

# Mining Management Plan Exploration Activities

## Northern Territory of Australia – Mining Management Act

It is recommended that the Mining Management Plan is completed in conjunction with the user guide, available on the [Northern Territory Government website](#).

### Section 1 – Project Details

<b>Project Name</b> Provide new or existing project name	TANAMI REGIONAL EXPLORATION (TRE)
<b>Authorisation Number</b> Insert existing authorisation number, where applicable	0916-01
<b>Operator Name</b> Use ASIC-ABR registered name (if a company), or name of the applicant	NORTHERN STAR (TANAMI) PTY LTD
<b>Location and Access Details</b> Include brief description of the location, access details, and distance to nearest town or community	CENTRAL TANAMI PROJECT IS ACCESSED BY THE TANAMI ROAD FROM EITHER ALICE SPRINGS, 680KM TO THE SOUTH EAST, OR HALLS CREEK IN WESTERN AUSTRALIA, 450KM TO THE WEST.
<b>Target Commodity Details</b> Include target commodities (i.e. gold, copper etc)	GOLD (Au)
<b>Mining Activities</b> Summarise the mining activities (exploration) to be the subject of the proposed Authorisation or Variation	AC / RAB DRILLING - 810 HOLES 30.4 KM OF TRACK CLEARING
<b>Proposed Schedule</b> Include start and finish dates of ground disturbing work	28/07/2019 - 30/06/2020

## Mining Interest and Land Ownership

List the mining interests (titles), the title holder name/s, the title expiry date and the Property name/Land holder (e.g. pastoralist or Aboriginal land trust) for each title.

Title Number	Title Holder	Expiry Date	Property Name or Land Holder
EL10411	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	03/06/2019 **	Cave Hill. Located on Aboriginal Land
EL10355	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	03/06/2019 **	Cave Hill. Located on Aboriginal Land
EL 9763	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	23/07/2019 **	Cave Hill. Located on Aboriginal Land
EL 22378	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	07/06/2019 **	Cave Hill. Located on Aboriginal Land
EL 28474	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	11/03/2021	Central – Rushmore. Located on Aboriginal Land
ML 22394	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	13/09/2026	Groundrush. Located on Aboriginal Land
EL 26926	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	24/01/2019 **	Central - Black Hills 2. Located on Aboriginal Land
EL 25009	NORTHERN STAR (TANAMI) PTY LTD 100%	25/07/2020	Gardiner. Located on Aboriginal Land
EL 29593	NORTHERN STAR (TANAMI) PTY LTD 100%	20/08/2020	Gardiner. Located on Aboriginal Land
EL 23932	NORTHERN STAR (TANAMI) PTY LTD 100%	20/08/2020	Gardiner. Located on Aboriginal Land
EL 24177	NORTHERN STAR (TANAMI) PTY LTD 100%	20/08/2020	Boulder Ridge. Located on Aboriginal Land
EL 9843	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	31/12/2019	Farrands Hill. Located on Aboriginal Land
EL 22061	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	31/12/2019	Farrands Hill. Located on Aboriginal Land
EL 22229	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	7/6/2019 **	Cave Hill. Located on Aboriginal Land
EL 23342	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	31/12/2019	Cave Hill. Located on Aboriginal Land
EL 28282	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	19/04/2019 **	Suplejack. Located on Pastoral Lease
EL 26925	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	24/01/2021	Central. Located on Aboriginal Land
EL 8797	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	25/08/2020	Central. Located on Aboriginal Land
EL24174	NORTHERN STAR (TANAMI) PTY LTD 100%	25/08/2020	Browns Range. Located on Aboriginal Land
EL24193	NORTHERN STAR (TANAMI) PTY LTD 100%	25/08/2020	Browns Range. Located on Aboriginal Land
EL26270	NORTHERN STAR (TANAMI) PTY LTD 100%	15/02/2020	Browns Range. Located on Aboriginal Land
EL26286	NORTHERN STAR (TANAMI) PTY LTD 100%	15/02/2020	Browns Range. Located on Aboriginal Land
EL26498	NORTHERN STAR (TANAMI) PTY LTD 100%	20/08/2020	Browns Range. Located on Aboriginal Land
EL26541	NORTHERN STAR (TANAMI) PTY LTD 100%	20/08/2020	Browns Range. Located on Aboriginal Land
EL26635	NORTHERN STAR (TANAMI) PTY LTD 100%	15/02/2020	Browns Range. Located on Aboriginal Land
EL29592	NORTHERN STAR (TANAMI) PTY LTD 100%	20/08/2020	Browns Range. Located on Aboriginal Land

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Title Number	Title Holder	Expiry Date	Property Name or Land Holder
EL25171	NORTHERN STAR (TANAMI) PTY LTD 100%	25/07/2020	Boulder Ridge. Located on Aboriginal Land
EL27590	NORTHERN STAR (TANAMI) PTY LTD 100%	15/02/2020	Boulder Ridge. Located on Aboriginal Land
EL29594	Northern Minerals Limited 100%	20/08/2020	Boulder Ridge. Located on Aboriginal Land
EL29595	NORTHERN STAR (TANAMI) PTY LTD 100%	20/08/2020	Boulder Ridge. Located on Aboriginal Land
EL27367	NORTHERN STAR (TANAMI) PTY LTD 100%	20/08/2020	Gardiner. Located on Aboriginal Land
MLS 168	NORTHERN STAR (TANAMI) PTY LTD 40% TANAMI (NT) PTY LTD 60%	31/12/2020	Central. Located on Aboriginal Land

*\*\* Renewals lodged with Department – awaiting approval*

## Organisational Structure

Position Title	Name
Chief Executive Officer	Stuart Tonkin
Chief Geologist	Michael Mulroney
Exploration Manager	Jamie Rogers
Senior Exploration Geologist	Dale Annison
Environmental Manager	Kirstie Warren
Senior Land Officer	Kathryn Todd

## Section 2 – Operator Self-Assessment of the Environmental Risk

The purpose of this self-assessment is to ensure Operators complete a project risk assessment of potential environmental impacts and are aware of other legislative obligations from various Agencies. As a result of this self-assessment, further information may be required in the form of a management plan to enable full assessment of the MMP. If you have any queries please contact a Mining Officer prior to submitting the MMP. Useful resources to assist with this self-assessment are provided in the User Guide.

### Environmental considerations

ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (Evidence of consultation with DENR and/or management plan)
<b>Step 1:</b> Are there any threatened flora and fauna species or habitats of significance that may occur in the proposed work area?	Yes	It is likely a threatened species will show up in most reports. Therefore, the Operator must undertake a likelihood analysis, which looks at the likelihood of the species or its habitat occurring at or near the site. If the analysis results in a high likelihood, then a “Significant Impact Assessment” should be undertaken, which may require consultation with the DENR – Flora and Fauna Division. The DENR may recommend a Biodiversity Management Plan – this must be developed and attached to the MMP.	Biodiversity Management Plan (NT)
<b>Step 2:</b> Are there any known declared weeds within the proposed work area?	Yes	Under the <i>Weeds Management Act</i> declared weeds are required to be eliminated or controlled by the owner and occupier of land. Seek advice from DENR – Weeds Management to ensure management measures are appropriate for the level of activity proposed and attach a Weed Management Plan (if required).	Weed Management Plan (NT)
<b>Step 3:</b> Will you be using water from bores or other sources for the operation?	Yes	<i>Note the Government is proposing to amend the exemption of water licencing under the Water Act for mining activities, including exploration. This section will be updated in light of any changes in the future.</i>	Water sourced from Central Tanami Mine camp

Environmental assessment and cultural considerations

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
<p><b>Step 4:</b> Is your project likely to have a significant impact on the environment?</p>	No	Refer to the NTEPA Environmental Factors and Objectives Guideline.
<p><b>Step 5:</b> Are there Aboriginal sacred sites in the Project area?</p>	No	Sacred Sites are protected under the NT <i>Aboriginal Sacred Sites Act</i> and administered by the Aboriginal Areas Protection Authority (AAPA). It is recommended that advice be sought from AAPA in relation to sacred site protection.
<p><b>Step 6:</b> Are there archaeological and heritage sites in the Project area?</p>	No	Heritage and archaeology sites are protected in the NT. NT Heritage Branch of the Department of Natural Resources and Environment (DENR) administers the <i>Heritage Act</i> . Seek advice in relation to protection of heritage and archaeological sites.

### Section 3 – Amendments

As per Section 41(3) of the *Mining Management Act*, an MMP reviewed and amended under Section 41(1)(a) is to clearly identify amendments made.

Section	Amendment
4	AC/RAB drilling proposed for EL 10411, 10355, 9763, 22378, 28474, 25009 and ML 223934
4	Additional requests in addition to those tabled in Section 4 include relinquishment of tracks and AC/RAB drilling from previous TRE MMP approval and reallocation of previously approved RC drilling between work areas on the same MMP
5	Disturbance relevant to tenements included in Section 4 added to Section 5

## Section 4 – Activities Proposed

<b>Mining Interests (i.e. titles)</b>	<b>EL10411</b>	<b>EL10355</b>	<b>EL9763</b>	<b>EL22378</b>
Number and type of proposed drill holes	150 AC/RAB	70 AC/RAB	60 AC/RAB	N/A
Maximum depth of proposed holes (m)	120	120	120	-
Number and size of drill pads to be cleared (Length: 8m x Width: 5m)	150	70	60	-
<b>Total area of drill pads to be cleared (ha)</b>	<b>0.6</b>	<b>0.28</b>	<b>0.24</b>	-
Is drilling likely to encounter groundwater? (Y, N, unsure)	Y	Y	Y	-
Number of sumps (Length: 5m x Width: 4m x Depth: 1m)	150	70	60	-
<b>Sump Disturbance area (ha)</b>	<b>0.3</b>	<b>0.14</b>	<b>0.12</b>	-
Length of line/track clearing (km:        x Width: 4m)	22km	9km	10km	5km
<b>Track Disturbance Area (ha)</b>	<b>8.8</b>	<b>3.6</b>	<b>4.0</b>	<b>2.0</b>
Camp area to be cleared (ha)	<b>0.25</b>	<b>0.25</b>	<b>0.25</b>	-
Camp Infrastructure (i.e. demountable, tents)	Tents/caravan	Tents/caravan	Tents/caravan	-
Previous disturbance yet to be remediated on title (ha) if known	0	0	0	0
<b>Total area disturbed proposed (ha)</b>	<b>9.95</b>	<b>4.27</b>	<b>4.61</b>	<b>2</b>

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<b>Mining Interests (i.e. titles)</b>	<b>EL28474</b>	<b>ML22394</b>	<b>EL25009</b>
Number and type of proposed drill holes	250 AC/RAB	140 AC/RAB	140 AC/RAB
Maximum depth of proposed holes (m)	120	120	120
Number and size of drill pads to be cleared (Length: 8m x Width: 5m)	250	140	140
<b>Total area of drill pads to be cleared (ha)</b>	<b>1</b>	<b>0.56</b>	<b>0.56</b>
Is drilling likely to encounter groundwater? (Y, N, unsure)	N	N	N
Number of sumps (Length: 5m x Width: 4m x Depth: 1m)	0	0	0
<b>Sump Disturbance area (ha)</b>	<b>0</b>	<b>0</b>	<b>0</b>
Length of line/track clearing (km:        x Width: 4m)	10km	10km	20km
<b>Track Disturbance Area (ha)</b>	<b>4.0</b>	<b>4.0</b>	<b>8.0</b>
Camp area to be cleared (ha)	0	0	0
Camp Infrastructure (i.e. demountable, tents)	Utilising CTP Mine	Utilising CTP Mine	Tents/Caravan using existing camp site
Previous disturbance yet to be remediated on title (ha) if known	1.696	0	4.12
<b>Total area disturbed proposed (ha)</b>	<b>5</b>	<b>4.56</b>	<b>8.56</b>



## Additional Requests

Ten (10) previously approved RC drill holes and associated disturbance over the Carlsberg work area on EL26926 to be re-allocated to the Solaris work area, also on EL26926. This will have no impact on the current or proposed security.

The following proposed disturbance has previously been granted by the DPIR and secured by NSR, the company no longer wishes to undertake these work programs and is therefore requesting a series of security relinquishments.

- Relinquish 20km of track clearing previously approved over EL9843 – work area Farrands Hill. This has been removed from the proposed security calculation.
- Relinquish 14km of track clearing previously approved over EL26926 – work area Channel 4. This has been removed from the proposed security calculation.
- Relinquish 35km of tracking clearing previously approved over EL24177 – work area Kookaburra East. This has been removed from the proposed security calculation.
- Relinquish 10km of tracking clearing previously approved over EL23932 – work area Kookaburra East. This has been removed from the proposed security calculation.
- Relinquish fifty (50) AC drill holes previously approved over EL29593 – work area Stubbins

**Section 5 – Previous Disturbance (for existing Authorisations only)**

<b>Mining Interests (i.e. titles)</b>	<b>EL28474</b>	<b>EL25009</b>
Number/type of holes drilled	424 AC/RAB	130 AC/RAB
Maximum depth of holes drilled (m)	105	129
Number of holes remediated (i.e. plugged/capped)	424	130
Number and size of drill pads cleared (Length: 8m x Width: 5m)	424	130
Total area of drill pads cleared (ha)	1.696	0.52
Total area of drill pads remediated (ha)	0	0
Was groundwater encountered? (Y or N)	N	N
Length of line/track cleared (Length: km x Width: m)	59km	26.3km
Length of line/track remediated (Length: km x Width: m)	0	0
Camp area/s cleared (ha)	0	0.25
Camp area/s remediated (ha)	0	0
Total area disturbed (ha)	25.296	11.29
Total area remediated (ha)	0	0

## Section 6 – Environmental Management

By checking these boxes, you are agreeing to implement the following minimum environmental management standards on the project area. Where boxes have been left unchecked, justification is required.

6.1	✓	Blade-up approach for clearing will be used (i.e. no windrows, leave root stock and topsoil)
6.2	✓	Significant vegetation will be avoided during clearing (i.e. large trees, specimens providing habitat or food sources, riparian vegetation, and threatened species)
6.3	✓	Vegetation clearing during, and immediately after rainfall events, will be avoided
6.4	✓	Vegetation clearing will be kept to the minimum required to safely traverse vehicles and drill rigs along tracks and drill pads
6.5	✓	Where blade-up techniques cannot be employed, topsoil and vegetation will be stockpiled appropriately for remediation purposes
6.6	✓	All employees and contractors will be trained and inducted in relation to the management of environmental risks in the work area, including weeds, waterways, threatened species, soil erosion, sacred sites and heritage areas
6.7		Sumps will be lined or tanks of appropriate size to contain water, sediment and drilling fluids encountered during drilling, will be used
6.8	✓	Sumps, drill holes, and fuel stores will be located away from environmentally significant areas and water courses
6.9	✓	Excavations (sumps, costeans and pits) will be appropriately ramped to allow fauna egress
6.10	✓	Drill holes will be securely capped immediately after drilling
6.11	✓	Vehicle hygiene measures will be employed to prevent the introduction and spread of invasive species and pathogens when mobilising vehicles and equipment from one location to another
6.12	✓	Hydrocarbon spills will be minimised using liners and drip trays under machinery, and appropriately sized spill-kits available in the event of a spill
6.13	✓	Hazardous substances (including hydrocarbons) will be stored and handled in accordance with relevant Australian Standards
6.14	✓	Hydrocarbons will be stored in lined and bunded areas
6.15	✓	Waste will be stored securely while on-site to minimise windblown rubbish and access by feral animals
6.16	✓	Waste will be removed off-site and disposed of at an appropriate waste management facility
6.17	✓	All environmental incidents will be reported to the Department in accordance with Section 29 of the <i>Mining Management Act</i> .

Justification and alternative management measures:

Drill sumps for percussion methods (AC and RC) will not be lined as this reduces remediation time. Sumps will be constructed to capture surface waters.

## Section 7 – Remediation and Closure

By checking these boxes, you are agreeing to implement the following minimum remediation standards on the project area. Where boxes have been left unchecked, justification is required.

7.1	✓	Drill holes plugged below ground level at a minimum depth of 0.4 metres and soil mounded to prevent subsidence, within 6 months of completion of drilling
7.2	✓	Drill samples/spoil returned down drill holes, buried in sumps, or removed from site
7.3	✓	All drill hole and access markers including flagging tape, wooden markers and star pickets will be removed from site
7.4	✓	Re-contouring of cut and fill drill pads will be consistent with the surrounding terrain
7.5	✓	Ripping/scarifying of drill pads, and compacted areas along the contour (on sloping ground) and cross-ripping (zig-zag) along tracks
7.6	✓	Tracks will be remediated, including pushing in all windrows
7.7	✓	Appropriate erosion and sediment controls will be installed where erosion is evident or likely to occur
7.8	✓	All tracks will be remediated unless otherwise agreed in writing by the land holder or appropriate third party
7.9	✓	Access through watercourses will be removed and banks restored
7.10	✓	No erosion is occurring in disturbed areas, on tracks and in remediated areas
7.11	✓	All excavations backfilled within 6 months of completion of drilling
7.12	✓	All water bores decommissioned unless otherwise agreed in writing by the land holder or appropriate third party. The bore must comply with the Minimum Construction Requirements for Water Bores in Australia and may require permits or licenses under the <i>Water Act</i>
7.13	✓	All rubbish and infrastructure will be removed from site
7.14	✓	Replacement of topsoil and vegetation
7.15	✓	Contaminated soils (e.g. hydrocarbon or hazardous chemicals) will be remediated or removed from site
7.16	✓	Monitoring will be undertaken following the wet season or a significant rainfall event




Justification and alternative management measures:

## Section 8 – Required Attachments


8.1	✓	Security Calculation Spreadsheet
8.2	✓	Nomination of Operator Form currently held on file at the Department Amendment to the current Authorisation to add ML22934
8.3	✓	Spreadsheet with coordinates of proposed drill holes or polygons of target areas
8.4	✓	Google Earth KML/shape files/track logs of proposed tracks and camp sites
8.5	✓	A map of the work area(s) showing: <ul style="list-style-type: none"> <li>1. title boundaries and title numbers</li> <li>2. current and proposed drill holes, or polygons of target areas</li> <li>3. current and proposed tracks</li> <li>4. remediated areas</li> <li>5. camp sites</li> <li>6. sacred/heritage sites (Agreements with the Central Land Council prevent the release or publication of such information)</li> <li>7. environmental constraints</li> </ul>
8.6	✓	Remediation Register (for existing Authorisations)
8.7	-	Photographs of remediation work (nil to report)
8.8	-	Radiation Management Plan (if applicable) (not applicable)

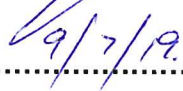
## Section 9 – Declaration

The Mining Management Plan must be endorsed by a senior representative of the company who has the appropriate level of authority to do so.

	Author	Reviewed by	Approved by
Date	29/06/2019	09/07/2019	9/7/2019
Name	Dale Annison	Kathryn Todd	Jamie Rogers
Signature			

I Michael Mulrone, Chief Geological Officer declare that I have the authority to make the commitments contained in this mining management plan on behalf of the company. To the best of my knowledge the information contained in this plan is true and correct and commit to undertake the works in accordance with the agreed minimum standards and all relevant Northern Territory and Commonwealth Government legislation.

SIGNATURE:  .....

DATE:  .....