

Lorado Mill Remediation Project

Adapting Indigenous Engagement Strategies Through the Assessment, Remediation and Monitoring Stages

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SRC Land Acknowledgement

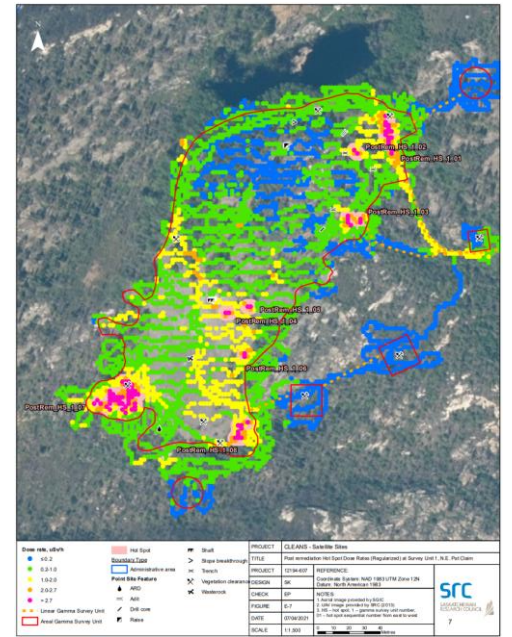
Greetings and acknowledgement as we are on Treaty 6 territory and homeland of the Métis. We pay our respect to the First Nations and Métis ancestors of this land and reaffirm our relationship with one another.

We understand the importance of acknowledging the past and embracing a future where Indigenous Peoples and their traditions are valued and supported. Together, we strive for a more inclusive and equitable business environment that benefits all.

SRC acknowledges we operate and work with the people of Treaty 8 and 10 territory, homeland of the Dene and Métis.

Community Engagement and Inclusion

- The Athabasca Basin includes Indigenous First Nations and northern communities:
 - 7 communities in Saskatchewan (Camsell Portage, Uranium City, Fond du Lac First Nation, Stoney Rapids, Black Lake First Nation, Hatchett Lake First Nation and Wollaston Lake)
 - 1 community in Alberta (Athabasca Chipewyan First Nation)
- Engagement: early and often, transparency, inclusion
 - Goal – develop and maintain trust with rights holders and stakeholders
- Engagement methods and tools
 - As of 2025, more than 275 meetings and workshops
 - More than 35 site tours with local community leaders and representatives
 - Education and training opportunities
 - Phone calls, emails, Facebook, newsletters, radio ads, posters, community bulletin boards, contests, print advertising, videos
 - Data Management Platform developed by SRC



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Lorado Mill Phase 1 - Assessment



Lorado Mill History

- Uranium Mill that operated from 1957 to 1960
 - 8 km south of Uranium City
 - Processed 305,000 tons of ore from surrounding uranium mines
 - Produced between 190,000 and 344,000 m³ (approx. 20+ hectares) of unconfined radioactive acidic tailings
- Tailings and highly acidic mill process water were deposited near and in Nero Lake. Resulted in an acidic and lifeless Nero lake (pH 3.5 – 4)
- Buildings and infrastructure used asbestos containing materials (ACM)



Lorado Mill Operations, circa 1958

Risks to Public and the Environment

- Physical risks in the mill footprint (tripping hazards, sinkholes, etc.)
- Potential exposure to ACM
- Exposure to ambient radiation from the tailings (up to 20 $\mu\text{Sv/h}$)
- Inhalation of radionuclides and trace metals from tailings dust
- Increased acidity and metals in Nero Lake





Nero Lake

Tailings

Mill footprint

Photo provided courtesy of Woodland Aerial Photography

Lorado Mill Project Objectives

- Allow for safe travel and **traditional land use**
- Reduce physical safety risks
- Reduce environmental risks to the nearby receiving environment
- Reduce radiation risks and adhere to the ALARA (as low as reasonably achievable) principle
- Adheres to federal and provincial regulations
- Increase in **local sustainable development**
- Cost effective and efficient project management



Community Engagement and Inclusion

- Identify rights holders and stakeholders
- Community tours with project overview, including project objectives
- Introduce the site, along with its hazards and risks
- Site assessments, including Indigenous Traditional Knowledge
- Requested input on remediation design options



Community Engagement and Inclusion

- SRC began discussing the hazards and risks with affected communities around 2008
- Feedback from Indigenous and non-Indigenous community members and leadership:
 - Clean up the mill footprint and dispose residual debris and waste
 - Eliminate or reduce the tailings-related risks, BUT
 - Avoid disturbing contamination (tailings are NOT to be shipped off-site)
 - Improve water quality in Nero Lake
- ✓ **Provide employment, business and training opportunities**
- ✓ **Protect the public and workers throughout all project phases**
- ✓ **Address the tailings-related dust IMMEDIATELY**



Addressing Urgent Public Concerns

- Dust monitoring started 2011 and continued through 2017
- As a temporary mitigation, SRC maintained snow fences
- Applied dust suppressant EK35
- Uranium City residents participated dust sampling



Indigenous Traditional Knowledge Inclusion

Inclusion in the environmental assessment:

- Land use and site occupation surveys
- Local resource utilization (cultural, economic, food)
- Country food studies (trophic and food intake)
- Archeological/cultural screening (historical land use)
- Knowledge gaps for legacy sites
- Historic geographic, anthropogenic, and species changes (e.g., Caribou)

Inclusion in remediation design and risk management:

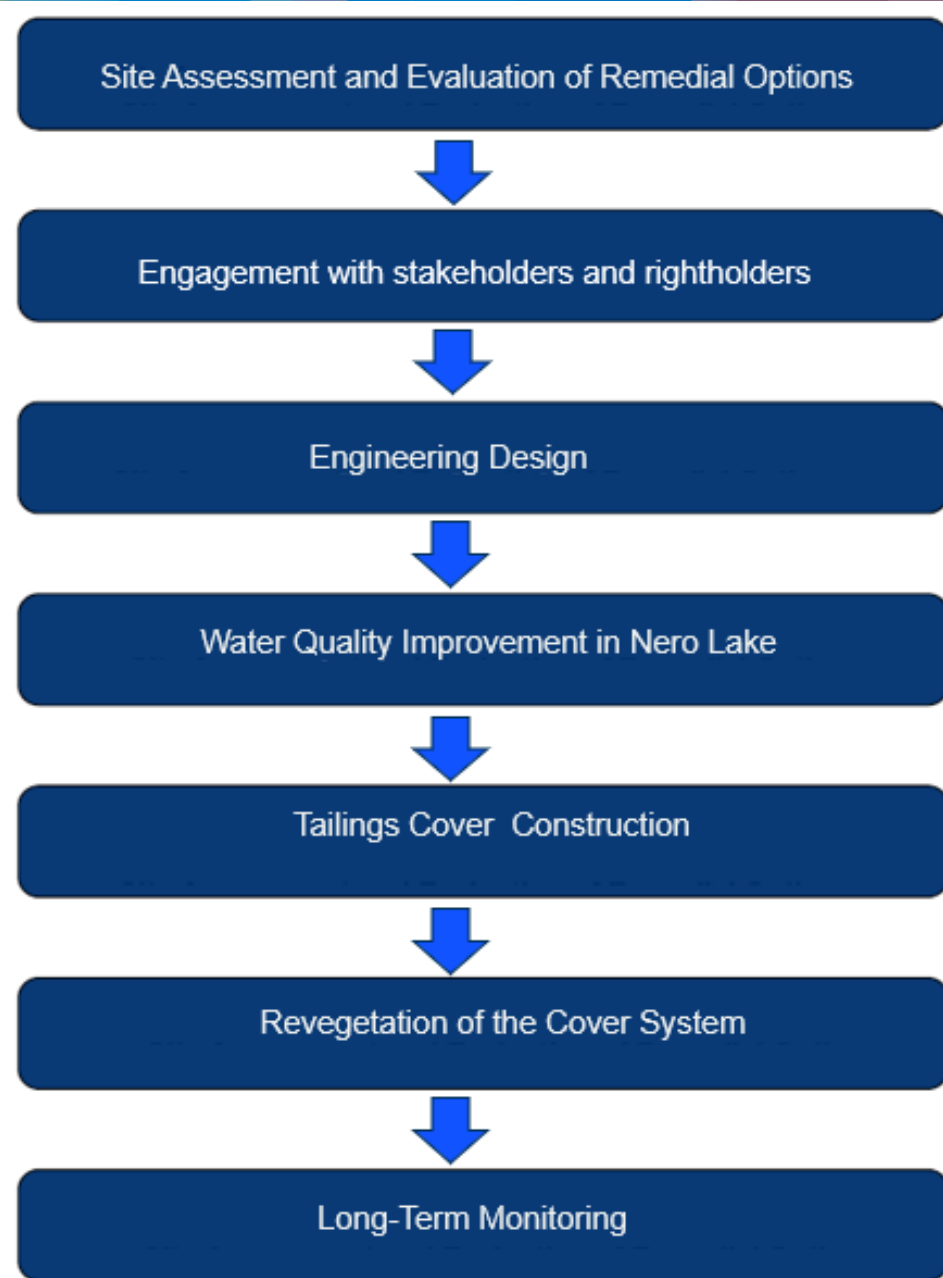
- Valued ecosystem measures (how important is the site and surrounding receiving environment)
- Future land use planning (permanent habitation, resource utilization, or traditional travel routes)
- Revegetation
- Remediation and risk options assessment
- Setting realistic sustainable development targets
- Setting exposure targets in alignment with regulations and stakeholder/rightsholder expectations



Lorado Mill Phase 2 - Remediation



Remediation Approach



Nero Lake Water Treatment (2014)



Lime slurry treatment in Nero Lake



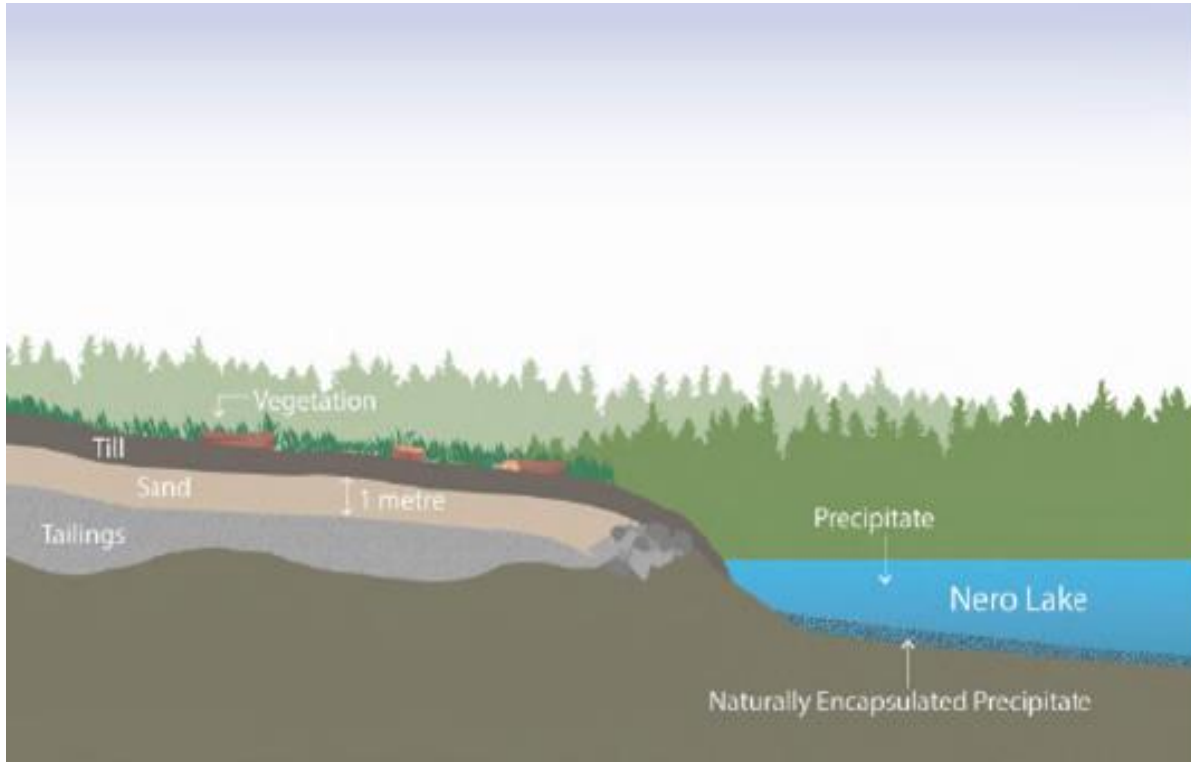
Water treatment station

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Lorado Mill Tailings Cover Construction



Lorado Mill Tailings Cover Completed



Community Engagement and Inclusion

- Focused on employment, training, and inclusion opportunities for Indigenous and non-Indigenous Athabasca Basin community members
- Co-developed procurement metrics with Prince Albert Grand Council representative
 - Included requirements to offer training and capacity building in contract
- Continued community tours with project updates, contractors, regulators
- Separate recruitment tours with contractors, where locals could apply in person, get support with resumes, etc.



Award-Winning Indigenous Inclusion

- Included Indigenous community representatives in procurement
- Minimum requirements on Indigenous work force and local business content
- Won the Project Management Institute, Northern SK Chapter, Project of the Year Award for community engagement strategies in 2017



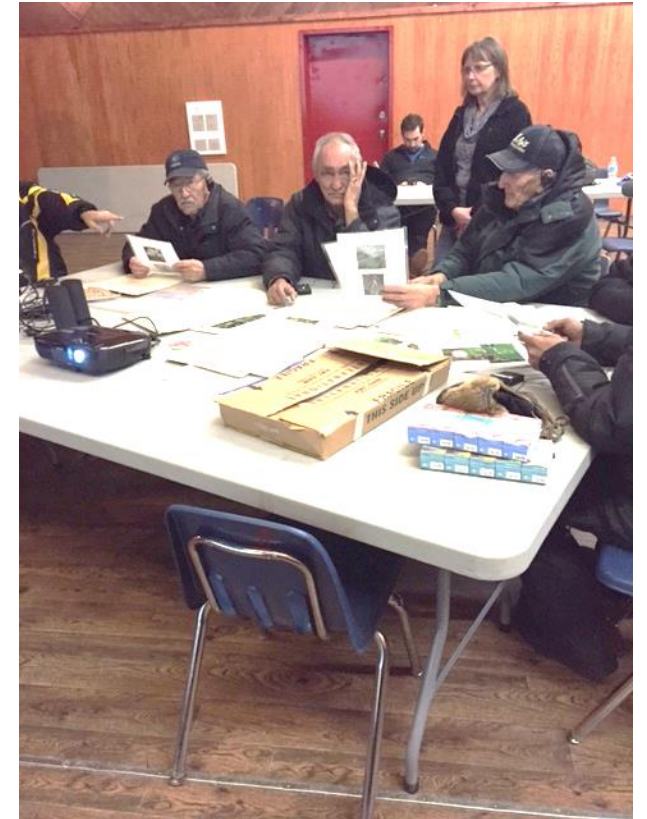
Community Meeting

Social Sustainability Objective	Target in Contract	Targets Achieved (2014-2016)
Athabasca Basin Indigenous Persons Inclusion	51%	51%
Athabasca Basin Heavy Equipment Utilization	55%	60%
Athabasca Basin Regional Spend	32%	38%

Indigenous Traditional Knowledge Inclusion

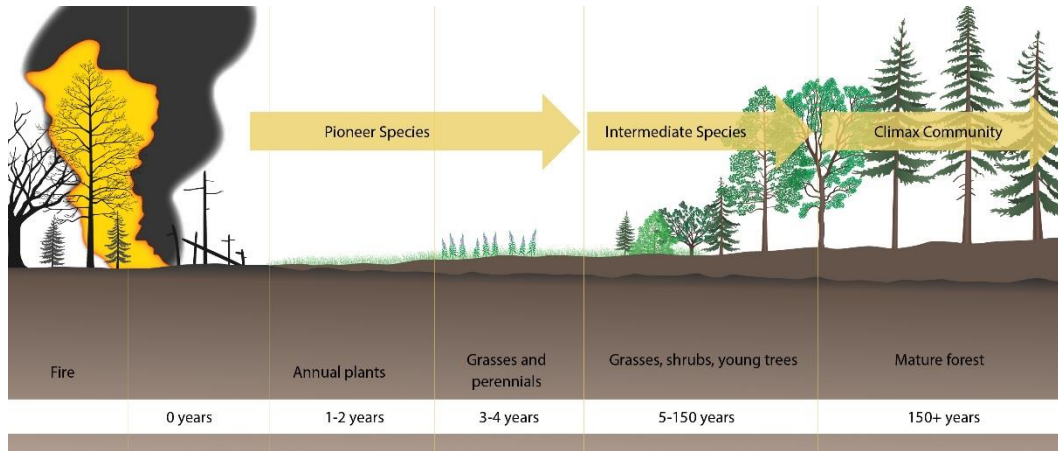
Inclusion in remediation operations:

- Logistical planning (i.e. best access routes to and from sites)
- Archeological/cultural monitoring
- Historic information transfer for operations planning (i.e. local aggregate sources)
- Stakeholder communication and engagement support (i.e. real-time communications conduit to the local population)



Revegetation vs Natural Recovery

Ecosystem can recover after disturbance, but...



some sites recover quickly



and other sites recover for years



In case of slow recovery, assistance is needed



Indigenous Traditional Knowledge Inclusion Case Study

- Lorado Mill required a robust cover over the tailings
- Options considered included revegetation, hydroseeding, or the use of a geosynthetic material
- SRC completed laboratory and scientific field studies to determine the best revegetation method (including seed mixture and amendment options) and the most cost-effective option
- SRC hosted a **series of workshops and site visits with Athabasca Basin Elders** to co-develop the final revegetation seed mixture
- During the workshops, vegetation experts presented all of the potential native plant species that were being considered for use at the site. Indigenous knowledge holders provided information on which of the species:
 - Establishes the quickest
 - Provides the most long-term surface coverage, and
 - Expectation of long-term plant succession



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Revegetating Lorado Tailings Cover

October 2015



October 2016



August 2017



August 2020



August 2025



Lorado Mill Phase 3 – Transitional Monitoring and Maintenance



Transitional Monitoring and Maintenance

- Checking that remediation was successful
- Water: acidity (pH) and metals
- Air: dust, radon gas
- Land: gamma radiation, state of the tailings cover (erosion, slumping, coverage), revegetation
- Will continue for 5 years or until site is stable
- Monitoring may take a week twice a year
- Community member now assisting with monitoring



Project Performance to Date

- All remediation objectives have been met in line with the Environmental Impact Statement and design predictions:
 - Minor to no erosion on the tailings cover
 - Land Bridge is stable, with minimal signs of erosion
 - Vegetation recovery is on a successional pathway

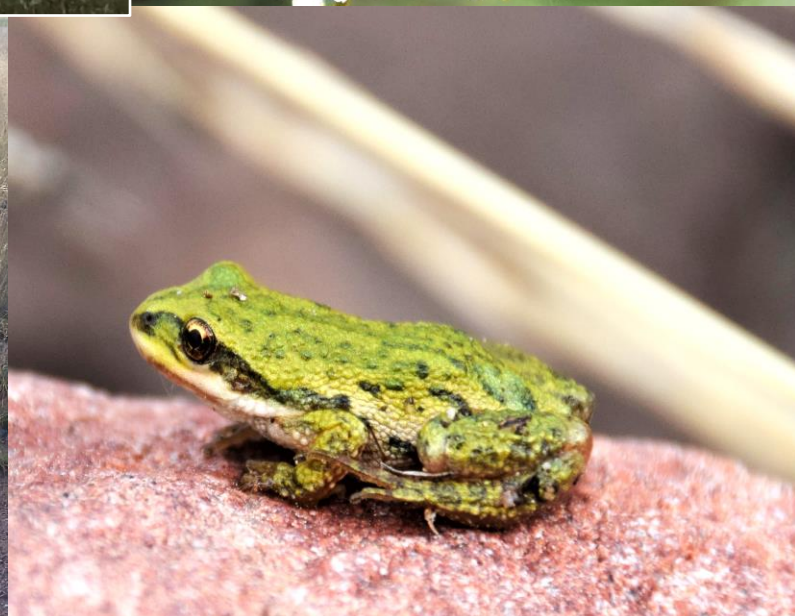
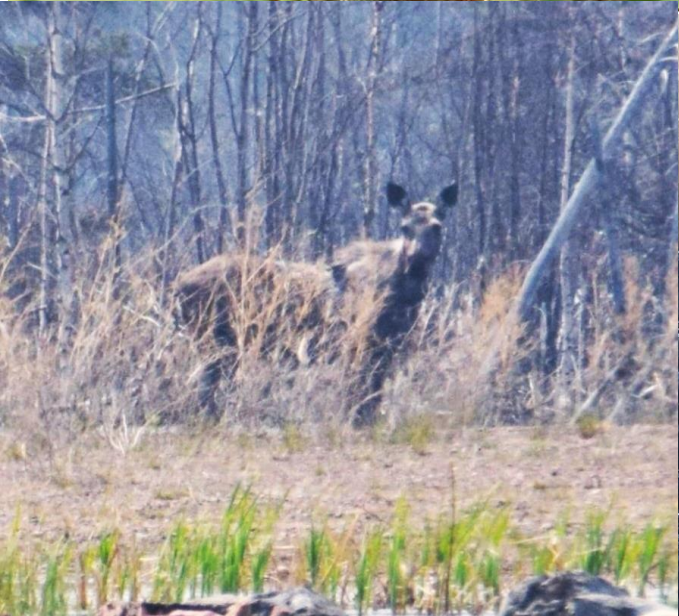
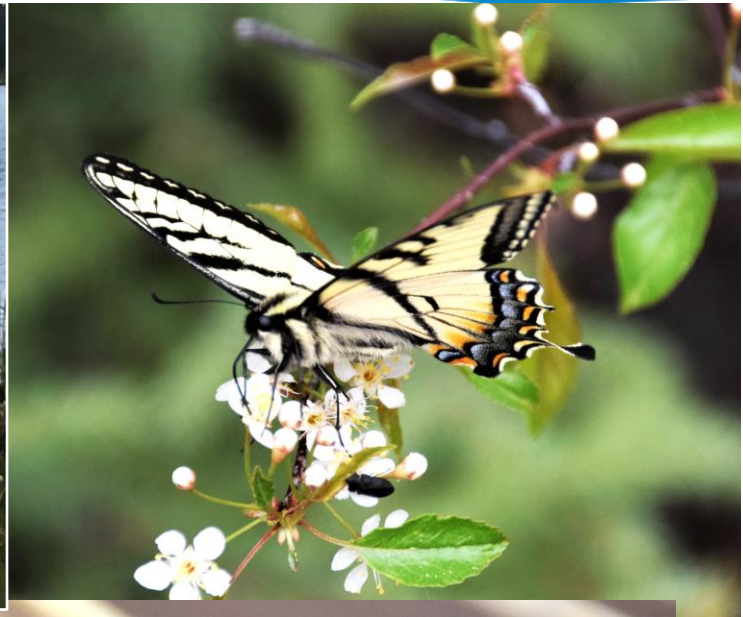


Project Performance to date

- Fish returned to Nero Lake and Carney Lake with low to no contaminants in the tissues



Wildlife at Lorado Site



Community Engagement and Inclusion

- Activity and interest around Lorado Mill reduced
- Work to maintain local community engagement
- Reoccurring photo competition at the site
- Contracted Ya'thi Néné land technicians for site inspections with regulators
- Leadership site tours
- Annual community tour updates, with the Ministry of Energy and Resources providing information on the Institutional Control Program (ICP)
 - Switched to more of a summary overview of the project, along with monitoring results
 - Requests for community input



Indigenous Traditional Knowledge Inclusion

Inclusion in post-remediation site monitoring, and caring for the site long term:

- Local availability of monitors in logistically isolated areas (i.e. decrease monitoring costs)
- Locals can more easily monitor site changes (positive or negative) over time
- Locals can provide observation of fauna and flora reestablishment against historic baseline
- Locals can be included as site custodians
- Locals will generally take more of a site ownership stake overtime
- Locals can be the repository of site knowledge over the long term



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Next Steps for Lorado Mill

- Continued engagement with Athabasca Basin Communities
- Complete Phase 3 monitoring and maintenance activities
- Submit the ICP application package to the Canadian Nuclear Safety Commission (CNSC) and the Ministry of Environment (MOE)
- Obtain approval from regulators (CNSC/MOE) for transition into the ICP





Questions
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