



Review of the Northern Rivers Connectivity Event during the Temporary Water Restrictions

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Acknowledgement of the Traditional Owners of the Murray-Darling Basin

The Murray–Darling Basin Authority pays respect to the Traditional Owners and their Nations of the Murray–Darling Basin. We acknowledge their deep cultural, social, environmental, spiritual and economic connection to their lands and waters.

The guidance and support received from the Murray Lower Darling Rivers Indigenous Nations, the Northern Basin Aboriginal Nations and our many Traditional Owner friends and colleagues is very much valued and appreciated.

Executive Summary

In response to concerns about river connectivity, water quality, fish health, and dispersal opportunities after extremely dry conditions in the Barwon-Darling system, the Commonwealth Environmental Water Holder (CEWH) and the New South Wales Department of Environmental and Heritage (OEH) announced a joint release of held environmental water in April 2018. This was referred to as the Northern Connectivity Event, and involved 25 gigalitres (GL) of Commonwealth water and 7.2 GL of NSW OEH water being released from Northern Basin storages. Releases were made from Copeton Dam on the Gwydir River and Glenlyon Dam on the Border Rivers, and were expected to reach downstream at least as far as Wilcannia.

Concurrently, the Hon. Niall Blair, NSW Minister for Regional Water announced a temporary water restriction to protect and shepherd the environmental water through the system. An Order was made under section 324(1) of the *Water Management Act 2000* (NSW) to impose temporary water restrictions from 29 April 2018 to 22 June 2018 on all class Water Access Licences (WAL) in the prescribed Barwon-Darling unregulated river water source (Appendix A). Under the temporary water restriction, the only water extraction permitted was water taken under a local water utility access licence, a domestic and stock access licence, or access licences of the sub category "town water supply".

The then newly established NSW Natural Resources Access Regulator (NRAR) was assigned the task of enforcing the temporary water restriction and was responsible for monitoring the environmental flows, by auditing WAL holder compliance with the temporary water restrictions, and undertaking property inspections along the Barwon–Darling River. Other Government agencies, including Murray-Darling Basin Authority (MDBA), NSW Department of Industry Water, WaterNSW, CEWO and NSW Department of Primary Industries Fisheries, also participated and undertook monitoring and analysis during and after the flow event, with the MDBA using satellite imagery to track the flow of water through the system. Following the Northern Connectivity Event, the MDBA and NRAR agreed to undertake this joint review to assess the effectiveness of the arrangements NRAR put in place to oversee compliance with the temporary water restriction.

Overall, the review has concluded that NRAR established appropriate governance arrangements and operational activities to ensure WAL holders complied with the temporary water restriction rules and no theft of water was observed. As expected, the review also identified opportunities for improvement, particularly in the areas of: formalising processes and procedures (including interagency governance arrangements); regulating stock and domestic access; and communication strategies for managing future events. It is important to note that timeframes and organisational maturity influenced some of the review findings, with NRAR having been officially established just one day before operations for this event commenced.

This post-event review has provided a means to document the lessons learnt and opportunities to improve the enduring systems being put in place to support future water management and compliance activities associated with environmental flow events. Environmental watering events are a critical part of delivering better environmental and social outcomes in the Basin, and effective protection and management of these events is fundamental for a healthy working basin.

Overall Rating Satisfactory with room for improvements

Assessment against the Review Objective

Review Objective: To assess the effectiveness of the governance and management arrangements in place for the Northern Connectivity Event, and operational activities, processes and procedures implemented to ensure compliance with the temporary water restriction rules.

Conclusion: Overall, NRAR established appropriate governance arrangements, operational activities, and processes and procedures to ensure WAL holders complied with the temporary water restriction rules (Appendix B). NRAR was able to:

- develop an operational plan for the Northern Connectivity Event monitoring. This
 operational plan provided guidance principles for NRAR field officers to follow, property field
 inspection schedules and operational areas
- establish a reporting hotline and webpage portal to enable the public to report potential unauthorised take
- engage six field officers who were responsible for conducting property inspections, creating a
 'boots on the ground' presence, engaging with the community to educate and build
 awareness, and promote compliance from WAL holders with their licence conditions
- contribute to and participate in the interjurisdictional Operational Advisory Group and Event Oversight Group.

Due to NRAR's on-the-ground compliance operations, along with other government agency efforts and contributions, no significant issues or illegal water take were found to have occurred during the Northern Connectivity Event. Furthermore, flows through the Barwon-Darling river system exceeded expectations and targets, passing through Wilcannia and reaching Menindee on 1 July 2018. The trial use of satellite imagery by the MDBA also proved to be a useful additional tool in monitoring the event. However, while the protection of environmental flows was effective, further improvements can be made in the areas of inter-agency governance arrangements, regulating stock and domestic access, processes and procedures for undertaking field inspections, and communication strategies, which could be incorporated for future water management and environmental flow events.

It is important to note that tight timeframes and relative governance maturity had a significant influence in some of the observations included in this report. NRAR and other government agencies have already identified some of these observations as part of their operational review of the Northern Connectivity Event, and are already undertaking work to address them.

Summary of observations

Key observations		Suggested next steps
1	Formalising inter-agency governance arrangements and coordination to clearly define roles and responsibilities Coordination between Government agencies as part of the Northern Connectivity Event was effective, particularly with the short timeframe agencies were required to work within. However, inter-agency communication and processes were largely informal, and relied on existing professional relationships. In future, the lack of formal inter-agency arrangements may result in; NRAR and Government agencies not obtaining sufficient notification of future environmental flow events to adequately undertake strategic planning and preparation Inability to harness capabilities from all relevant government agencies to enable more effective operational planning Misunderstanding of roles, responsibilities, and accountability Inconsistent information being reported. There is an opportunity to formalise future environmental flow events by developing a collaboration protocol document, memorandum of understanding or similar inter-agency agreements.	 Develop an overarching agreement, e.g. memorandum of understanding, with other government agencies for future water management and environmental flow events to ensure timely notification is given. Furthermore, to ensure transparency, accountability, and roles and responsibilities, an engagement or collaboration plan should be developed for each event, which clearly outlines: Each agency's roles and responsibilities; Extent of each agency's involvement; Event timeframes; Processes for communicating between key agencies during the event; Communication plan for licence holders and the general public; and Process for agencies to report and communicate any potential non-compliance to NRAR.

Key observations

Suggested next steps

2 Regulating stock and domestic access

The temporary water access restrictions put in place for Northern Connectivity Event exempted local water utility access licences, domestic and stock access licences and access licence of the sub category 'town water supply'.

NRAR field officers observed and investigated pumping near Walgett on the 12 May 2018 by a water user who was using a 6 inch pump to extract water from the river. At least 60 megalitres of water was extracted, and through further investigation it was identified that the extraction was for the purpose of providing water for 4,000 livestock. As a result, the extraction was deemed to be reasonable, and within the scope of stock and domestic use and therefore lawful. This water take resulted in some community members raising concerns as to whether the volume taken was reasonable.

The absence of a guideline and an associated ability to limit stock and domestic access increases the risk of:

- environmental flow objectives and outcomes not being achieved
- loss of the community confidence and trust in compliance and enforcement activities.

As a result, NSW government is looking to develop a reasonable use guideline to ensure transparency and clarity of access and take under stock and domestic basic landholder rights.

- NSW government to finalise the stock and domestic reasonable use guideline to ensure clarity and transparency of access under stock and domestic basic landholder rights.
- For future environmental flow events, clearly communicate and reinforce the guideline to the public and property holders. The guideline could be used to assess whether a property holder is using water beneficially, and not wasting or improperly using water (as per the Water Management Act 2000).

Key observations

Suggested next steps

Standardising and formalising processes and procedures

Formal standard operating procedures can facilitate communication, provide consistency and quality control, help increase productivity, support peer accountability and coaching, and help create a safer work environment within an organisation.

The assessment of NRAR compliance monitoring activities and case management identified that while an operational plan and internal process documentation were developed for case management, varying resources, tools and equipment were deployed as part of field officer's property inspections. This resulted in varying information being captured and inconsistent processes undertaken, which could lead to inconsistent data gathering and interpretation, and potential undermine any investigation or enforcement activity.

Consideration should be given to standardising and formalising processes and procedures for field officers. This would help ensure consistent and quality information is recorded to enable NRAR to inform future operational plans, undertake further enforcement actions, and ensure field officers meet their health work and safety requirements.

- Develop and implement standard operating procedures for field officers
- Implement consistent hardware and software applications to ensure quality and consistent information is being captured
- Ensure all staff are provided with appropriate training, resources and opportunities to develop the skills to undertake field inspections and stakeholder relationships.

Key observations

Suggested next steps

Increase communication and awarenessraising prior to the event

Timely communication, education and awareness-raising of water management and environmental flow events to WAL holders and the community is fundamental to improving voluntary compliance, preventing unauthorised take, and ensuring that individuals are aware of their rights and obligations.

Information about the Northern Connectivity Event was generally communicated through relevant Customer Advisory Group, newspaper, radio, media releases and word of mouth. However, some WAL holders and locals expressed a preference for formal notification from relevant authorities outlining the details of the temporary water restriction rules prior to the release of the environmental flow, so as to more adequately prepare them for the no-pump conditions.

While it is not necessarily the responsibility of NRAR to implement environmental flow event media and communication strategies, there is an opportunity to improve future operational plan efficiency and increase voluntary compliance by:

- Liaising and coordinating with the other NSW government agencies to ensure timely and adequate media and communication strategies are implemented
- Using other means of media and advertising to create education and awareness of NRAR, the importance of environmental watering compliance through the use of social media, visiting schools.

Agreed actions

NRAR welcomes opportunities to review how key water compliance activities are conducted in NSW and is committed to the establishment and improvement of protocols, policies and processes. Ensuring that the maximum beneficial benefit is derived from environmental flows through the monitoring of compliance with the rules that apply to each particular environmental flow event is one of these key water compliance activities.

Developing protocols for how agencies work together on environmental flow events will introduce certainty into the planning processes and will enhance consistency, efficiency and monitoring effectiveness to assure event success. Liaison on communication and media strategies is also important to ensure that the community are aware of the overall aims of an event and the regulated community understand their obligations. Clear guidelines on reasonable use will provide better clarity for the regulated community and our compliance officers, as will the development of standard operating procedures. The NRAR will work with relevant NSW agencies to action the improvements associated with the report recommendations.

Delegate Name: Grant Barnes, Chief Regulatory Officer, Natural Resource Access Regulator

1 Detailed Observations

1.1 Formalising inter-agency governance arrangements and coordination to clearly define roles and responsibilities

Background

As part of the Northern Connectivity Event an operational plan was developed, including an operational advisory and event oversight group, and extensive coordination occurred between government water policy and operational agencies. However inter-agency government communication during the Northern Connectivity Event was largely informal and relied on existing relationships. As a result, there was a lack of formal collaboration protocols. For example, a memorandum of understanding, which clearly outlined the roles and responsibilities of each government agency involved. Subsequently, timeframes, resources assigned, scope of each agency's activities, and processes and procedures for communicating any detected unauthorised take, were not clearly identified and documented.

NRAR's ability to implement a more targeted and efficient compliance approach was hindered by the lack of sufficient notification and time to undertake appropriate strategic planning. For example, more extensive research could be undertaken on property and licence holders prior to the event, including the use of innovative technologies available from other agencies. This could have made NRAR's approach for compliance monitoring more targeted and efficient.

Moreover, the lack of notification sometimes resulted in NRAR having challenges obtaining property access to conduct water supply work inspections, and obtaining appropriate tools and equipment for field officers.

Developing a formal collaboration protocol document, such as a memorandum of understanding between government agencies, could help facilitate active participation of relevant agencies, and encourage the use of technologies such as satellite imagery where appropriate. This could be beneficial to the design, delivery and oversight of compliance activities. It would also help maintain a strong performance focus to harness collective capabilities and build ownership, responsiveness, resilience to achieve a common objective.

Impact or consequence

The lack of a formal collaboration protocol or memorandum of understanding between relevant agencies may result in:

- NRAR not obtaining sufficient notification of future environmental events to enable adequate strategic planning.
- Not being able to harness capabilities from other government agencies to enable a more effective operational plan.
- Misunderstanding of roles, responsibilities, and accountability.
- Inconsistent information of non-compliance being reported to NRAR due to no formal processes and procedures being implemented between government agencies.

Suggested Next Steps

Develop an overarching agreement, e.g. memorandum of understanding, with other government agencies for future water management and environmental flow events to ensure timely notification is given.

Furthermore, to ensure transparency, accountability, and roles and responsibilities, an engagement or collaboration plan should be developed for each event, which clearly outlines:

- Each agency's roles and responsibilities;
- Extent of each agency's involvement, including the resources and technology available;
- Event timeframes;
- Processes for communicating between key agencies during the event;
- Communication plan for licence holders and the general public; and
- Process for agencies to report and communicate any potential non-compliance to NRAR.

Agreed action

NRAR will work with relevant government agencies to develop an overarching environmental flow engagement collaboration plan which would include processes for the preparation of individual event plans.

Accountable Agency	Natural Resources Access Regulator
Implementation due date	June 2019

1.2 Regulating stock and domestic access

Background

The Northern Connectivity Event temporary water restriction applied to all WAL holders with the exception of access licence of the sub category 'town water supply', local water utility access licences, taking water for domestic and stock use under access licence, and basic landholder rights.

Under the *Water Management Act 2000 (NSW)*, an owner or occupier of a landholding is entitled to take water from a river, estuary or lake which fronts their land or from an aquifer which is underlying their land for domestic consumption and stock watering, without the need for a WAL. Owners and occupiers of landholdings do not need a WAL to take water under a domestic and stock right.

Water taken under a domestic and stock right may be used for normal household purposes around the house and garden and/or for drinking water for stock. It cannot be used for irrigating fodder crops for stock, washing down in a dairy or machinery shed, intensive livestock operations (such as feedlots, piggeries or battery chickens), aquaculture or for commercial purposes (including caravan parks or large-scale bed and breakfast accommodation) other than for the personal use of the proprietors.

While the above outlines what water extracted under the stock and domestic provision can or can't be used for, there is no clear determination how much water extraction is considered 'reasonable'.

As part of the NRAR's compliance property inspection near Walgett on the 12 May 2018, a water user was found using a 6 inch pump to extract water from the river during the Northern Connectivity Event. NRAR field officers estimated at least 60 megalitres was extracted, for the purpose of providing water for 4,000 livestock. NRAR field officers had to make a determination of what was considered to be reasonable and in this case, the extraction of 60 megalitres of water for this purpose was considered to be reasonable.

While this level of take was considered to be within the scope of stock and domestic use, it highlighted the need for a guideline to help determine what level of take is considered appropriate for stock and domestic use. The NSW government is already looking to develop a guideline to provide clarity and transparency of access under stock and domestic basic landholder rights.

Impact or consequence

The lack of a guideline to provide clarity and transparency of access under stock and domestic basic landholder rights may result in:

- Lack of understanding by WAL and property holders of their rights and obligations regarding stock and domestic water use.
- the inability to undertake enforcement action on stock and domestic access basic landholder rights.
- environmental flow objective and outcomes not being achieved.
- reputational risk, due to the loss of the community confidence and trust.

Suggested Next Steps

NSW government to finalise the guideline to ensure clarity and transparency of access under stock and domestic basic landholder rights.

For future environmental flow events, clearly communicate and reinforce the guideline to the public and property holders. The guideline could be used to assess whether a property holder is using water beneficially, and not wasting or improperly using water (as per the *Water Management Act 2000*).

Agreed action

In 2019, the NSW Department of Industry, Lands and Water, will consult with the community on reasonable use guidelines for the taking and use of water for domestic consumption and stock watering pursuant to basic landholder rights.

Accountable Agency	NSW Department of Industry, Lands and Water Division
Implementation due date	December 2019

1.3 Standardisation and formalising processes and procedures

Background

Good standard operating procedures and internal work instructions provide a way to communicate and apply consistent standards and practices within organisations. Developing and implementing formal standard operating procedures can facilitate communication, provide consistency and quality control, help increase productivity, support peer accountability and coaching, and help create a safer work environment.

The assessment of NRAR's case management and compliance processes and procedures as part of this review identified, that NRAR had developed:

- an operational plan which provided guiding principles for NRAR field officers to follow, covering key areas such as: operational area, inspection schedule, workplace health and safety and risk assessment; and
- Processes and procedures had been created for the triaging of breaches received.

However, there was a lack of formal internal standard operating procedures. No training was provided to field officers, recognising that the majority of field inspectors were experienced and when an inexperienced officer was assigned they were guided by an experienced officer. A reporting hotline was established to enable the public to report potential unauthorised take, however standard processes were not applied by NRAR field officers in response to potential non-compliance, resulting in the reports and information not being treated consistently.

NRAR's operational plan required field officers to complete risk assessments and safe work method statements every day for the duration of the event, however an assessment of risk assessments and safe work method statements identified that field officers only completed these documentation once prior to commencing field inspections.

NRAR had six field officers who were assigned to conduct property inspections. The six field officers were split into two teams with a monitoring officer working from the Command Centre in Dubbo, who was responsible for having oversight of field officers' movements through the use of a Spot TracerTrack.

A discussion with the field officers revealed that the NRAR field teams had different resources, tools and equipment as part of their field inspections. For example, one team used the iAuditor application to enter field inspection information, store property photos and captures field officers risk assessments. Another field team manually recorded property inspection information and stored property photos on their phones. As a result, information was being recorded in different ways.

Impact or consequence

The lack of a formal standard operating procedure and training provided to field officers may increase the risk of:

 inconsistent or insufficient information or evidence being identified and recorded as part of the property field inspection, resulting in the inability to undertake further enforcement actions. Significant intelligence information not being recorded or captured on NRAR's system to enable an improved targeted and structured compliance approach for future environmental event.

Suggested Next Steps

- Develop and implement standard operating procedures for field officers.
- Implement consistent hardware and software applications to ensure the quality and consistency of information being captured.
- Ensure all staff are provided with appropriate training, resources and opportunities to develop the skills to undertake field inspections and stakeholder relationships.

Agreed action

NRAR will:

- develop and implement procedures for monitoring environmental flows;
- implement a single platform for capturing audit and inspection information;
- ensure that all staff are provided with appropriate training.

Accountable Agency	Natural Resources Access Regulator
Implementation due date	June 2019

1.4 Increase communication and awareness-raising prior to the event

Background

Timely communication, education and awareness-raising of environmental events to WAL holders and the community is fundamental for an efficient operational plan. It helps to improve voluntary compliance, prevent unauthorised take, and ensure that individuals are aware of their rights and obligations.

The Northern Connectivity Event temporary water restriction was announced by the New South Wales Government gazette, media releases and WaterNSW website on the 27 April 2018, two days prior to the temporary water restriction rule taking effect.

In addition, there were significant efforts made by Government agencies to share information about the Northern Connectivity Event. Engagement functions were held along the Barwon-Darling river system as the flow moved downstream. As a result, there was strong interest and overwhelming positive feedback from the community.

However, there were concerns raised by some local land holders that there was insufficient communication prior to the release of the environmental flow and the associated temporary water restriction. Information of the Northern Connectivity Event was largely spread by partaking in customer advisory group, newspaper, radio, media releases and word of mouth between locals rather than via formal notification from relevant authorities. A number of local land holders indicated they would prefer to receive a letter or an information package for such an event and associated temporary water restriction, to prepare them for the no pump conditions, particularly as these restrictions reflected exceptional circumstances and were unusual to the community.

This aligned with the assessment of media releases, newspaper and media documentation. Media releases were largely focused on the progress of the environmental flow throughout the Northern Connectivity Event rather than information surrounding the temporary water restriction rules, such as:

- commencement and end date
- access licences which the temporary water restriction applied to
- penalties units and fines which could be issued
- rules regarding stock and domestic use
- the channels the community could use to report potential breaches of unauthorised take

During field inspections, NRAR field officers spent considerable time informing and educating property holders on the environmental flow event. It is important to note that media and communication for the event was not the responsibility of NRAR. However compliance and operational efficiencies could be achieved for future release of environmental flows by liaising with other New South Wales government agencies to ensure timely and adequate media and communication strategies are implemented to inform the community, particularly active WAL users to optimise voluntary compliance.

Impact or consequence

The lack of timely and adequate communication and awareness-raising may result in:

- inefficient operational plan and compliance monitoring activities.
- WAL holders not being aware of their obligations therefore unintentionally breaching the temporary water restriction.
- environmental flow objective and outcomes not being achieved.

Suggested Next Steps

While it is not necessarily the responsibility of NRAR to implement environmental flow event media and communication strategies, there is an opportunity to improve future operational plan efficiency and increase voluntary compliance by:

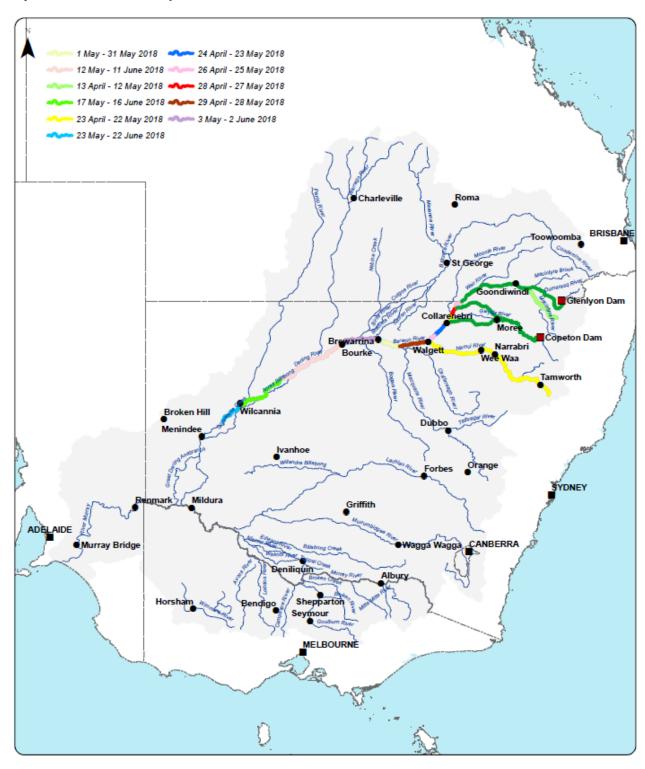
- Liaising and coordinating with the other NSW government agencies to ensure timely and adequate media and communication strategies are implemented.
- Using other means of media and advertising to create education and awareness of NRAR, and
 the importance of compliance with the rules associated with environmental watering, through
 the use of social media, visiting schools.

Agreed action

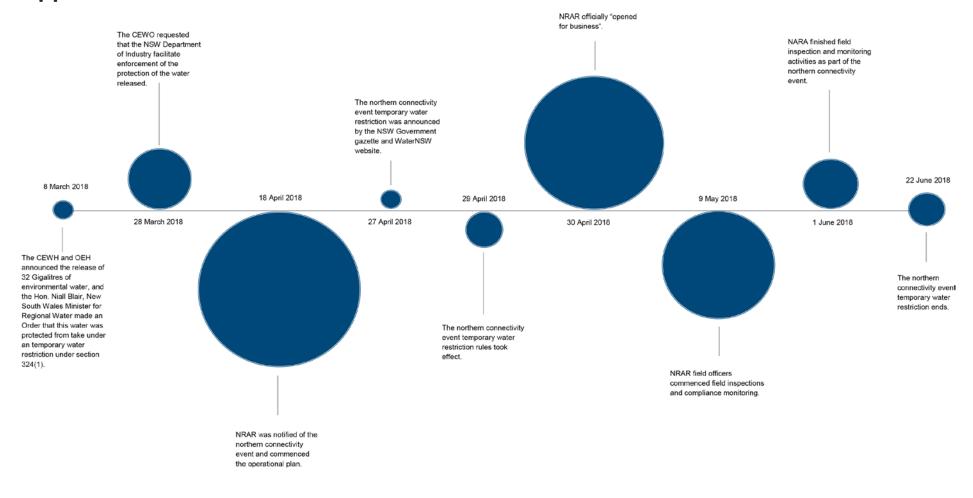
NRAR will liaise with other NSW agencies to develop communication strategies to educate the regulated and wider community on environmental flows and the importance of complying with the rules during an environmental flow event.

Accountable Agency	Natural Resources Access Regulator
Implementation due date	June 2019

Appendix A Map showing progression of the Northern Connectivity Event through the Barwon-Darling river system from April –June 2018



Appendix B NRAR Timeline



Appendix C Engagement Report Rating and Findings Rating

Engagement Report Rating Definitions

Report rating	Explanation
Satisfactory	Controls are adequate and effective in addressing key risks. No known breaches of legislative requirements and/or the Departments policies and guidelines have occurred. No critical, high-rated or medium-rated findings identified. Any findings are minor and is insignificant.
Satisfactory with room for improvement	Controls are largely adequate and effective in addressing key risks. No known breaches of legislative requirements and/or the Departments policies and guidelines have occurred. No critical or high-rated findings identified. Any findings are moderate or low.
Room for improvement	Controls only partially addresses the key risks. Breaches of legislative requirements and/or the Department's policies and guidelines has occurred. Some high-rated and/or medium-rated findings were identified.
Unsatisfactory	Control are ineffective in addressing the key risks. Significant breaches of legislative requirements and/or the Department's policies and guidelines. Most findings were rated as critical and/or high and urgent corrective actions are necessary.

Office locations

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