Submission
2016 National Research Infrastructure Roadmap
Capability Issues Paper

Name	**Dr Steven Hill**
Title/role	**South Australia Chief Government Geologist**
Organisation	**Geological Survey of South Australia**

Questions

Question 1: Are there other capability areas that should be considered?

Geoscience and Solid Earth Science are under-represented in this document, and strangely only included in the Environment and Resource Management field. This appears to dramatically undervalue these capability areas that are vital for sustainably living in Australia and its future economy. A strengthened representation of this capability, particularly how it is vital mineral resource discovery, would be supported across government, industry and the research community. This would align well with federal government Science and Research Priorities as well as South Australian Government's Economic Priority of *Unlocking the full potential of South Australia's resources, energy and renewable assets.*

Most specifically AuScope Earth Imaging, National Virtual Core Library and geochemistry / geochronology programs have provided datasets critical for Geological Survey activities, such as in South Australia. These would not have been possible without NCRIS funding. Having this continue into the future is crucial for our nation's jobs and prosperity and how we best live within the context of the part of the Earth's crust occupied by our nation. Initiatives, such as UNCOVER, articulate this need and an associated action plan that links strongly with these research infrastructure needs.

Question 2: Are these governance characteristics appropriate and are there other factors that should be considered for optimal governance for national research infrastructure.

NCRIS and AuScope have been well and appropriately governed.

Question 3: Should national research infrastructure investment assist with access to international facilities?

Yes, if the case cannot be made for the development of an Australian capacity. Examples may include Ocean Drilling Program (IODP) and facilities such as CERN

Question 4: What are the conditions or scenarios where access to international facilities should be prioritised over developing national facilities?

Where scale and utility are beyond what can support an Australian return on investment.

Question 5: Should research workforce skills be considered a research infrastructure issue?

Operational / support staff YES! But please don't get distracted into funding research staff and the undertaking of research … that is not infrastructure.

Question 8: What principles should be applied for access to national research infrastructure, and are there situations when these should not apply?

The current NCRIS guidelines address this, where access for Australian researchers is for little or no cost, data made widely and freely available as soon as possible. Industry access with some cost recovery. Guidelines in place to ensure non-competitive with Australian commercial providers to industry.

Environment and Natural Resource Management

Question 18: Are the identified emerging directions and research infrastructure capabilities for Environment and Natural Resource Management right? Are there any missing or additional needed?

Supporting research for applied mineral discovery, consistent with the UNCOVER initiative are not well articulated in the document. This is vital for jobs and prosperity in Australia, especially South Australia. Key here are the links between the geosphere with the atmosphere / hydrosphere / biosphere. A great example is the importance of the science of the regolith and the cover that otherwise obscures geology that is prospective for hosting mineral resources. This will also have valuable implications for discovery and management of other resources, such as groundwater and waste management (e.g. geologically hosted nuclear waste repository).

Question 20: Is there anything else that needs to be included or considered in the 2016 Roadmap for the Environment and Natural Resource Management capability area?

See answer for question 18

Advanced Physics, Chemistry, Mathematics and Materials

Question 21: Are the identified emerging directions and research infrastructure capabilities for Advanced Physics, Chemistry, Mathematics and Materials right? Are there any missing or additional needed?

Key inclusion of geoscience and more specifically mineral deposit discovery as per the objectives of the UNCOVER initiative.

Underpinning Research Infrastructure

Question 30: Are the identified emerging directions and research infrastructure capabilities for Underpinning Research Infrastructure right? Are there any missing or additional needed?

Geoscience community access to high-performance computing and geospatial and earth monitoring.