Our reference: LIC07/80-12
Contact: Samantha Wynn, 02 68 835 330

Mr Howard Reed
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Sara Wilson

Dear Mr Reed,

I refer to the Project Application, Environmental Assessment (EA) and accompanying information provided for the proposed Northparkes Mine Extension Project (ref MP 11_0060) received by the Environment Protection Authority (EPA) on 8 July 2013.

The EPA has reviewed the information in the EA and has determined that it is able to support the proposal subject to the proponent addressing the information requirements outlined below and in **Attachment A**. **Attachment A** also contains the EPA's assessment of the proposal, including justification for the amendments and request for additional information.

Following its review of the information in the EA, the EPA notes additional information is required for the EPA to adequately assess impacts of the project on water, noise and waste. The additional information requirements are summarised below and are discussed in detail in **Attachment A**.

Water
Further information/clarification is required regarding the proposed impacts upon and measures to protect surface water and groundwater from pollution.

Noise
Further assessment/information is required regarding the Noise Impact Assessment and impacts on local noise amenity.

Waste
Further information is required on how certain waste generated by the project will be classified and disposed of.

It should be noted adoption of the recommendations regarding the need for additional information are integral to the EPA's ongoing support for the proposal.

The EPA recommends that the proponent be required to provide the additional information specified above and that the EPA is provided with a further opportunity to review this new information before the project proceeds to the determination stage.

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It is also expected that the EPA will be given an opportunity to review the draft Director-General's Environmental Assessment report for this proposal prior to finalisation.

If DoPI determines the project application by granting consent, the EPA recommends that the conditions of approval provided at **Attachment B** are incorporated into the consent.

The EPA would also appreciate receiving a copy of the submissions received by the DoPI (or a report summarising these submissions) in response to the exhibition of the Environmental Assessment. This is to assist the EPA to review the draft Director-General's Report and to recommend additional conditions of approval, if required.

The EPA notes that the proposal will require an environment protection licence pursuant to the *Protection of the Environment Operations Act 1997* to commence construction activities and to operate. The proponent will need to make a separate application to the EPA to obtain this licence once development project approval is granted.

If you have any questions, or wish to discuss this matter further please contact Samantha Wynn in the Dubbo EPA office by telephoning 02 6883 5330.

Yours sincerely,

BRAD TANSWELL
A/Head Far West Operations
Environment Protection Authority

Attachment A –Assessment and Justification
Attachment B – Recommended Conditions of Consent

ATTACHMENT A

Assessment of the Proposal and Request for Additional Information

WATER

The EPA has assessed the groundwater and surface water management aspects of the Environmental Assessment and identified the following matters that require further assessment.

Environmental Assessment

The Environmental Assessment does not:

- support the claim that runoff water from waste rock piles and tailings dam walls collected in sediment basins does not contain elevated levels of metals associated with neutral rock drainage. For the limited range of analytes currently monitored in sediment basins concentrations of analytes (including EC) are greater than that of receiving waters;
- evidence that the contaminated water system is a 'closed circuit' and will therefore not discharge to receiving waters following a large rainfall event;
- provide an assessment of water quality impacts in the event of a controlled or uncontrolled discharge from sediment basins against ANZECC (2000) water quality guidelines for protection of aquatic ecosystems, downstream users and any drinking water supply;
- provide an assessment of potential groundwater impacts on local surface waters resources.

Recommendation:
The proponent provides further information to addresses these issues. Further detail regarding these issues can be found below.

Groundwater Management

The EA proposes to establish groundwater trigger levels to trigger investigations that assess the need to implement management/mitigation/remedial measures. The EA states that no residual risks were considered as 'high' in the risk analysis after efficient implementation of management and mitigation measures. The groundwater report notes that "controls of acid rock drainage are covered under separate scope of work and are not included in this report."

All existing monitoring bores appear to be at a depth greater than 18m. Further information is therefore required on the potential for contaminated water and groundwater losses to surface water in the zone above 18m including potential losses from TSF's and other contaminated water storages.

It is recommended that the groundwater assessment include potential impacts on surface water features in the nearby catchment, including intermittent streams flowing off the site and other surface waters towards the Bogan River. Streams that may receive impacted groundwater do not have to be a "Groundwater Dependent Ecosystem" to be impacted as there may be other uses downstream.

Recommendation:
The EPA request the EA include an assessment of the potential for contaminated water and groundwater impacts on local surface water resources for all downstream uses.

The Groundwater Monitoring Plan should assess the need for specific monitoring bores and depths established for the purpose of leak detection. There may be preferential pathways in upper strata layers which should be targeted if deemed necessary with consideration to the site specific hydrogeology.

Recommendation:
Further assessment is required to identify whether the existing groundwater monitoring network is sufficient in detecting leakage from TSF's and other contaminated water structures and to identify

the need for additional monitoring at different monitoring locations and depths. The findings of the assessment should form part of a revised groundwater monitoring program for the site as recommended in Attachment B.

Surface Water Management

Dirty Water System
The dirty water system captures runoff from the stockpile areas and tailings dam walls in sediment basins. The basins have been designed to intercept runoff generated by the 90th percentile 5 day duration rainfall event. The Surface Water Assessment states that runoff collected in these basins 'must be of sufficient quality prior to being discharged off site into surrounding natural watercourses' and 'any controlled discharges from the sediment dams will be of a quality consistent with the requirements of the 'Blue Book'.

Note that the 'Blue Book' recommendation for discharge of collected water at 50 mg/L total suspended solids relates to water that is otherwise uncontaminated. Water collected in the dirty water system at Northparkes contains elevated levels of pollutants.

Identified Pollutants
The Surface Water Assessment states that historical monitoring of runoff within the dirty water system, including runoff and seepage from waste rock stockpiles, indicates that acid rock drainage is not of concern but that neutral rock drainage occurs from some waste rock. Current water quality monitoring of the dirty water system only includes pH, EC, TSS and Cu and indicates that these are present at elevated levels relative to the clean water system.

The EA does not provide an adequate assessment of why there are elevated levels of pollutants in the 'dirty water system', including:

- pH levels above the trigger value of 8.0 at most sites with a median value at SP3 and SP8 above 8.0. SP10 is below the trigger value of 6.5.
- salinity levels in most sediment basins are elevated relative to the clean water system and surrounding watercourses (e.g. a 20,000 µS/cm maximum at SP8)
- copper levels are elevated in all sediment basins compared to the relevant ANZECC trigger value (maximum value of 351 mg/L) and the clean water sediment basins
- TSS is elevated compared to the relevant ANZECC trigger value and an acceptable controlled discharge of 50 mg/L consistent with the Blue Book.

Potential Pollutants
The presence of pollutants other than turbidity in the dirty water system may indicate that other pollutants from the mining operation could potentially be entering the dirty water system from contaminated areas. No data is provided in the EA to indicate that metals are not present in the dirty water system.

Some metals that express toxicity at relatively low concentrations are soluble at near-neutral pH and can potentially contaminate mine water runoff without acidic conditions. For waste rock piles exposed to atmospheric conditions, these metals can be produced by oxidation of sulfide minerals (mainly pyrite and pyrrhotite) which also generates acid mine drainage in the process.

Water captured in the dirty water system should be characterised for the full range of potential pollutants and the results provided and discussed in the EA. If appropriate and relevant this may only require providing the historical runoff monitoring data. To assist in characterising the dirty water the assessment should also include chemicals used in the mining process, for example, xanthates and methyl isobutyl carbinol.

Impact Assessment
The EA does not provide an assessment of potential pollution caused by an uncontrolled or controlled discharge from the dirty water system and the impact of that pollution on aquatic ecosystems, downstream users (e.g. livestock and irrigation water supply) and any drinking water supply.

Note that the surface water assessment includes a statement that "the intercepted runoff from the proposed E26 waste rock stockpiles will be conveyed to two additional sediment dams (retention dams will be constructed if required dependent on characterisation of the material to produce NRD) located to the north of the proposed E26 waste rock stockpiles, adjacent to Cookopie Creek". This reinforces a requirement to consider the potential impact on receiving waters associated with potential discharges from sediment basins.

Recommendation:

The EPA request the EA be revised to include:

- **an assessment of why there are elevated levels of pollutants in the dirty water system;**
- **historical water quality monitoring data of runoff associated with waste rock stockpiles and the tailings dam walls;**
- **depending on the appropriateness and relevance of the historical water quality monitoring data, a full characterisation of water quality in sediment basins associated with the dirty water system;**
- **an assessment of the impact on in-stream water quality in the event of controlled discharges or overtopping of the dirty water system sediment basins against ANZECC (2000) water quality guidelines for protection of aquatic ecosystems, downstream users and any drinking water supply; and**
- **based on the water quality assessment against ANZECC (2000), a review of the suitability of sediment dam sizing and appropriate discharge levels for pH, salinity and relevant metals. Natural background levels of salinity and metals from a reference site unimpacted by the development should be considered in the assessment.**

Sediment Basin Sizing

The modified TSF3 requires the relocation of SD7 and an additional sediment dam (SD8) in response to modification and an increase in the catchment area of approximately 52 hectares. The proposed waste rock stockpile to the east of E26 requires the construction of two additional sediment basins adjacent to Cookopie Creek. The proposed waste rock stockpile adjacent to the proposed E28 open cut area requires the construction of a new sediment basin.

No design calculations are provided regarding the sizing of these sediment basins.

Recommendation:
It is recommended that the proponent provide design calculations for all sediment basins.

The water balance indicates that the proposal will continue to have a net water deficit of up to 4050 ML per year.

Recommendation:

It is recommended that if 'dirty water' is suitable for reuse the proponent consider increasing the new sediment basin sizes to maximise the potential for on-site capture and reuse and reduce the reliance on "make-up" water. This recommendation forms part of the proposed approval conditions specified in Attachment B.

Water Reuse

The Site Water Balance indicates that surface water runoff from the dirty water system has potential to be used in dust suppression activities.

Recommendation:
It is recommended that the proponent be required to prepare a Water Reuse Management Plan to ensure water to be reused onsite for uses such as dust suppression are 'fit for purpose' as set out in the "Recommended Approval Conditions" in Attachment B.

Note that the water reuse management procedures may require shandying or additional treatment of the 'dirty water', or consideration of alternative usage options. Any reduction in the amount of water able to be used on-site as a consequence of the water reuse management procedures will require the proponent to review the water balance provided in the EA.

Contaminated Water System
The contaminated water system is identified as a 'closed circuit' system that incorporates borrow pits, grease traps, open cut pits, process water dams, retention ponds, return water dams, stilling ponds and tailings storage facilities.

The Surface Water Assessment includes reference to:
- the process water dams being designed and operated to maintain freeboard capable of containing runoff generated by the 100 year 24 hour design storm event
- the water management system being designed to adequately manage the runoff generated by storm events up to an including the 100 year ARI 72 hour design storm event
- the contaminated water system components of the water management system, including dams, pipes and pumps, being designed to manage contaminated water generated on site for rainfall events up to and including the 100 year ARI 72 hour design rainfall event.

It is unclear what storm event the contaminated water system has been designed for and the design capacity of all components of the contaminated water system.

Recommendation:
The EPA request the EA clarify and include:
- **what storm event the contaminated water management system has been designed to capture and contain runoff for; and**
- **details (including design calculations where appropriate) of all components of the contaminated water system to support the statement that the contaminated water system is a 'closed circuit'.**

Clean water system
The EA does not provide an adequate assessment of why there are elevated levels of pollutants in some clean water dams relative to others. For example, FD8 and FD18 recorded EC values of 4010 and approximately 1600 µS/cm respectively compared to a mean EC value of 469 µS/cm across all monitoring data. FD14, which is stated to be upstream of the mine and only receive agricultural runoff, has the highest mean copper level.

There is potential for elevated salinity and copper levels to be derived from the dirty or contaminated water systems, including through the movement of contaminated groundwater.

Recommendation:
The EPA requests the EA include consideration, and an assessment of the potential for clean water dams to contain contaminated water from the mining site. This should include consideration of the need to reclassify clean water dams as 'dirty' or 'contaminated' and the need for revised management procedures depending on the classification.

The water quality summary (Section 3.4.1.5, p3.10) incorrectly states that ANZECC trigger values for copper have not been exceeded at any farm dam or water course monitoring site.

Water Quality Monitoring
The surface water assessment states that historical monitoring data indicates the presence of neutral rock drainage associated with waste rock pile and tailings dam wall runoff. Current water quality monitoring of the dirty water system indicates that pH, EC, TSS and Cu are present at elevated levels relative to the 'clean water system'.

Recommendation:
It is recommended that the proponent commit to monitoring the dirty water sediment basins for all contaminants potentially associated with runoff from waste rock stockpiles, the tailings dam walls, and other relevant mining activities until such time as it can be demonstrated that the sediment basins are just receiving 'dirty water' and not 'contaminated water'. The monitoring regime can be modified over time to reflect the presence or absence of contaminants based on the monitoring results.

It is also recommended that the proponent commit to monitoring for a full suite of analytes after significant site changes or after periods when a risk may emerge such as accumulation of pollutants in basins through sedimentation or concentration via evaporation.

The recommendations for monitoring can also be removed if it is demonstrated that pH, salinity and relevant metal levels associated with runoff do not impact on the water quality objectives of receiving waters.

Water quality trigger values
Table 3.5 (p3.6) of the Surface Water Assessment includes ANZECC trigger values for pH, EC, TSS and copper.

The EPA notes the following regarding these trigger values:

- the pH range for upland stream is 6.5 to 8 (not 8.5)
- the lower EC value of 30 µS/cm is not relevant as there are not processes that could result in lowering EC below natural background conditions. The proposed upper value of 350 µs/cm is correct.
- the proposed TSS criterion of 40mg/L is not relevant to aquatic ecosystem protection in the ephemeral watercourses downstream of the site. 40mg/L relates to water quality in aquaculture systems above which production may be affected. The aquaculture criterion includes biological turbidity as a component of suspended solids. ANZECC (2000) uses turbidity criteria for aquatic ecosystem of 2 - 25 nephelometric turbidity units in ambient waters. "Blue Book" sediment and erosion control structures should be able to achieve a TSS discharge level of 50 mg/L TSS for any controlled discharges.
- the copper trigger value is correct at 1.4 µg/L
- there are no trigger values presented for the range of other potential pollutants for the site.

Recommendation:
The EA should be amended to account for the issues outlined above.

Tailings Storage Facility Lining

The EA does not appear to provide detail on how the Tailings Storage Facility (TSF) extension will be constructed and whether the TSF will be lined and if so details of the proposed liner to ensure pollution of surface water and ground water does not occur.

Recommendation

- **Further information regarding the construction of the clay liner (or alternate geosynthetic liners) for the TSF extension is required. This includes the location of liners (e.g. floor and walls), overall thickness of liners, thickness of successive layers, gradients of sides of structures of clay liners etc for all structures. Alternatively impermeable geosynthetic liners could be considered.**

- **Further information is required to demonstrate how the EPA's clay liner requirements for contaminated water storage structures (outlined below) will be met to ensure impacts do not occur.**

- **The EPA's standard requirement for these types of liners (i.e. contaminated water storage structures) is to achieve a permeability of 1 x 10^{-9} m/s or less with a re-compacted clay liner of at least 90 centimetres (cm) in thickness (or alternative geosynthetic liner of equivalence). Where the proposed liner will not meet this thickness and the natural geology of the site in conjunction with constructed clay liners is considered sufficient in meeting this requirement, sufficient evidence must be provided in support of this to demonstrate the construction will be adequate to prevent pollution of groundwater (e.g. geological evidence, appropriate groundwater modelling etc).**

- **Even where the EPA's permeability requirements for contaminated water storage outlined above are met, any contaminants contained in contaminated water storages still have potential to permeate below clay linings albeit over a long period of time. Hence an assessment also needs to be provided including:**

    - **an assessment of the long term fate of contaminants in contaminated water storages;**
    - **an assessment of potential impacts on groundwater quality in the longer term, against ANZECC 2000 criteria for any beneficial uses likely to be impacted as well as the preservation of aquatic ecosystems; and**
    - **longer term arrangements for management, monitoring and response to any such impacts beyond the operational life of the proposed mine.**

This information should be provided for assessment prior to issue of consent to allow impacts to be adequately assessed.

NOISE

The Environmental Assessment (EA) and Noise Impact Assessment (NIA) appear to have been undertaken in accordance with the *NSW Industrial Noise Policy* (INP, EPA 2000) and *Interim Construction Noise Guideline* (ICNG, DECC 2009), with the following exceptions:

- Noise impacts may have been under-predicted by 5 to 10 dBA, as it is unclear whether modifying factor adjustments have been considered and applied in accordance with the INP;
- The acceptability of residual noise impacts above the Project Specific Noise Level (PSNL) does not appear to have been assessed in accordance with the INP; and
- Onsite road works were assessed against ICNG criteria, rather than the usual practise of assessing construction associated with mining under the INP.

In *Bulga Milbrodale Progress Association Inc v Minister for Planning and Infrastructure and Warkworth Mining Limited [2013] NSWLEC 48*, one of the issues which lead to the appeal being upheld was that impacts above the PSNL were predicted but that the acceptability of the impacts was not assessed in accordance with Chapters 8 and 9 of the INP.

The EA predicts that noise from the proposal will exceed PSNL during adverse meteorological conditions by up to 5 dBA at one sensitive receiver (3 Hubberstone) and up to 1 dBA at one other sensitive receiver (17 Adavale). Some factors indicate that the predicted impacts may be acceptable, including that the predicted levels above the PSNL:

- Will occur only under adverse weather conditions;
- Are not likely to result in speech interference or significant community annoyance as they are below the amenity criteria in the INP and affect only two sensitive receivers; and
- Are not likely to result in sleep disturbance as they are below the sleep disturbance criteria determined for the proposal.

The Blasting Impact Assessment (BIA) indicates that the proposal can meet ANZEC (1990) criteria at all sensitive receivers, provided that Maximum Instantaneous Charge (MIC) is modified appropriately for the location of the blast. The EA includes a commitment to meet the "relevant vibration and blast overpressure criteria", however this commitment should refer to the ANZEC (1990) criteria to avoid ambiguity.

Recommendation

Further information is required for the EPA to adequately assess impacts upon noise amenity, including:

- **Further information to demonstrate that modifying factor adjustments are not applicable to operational noise resulting from the proposal;**
- **Further assessment of the acceptability of residual noise impacts at sensitive receiver locations above the Project Specific Noise Level (PSNL) in accordance with Chapters 8 and 9 of the INP; and**
- **A commitment to meeting the ANZEC (1990) criteria for blast overpressure and ground vibration, including a description of the measures that will be employed to meet the criteria.**

WASTE

The project will result in the closure of Northparkes Lane, the principal mine site access. Presumably this may result in the requirement for disposal of a significant quantity of waste such as bitumen. Further information is required on how this (and any other waste generated by the project) will be classified and disposed of.

ATTACHMENT B

Recommended Conditions of Consent

AIR

The AQIA identifies the need for proactive management measures to minimise dust impacts and is especially crucial as the project expands to open cut activities with higher potential for dust generation. Real time dust and meteorological monitoring is recommended to minimise the risk of adverse impacts at sensitive receptors.

The EPA notes the predicted assessment results are contingent upon achieving emission reductions adopted in the assessment with the key emission reduction being 75% control for watering of unsealed haul roads.

A broad overview of the existing Dust Management Plan to be extended to the Project is provided in the AQIA, including:

- Sealing of high traffic roads;
- Transport of copper concentrate in sealed containers;
- Use of a road sweeper on sealed areas;
- Use of water carts on unsealed roads;
- Use of conveyor systems as opposed to haul trucks where possible;
- Complete or partial enclosure, dust extraction filters and mist sprays on crushing and conveying infrastructure and transfer points; and
- Use of polymers to minimise wind erosion from tailings storage facility 1.

In addition the following measures are proposed where practicable:

- Water sprays at material handling transfer points;
- Speed limits on internal roads;
- Dust suppressants fitted to drills; and
- Consideration of forecast weather conditions prior to blasting.

The installation of two real time PM_{10} monitors - one to the southwest and one to the northeast of the Project is also proposed.

All proposed management practices must be consistent with best management practice and be quantifiable, measurable, auditable and enforceable. Methods for determining compliance must be clearly identified. As such detailed information will be required to finalise environment protection licence conditions relating to emission monitoring, management and contingencies for the project.

Air Quality Management Plan

The EPA recommends that the conditions of approval include the development of a comprehensive Air Quality Management Plan (AQMP) for all emission sources at the site to be submitted with the application for variation of the Environment Protection Licence for the site.

Recommended Conditions

For all emission sources at the site the proponent must prepare an air quality management plan that includes, but is not limited to:

- ***Key performance indicator(s);***
- ***Monitoring method(s);***

- ***Location, frequency and duration of monitoring;***
- ***Record keeping;***
- ***Response mechanisms; and***
- ***Compliance reporting.***

General Dust Conditions

The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

Activities occurring in or on the premises must be carried out in a manner that will minimise the generation, or emission of dust from the premises.

Requirement to monitor weather

The licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Parameter	Units of measure	Frequency	Averaging Period	Sampling Method
Rainfall	mm/hour	continuous	1 hour	AM-4
Sigma theta	degrees	continuous	10 minute	AM-2 and AM-4
Siting				AM-1
Temperature at 2 metres	kelvin	continuous	10 minute	AM-4
Temperature at 10 metres	kelvin	continuous	10 minute	AM-4
Total solar radiation	watts per square metre	continuous	10 minute	AM-4
Wind Direction at 10 metres	degrees	continuous	10 minute	AM-2 and AM-4
Wind Speed at 10 metres	metres per second	continuous	10 minute	AM-2 and AM-4

WATER

Recommended Conditions

General Water Conditions

The Proponent must ensure that all surface water discharges from the site comply with:

(a) Section 120 of the POEO Act;
(b) a maximum of 50 milligrams per litre of suspended solids in any discharge of water from sediment basins, and any other discharge limits (both volume and quality) that may be specified by licensing instruments issued under environment protection legislation administered by the EPA.

Water Management Plan

The Proponent must prepare and implement a Water Management Plan for the project to the satisfaction of the EPA. This plan must:

(a) be prepared in consultation with the EPA and by a suitably qualified and experienced person(s);
(b) be submitted to the EPA's Regional Manager for approval prior to the commencement of activities;
(c) address construction, operation and post closure monitoring, management and response arrangements; and
(d) include:
- a Site Water Balance;
- an Erosion and Sediment Control Plan;
- a Water Reuse Management Plan;
- a Surface Water Monitoring Program;
- a Groundwater Monitoring Program; and
- a Surface and Ground Water Response Plan to respond to issues identified by the surface and groundwater monitoring programs.

The Site Water Balance must describe, as a minimum:

(a) how any water removed from the tailings storage facility or water management structures to return to the design freeboard will be managed, keeping in mind that the proponent will need to ensure compliance with S120 of the POEO Act for the management of process water and water in the tailings facility.

The Erosion and Sediment Control Plan must include, as a minimum:

(a) describe how soil erosion and sediment pollution will be managed following the guidelines and recommendations in Volume 1 of Managing Urban Stormwater: Soils and Construction (the Blue Book) during the construction/recommencement phase;
(b) provide plan drawings showing the locations for best management practices for the site during all construction/recommencement stages
(c) include written text detailing the installation, monitoring and maintenance requirements for each of the recommended BMPs for erosion and sediment control
(d) include detailed drawings of any engineering structures such as sediment and evaporation ponds and the clean water diversion structures, including design standards and management regimes to return the erosion and sediment control system to design capacity following rainfall events.
(e) design calculations and sizing for all clean water diversion bunds and sediment basins on site
(f) consideration of the potential for increasing the size of sediment basins to maximise water reuse and reduce the reliance on 'make-up' water
(g) a commitment to construct and maintain roads consistent with 'Managing Urban Stormwater – Soils and Construction Volume 2C Unsealed Roads'

The Surface Water Monitoring Program must include, as a minimum, the following components:

(a) detailed baseline data on current surface water flows and quality in creeks and other waterbodies that could be affected by the project;
(b) historical water quality monitoring data of runoff from waste rock stockpiles and the tailings dam walls
(c) an initial surface water quality characterisation assessment of water quality in sediment basins collecting runoff from waste rock stockpiles and the tailings dam walls. The monitoring regime can then be modified over time to reflect the presence or absence of contaminants based on the monitoring results.
(d) A proposed program of ongoing monitoring of surface water and sediment basins based on characterisation of the dirty water
(e) monitoring for a full suite of analytes after significant site changes or after periods when a risk may emerge such as accumulation of pollutants in basins through sedimentation or concentration via evaporation.

The Water Reuse Management Plan must include, as a minimum, the following components:

(a) Water Reuse Management Procedures that ensures salinity, sodicity and bicarbonate levels in water used on-site is fit-for-purpose and managed to prevent:
    - cumulative impacts on soil and vegetative condition;
    - impacts on water quality in receiving waters.

The Groundwater Monitoring Plan must include monitoring to detect any potential leakage from the TSF and contaminated water system into groundwater and/or local surface water features such as ephemeral streams, onsite dams and other water features in the nearby sub-catchments.