

Section 18**Environmental Management System****18.1 EMS Framework**

Terra Gold is developing an environmental management system (EMS) to assist with managing environmental responsibilities at Maud Creek, across both construction and operational phases, and to allow for continuous improvement of the company's environmental performance.

Over the life of operations the EMS will enable Terra Gold to systematically assess and review its environmental impacts, develop targets to measure environmental performance and implement programs to manage impacts and obligations.

Terra Gold's EMS will be based on the AS/NZ ISO 14001:2004 Environmental Management System Standards, which are recognised worldwide and include a continuous improvement model.

Fundamental to the implementation of the EMS at an operational level is the development of environmental management plans (EMPs). These EMPs relate to specific environmental aspects relevant to the mining project, and include Terra Gold's objectives for management, consideration of legal and other obligations, a list of actions and monitoring, and targets to measure environmental performance.

For the purposes of this EIS, Terra Gold has compiled a set of draft EMPs, which are presented in Section 19.

18.2 Policy and Planning**18.2.1 Environmental Policy**

Terra Gold has adopted the Environmental Policy of parent company GBS. Terra Gold and GBS have strong commitments to responsible environmental management, with high standards of site management and rehabilitation.

Terra Gold's Environmental Policy has been developed and committed to at the highest level of management and is signed by the Chief Operating Officer, Tony Simpson (Figure 18.1).

18.2.2 Legal and other obligations

Legal requirements and other requirements to which Terra Gold subscribes (such as standards, approval conditions, licence conditions and permits) are incorporated when establishing, implementing and maintaining the EMS.

A Legal Register will be developed to identify applicable Acts and Standards relating to the environmental aspects of mine operations. This register will be regularly reviewed by Terra Gold's Environment Manager, and is likely to contain, at a minimum, the legislation listed in Section 1.11.

Section 18

Environmental Management System



GBS GOLD AUSTRALIA Pty Ltd

ENVIRONMENTAL POLICY

POLICY:

The Environmental objective of GBS GOLD AUSTRALIA Pty Ltd is to develop and maintain the culture, protocols and procedures that ensure the integrity of the environment, for all external stakeholders, employees and contractors associated with the company's activities.

OBJECTIVES:

- To ensure compliance with all environmental legislation;
- To be committed to maintain and improve the environmental management of all facets of the operations, in order to reduce or eliminate any environmental impacts;
- To identify, act upon and mitigate potential environmental impacts upon their recognition;
- Ensure any impacts, however minor, are reported, recorded and investigated;
- To implement a culture where all environmental, social, cultural and economic considerations are integrated into all the planning and decision making processes;
- To encourage workforce awareness of environmental management procedures and promote a positive personal environmental attitude in the workplace;
- To be responsive and responsible with regard to establishing environmental credibility with external stakeholders, communities and regulatory bodies;
- To encourage and develop internal and external research to reduce environmental impacts and improve long term management.

Tony Simpson
Chief Operating Officer

Figure 18-1 Terra Gold's Environmental Policy

18.2.3 Environmental aspects and impacts

Terra Gold will systematically document the results of risk assessments of the environmental aspects of the operations. These assessments will be documented in an Environmental Aspects and Impacts Register.

Section 18

Environmental Management System

Methods for gathering information for inclusion in the register will include but not be limited to:

- Site visits;
- Operational observations;
- Interviews with key personnel; and
- Literature reviews.

For the purposes of this EIS, environmental issues and potential impacts have been drawn from information gathered from the 1998 EIS (while preparing the Maud Creek EPBC Referral); undertaking additional baseline field surveys; consultation with key stakeholders; and reviewing the requirements listed in the EIS guidelines.

18.2.4 Risk management

Terra Gold will build procedures into operations that allow for the identification of associated environmental aspects of activities, processes, inputs and outputs which impact on the environment.

These impacts will be risk assessed on a regular basis, and appropriate management plans and operational procedures will be developed for significant and high risk impacts to manage, mitigate and prevent these impacts.

A risk assessment, based on Australian Standard AS/NZS 4360:2004 for Risk Management, was undertaken as part of the preparation of this EIS (Section 17). The results of this assessment are presented in Section 17.2. This assessment has been used to advise the development of the draft EMP presented in Section 19.

The risk assessment model presented in Section 17 will be used as a basis for future environmental risk assessments of proposed operations or proposed changes to operations.

18.2.5 Objectives, targets and programs

Terra Gold is establishing strategic objectives and targets for the significant environmental risks identified in its Environmental Aspects and Impacts Register. For the purposes of this EIS, objectives and targets have been developed based on information in the 1998 EIS, additional baseline field surveys, consultation with key stakeholders and the requirements listed in the EIS guidelines. Environmental risks will be reassessed on a regular basis during the operational phases of mine development.

Draft EMPs that list objectives and targets are contained in a series of tables presented in Section 19. These objectives and targets are consistent with Terra Gold's Environmental Policy and take into account legal and other obligations. The objectives and targets are designed to be measurable and practical, and include key performance indicators (KPIs) that define the variable to be monitored for each environmental impact.

These draft EMPs also list the proposed actions to minimise adverse impacts, to monitor the performance of these measures, reporting requirements and corrective action requirements.

Environmental objectives and targets are also designed to facilitate monitoring and reporting on Terra Gold's performance over time. However, in this respect it is noted that environmental obligations, risks, objectives and targets may change over the life of the operations.

Section 18

Environmental Management System

Based on a preliminary assessment of the data gathered to date Terra Gold has developed the following draft EMPs for inclusion in this EIS:

- Groundwater;
- Surface Water;
- Flora;
- Fauna;
- Weeds and Pests;
- Biting Insects;
- Air Quality, Greenhouse Emissions and Noise;
- Fire and Fuel;
- Traffic and Transport;
- Cultural and Heritage Site Protection;
- Hazardous Substances;
- Domestic and Industrial Waste;
- Waste Rock and Ore Stockpile; and
- Landform and Erosion Control.

18.3 Management Structure

GBS has appointed an Environment Manager to develop an EMS at the Maud Creek mine site, to implement Terra Gold's Environmental Policy and to put the company environmental objectives into practice.

The Environment Manager will be provided with appropriate resources, including specialised skills, infrastructure and funds, to establish and maintain the EMS at the mine site. The EMS will cover both the construction and operational phases at the mine site, as the construction phase is effectively integrated to the operational phase.

The Environment Manager reports directly to the Operations Manager, and is responsible for advising management on the outcomes of the various monitoring programs. The Environment Manager also provides an advisory and co-ordination role to support the other managers, superintendents, employees and contractors. The Environment Manager may recommend a preventive or corrective course of action, while the appropriate manager or supervisor is responsible for:

- Initiating the action if monitoring programs or incidents indicate non-compliance with established procedures; and
- Ensuring that all incidents that may result in an adverse environmental impact are recorded investigated and corrected.



Section 18

Environmental Management System

All staff and contractors at the Maud Creek mine site will be required to follow operational procedures defined in the EMS, as directed by the Environment Manager. These will be communicated in inductions and training, as described in Section 18.4.

18.4 Training and Awareness

Training and competency are key components of an EMS. Terra Gold has recognised this and has developed a formal induction program that includes presentation of appropriate environmental information.

All staff and contractors working at Maud Creek will have Terra Gold's Environmental Policy explained to them during their site induction. Other environmental topics covered by the induction will include:

- Environmental objectives;
- Environmental rules and regulations;
- Land management;
- Fire management;
- Vegetation protection;
- Weed and pest management;
- Fauna protection;
- Water management;
- Waste management;
- Hazardous materials management; and
- Heritage site protection

The Terra Gold Operations Manager will ensure that all employees, contractors or visitors complete a site induction prior to being able to enter the Maud Creek mining operations. Completion of the assessment questionnaire within the induction requires an 80% pass mark.

Ongoing awareness of environmental issues will be reinforced through refresher courses and awareness programs over the life of the Maud Creek mine operations. These programs will be developed to focus on significant risks to ensure management measures are in place prior to the sites becoming operational.

18.5 Environmental Incident Reporting

Environmental incidents and hazards will be reported using the existing Incident Reporting Procedure, which Terra Gold has adopted from its parent company GBS. This procedure requires that:

- All incidents are to be reported to the appropriate Terra Gold supervisor as soon as the incident is identified;
- All significant environmental incidents will be recorded and reported to DPIFM as required by the *Mining Management Act 2001*; and



Section 18**Environmental Management System**

- Incidents will be investigated to improve systems and prevent recurrences.

Reportable incidents may include spillages, burst pipelines, bund failures, significant dust issues and unapproved clearing of vegetation. In the event of a major environmental incident the matter will be reported to the Operations Manager, who will coordinate any necessary containment and remediation measures in consultation with the Environment Manager.

Checks by the Senior Managers and routine inspections by the Environment Manager will ensure prompt reporting and remediation of any problems.

Terra Gold's Incident Reporting Procedure is presented in Figure 18.2.



Section 18

Environmental Management System

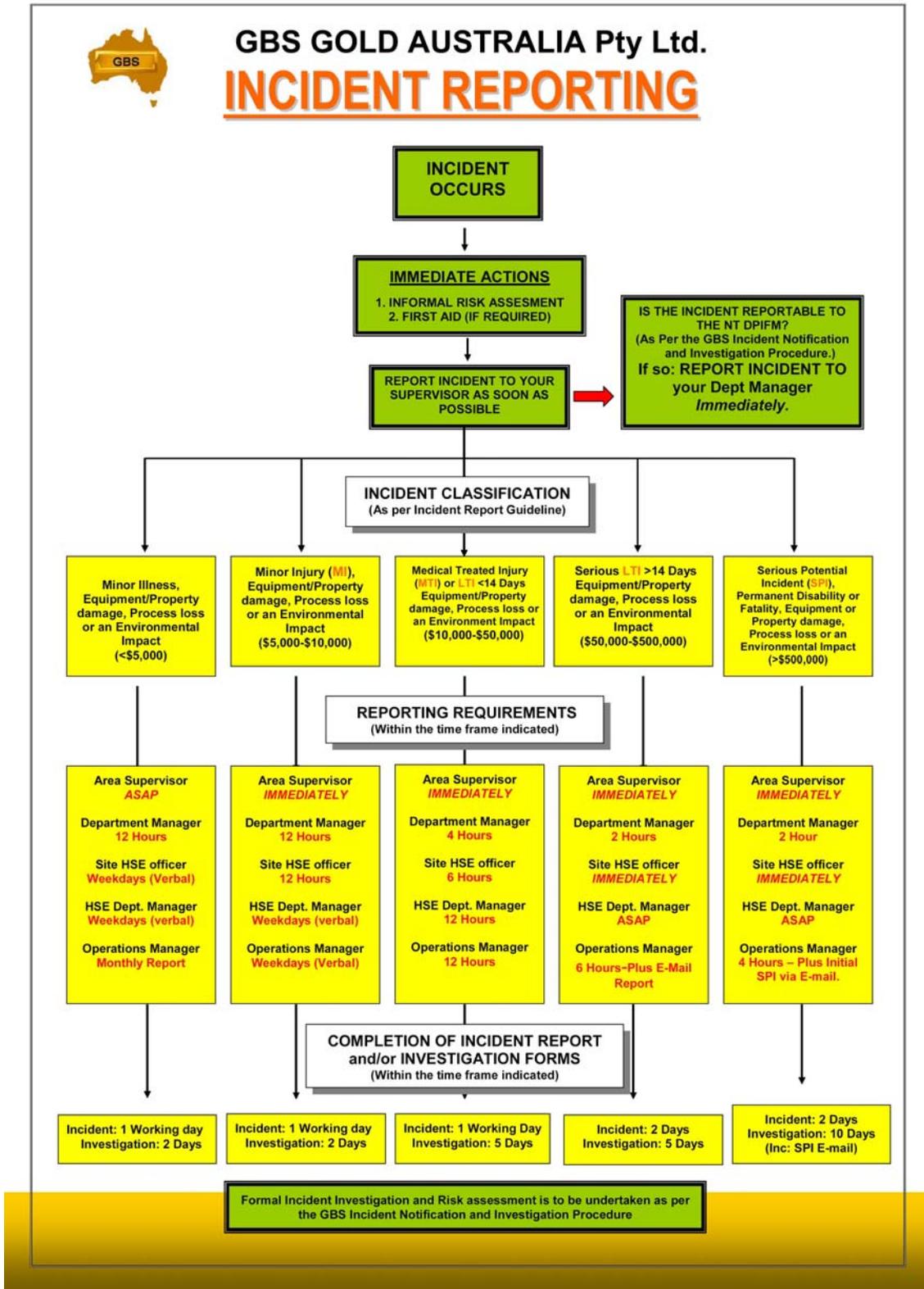


Figure 18-2 Terra Gold's Incident Reporting Procedure

Section 18

Environmental Management System

18.6 Checking and Review

Terra Gold is developing monitoring, inspection and internal audit procedures to ensure the effectiveness of their EMS and EMPs. These procedures identify if contingency plans and remedial or corrective action plans need to be developed to prevent incidents or address issues raised during inspections, monitoring and reviews.

Currently the primary means of identifying potential issues and hazards is via the risk assessment process (Section 17.2), which has led to the development of the draft EMPs presented in Section 19.

The incident reporting procedure implemented in the operational stage will contribute to the continuous improvement process. EMPs will be reviewed and updated regularly based on incident reporting. Periodic audits and structured monitoring programs will complement this improvement process, and Terra Gold will periodically update accordingly ensure that the Aspects and Impacts Register is reviewed. The Environment Manager at Terra Gold will review the EMS annually.

Monitoring programs are essential to track the performance of risk management measures, and assess actual and predicted risks. Draft monitoring programs are incorporated into Section 19 Environmental Management Plans, and are documented in Terra Gold's monitoring programs manual. Remedial or corrective action will be implemented in the event that impacts reach an unacceptable level.

18.7 Commitments

Terra Gold will implement an EMS at Maud Creek to enable systematic assessment and review of environmental impacts, targets and environmental performance measures with the aim of managing impacts in line with obligations and supporting continuous improvement.

Terra Gold will base its EMS on the AS/NZ ISO 14001:2004 Environmental Management System Standards, which are recognised worldwide and include a continuous improvement model.