Elliston Constraints Audit Report, April 2006 – Recommendations/Actions

TP Ref	Issue	Recommendation	Report Cross Reference	Transpower Proposed Action	Due Date
1.		Process control documents need to be up-to-date, simple and relevant; otherwise there may be a temptation to ignore them. When a process is to be reviewed, it is recommended that it should be simplified by separating what needs to be done (process) from how it should be done (procedures).	Recommendation A	Security constraint documented procedures are being redrafted	31 August 2006
1.1		The notifications outlined show two different time periods for notification of permanent constraints (Document 327 Security Constraint Development and Review Process):	Elliston Constraints Audit Report, April 2006, Section 9.1.1	Security constraint documented procedures are being redrafted	31 August 2006
1.2		The document lists the inputs and triggers that result in a change to transmission security constraints. The required change in constraints may be a result of changes in transmission capacity or impedance, change in generation capacity, change in load or load growth, change of operation configuration, grid outages, changes to the SPD model, and violations in real time operation. Transpower staff have noted that in addition to these triggers, in practice Operations Planning review all constraints that Market Services identify being affected in MDE and SPD (i.e. always perform step 3B1 in document on this trigger). This is shown in one of the flow charts in the document, and the party responsible for doing this is also clearly specified, but this step itself is not included in the main text of the process document, (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	Security constraint documented procedures are being redrafted	31 August 2006
1.3		The validation of existing constraints entails a number of checks to be made of whether the SPD constraints are referring to the current SPD branches at all times. What is the flag that the SPD constraints are not referring to the current SPD	Elliston Constraints Audit Report, April 2006, Section 9.1.1	When undertaking the constraint peer review/approval process the SPD branches included in the constraint equations are checked for	31 August 2006

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		branch? Although a process is noted for how to determine the SPD branches and flow direction, there are so many branches that it is unclear what would draw the OPEs attention that a branch is in fact incorrect or not the current one. (Document 327 Security Constraint Development and Review Process)		correctness, this includes checking that the name is correct, as well as checking the correct section of a circuit is in the equation. ACI now synchronises daily with SPD to ensure SPD branch names are current. The recent introduction of time stamping for branches in SPD no longer requires a new and unique name to be given to an SPD branch if it's characteristics are revised. Security constraint documented procedures are being redrafted.	
1.4		The process of "Identifying SPD Branches for Underlying Circuits" is provided at the end of the document. It notes that the circuit rating spreadsheet and the SPD drawing are only updated once a fortnight and the changes to either may not be synchronised. What is the barrier preventing these basic information documents from being continually up to date and showing non-contradictory information? (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	Documentation is not correct in the Synchronising changes section. SPD branch names now change very infrequently due to the introduction of timestamping. SPD drawings and ratings information are then updated on an as-required basis. Ref action 1.3 Security constraint documented procedures are being redrafted.	31 August 2006
1.5		It is also unclear why the SPD drawings may not reflect the actual grid, with future changes being allowed to be incorporated into the spreadsheet or drawings while not yet commissioned. Within this review, a number of processes would be improved through the use of time-stamping of	Elliston Constraints Audit Report, April 2006, Section 9.1.1	The issue will be resolved by the Market Systems Programme. This action relates to commissioning and scheduling of new branches. It is not practicable to rectify the synchronisation problem with the	31 June 2007

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		various documents. In this instance, a drawing that will become obsolete should have a "valid to" date, and a drawing or circuit rating spreadsheet that reflects a future scenario should have a "valid from" date, and the clocks on the IT system should be used to flag whether something is currently applicable or not. The current process requires a manual check with a particular designated OPE staff member and a MSA staff member to check what is current or valid, etc. What if that staff member is unavailable? It is not reasonable to have databases that are not accurate or current. (Document 327 Security Constraint Development and Review Process)		current market systems. The new market systems will use only one system model, which will use timestamping to schedule start and end times for the commissioning of new plant.	
1.6		The testing of constraints in SPD is not always carried out, with the guidelines specifically mentioning testing in the circumstance of non-conforming loads and commercially or politically sensitive loads. Is there a concern or time issue with testing all constraints in SPD? This would remove a subjective decision from OPEs which is outside their area of expertise (for example, in determining whether a load is considered commercially or politically sensitive or not). Commercially sensitive to whom – a lines company, a retailer, a generator, no-one important? (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	It is not feasible to test all constraints in ESCHED. New 'types' or 'classes' of constraints are tested prior to going into production. There is little value in testing conventional permanent and outage constraints due to the number of constraints involved. The test platform is also not suitable for identifying sensitivities to changes in realtime system conditions. Ref action 1.23 Security constraint documented procedures are being redrafted.	31 August 2006
1.7		It is unclear from the documented procedure the difference between a SPD security limit and an MDE equation constraint. (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	An SPD security limit is reflected by a branch constraint in MDE. An equation constraint contains more than one SPD branch.	31 August 2006

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				Security constraint documented procedures are being redrafted.	
1.8		Under stages 9 to 12, where a SPD Branch security limit is required to be changed, the OPE responsible for updating the Circuit Rating spreadsheet is advised. It is unclear who advises this person. (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	Security constraint documented procedures are being redrafted.	31 August 2006
1.9		The process then notes that when the constraint has been reviewed and approved (by whom is not specified)... (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	Security constraint documented procedures are being redrafted.	31 August 2006
1.10		(cont) ... the delegated Market Services Analyst managing the SPD model is then advised (by whom is not specified). (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	Security constraint documented procedures are being redrafted.	31 August 2006
1.11		General comment: the constraints database should be the location of all information relating to constraints, but there are a number of instances where the constraint database does not reflect actual constraints. (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	The mismatch between constraints built in ACI and those scheduled in MDE has been resolved through the use of a reporting tool that identifies any disparities between the two databases. Security constraint documented procedures are being redrafted	31 August 2006
1.12		There are a number of references to documents such as 'Refer	Elliston Constraints Audit	The SO has recently introduced a	Completed

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		to the Word file called "342 Issuing a Customer Advice Notice" stored in \\wnfs1\GOS_doc\System_Management\Notices for more information'. A recommendation is that all instructions should be placed in one common location, not spread throughout the IT system. This will ensure no duplication, easier management and control, and that latest versions of documents are the only ones on the system. (Document 327 Security Constraint Development and Review Process)	Report, April 2006, Section 9.1.1	new document management system. Documents are currently being updated with revised references. Purpose of the new document management system is to address issues of duplication, ease of use and change control.	
1.13		An instruction is then provided to create an email of the notification. There is a further step which requires the sender of the email to file then file the sent email in a new folder called "Outlook/Operations Planning Mailbox/Constraints Advice". This step should not be manual. This is necessary to ensure ease of audit and tracking. All such constraints advice should be automatically logged and not require a secondary step, given the possible significant effects of permanent constraints on the whole market. (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	All constraints advice notifications are captured as sent items in the mail notification system which is sufficient for audit purposes. Archiving emails to the Constraints Advice section is to provide a quick reference of information sent. Process for notification of constraints to be revised through MSP implementation.	No further action
1.14		There is also an instruction for notifying the Internet Administrator to update the SMS CAN website when a CAN is issued for, among other things, changes to permanent security constraints. This notification is a manual process, whereas it should be automated so that CANs relating to changes to permanent security constraints are always notified to the internet administrator, or even more appropriately, as the technology allows, automatically posted on the internet when	Elliston Constraints Audit Report, April 2006, Section 9.1.1	Current tools do not allow for classification of CAN's. As part of the Market Systems replacement project, the process for notification of constraints information is being reviewed in consultation with industry participants. Given MSP implementation there is limited cost/benefit in making remedial	July 2007 (MSP implementation)

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		issued. (Document 327 Security Constraint Development and Review Process)		changes to existing market reporting tools.	
1.15		These intermediary manual steps (outlined in the preceding paragraphs) should not be part of the process, as they require no expert input, but the opposite – they are trivial actions which are relatively easy to accidentally omit on the part of the operator. As these intermediary steps are always taken, this is an area for automation to remove the prospect of human error. (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	Covered by the actions stated for 1.13 and 1.14	N/A
1.16		Clarification required: the references in "External policy/rules and regulations" are incorrect and need to be updated, and "Internal policies and guidelines" contain reference to a document that no longer exists – Standing Instruction 51: "Communication and Documentation of Outage Security Issues". Also, "Standing Instruction 50: Issuing Security Notices" is now called by another name. (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	Security constraint documented procedures are being redrafted	31 August 2006
1.17		Clarification required: In the "Responsibility" section, the table shows that OPEs are responsible for notifying both internal and external stakeholders of changes to existing constraints or creation of new constraints, but the text says that Security Coordinators should be issuing CANs for all constraints. The responsibility for the issuing of CANs should be clarified, so that only one party is responsible. (Document 327 Security Constraint Development and Review Process)	Elliston Constraints Audit Report, April 2006, Section 9.1.1	See action 1.31. Security constraint documented procedures will be clarified with respect to responsibilities	31 August 2006

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TP Ref	Issue	Recommendation	Report Cross Reference	Transpower Proposed Action	Due Date
1.18		When a constraint or constraint bundle is created, the constraints database will allow more than one object with the same description, but MDE will not allow this. What is the practical effect of two objects having the same description? If the effect is likely to have a market effect, then the constraints database needs to be modified so that when a new object is entered, it cannot share the same description as another object. At present, there is an instruction specifying that the same name should not be used, but the software would accept it, which leaves room for human error. (Document 325 Security Constraints Database Operating Procedure)	Elliston Constraints Audit Report, April 2006, Section 9.1.3	Both the ACI constraints database and MDE, do not allow for objects to share a common description/name. See action 1.11 Security constraint documented procedures are being redrafted	31 August 2006
1.19		The instructions for cloning an object states that automatic superseding of a constraint can be achieved by ticking the "supersede cloned constraint" box – does this automatic superseding of constraints prevent them from being applied in future? (Document 325 Security Constraints Database Operating Procedure)	Elliston Constraints Audit Report, April 2006, Section 9.1.3	Yes.	No further action
1.20		When the cloning process is used to automatically supersede constraints, if the old constraint is scheduled in MDE it will not be deactivated, even though it may be superseded in ACI at this stage. (Page 39 of 5, bottom of page). If the intent of the developer is to ensure that the constraint is no longer able to be used, this objective will not be met, as long as the old constraint remains scheduled in MDE. (Document 325 Security Constraints Database Operating Procedure)	Elliston Constraints Audit Report, April 2006, Section 9.1.3	See action 1.11	Completed

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1.21		If the constraint is no longer scheduled in MDE, will it then be unable to be applied again? As in the item above, if the constraint remains active and available for use, despite the intent that it should become inactive once the scheduling in MDE has ceased, then a reminder or some flag needs to be implemented to ensure staff are alerted to this, to ensure the constraint is not re-applied inadvertently. (Document 325 Security Constraints Database Operating Procedure)	Elliston Constraints Audit Report, April 2006, Section 9.1.3	Yes. See actions 1.11 & 1.19	Completed
1.22		It is noted that when SPD branches are created in ACI, they are only valid for 14 days. The same branch name needs to be created in SPD for it to be active after this. Is there a process for informing someone that a new SPD branch needs to be created in SPD itself? (Document 325 Security Constraints Database Operating Procedure)	Elliston Constraints Audit Report, April 2006, Section 9.1.3	Yes. This is managed through the commissionings and ratings change process. Documentation is being clarified to refer to this.	31 August 2006

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1.23		The procedure for Modifying Constraints and Constraint Bundles needs further explanation: Why is it possible to change the RHS of a constraint, even though it notes in step 2 of page 40 that "....no other information will be updated in MDE after the constraint is created, particularly not the constraint equation. If the equation needs to be changed, the constraint will have to be superseded and another created. This restriction is in place to ensure the integrity of current and past scheduled constraints."? (Document 325 Security Constraints Database Operating Procedure)	Elliston Constraints Audit Report, April 2006, Section 9.1.3	The RHS of the constraint is a variable which is adjusted in both planning time, and real-time as dictated by changing system conditions. Adjustment of the constraint RHS ensures SPD will not over or under constraint system flows. The information highlighted in the documentation refers to calculation of the LHS variables of the constraint equation. Security constraint documented procedures are being redrafted	31 August 2006
1.24		Step 15 notes that Market Notices are to be indicated in the Security Schedule, but does not show who is responsible for this, or what consequential step follows this. (Document 237 Assess and Confirm Plant Requests Workflow)	Elliston Constraints Audit Report, April 2006, Section 9.2.1	The Security Co-ordinator is used as a single point of contact for issuing of market notices to maintain continuity of operational information within the control room. Further information on issuing of market notices is given in Standing Instruction 50: System Operator Notices Overview. Security constraint documented procedures are being redrafted	31 August 2006

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1.25		Step 17 specifies that it is the OPEs responsibility to enter the outage into MDE at Week Ahead Check, that is, MDE is updated 7 days prior to outage commencement date. The Flowchart that is part of document 237 notes that approved plant requests are to be entered into MDE by "10th". It is unclear how step 17 and the flowchart fit together. (Document 237 Assess and Confirm Plant Requests Workflow)	Elliston Constraints Audit Report, April 2006, Section 9.2.1	Security constraint documented procedures are being redrafted	31 August 2006
1.26		That procedure notes that "the Gridplan contains all MDE requirements except those that have simple PROMS to MDE relationships". What happens to these MDE requirements that is not in the relevant Gridplan? (Document 237 Assess and Confirm Plant Requests Workflow)	Elliston Constraints Audit Report, April 2006, Section 9.2.1	Security constraint documented procedures are being redrafted	31 August 2006
1.27		Step 18 notes that it is the OPEs responsibility to change the outage request in PROMS from "lodged" to "approved". This has already been done in step 13. (Document 237 Assess and Confirm Plant Requests Workflow)	Elliston Constraints Audit Report, April 2006, Section 9.2.1	Security constraint documented procedures is being redrafted	31 August 2006
1.28		A number of additional resources for completing security risk assessment are listed. Within this list, it is noted that "Transformer (Network Planning) and Circuit Ratings (Operations Planning) spreadsheets" are to be used, but which in future are to be replaced by the ACI (Asset Capability Information) tool. However, the processes outlined in the documents on the subject of developing constraints (which is within the ACI tool) specifically notes that Circuit Ratings are to be referred to in developing constraints. These two instructions are circular in nature and need to be clarified.	Elliston Constraints Audit Report, April 2006, Section 9.2.1	Security constraint documented procedures are being redrafted	31 August 2006

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		(Document 237 Assess and Confirm Plant Requests Workflow)			
1.29		The week ahead spreadsheet named in Step 6 does not line up with the name of the sheet in document 239. (Document 242 Week Ahead MDE Entry)	Elliston Constraints Audit Report, April 2006, Section 9.2.3	Security constraint documented procedures are being redrafted.	31 August 2006
1.30		It is unclear in step 15 that this is the step where the requirement for CANs should be indicated. (Document 242 Week Ahead MDE Entry)	Elliston Constraints Audit Report, April 2006, Section 9.2.3	Security constraint documented procedures are being redrafted to clarify that the need for CANs is indicated in the Grid Plan and also in the Market Notice Monitoring Spreadsheet (\nipub\opsplanner\market_notice_monitoring_ss\market_notice_monitoring.xls). The Security Coordinator checks this spreadsheet daily and confirms when the notice is issued	31 August 2006
1.31		In document 243, step 11 is to issue market notices. Although the document outlines a process that is the OPEs responsibility and the OP Manager's accountability, step 11 is the responsibility of the NCC Security Coordinator. This is confusing. (Document 242 Week Ahead MDE Entry)	Elliston Constraints Audit Report, April 2006, Section 9.2.3	See action 1.24	No further action.
1.32		What is the flag to show the SC that a CAN is needed, and for the SC to issue the CAN 6 days before, as outlined in Step 11? Or is step 15 of document 237 the step that flags to the SC a CAN is required for an outage? (Document 242 Week Ahead MDE Entry)	Elliston Constraints Audit Report, April 2006, Section 9.2.3	This is notified through existing process. Ref action 1.24. Security constraint documented procedures are being redrafted for added clarity.	31 August 2006

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1.33		Step 14 notes that it is the responsibility of OPEs to monitor PROMS for short notice requests, which is anything coming in less than 6 weeks from the start of the month. This is in conflict with the purpose statement of this document, which states "Plant requests are assessed up to 4 weeks leading up to the outage" (Doc 239 Day Ahead Grid Plan Check)	Elliston Constraints Audit Report, April 2006, Section 9.3.1	Security constraint documented procedures are being redrafted for added clarity.	31 August 2006
1.34		It is understood that part of this process can be automated to some degree, as one staff member has done using the macros facility in the spreadsheet programme. If the process can be automated to remove human error, or to remove a manual step that requires no expert judgements, then this new procedure should be formally checked, documented and incorporated. (Document 541 Security Coordinator Day Ahead Check Process)	Elliston Constraints Audit Report, April 2006, Section 9.3.2	Security constraint documented procedures are being redrafted	31 August 2006
1.35		The procedure does not specifically state that stability analysis is carried out. (Document 373 System Management)	Elliston Constraints Audit Report, April 2006, Section 9.3.3	Stability analysis is automatically carried as part of the contingency analysis.	No further action
1.36		These procedures may be able to be simplified down to one set of equations given their similarity. (Document 553 Re-rating of constraints in real time)	Elliston Constraints Audit Report, April 2006, Section 9.3.5	Security constraint documented procedures are being redrafted	31 August 2006
1.37		Nonetheless, from the procedures, it is unclear what the checks on this process are. (Document 553 Re-rating of constraints in real time)	Elliston Constraints Audit Report, April 2006, Section 9.3.5	Security constraint documented procedures are being redrafted	31 August 2006
1.38		Failure to notify a change to an outage notice: the heading "late return" needs to be deleted from page 6 of 10 as this heading is incorrect. (Document 585 Real time MDE updates for Grid	Elliston Constraints Audit Report, April 2006, Section 9.3.6	Security constraint documented procedures are being redrafted	31 August 2006

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		Owner Offer Changes)			
2.		It would be useful to prepare a flowchart that matches the various processes to the appropriate rules within the EGRs, showing exactly what rules each process complies with.	Recommendation B	Security constraint documented procedures are being redrafted	31 August 2006
3.		To ensure consistency and reproducibility of process, the remaining discretionary steps should be reviewed and removed unless there is a good reason to allow discretion, except for those steps that require expert or professional judgement on the part of the staff member.	Recommendation C	Documentation is being redrafted to provide will provide improved clarity and consistency. A regular training framework is being put in place which will include a competency assessment for staff involved in managing/developing constraints. This process will change significantly as part of MSP implementation.	31 August 2006 (documentation) 31 December 2006 (training framework)
4.		In the particular instance regarding week ahead MDE entries, the procedure is very prescriptive, possibly indicating that there is an intention that staff are to follow it explicitly. The question here is to what degree of a procedure is to be adhered to, or should the procedure be a given the status of a guideline only. When a process is to be reviewed, some thought should be given as to whether the level of prescription is warranted.	Recommendation D	See action 3..	31 August 2006 (documentation) 31/12/2006 (training)
5.		The application of security constraints into MDE is labour intensive and presents a large number of opportunities for error. A means to reduce this opportunity needs to be investigated, including process automation where practical.	Recommendation E	See action 3. An internal review is also being conducted to investigate rationalising the number of constraints used and reducing the associated constraint maintenance/management requirements.	Review completed by 31 July 2006

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6.		If constraints were able to have some form of expiry date beyond that which they cannot be used, this will make it more difficult to inadvertently apply superseded constraints, or leave them in when they should have been removed	Recommendation F	The issue is proposed to be fixed by the Market Systems Programme. This action relates to commissioning and scheduling of new branches. It is not practicable to rectify the problem with the current system, but the new system will timestamp start and end times and is proposed to be linked to the grid capability tools	30 June 2007
7.		The issue where a constraint that is to be made inactive but cannot because it has been applied in MDE needs to be resolved.	Recommendation G	Refer to action item for 1.11	31 August 2006
8.		The lack of linking between the constraints database and operational plans has its advantages, but a notification or flag that the constraint in an operational plan does not line up with its counterpart in the ACI database may be beneficial.	Recommendation H	Ref to action 1.11 Security constraint documented procedures are being redrafted.	31 August 2006