is the same for both the September and December 2010 quarters, but is different for the March 2011 quarter as a result of an import of a new Dynamis_Data input file for March 2011.

The relevant ARTC procedure will be updated to ensure that a file is stored for each period irrespective of whether there has been any change to the data.

The information reported on the ARTC website has been verified by ARTC as correct.

P10: 2 exceptions noted

2 clauses which edited data on input into the Snapshot Database.

- ▶ 'North South (ISJ-BLP)' being renamed to 'North South'
- ▶ The values for 'North South (ISJ_ACR)' being excluded from the query results

The exceptions noted are required to correctly calculate the data for reporting. The reclassification and exclusion was not specifically referenced in the procedure and the procedure is to be updated to specify these in the future.

The information reported on the ARTC website has been verified by ARTC as correct.

IT Access Control procedures

P11: No exceptions noted

Confirmation of a KPI Policy

P12: No exceptions noted

Unit Cost KPI's

P13: No exceptions noted

P14: No exceptions noted

P15: No exceptions noted



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P16: No exceptions noted

P17: No exceptions noted

ATTACHMENT 1 – REVIEW FINDINGS

(Extract from Ernst & Young report)

1.1 Procedures Performed for Quarterly KPIs

	Procedure specified by ARTC	Results of testing
KPI's 1 - 15		
P1	Trace and agree the number and percentage recorded per corridor for the 15 KPIs contained within the ACCC Snapshot database for each of the quarters within scope, to the number and percentage recorded per corridor in the "ACCC Report [month] Quarter [year].xls" spreadsheet.	<ul style="list-style-type: none"> ▶ Dec 10 – No exceptions noted. ▶ Mar 11 – 4 exceptions noted on KPIs 13 and 14 on the Cootamundra – Crystal Brook corridor. ▶ Jun 11 – No exceptions noted. ▶ Sep 11 – 9 exceptions noted on KPIs 12 and 14 on the Sydney – Brisbane corridors and across all availability corridors.
P2	For the September 2012 quarter graph trace and agree the number and percentage recorded within each of the 27 performance indicator graphs from the 27 graphs contained in the "ACCC Report [month] Quarter [year].xls" spreadsheet to the number and percentage recorded in the ACCC Snapshot database for each quarter in scope.	No exceptions noted.
P3	Assess the queries used to populate the "KPI_DW_Data_Detailed" and "KPI_DW_Delay_Data_Detailed" tables in the Snapshot database are complete and accurate by verifying that the queries do not limit the data extracted from the KPI Data Warehouse. Perform this procedure only for trains that are contained within the "Train Inclusions Table".	<p>Availability – 0 exceptions (exclusions) noted.</p> <p>Services – 2 exceptions (exclusions) noted:</p> <ul style="list-style-type: none"> ▶ The "dbo.KPITrainInclusions.kti_Commodity" field is being limited to the following values; ('Bulk', 'Express', 'Industrial', 'Intermodal', 'Passenger') ▶ "KPIOperationalCorridors.corridor_name" field is limited to the following values; ('East - West', 'Melbourne - Brisbane', 'Melbourne - Sydney', 'Sydney - Brisbane')
P4	Trace and agree the summary of the values in the "KPI_DW_Data_Detail" to the values contained in the summary table "KPI_DW_Data" for each of the quarters within scope. These tables are contained within the ACCC Snapshot database.	<p>1 exception noted:</p> <ul style="list-style-type: none"> ▶ A value with a decimal of ".5" was rounded down instead of up in "KPI_DW_Data".
P5	Trace and agree the summary of the values in the KPI_DW_Delay_Data_Detail to the values contained in the summary table KPI_Delay_DW_Data for each of the quarters in scope. These tables are contained within the ACCC Snapshot database.	<p>1 exception noted:</p> <ul style="list-style-type: none"> ▶ A value with a decimal of ".5" was rounded down instead of up in KPI_DW_Delay_Data.
KPI 10: Transit time KPI		
P6	Verify that the 'total minutes per hour of transit' is the same as the result of dividing the 'sum of minutes delay' by the 'total transit time' for each of the quarters in scope in the Snapshot database. KPI 10 is displayed separately to KPI 8 and 9 due to additional 'total transit time' data that is included in the ACCC report for each quarter.	No exceptions noted.

	Procedure specified by ARTC	Results of testing
KPI 11: Temporary speed restriction KPI		
P7	Agree the totals contained in the "TSR_Data" table in the Snapshot database to the 'total minutes lost' column in the "TSR_QTR_Data.xls" spreadsheet for the quarters in scope.	No exceptions noted.
KPI 12: Track condition KPI		
P8	Agree the totals contained in the "TQI_Data" table in the Snapshot database to the "TQI_QTR_Data.xls" spreadsheet for the quarters in scope.	1 exception noted: ▶ The Sydney to Brisbane data in September 2011 differs between the provided workbook and the "TQI_Data" table.
KPIs 13-14: Network availability KPIs		
P9	Agree the totals contained in the "Dynamis_Data" table in the Snapshot database to the 'Summary' tab in the "Dynamis_QTR_Data.xls" for the quarters in scope.	For quarters June 2011, September 2011, no exceptions noted. The procedure could not be completed for the December 2010 and March 2011 quarters as the "Dynamis_Data" input files could not be located.
KPI 15: Network availability KPI		
P10	Assess the queries used to populate the "Avail_Mkt_Data" table in the Snapshot database are complete and accurate by verifying that the query does not limit the data extracted from the KPI Data Warehouse. Perform this procedure only for trains that are contained within the "Train Inclusions Table".	2 exceptions noted: ▶ 2 clauses which edited data on input into the Snapshot Database. ▶ 'North South (ISJ-BLP)' being renamed to 'North South' ▶ The values for 'North South (ISJ_ACR)' being excluded from the query results
IT Access Control Procedures		
P11	Assess that access to make changes to the following spreadsheets for the quarters in scope is limited: ▶ "ACCC Snapshot database" ▶ "ACCC Report [month] Quarter [year].xls" ▶ "TSR_QTR_Data.xls" ▶ "TQI_QTR_Data.xls" ▶ "Dynamis_QTR_Data.xls"	No exceptions noted.
Confirmation of a KPI policy		
P12	Confirm whether a policy or procedure for the process of reporting KPIs 1 to 15 has been developed by ARTC.	No exceptions noted.

1.2 Procedures Performed for Yearly / Unit Cost KPIs

Procedure specified by ARTC		Results of testing
KPI's 16 - 18		
P13	Agree each component of the calculation in the "1011 ACCC Overhead Model [revision date].xls" spreadsheet to the General Ledger system. Confirm that allocations have been carried out on a consistent basis to that in 2009-10 and consistent with separate Hunter Valley allocation method. Also confirm the calculation includes a separate allocation of train control, train control communications and non-train control costs carried out in "1011 ACCC Summary and unit cost [revision date].xls" spreadsheet.	No exceptions noted.
P14	Agree each component in "1011 Works Allocation Report for ACCC [revision date].xls" to the Works Ledger System and has been correctly identified with, or allocated to, the interstate network.	No exceptions noted.
P15	Agree the GTK (gross tonne kilometres) in the "1011 ACCC Overhead Model [revision date].xls" spreadsheet to National RAMS and has been correctly identified with the relevant part of the ARTC network.	No exceptions noted.
P16	Agree the train km (train kilometres) in the "1011 ACCC Overhead Model [revision date].xls" spreadsheet to National RAMS and has been correctly identified with the relevant part of the ARTC network.	No exceptions noted.
P17	Agree the Track KM (a set number of track kilometres) in the "1011 ACCC Summary and unit cost [revision date].xls" spreadsheet used to determine relevant unit costs with track kilometres used to determine temporary speed restriction performance indicators.	No exceptions noted.

ATTACHMENT 2 – OVERVIEW OF THE ARTC PROCESS TO COMPILE PERFORMANCE INDICATORS

(Extract from ARTC’s “Network Capability and Performance Reporting Procedures”)

DATA EXTRACTION

The Data Extraction process is the first phase of the report preparation process. In this process data is prepared by analysts from different departments and then submitted to the Network Performance. The preparation of this report is estimated to take a maximum of 15 days to allow time for all trains to exit the network and the monthly billing process to be completed. The report preparation timeline commences with the sending of an email to contributing parties and concludes with publishing of the report to ARTC’s Website.

Reliability and Transit Time measures

The data which supports the Reliability and Transit Time measures is extracted from National RAMS and TRIMS databases into the ‘KPI Data Warehouse’. Once the data is loaded into the KPI Data Warehouse the Reliability and Transit Time reports are run and a copy of the original files is saved to the Network Capability and Performance Reporting working directory.

Temporary Speed Restriction measure

The ‘Train Speed Restriction’ measure is comprised of data extracted from RailCorp’s TrackSpeed database (for the NSW TSR data) and ARTC’s National RAMS database (for SAWA VIC TSR data). Once this data is extracted it is then processed by the Performance Reporting Officer to produce the TSR measure. The time loss reported reflects the Train Speed Restrictions as at 1pm on the last business day of the month.

Track Condition measures

The track condition measure is based on data recorded from the Track Recording Car. The Track Recording Car gathers information about track condition across ARTC’s rail network. This information is loaded into a database for calculation of the Track Quality Index.

Network Availability measures

- Infrastructure Configuration and Practical Capability

In order to generate the 'Infrastructure Configuration Capability' and the 'Infrastructure Practical Capability' measures data is extracted from the following sources:

- GPS Survey reports (internal and external)
- Internal TOC & TOA2 manuals
- Temporary Speed Restriction reports
- Tractive effort and other locomotive specifications from the manufacturer's locomotive manuals
- Internal curve and gradient reports

- Availability to Market

The 'Availability to Market' measure is based on the Master Train Plan and operator requested dwell data. Train schedule data is extracted from the National RAMS databases via a number of queries. Operator dwell data is extracted from operator dwell reports.

The train schedule and the operator dwell data are combined in a spreadsheet in preparation for data transformation by the Network Performance Analyst.

DATA TRANSFORMATION

The second phase of the report preparation process is the Data Transformation process. In this phase all of the report measures are calculated. Once these measures have been calculated they are then verified in the next phase of report preparation process.

Reliability and Transit Time measures

Calculations are performed on the data that is extracted from National RAMS and TRIMS prior to inserting this data into the KPI Data Warehouse. These calculations calculate the following: healthy/unhealthy services; services that transit within tolerance; on time entry and exit of services; and ARTC/Operator delays by Delay Category.

The resulting data produced by these calculations is inserted into the KPI Data Warehouse. Once the data is inserted into the KPI Data Warehouse Repository the Reliability and Transit Time reports are run and then saved to Network Capability and Performance Reporting working directory.

Temporary Speed Restriction measures

Once the data is collected from the various sources it is processed through a number of databases in order to calculate time loss and track length under restriction on ARTC's network.

Track Condition measure

The track condition measure 'Track Quality Index' is calculated based on data which is recorded by the Track Recording Car. Data from the Track Recording Car is imported into a database before processing.

Network Availability measures

- Infrastructure Configuration and Practical Capability

In order to calculate these measures data is collected from a number of sources and imported into the Dynamis system via a CSV file. The imported data includes: train schedule data; GPS survey data; curve and gradient data; tractive effort data; information from the TOC and TA02 manuals; and locomotive data from the manufacturer.

Once the data is loaded into the Dynamis system the Network Modeller then runs the Dynamis train simulations in order to generate the transit time measures. The Dynamis system simulates the running of a specified train given a specified train environment and track conditions.

- Availability to Market

Once the train schedule and operator delay data is extracted into the Availability to Market spreadsheet it is then processed. Operator delays and dwell time is extracted from the train running times. This is necessary in order to calculate the average transit time offered to market for the reporting corridors.

DATA VERIFICATION

Reliability and Transit Time measures

The Network Performance Analyst and the Operations Business Analyst check the Reliability and Transit Time data for consistency by comparing the data to previous quarters. Additionally, the recipients of these reports send feedback in relation to their reliability and accuracy. This feedback is considered and forms part of the quality assurance process in the creation of these measures.

Temporary Speed Restriction Measures

The Temporary Speed Restriction report is reviewed by the Network Performance Manager. This report is checked against past reports for consistency and accuracy as part of the review process. Once the report is reviewed it is then forwarded to the Business Performance Committee.

Track Condition measures

The Track Condition report is reviewed by the Network Performance Manager. As part of the review process this report is checked against past reports for consistency and accuracy. Once the report is reviewed it is then forwarded to the 'Operational Performance and Asset Condition Committee'.

Network Availability measures

Infrastructure Configuration and Practical Capability

In relation to data verification, the North South data for these measures has been verified as part of the 'Sectional Run Time's' review. However, the East West data for these measures has not been formally verified. It is expected that the verification of this data will take place in the near future.

The Network Modeller and the Operations Planning manager check the result of the Dynamis report against previous months' reports to ensure that the report data is consistent. In addition, the Network Modeller compares the Dynamis report data to the specifications outlined in the TOC and TA02 manuals. This ensures that the resulting Dynamis report data is within the scope of realistic train run times.

Availability to Market

The Availability to Market report is compared to previous months' reports for consistency. The Train Planner and Network Performance analyst check the report for irregularities. If there are any irregularities found in the report they are investigated and fixed.

The train schedule query limits the schedule data to active trains. This ensures that only active train schedules are used in the Availability to Market report. The final Availability to Market report is checked by the train planning team to ensure its reliability.

ATTACHMENT 3 – Summary of KPIs

An Access Undertaking Agreement (the “Access Undertaking”) between ARTC and the ACCC became effective on 21 August 2008. As part of this Access Undertaking, ARTC is required to publish 18 key performance indicators (KPIs) on their website on either a quarterly or annual basis. These indicators are:

KPI	Performance measure	Responsibility	Reporting Frequency
Reliability			
1	Number and percentage of healthy Services that exit the Network within tolerance	ARTC	Quarterly
2	Number and percentage of unhealthy Services that do not deteriorate further, within tolerance	ARTC	Quarterly
3	Number and percentage of Services which are operated in a healthy manner	Operator	Quarterly
4	Number and percentage of Services which exit the network no later than schedule, within tolerance	Both	Quarterly
5	Number and percentage of Services which enter the Network no later than schedule, within tolerance	Operator	Quarterly
6	Number and percentage of Services which exit the Network no later than one hour after schedule	Both	Quarterly
Transit Times			
7	Number and percentage of Services which transit the Network no later than schedule transit, within tolerance	Both	Quarterly
8	Sum of minutes delay (and minutes per hour transit) attributed to below rail cause by type of delay e.g. track, signals/communications, train management/control	ARTC	Quarterly
9	Sum of minutes delay (and minutes per hour transit) attributed to above rail cause by type of delay e.g., late entry, yard/terminal, crew, locomotive, rolling stock, running	Operator	Quarterly
10	Sum of minutes delay (and minutes per hour transit) unable to be attributed to a cause or beyond either party's reasonable control	Neither	Quarterly
Temporary Speed Restrictions			
11	Number of kilometres and percentage of track under temporary speed restriction on the Network at the end of a reporting period	ARTC	Quarterly
Track Conditions			
12	Track quality measured by index	ARTC	Quarterly
Network Availability			
13	Transit time – Infrastructure Configuration Capability	ARTC	Quarterly
14	Transit time – Infrastructure Practical Capability	ARTC	Quarterly
15	Transit time – Availability to market	ARTC	Quarterly
Unit Cost Reporting			
16	Infrastructure maintenance unit cost	\$/track KM, \$/GTK	Annually
17	Train control unit cost	\$/train km	Annually
18	Operations unit cost	\$/train km	Annually