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DEPARTMENT OF MINES AND ENERGY



Uranium mine regulation and remediation in Australia's Northern Territory

**Peter Waggitt
Director Mining Compliance**

www.minerals.nt.gov.au



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Uranium and Australia

Australia hosts more known U resources than any other country

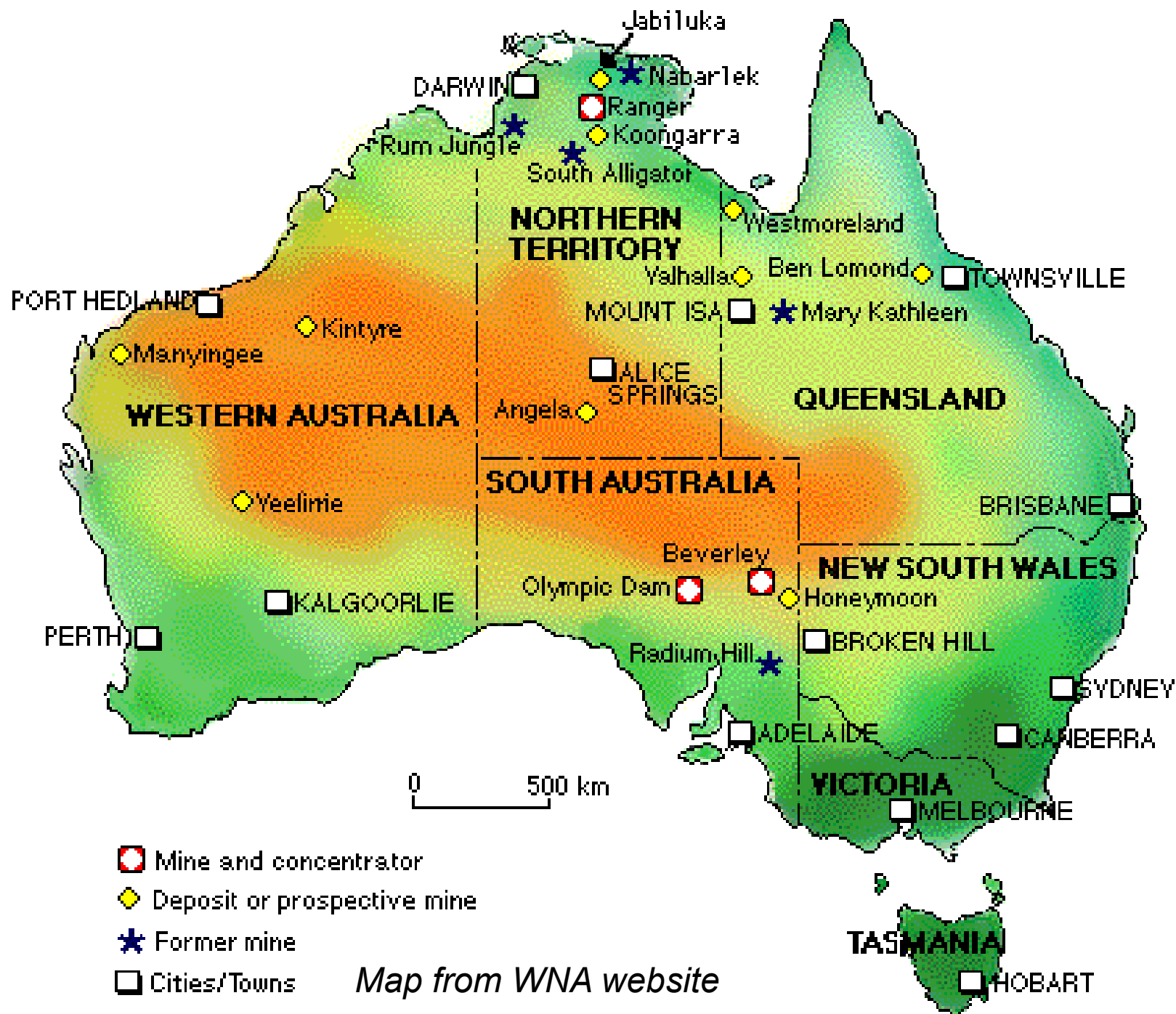
	tonnes U	percentage of world
Australia	1,673,000	31%
Kazakhstan	651,000	12%
Canada	485,000	9%
Russia	480,000	9%
South Africa	295,000	5%
Namibia	284,000	5%
Brazil	279,000	5%
Niger	272,000	5%

Australia supplied 11% of the world's mined U supply in 2011

IAEA 2009 "Red Book"

Australia produced 7700 t U₃O₈ in 2011-12

Australia is the third largest supplier of U₃O₈





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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



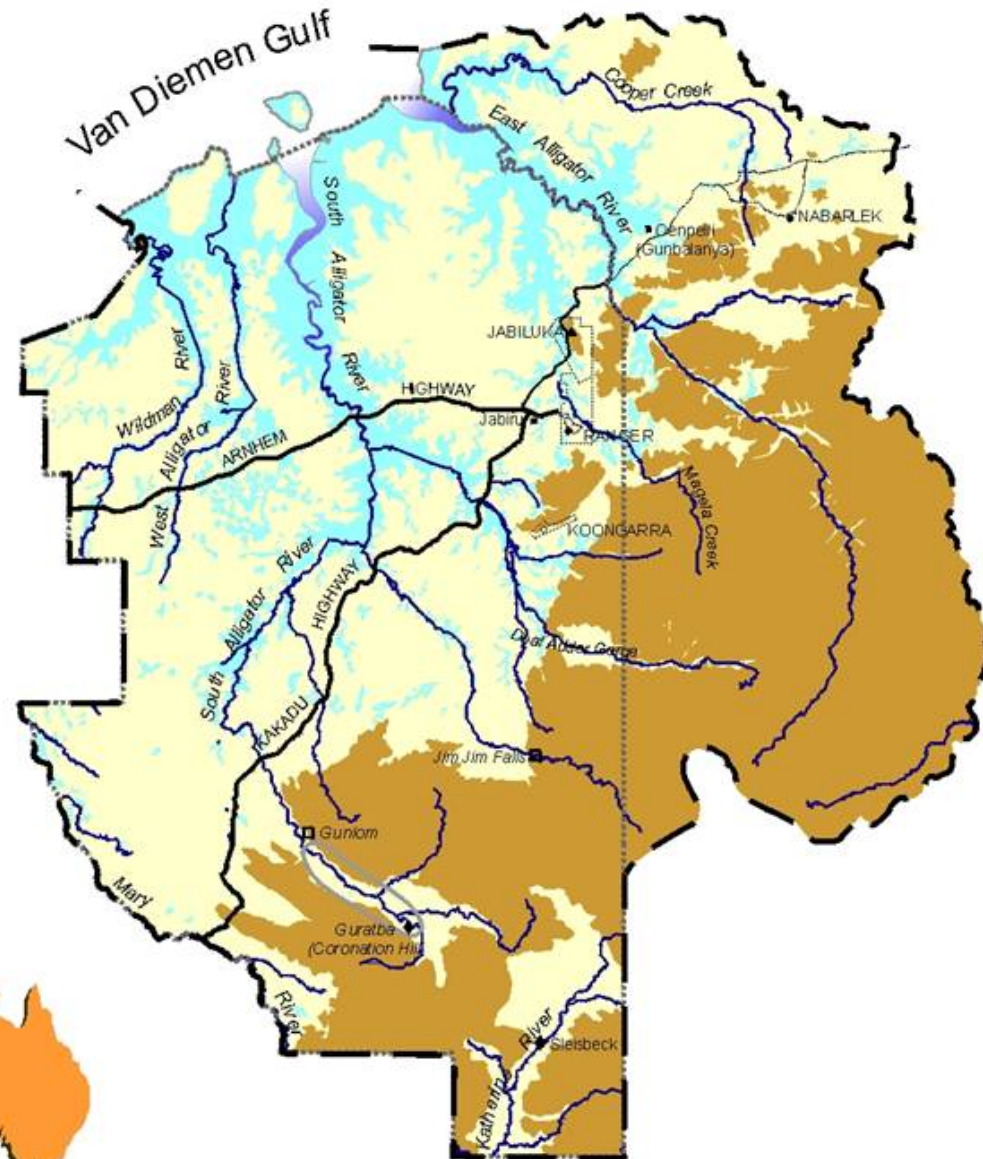
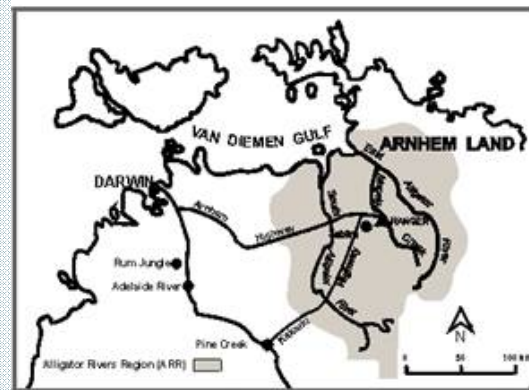
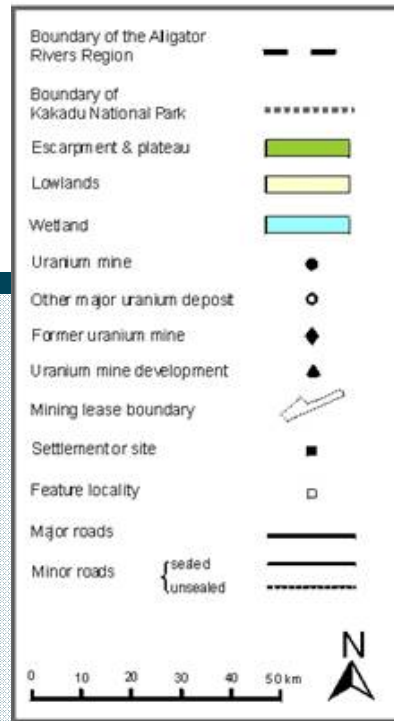
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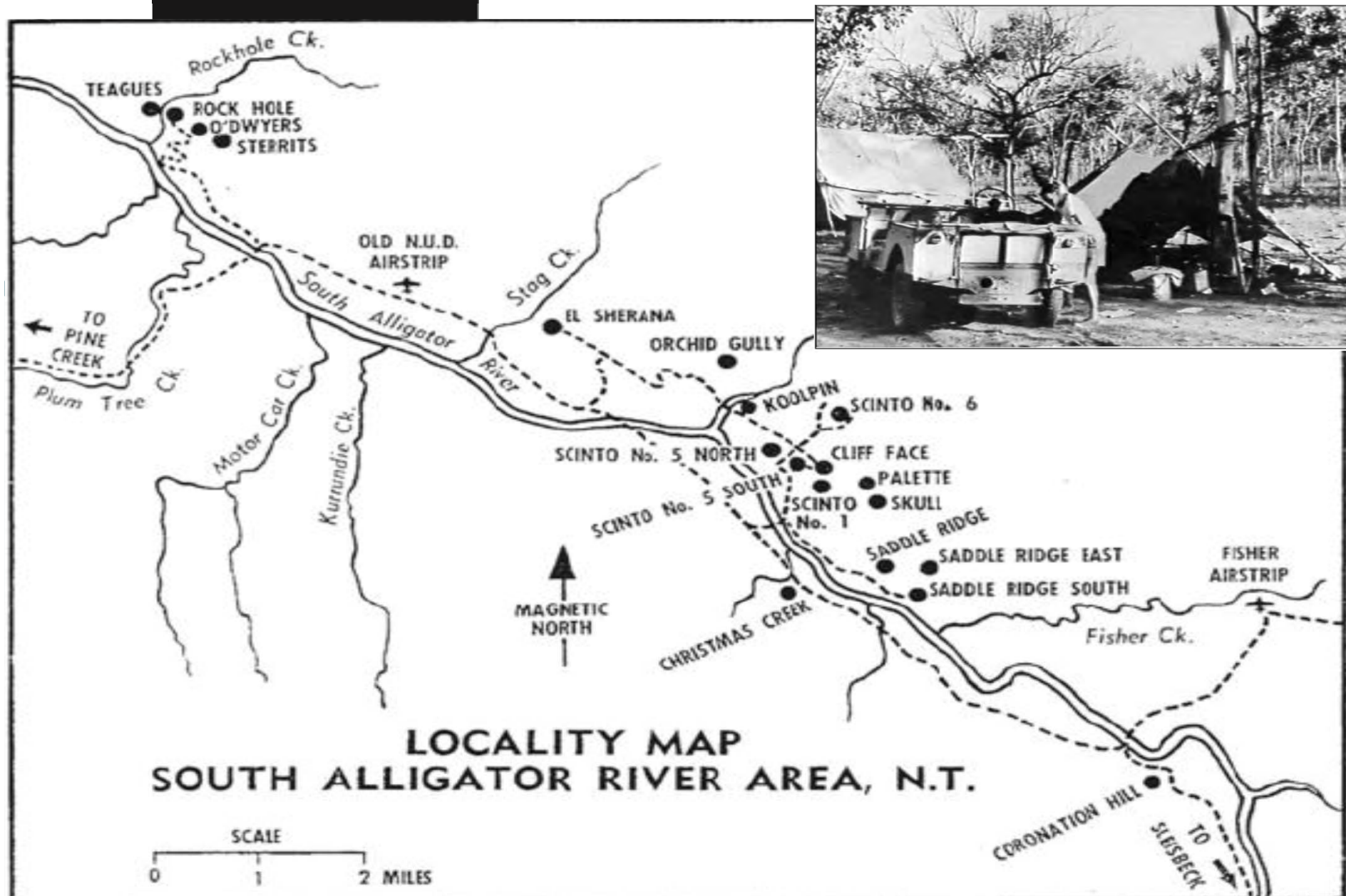
.....more history

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







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South Alligator Uranium Field

- Operated between 1959 and 1965
- The total production for this field was approximately 840 tonnes of U_3O_8 .
- Legacy sites now remediated





South Alligator Valley containment





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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



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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





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MODERN MINES

Ranger:

- Operating since 1981...
- Over 100,000t U_3O_8 produced to date
- 2641t U_3O_8 produced in 2011
- 2012 -13 est. \$609M Dec 2013 but ...tank failure
- Current capability c.5,500t U_3O_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





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Nabarlek

- Operated 1979 – 1988
- Produced 10,858 t U_3O_8
- Site remediation since 1995 – still awaiting acceptance
- Exploration by UEL



Identified Resources at Jabiluka and Koongarra



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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



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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



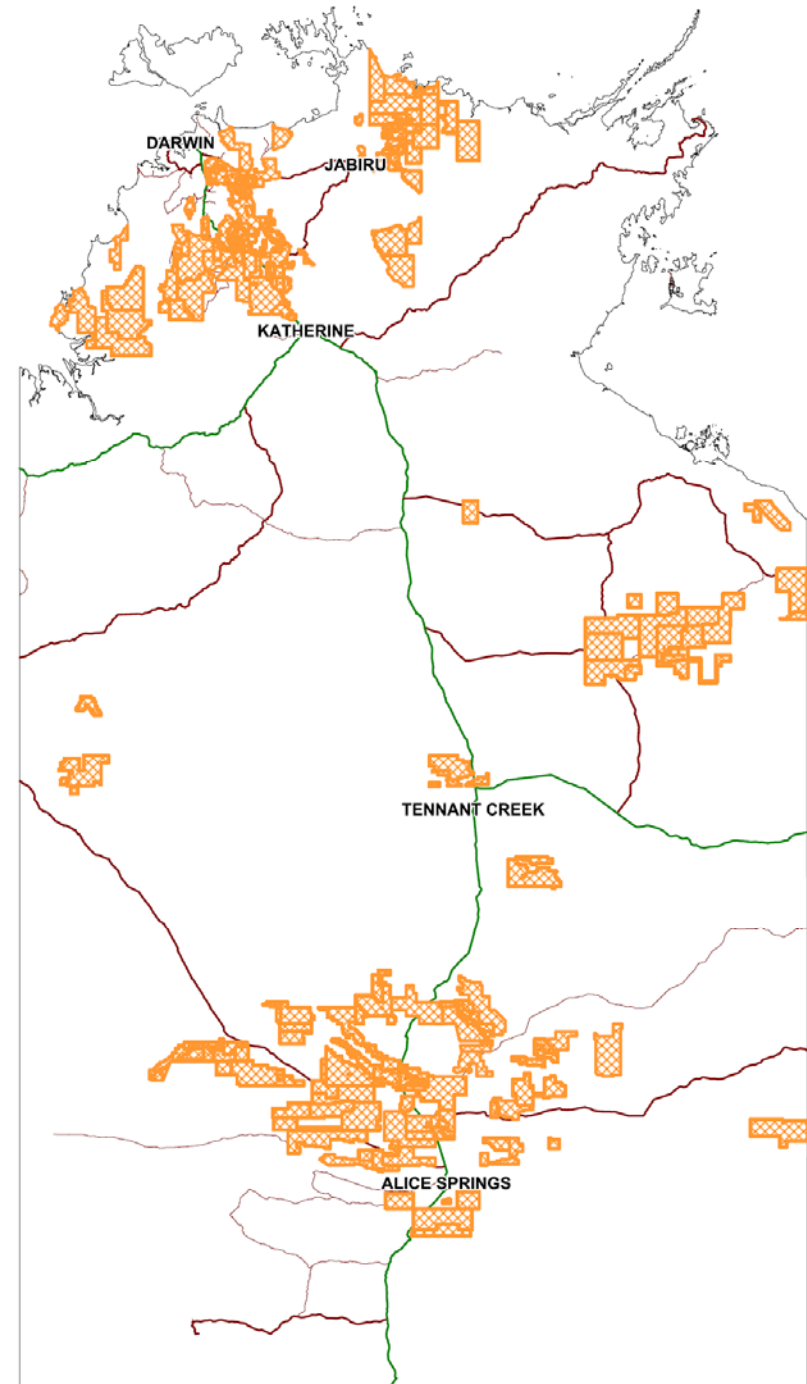


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- Most activity is in historical uranium mining areas
- Map includes rare earth projects where U may be of interest as a by-product
- Phosphates may also be a potential U source

Interest in Uranium is still strong post-Fukushima

Major future markets include India and China





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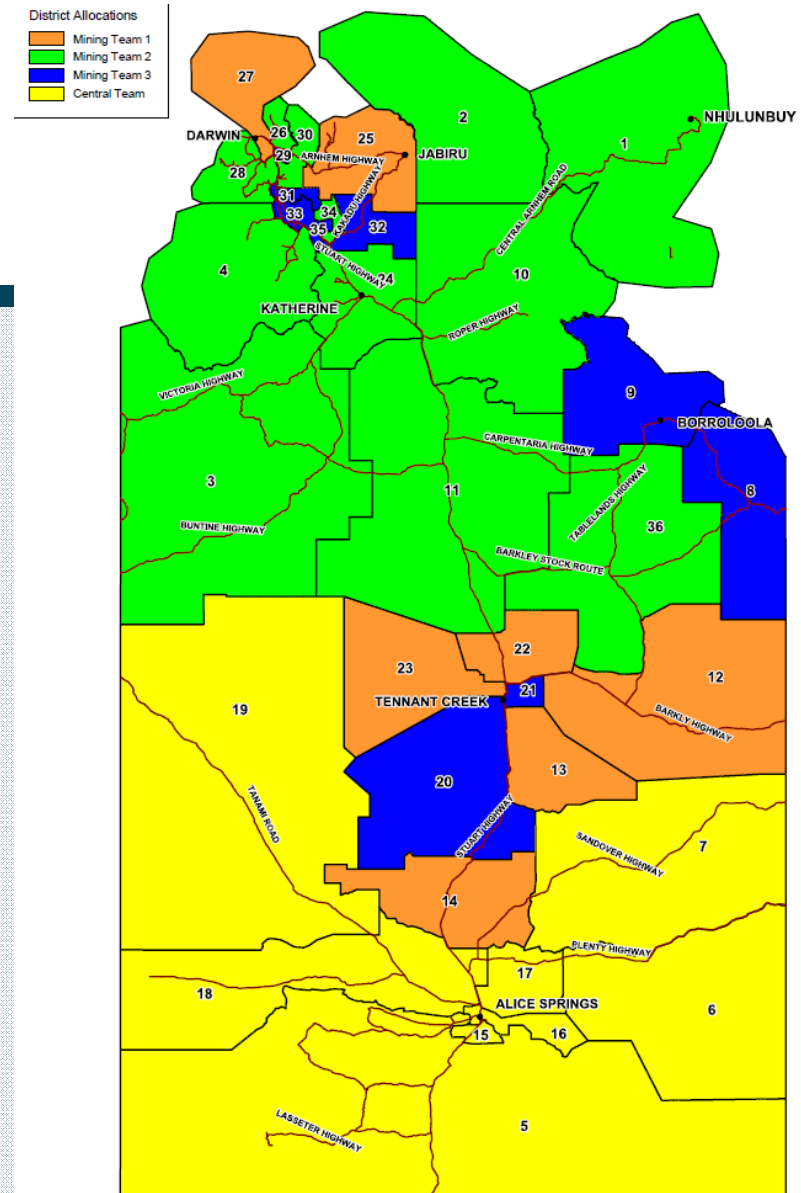
Regulatory Process

- 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-NDRRand others (e.g. Federal Government)...
 - Supervising Scientist Division for U work in the ARR
 - Land Councils - ASNO - DoI



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- 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

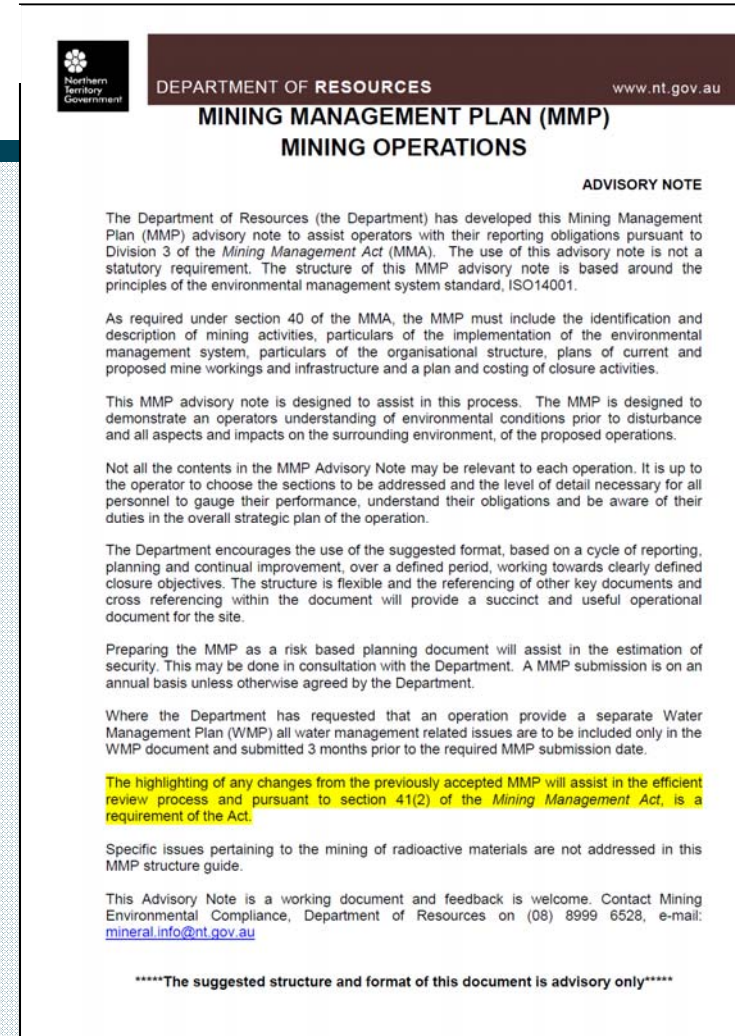




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Regulatory Process

- Granting of title (Mineral Lease)
- Submission of MMP
- Approval of MMP
- Security bond ; 100%; paid up front
- Issue of Authorisation
- Annual renewal requirement





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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



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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



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REGULATORY REGIME

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





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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



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Future prospects

- 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!





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Thank you

Any questions?

Peter.Waggitt@nt.gov.au

+61 8 89995162