

DEPARTMENT OF MINES AND ENERGY



Uranium mine regulation and remediation in Australia's Northern Territory

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www.minerals.nt.gov.au



Uranium and Australia

Australia hosts more known U resources than any other country		
	tonnes U	percentage of world
Australia	1,673,000	31%
Kazakhstan	651,000	12%
Canada	485,000	9%
Russia	480,000	9%
South Africa	295,000	5%
Namibia	284,000	5%
Brazil	279,000	5%
Niger	272,000	5%
Australia supplied 11% of the world's mined U supply in 2011		
Australia produced 7700 t U3O8 in 2011-12		
Australia is the third largest supplier of U3O8		





Uranium and the Northern Territory

- A long history...
 - 1869: Goyder found a green coloured mineral "that was not copper" torbernite perhaps?
 - 1912, Dr H L Jensen, the then Government Geologist, reported the existence of uranium in the Rum Jungle area
 - 1949: Jack White found Uranium at Rum Jungle
 - 1953: Bruce Walpole found U at Coronation Hill
 - Contemporary finds included Adelaide River, Sleisbeck and all the other South Alligator Valley deposits - Scinto 1-6, Rockhole. El Sherana, Saddle Ridge, etc
 - Queensland Border area
 - Alligator Rivers Region



....more history

Since 1950s Uranium mining activity has been more or less continuous in the NT

- Rum Jungle now the focus of a remediation planning project
- Significant deposits were found in the Pine Creek area and up into the Alligator Rivers Region
- South Alligator Valley
 - 54 radiological anomalies; 19 mine sites
 - Commonwealth funded hazard reduction works

Alligator Rivers Region







South Alligator Uranium Field

- Operated between
 1959 and 1965
- The total production for this field was approximately 840 tonnes of U₃0_{8.}
- Legacy sites now remediated





South Alligator Valley containment





Other Legacy U Mines

- Older mines in the Pine Creek area
 e.g. Fleur de Lys
 - Now lies within a gold mine that has been restarted a couple of times
- Adelaide River Mines
- Westmoreland area



Rum Jungle

- Cu-U mine operated 1949 to 1970s
- Acid drainage issues
- Remediation failed
- 2009-13 NPA provided funds for scoping and develop preferred option
- 2013-2016 funded to prepare plans and tender documentation



Whites Open Pit, Rum Jungle Mine





Ranger:

- Operating since 1981...
- Over 100,000t $U_3 O_{8.}$ produced to date
- 2641t U₃0₈ produced in 2011
- 2012 -13 est. \$609M Dec 2013 but ...tank failure
- Current capability c.5,500t U₃0_{8.} pa
- Exploration for u/g operations underway
- Pit #3 was mined out in December 2012 – backfill complete 30M cu.m.
- Mining to end in 2021
- Site clear by 2026

MODERN MINES





Nabarlek



- Operated 1979 1988
- Produced 10,858 t U₃0₈
- Site remediation since 1995 – still awaiting acceptance
- Exploration by UEL

Identified Resources at Jabiluka and Koongarra



URANIUM RESOURCES OUTSIDE ARR

Other resources already identified:

- Some are solely Uranium
 - Angela/ Pamela = 8.5Mt @0.12%
 - Napperby = 9.34Mt @ 0.036%
 - Bigryli = 7.27Mt @ 0.13%
 - Jabiluka + 15.18Mt @ 0.5%
- Some may be considering by-product production of uranium:
 - Nolan's Bore
 - Other REE projects
 - Other minerals e.g. Phosphates
- Landowner acceptance, residue management & remediation issues present challenges



EXPLORATION TODAY

- 58 of the present 370+ authorisations have uranium noted as a mineral of interest
- Possibly only 60% are truly active projects
- Many juniors started up as a result of the 2004-2007 "surge"; but GFC made further funding very difficult once initial cash dried up
- Areas of interest are all over NT





- Most activity is in historical uranium mining areas
- Map includes rare earth projects where U may be of interest as a by-product
- Phosphates may also be a potential U source

Interest in Uranium is still strong post-Fukushima

Major future markets include India and China





Regulatory Process

- Mining Regulation is primarily by the NT DME
 - Titles Division- Mineral Titles Act
 - Mining Compliance Division- Mining Management Act
- Other NTG agencies involved include
 - NT Worksafe = OHS AAPA
 - Department of Environment Discharge licences
 - Department of Health-NDRR

and others (e.g. Federal Government)...

- Supervising Scientist Division for U work in the ARR
- Land Councils ASNO Dol



- NT divided into 36 Districts
- DME has 5 Mining Teams
 - 3 in Darwin
 - 1 in Alice Springs for Central Australia
 - 1 for Uranium
- Each Mining Officer controls 20-25 sites; major sites allocated within teams to senior staff
- Site visits, report assessment, environmental audits and investigations





Regulatory Process

- Granting of title (Mineral Lease)

- Submission of MMP
- Approval of MMP
- Security bond ; 100%; paid up front
- Issue of Authorisation

DEPARTMENT OF RESOURCES www.nt.gov.au MINING MANAGEMENT PLAN (MMP) MINING OPERATIONS

ADVISORY NOTE

The Department of Resources (the Department) has developed this Mining Management Plan (MMP) advisory note to assist operators with their reporting obligations pursuant to Division 3 of the *Mining Management Act* (MMA). The use of this advisory note is not a statutory requirement. The structure of this MMP advisory note is based around the principles of the environmental management system standard, ISO14001.

As required under section 40 of the MMA, the MMP must include the identification and description of mining activities, particulars of the implementation of the environmental management system, particulars of the organisational structure, plans of current and proposed mine workings and infrastructure and a plan and costing of closure activities.

This MMP advisory note is designed to assist in this process. The MMP is designed to demonstrate an operators understanding of environmental conditions prior to disturbance and all aspects and impacts on the surrounding environment, of the proposed operations.

Not all the contents in the MMP Advisory Note may be relevant to each operation. It is up to the operator to choose the sections to be addressed and the level of detail necessary for all personnel to gauge their performance, understand their obligations and be aware of their duties in the overall strategic plan of the operation.

The Department encourages the use of the suggested format, based on a cycle of reporting, planning and continual improvement, over a defined period, working towards clearly defined closure objectives. The structure is flexible and the referencing of other key documents and cross referencing within the document will provide a succinct and useful operational document for the site.

Preparing the MMP as a risk based planning document will assist in the estimation of security. This may be done in consultation with the Department. A MMP submission is on an annual basis unless otherwise agreed by the Department.

Where the Department has requested that an operation provide a separate Water Management Plan (WMP) all water management related issues are to be included only in the WMP document and submitted 3 months prior to the required MMP submission date.

The highlighting of any changes from the previously accepted MMP will assist in the efficient review process and pursuant to section 41(2) of the *Mining Management Act*, is a requirement of the Act.

Specific issues pertaining to the mining of radioactive materials are not addressed in this MMP structure guide.

This Advisory Note is a working document and feedback is welcome. Contact Mining Environmental Compliance, Department of Resources on (08) 8999 6528, e-mail: mineral.info@nt.gov.au

*****The suggested structure and format of this document is advisory only*****

Annual renewal requirement



Remediation Security

- Introduced in 2006; includes exploration sites and extractives as well as mines
- Must be 100% of estimated costs
 - Calculation tool provided by DME
- Cash or unconditional bank guarantee
- Integral part of the MMP revised annually
- 2005 DME held ~\$38.2 M
- 2013-4 DME holds ~\$744M and rising



Remediation Levy

- Introduced October 2013; for all mining activities
- Bond contingency reduced from 15% with 10% discount
- Annual levy of 1% value of bond held on 1 July
- 2013-14 expect ~\$7M
- Distribution
 - Mining Legacy Unit
 - Additional Compliance staff
 - Additional Tech Support staff



- Document assessment
- Inspection and audit regime
- New regulations after 1/7/12
- Investigations
- Infringement notices

REGULATORY REGIME





U Mining in the ARR

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- Regulation by DME but Interaction with stakeholders through Minesite Technical Committee (MTC)
 - MTC exist for Ranger, Jabiluka & Nabarlek
 - SSD
 - NLC
 - GAC (for Ranger and Jabiluka)
 - Meet every 2 months or as required, but at least once per year
 - Approvals process is all inclusive
 - Inspections and audits at all sites, varying frequencies
 - Annual Environmental Audit for ERA sites
 - Environmental Requirements
- Two Regional Committees

ARRAC (2/year) – stakeholder information exchange

ARRTC (2/year) – scientific peer review group



- Ranger exploration in 3 Deeps will take until early 2015 – estimated 34,000 t resource at the moment
- Could be another new mine within a few years
- More exploration starts anticipated
- Exciting exploration results may lead to more resources being identified
- The future involves U!

Future prospects







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Thank you Any questions?

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