



Peter Clifton & Associates

Consulting Hydrogeologists

A division of Saguaro Holdings Pty Ltd
ACN 073 231 295, ABN 33 216 640 980

Office: 11 Southport Street, LEEDERVILLE, WA 6007
Postal Address: PO Box 186, FLOREAT, WA 6014

Telephone: (08) 9388 9191
Facsimile: (08) 9388 7171

**2007 ANNUAL AUDIT
SEEPAGE AND GROUNDWATER MANAGEMENT PLAN
FIMISTON I AND FIMISTON II TAILINGS STORAGE FACILITIES**

Report prepared for:

Kalgoorlie Consolidated Gold Mines Pty Ltd
Private Mail Bag 27
Kalgoorlie WA 6433

Report No: 9505_R70(0)

July 2007

In association with: Peter O'Bryan & Associates
George, Orr and Associates (Australia)

TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Background	1
1.2	Scope of Audit	2
1.3	Public Comment	2
2	SGMP OBJECTIVES.....	2
3	SGMP PERFORMANCE TARGETS	4
3.1	Standards	4
3.1.1	Licence Conditions.....	4
3.1.1.1	DEC Licence Conditions	4
3.1.1.2	DoW Licence Conditions	8
3.1.2	Construction of Monitor and Production Bores	8
3.1.3	Collection and Analysis of Groundwater Samples	9
3.2	Tasks	10
3.2.1	Groundwater Level Management.....	10
3.2.1.1	Estimation of Historic Groundwater Level Distribution	12
3.2.1.2	Management of TSF Supernatant Pool Size	12
3.2.1.3	Operation of Eastern Borefield Production Bores	13
3.2.1.4	Semi-Continuous Monitoring of Groundwater Levels	14
3.2.1.5	Management Decisions Based on Groundwater Level Trends	15
3.2.2	Groundwater Quality Management	17
3.2.2.1	Monitoring.....	17
3.2.2.2	Groundwater Recovery	18
3.2.3	Vegetation Monitoring	18
4	ASSESSMENT OF PROGRESS TOWARDS ACHIEVING SGMP OBJECTIVES.	18
5	CONCLUSIONS	19
	REFERENCES	23

LIST OF TABLES

Table 1	Audit of Particular Conditions in DEC Licence 6420/11 Referenced in the SGMP
---------	---

LIST OF FIGURES

Figure 1	Location of KCGM Fimiston Operations and Tailings Storage Facilities
Figure 2	Eastern Borefield Production and Monitor Bore Location Plan
Figure 3	Eastern Borefield Seepage Interception Trench Location Plan

LIST OF APPENDICES

Appendix A	Statement of Independence of Auditor
Appendix B	Responses to Invitation for Public Comment on Audit Report

LIST OF ACRONYMS

mBGL	metres below ground level
CRG	Community Reference Group
DEC	Department of Environment and Conservation
DoW	Department of Water
EC	Electrical conductivity
KCGM	Kalgoorlie Consolidated Gold Mines Pty Ltd
SGMP	Seepage and Groundwater Management Plan
SWL	Static water level
TDS	Total dissolved salts
TSF	Tailings Storage Facility
WAD	Weak Acid Dissociable
WPCC	Water Pollution Control Condition (referenced in DEC licences)

1 INTRODUCTION

1.1 Background

Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM) manages the mining and ore processing operations at the Fimiston Open Pit (Kalgoorlie Super Pit) and Mt Charlotte Underground gold mines on behalf of joint owners Barrick Gold of Australia Ltd and Newmont Australia Limited.

Gold ore from KCGM's mining operations is processed at the Fimiston Mill which is located on the eastern side of the Fimiston Pit. Tailings generated by the Fimiston Mill are currently directed into the Fimiston I and Fimiston II Tailings Storage Facilities (TSF) (Figure 1).

KCGM has been managing seepage from the Fimiston I and Fimiston II TSFs into the underlying natural formations since the early 1990s by monitoring groundwater levels and hydrochemistry, and recovering a mixture of native groundwater and seepage using production bores and trenches (Figures 2 and 3). These groundwater production and monitoring facilities are known as KCGM's Eastern Borefield.

KCGM has prepared a Seepage and Groundwater Management Plan (SGMP) to oversee the planning and management activities associated with controlling groundwater around the Fimiston I and Fimiston II TSFs. This document was first released in September 2005 (KCGM, 2005), and was audited in 2006 (Peter Clifton & Associates, 2006). The SGMP was revised in response to the 2006 audit and comments from the Department of Environment and Conservation (DEC), and the current version was released in February 2007 (KCGM, 2007a).

Requirements for the environmental management of KCGM's Fimiston Mill and tailings storage operations are specified by the DEC in Licence 6420. This licence has been issued either annually or biannually to KCGM since October 1996, and the current licence is 6420/11. DEC Licence 6420/11 is valid for a two year period between 1 October 2006 and 30 September 2008.

Water Pollution Control Condition (WPCC) W12 in DEC Licence 6420/11 requires that KCGM implement the SGMP, and WPCC W13 requires that KCGM conduct an annual audit of the SGMP. Specific requirements of the audit are:

- Review KCGM's progress towards existing targets and milestones in the SGMP
- Review whether the objectives of the SGMP are being achieved, and if these objectives are still appropriate
- Include a statement of independence of the auditor

This report presents the audit of KCGM's Seepage and Groundwater Management Plan as required by DEC Licence 6420/11. Appendix A contains the required statement of independence of the auditor.

1.2 Scope of Audit

For reporting purposes, this audit applies to all activities conducted under the SGMP between 1 July 2006 and 30 June 2007.

The SGMP (KCGM, 2007a) refers to DEC Licence 6420/11 which has applied since 1 October 2006. This licence replaced Licence 6420/10 which was applicable during the first quarter of the audit period from 1 July 2006 to 30 September 2006. Water Pollution Control Conditions W12 and W13 are identical in both of these licences – these clauses discuss requirements of the SGMP. The earlier DEC licence contains two additional clauses (W15 and W16) that required KCGM to review their vegetation monitoring program and Section 6 of the first version of the SGMP (KCGM, 2005) which discusses vegetation monitoring. These reviews were conducted as required, and some modifications to the vegetation monitoring program resulted. Section 6 of the current version of the SGMP presents the revised (and current) vegetation monitoring program which KCGM is following.

For clarity, this audit report will reference conditions in DEC Licence 6420/11.

It is not within the scope of this audit to conduct a full review of groundwater monitoring data that have been collected as part of the SGMP. Data collected in the first half of this audit period (ie, July to December 2006) are reviewed and discussed in the 2006 annual report on groundwater monitoring data from the Eastern Borefield. Data collected during the second half of this audit period will be included in the 2007 annual report.

Where appropriate, this audit will reference monitoring data presented and discussed in KCGM's quarterly reports prepared for the DEC.

1.3 Public Comment

As required by WPCC 13(b) in DEC Licence 6420/11, a draft of this audit report is being made available for public comment.

2 SGMP OBJECTIVES

The objectives of the SGMP as stated in Section 3 of KCGM (2007a) are:

“The primary objective of the SGMP is to operate, monitor and develop the Eastern Borefield so as to minimise environmental impact to the local habitat.

This is particularly in relation to the prevention of harm to vegetation assemblages as a consequence of rising groundwater levels. The secondary objective of the SGMP is to ultimately restore groundwater levels to agreed targets based upon the historical groundwater levels for the region.”

Audit Comment – SGMP Objective

The objective stated in the initial version of the SGMP (KCGM, 2005) was revised after the previous audit and DEC’s response to one of the audit comments (Peter Clifton & Associates, 2006).

The primary objective of the SGMP recognises the vegetation assemblages in the vicinity of the Fimiston I and Fimiston II TSFs as the main environmental value that requires protection from the adverse effects of TSF seepage. The SGMP also recognises that in order to protect vegetation, the water table must be maintained at a sufficient depth below the natural surface to avoid saturating the root zone (see Section 4 of KCGM, 2007a). The SGMP has stated minimum depths to the water table and trigger (action) levels of 4 m and 6 m.

The SGMP has as a secondary objective the reduction of groundwater levels to what are inferred to be “historic” groundwater levels, or those groundwater levels that occurred prior to the impacts of seepage from the Fimiston I and Fimiston II TSFs. The implicit assumption in this statement is that historically the water table in the vicinity of these TSFs was at a greater depth than either the 4 m or 6 m depths discussed in the previous paragraph. There is little doubt that this is a correct assumption.

The primary and secondary objectives of the SGMP are considered to be reasonable for the following reasons:

- *The objective to protect the vegetation is overarching in the sense that it also ensures the soil profile is not degraded by excess salinity. The latter would be an undesirable impact that may cause loss of soil structure and erosion.*
- *Reduction of groundwater levels to historic levels will require the removal of large volumes of groundwater from aquifer storage over time, and this process will recover a large proportion of the TSF seepage that has entered the aquifer.*
- *In the post-closure setting when the TSFs have been decommissioned and their surfaces rehabilitated, groundwater levels will eventually reach an equilibrium somewhere near the historic levels and this will ensure the ongoing protection of the vegetation assemblages in the area.*

At this point it is the auditor's opinion that the dual objectives of protecting vegetation and reducing groundwater levels to historic levels are sufficient to allow the long-term health of the natural environment in the vicinity of the TSF to be protected.

3 SGMP PERFORMANCE TARGETS

Performance targets in the SGMP are presented as either standards to be maintained, or tasks and the time frames over which they are to be completed. Standards cover items such as licence conditions and the specifications for new monitor or production bores.

3.1 Standards

Standards are discussed in Section 2 of the SGMP, and include the following three items:

- Licence conditions
- Construction of monitor and production bores
- Collection and analysis of groundwater samples

3.1.1 Licence Conditions

Section 2.1 of the SGMP refers to DEC Licence 6420/11 and Department of Water (DoW) Licence 66252(3).

Audit Comment – Licence Conditions

DoW Licence 66252(3) has been replaced by DoW Licence 66252(5), which is valid between 4 January 2007 and 30 September 2011. This reference should be corrected in the next draft of the SGMP.

3.1.1.1 DEC Licence Conditions

WPCC W12 in Licence 6420/11 requires KCGM to implement the SGMP, and indicates that conditions in Licence 6420/11 have precedence over the contents of the SGMP in the case of any inconsistencies. In effect this means that references by the SGMP to conditions in expired Licence 6420/10 are replaced by references to the similar conditions stated in Licence 6420/11. For auditing purposes reference will thus be made to the applicable conditions in Licence 6420/11.

Specific conditions in DEC Licence 6420/11 that are referred to in the SGMP are as follows:

- Operate the Fimiston I and Fimiston II TSFs in line with Conditions W3 (freeboard), W4 (bundling of pipelines), W5, (visual inspections), W6 (stormwater diversion), W11 (groundwater monitoring), W12 and W13 (SGMP), and W14 (vegetation monitoring).
- Prepare quarterly reports presenting the results of the monitoring program required by Condition W11.
- Prepare an Annual Environmental Report as required by Condition G2. This report is to include a discussion of the vegetation monitoring program required by Condition W12.

Audit Comment 1 – DEC Licence Conditions

The vegetation monitoring program is discussed in Condition W14 of DEC Licence 6420/11, not Condition W12 as stated in the last dot point. This reference should be corrected in the next draft of the SGMP.

The scope of the monitoring programs discussed in WPCC W11 of DEC Licences 6420/10 and 6420/11 are essentially identical. The only exception is that Licence 6420/11 includes some additional monitor and production bores that were constructed after Licence 6420/10 was issued.

Particular details of the monitoring program outlined in WPCC W11 of Licence 6420/11 are as follows:

- Collect samples every month from the groundwater production bores, Fimiston I North Trench, Fimiston II South Trench, Decant 1, and Decant 3, and analyse these samples for pH and electrical conductivity (EC)
- Collect samples annually from the groundwater production bores, Fimiston I North Trench, Fimiston II South Trench, Decant 1, and Decant 3, and submit these for analysis of total dissolved salts (TDS) concentration and cyanide concentrations [total, free, and Weak Acid Dissociable (WAD)]
- Measure and record static water levels (SWLs) in the groundwater monitor bores every three months

- Collect samples from the groundwater monitor bores every quarter and analyse these samples for pH, EC, a suite of trace elements (As, Cu, Fe, Hg, Zn), and cyanide concentrations (total, free, and WAD)
- Collect samples every month from a sub-set of twenty groundwater monitor bores, and submit these samples for analysis of pH, EC, a suite of trace elements (As, Cu, Fe, Hg, Zn), and cyanide concentrations (total, free, and WAD)

WPCC W11 in Licence 6420/11 contains the following clauses:

“A minimum of 90% of all Production Bores around the facilities will be sampled during any quarterly period to allow for maintenance considerations.”

“This 90% minimum for monitoring frequencies does not include Production Bores PB F102, PB F103, PB F105, PB F106, PB F107, PB F108, PB F109, PB F110, PB F116, PB F117, PB F118, and PB F119 which are located within the TSF embankments and are often impacted by operation and maintenance of the facility. KCGM is to take all reasonable and practicable measures to maintain these bores, and will advise of their operational status within the reports required for this licence.”

Table 1 lists the conditions in Licence 6420/11 that are referenced in the SGMP, and includes a column indicating whether KCGM has achieved the expected performance standards.

Audit Comment 2 – DEC Licence Conditions

During the audit period KCGM satisfied the requirement to operate the Fimiston I and Fimiston II TSFs in line with DEC Licence Conditions W3 (freeboard), W4 (bundling of pipelines), W5, (visual inspections), W6 (stormwater diversion), W11 (groundwater monitoring), W12 and W13 (SGMP), and W14 (vegetation monitoring).

KCGM submitted the required quarterly reports on monitoring data for the 3rd and 4th quarters of 2006, and 1st quarter of 2007, and is currently preparing the report for the 2nd quarter of 2007. KCGM submitted the required Annual Environmental Report to the DEC.

With few exceptions, groundwater monitoring during the audit period has been in accordance with the sampling and analysis schedules given in DEC Licence 6420/11. The groundwater monitoring schedule for the production bores and TSF decants was completed with >98% of production bores being sampled during each quarter of the audit period, thus satisfying the 90% sampling criterion. No samples were collected from the trenches during the audit period due to insufficient flows.

Not all of the 58 monitor bores listed in the quarterly sampling schedule were sampled – only 47 to 49 of these bores were sampled during any quarter of the audit period. One bore (MB F75) was damaged by a vehicle, and this prevented sampling attempts during the first and second quarters of 2007. Repairs to this bore were conducted in May 2007. In all other cases, the monitor bores that were not sampled contained insufficient groundwater in their casings to allow samples to be collected. This will be an ongoing condition that is likely affect other monitor bores in the Eastern Borefield as groundwater levels in the area are lowered. KCGM noted many of these exceptions in their quarterly reports to the DEC.

All 20 monitor bores in the list for monthly sampling were sampled during seven months of the audit period, and during the other five months 19 of these bores were sampled. One bore (MB F22) was damaged by a vehicle, and this prevented a sampling attempt in April 2007. Repairs to this bore were conducted in May 2007 and monthly sampling subsequently resumed. Only 19 of the required 20 bores were sampled between July and October 2006, and it is not clear why this occurred.

Groundwater levels were measured at least once per quarter in all monitor bores as required.

The oversight by KCGM of not collecting groundwater samples from one monitor bore in the list of twenty bores scheduled for monthly sampling during four months of the audit period is very unlikely to have resulted in any significant loss of data that might impact management decisions for the Eastern Borefield. It is important, however, that KCGM ensure sampling is conducted according to DEC Licence conditions.

It is recommended that dry monitor bores, and monitor bores that do not contain sufficient water to allow sampling, not be removed from the sampling schedules. A determination should be made at the time of the scheduled sampling whether collection of a sample is possible, and bores that can not be sampled should be listed in the required quarterly and annual reports to the DEC.

Reportable Environmental Incidents are incidents that must be reported to state government departments under the terms and conditions in Licence 6420/11.

Audit Comment – Reportable Environmental Incidents

No Reportable Environmental Incidents occurred during the audit period with the conditions or requirements of DEC Licence 6420/11 that are listed in Table 1.

3.1.1.2 DoW Licence Conditions

Specific conditions in DoW Licence 66252(5) that are listed in the SGMP are as follows:

- Operate the Eastern Borefield in accordance with conditions specified and the current Operating Strategy.
- Prepare annual reports on the groundwater monitoring data from the Eastern Borefield.

The Operating Strategy for the Eastern Borefield includes a groundwater monitoring program, and discusses general operational principles for the borefield. One objective discussed in the Operating Strategy is to maximise the groundwater production by the borefield, and this is one task of the SGMP. KCGM's progress towards meeting this objective during the audit period is discussed in Section 3.2.3. KCGM's compliance with monitoring and reporting requirements of the Operating Strategy is discussed below.

Audit Comment – Eastern Borefield Operating Strategy

The only monitoring required by the Operating Strategy for the Eastern Borefield that is in addition to the monitoring required by DEC Licence 6420/11 is the recording of groundwater production volumes every month from all operating production bores and trenches. KCGM has collected this information as required during the audit period.

The Operating Strategy requires a group of ten production bores to be sampled every three years for major component analysis. The next scheduled sampling of these bores is in 2008.

As required, KCGM prepared and submitted the 2006 annual report on groundwater monitoring data from the Eastern Borefield.

3.1.2 Construction of Monitor and Production Bores

Section 2.2 of the SGMP refers to standards for the construction of monitor bores and production bores in the Eastern Borefield, and states that at a minimum, bores are to be constructed according to requirements specified by:

- The Department of Environment and Conservation
- International Association of Hydrogeologists Australia – Minimum Construction Requirements for Water Bores in Australia
- Department of Water Guideline No. 4 – Installation of Mine Site Groundwater Monitoring Bores

In October 2006 groundwater production bores were constructed by KCGM at six sites on the northern side of the Fimiston I TSF (PB F132 to PB F137), five sites on the north eastern side of the Fimiston II TSF (PB F127 to PB F131), and at one site on the western side of the floodway (PB F46A, which replaces PB F46). As required, prior to constructing these bores KCGM submitted a licence application to the DoW and was subsequently issued with Licence to Construct or Alter Well CAW161562(1). Following construction of the bores, KCGM forwarded the required details of these bores to the DoW.

Audit Comment – Construction of Production Bores in October 2006

KCGM obtained the required licence from the Department of Water before the construction of the twelve production bores in October 2006. Logs of these bores were subsequently reported to the DoW, and were included within the 2006 annual review of groundwater monitoring data from the Eastern Borefield.

The twelve production bores were constructed according to the requirements specified in the SGMP.

There is minor ambiguity in a reference made in Section 2.2 of the SGMP which should be corrected in subsequent drafts of this document. The report titled “Minimum Construction Requirements for Water Bores in Australia” (2nd edition, 2003) was developed by the National Minimum Bore Specification Committee, and is available at the web site of the Australian Branch of the International Association of Hydrogeologists (IAH) (www.iah.org.au). As written in the SGMP, the reference to this document implies that it was authored by the IAH.

3.1.3 Collection and Analysis of Groundwater Samples

Section 2.3 of the SGMP refers to standards for collecting and analysing groundwater samples. These standards are also referenced in WPCC W11(b) and W11(c) of DEC Licence 6420/11. The requirements for sample collection and analysis are as follows:

- Groundwater samples collected within the scope of the SGMP are in accordance with Australian Standard 5667.1-1998
- Groundwater samples collected within the scope of the SGMP and subsequently submitted for laboratory analysis are to be analysed by a laboratory with current NATA Accreditation and in accordance with the current edition of “Standard Methods for Examination of Water and Wastewater – APHA-AWWA-WEF”

Audit Comment – Groundwater Sampling and Analysis

KCGM has engaged Gecko Environmental Monitoring and Sampling Services (Gecko) to collect groundwater samples from the Eastern Borefield monitor bores, production bores, trenches, and the Fimiston I and Fimiston II TSF decants. Gecko has advised the auditor that they have sampling procedures in place that are in accordance with Australian Standard 5667.1-1998, and that these procedures are used when collecting samples at KCGM's Eastern Borefield.

KCGM is presently using SGS Environmental Services (SGS) to analyse samples of groundwater from the Eastern Borefield. SGS has current NATA Accreditation (Accreditation No 2562), and has advised the auditor that water analyses in their laboratory are conducted according to the current edition of "Standard Methods for Examination of Water and Wastewater – APHA-AWWA-WEF".

3.2 Tasks

Sections 4, 5, 6 and 7 of the SGMP discuss several tasks to be completed, and the completion times. The particular tasks, and KCGM progress towards completing these tasks, are discussed in the following sections.

3.2.1 Groundwater Level Management

As indicated by the objectives of the SGMP groundwater level management is conducted for the dual purposes of minimising environmental impact, and in particular protecting vegetation from rising water tables, and also to restore groundwater levels to agreed targets based on historical groundwater levels. Groundwater levels in the vicinity of the Fimiston I and Fimiston II TSFs are managed basically by operating and monitoring the Eastern Borefield, and by minimising the size of the supernatant pool of water on top of the TSFs. Specific tasks in the SGMP for managing groundwater levels are:

- Establish historic groundwater level distribution
- Manage the size of the supernatant pools on top of the TSFs
- Operate the production bores in the Eastern Borefield
- Semi-continuous monitoring of groundwater levels
- Monitoring of groundwater level trends

KCGM defines the "Operational Area" of the TSFs to include the tailings footprint plus a halo around the perimeter of each facility. The halo has a maximum width of 100 m, or

may be less where it is truncated by the boundary of the premises. The SGMP notes that the target minimum depth to groundwater of 4 m may not be achievable within the Operational Area of the TSFs.

Audit Comment – Concept of TSF Operational Area

The halos of the Operational Areas around both the Fimiston I and Fimiston II TSFs contain access roads, various infrastructure associated with the TSFs including many of the production bores of the Eastern Borefield, seepage interception trenches, the TSF decant dams, and topsoil dumps. These are highly disturbed areas with virtually no natural vegetation, and they will need to be rehabilitated following TSF closure.

Target groundwater levels for managing the impacts of TSF seepage on the vegetation have been set by KCGM in consultation with the DEC (see Section 3.2.1.5 of this report for a discussion of these levels).

KCGM asserts in the SGMP that strict achievement of the groundwater level targets in the halos around the TSFs is difficult, and that these levels will fluctuate in response to tailings deposition in the adjacent cell. The SGMP also notes that most of the production bores in the Eastern Borefield are located within the halos. Consequently groundwater levels in these areas will also be very sensitive to the withdrawal of groundwater by the production bores.

As indicated in the last annual review of monitoring data and KCGM's quarterly reports, there are a few areas around both the Fimiston I TSF and Fimiston II TSF where the water tables near the TSF walls, and thus within the halo areas, are shallower than the minimum target depth of 4 m. While these shallow water tables are of concern and indicate where effort needs to be directed to improve groundwater production rates, none is noted to be associated with widespread adverse impacts on the natural vegetation.

KCGM's selected maximum halo width of 100 m is considered reasonable because this area is highly disturbed and will eventually be rehabilitated when the TSFs have been closed. A greater width can not be justified as this would encroach on undisturbed areas where arguments to have water tables deeper than the minimum 4 m can be applied for the purpose of protecting the vegetation. A significantly smaller width (eg, 20 m) for the halo is difficult to justify as this is very unlikely to improve groundwater management practices.

Groundwater monitoring records from KCGM's TSFs and other large TSFs in the goldfields indicate that shallow water tables near TSF walls do occur, and these water tables can be difficult to control especially where the underlying natural formations contain large amounts of clay and have small hydraulic conductivities.

While it is reasonable for KCGM to seek an exemption from the strict application of the 4 m groundwater level criteria within the TSF halos, it is not in their interests to have widespread shallow water tables in these areas that could impact access to the TSFs and contribute to elevated water tables well beyond the designated Operational Areas.

The following sections discuss the specific tasks in the SGMP for managing groundwater levels.

3.2.1.1 Estimation of Historic Groundwater Level Distribution

Audit Comment – Estimation of Historic Groundwater Levels

The first draft of the historic groundwater level report was prepared and released by KCGM in January 2006. This draft was revised after comments were received from the DEC, and a second draft of this report was prepared and released for public comment in May 2007.

This document will be finalised by KCGM after comments have been received and considered.

3.2.1.2 Management of TSF Supernatant Pool Size

During normal operations at the Fimiston I and Fimiston II TSFs, the water from the tailings slurry discharged onto the top of the TSF collects around a decant point located towards the centre of the TSF. This water is subsequently removed by gravity drainage.

One task set by the SGMP is to minimise the area of the supernatant pools of water on the Fimiston I and Fimiston II TSFs. Minimising the size of these pools is desirable because this reduces downward seepage to the underlying natural formations.

Audit Comment – TSF Supernatant Pool Size

During the audit period, KCGM discharged tailings to the single cell Fimiston I TSF continuously and to the three individual cells of the Fimiston II TSF for periods of about three months. Tailings disposal into the Fimiston I TSF will stop when the permitted height and capacity of the single cell is reached. The tailings deposition period is followed by a drying period, and when the tailings are sufficiently dry the walls of the TSF cell are then raised. Tailings deposition can then recommence when required.

KCGM states in the SGMP that the aim is to maintain the size of the supernatant pool of water on top of the active TSF at 15% of the total TSF area, which is about 15 ha. This statement needs to be revised in a subsequent draft of the SGMP, as the intention is to keep the supernatant pool to less than 15% of each active cell of the TSFs.

The SGMP also notes (correctly) that the size of a supernatant pool can increase after rainfall, in which case the pool area may exceed the target maximum value. The SGMP states that in this situation, the water collecting on top of the TSFs will be used for ore processing in preference to groundwater derived from KCGM's remote saline water borefields.

When tailings deposition is occurring, KCGM estimates the area of the supernatant pool on the active TSF cell(s) by means of land surveys, usually at fortnightly intervals.

During the audit period the areas of the supernatant pools on the Fimiston I and Fimiston II TSFs were estimated on 57 occasions. The reported areas range between 0.5 ha and 6.3 ha on the Fimiston I TSF, and between 3.6 ha and 14.4 ha on the Fimiston II TSF. The median pool areas were 1.7 ha on the Fimiston I TSF, and 7.8 ha on the individual cells of the Fimiston II TSF.

The aim to maintain the supernatant pool size to <15 ha in the individual cells of the Fimiston II TSF was achieved during the audit period.

This task of the SGMP is considered to have been satisfactorily completed during the audit period.

3.2.1.3 Operation of Eastern Borefield Production Bores

Operation of the Eastern Borefield is necessary to control groundwater levels in the vicinity of the Fimiston I and Fimiston II TSFs and prevent unacceptable impacts to the main environmental value, the vegetation assemblages.

KCGM has established a target in the SGMP of having at least 90% of the production bores in the Eastern Borefield operating during any calendar month. The SGMP does recognise that this target may not be achieved when there is a shut down of the Fimiston Mill and there is no demand for process water.

KCGM remotely monitors the status of the production bores in the Eastern Borefield, and effectively can assess in real time how many of the bores are pumping. Bores that are not operating are flagged for inspection to determine what maintenance is required to return them to service.

Audit Comment – Operation of Eastern Borefield Production Bores

During the audit period, the proportion of Eastern Borefield production bores that were operating during any calendar month ranged between 88% and 98%, and the average of the monthly statistics is 94%. KCGM achieved the 90% borefield utilisation target during 11 months of the audit period.

Borefield utilisation fell below the 90% target in January 2007 due to a combination of a minor shut down of the Fimiston Mill and some issues with borefield equipment. KCGM has indicated that if only one of these factors had occurred, the 90% target would most likely have been achieved.

The non-achievement of the 90% borefield utilisation target in one month of the audit period is not considered to be detrimental to the overall performance of the borefield and long-term objectives of the SGMP.

3.2.1.4 Semi-Continuous Monitoring of Groundwater Levels

KCGM has installed groundwater level sensors and logging equipment in five monitor bores within the Eastern Borefield. The intent is to monitor groundwater levels with these units at a frequency that is greater than can be achieved using manual measurement methods, and identify possible responses of groundwater levels to cyclic tailings deposition and rainfall events.

The SGMP indicates that data are to be presented in the quarterly reports required by WPCC W11 of DEC Licence 6420/11, and the annual review of groundwater monitoring which includes data collected to 31 December.

Audit Comment – Semi-Continuous Monitoring of Groundwater Levels

KCGM first installed the water level sensors and loggers in five monitor bores of the Eastern Borefield in January 2006. Several equipment problems were encountered, and some sensors rapidly corroded in the saline groundwater. An issue with the venting of the pressure transducers was identified during the previous audit and also during the last annual review of borefield monitoring data. KCGM has been overcoming these problems with the assistance of the equipment supplier.

KCGM has presented data from these instruments in the quarterly reports to the DEC as required, and these reports have noted when equipment issues have occurred. Data to December 2006 were presented and discussed in the annual monitoring data review. Only three of the five installations have provided reliable long-term records of water levels. There appears to be one instance where the groundwater levels in a monitor

bore have responded to a rainfall event, and in all other cases the data indicate slowly changing groundwater levels. The monitor bore where groundwater levels may have responded to rainfall recharge is located near a catch pit which collects surface runoff, and this probably explains the shape of the groundwater level hydrograph from this bore.

The data obtained from these water level sensors to date has not produced any significant information that might lead to a recommendation to alter the groundwater management strategy at the Fimiston I and Fimiston II TSFs. However, these instruments could potentially provide useful information in other areas where, eg groundwater level management has a relatively high priority, or where groundwater levels might quickly respond to natural recharge events.

It is recommended that KCGM conduct the appropriate maintenance to ensure all of these sensors and loggers are working properly as required by the SGMP, and continue with the monitoring of the current set of five bores. Data from these instruments should be assessed (as required) in the 2007 annual review with the objective of determining whether these instruments should be moved to other monitor bores and whether the purpose of this monitoring should be redefined.

3.2.1.5 Management Decisions Based on Groundwater Level Trends

Section 4.5 of the SGMP explains KCGM's management strategy for groundwater levels and groundwater level trends in the vicinity of the Fimiston I and Fimiston II TSFs. Decisions on whether to increase the "pumping capacity" (ie, groundwater extraction rates) are based on the depth to the water table and groundwater level trend. The criteria used are as follows:

Groundwater Level and Trend	Action
Groundwater level less than 4 mBGL (below ground level) with rising or stable trend	Increase pumping capacity within two quarters
Groundwater level between 4 mBGL and 6 mBGL, with rising trend	Increase pumping capacity within three quarters
Groundwater level greater than 6 mBGL, with rising trend	Extrapolate trend, and increase pumping capacity in sufficient time to maintain groundwater level greater than 6 mBGL

The SGMP indicates KCGM examines groundwater levels and trends for comparison with the above criteria at the time of preparation of the quarterly reports. The general

objective is to increase the pumping capacity of the Eastern Borefield to achieve groundwater levels of >6 mBGL outside the Operational Area of the TSFs. The concept of the TSF Operational Area is discussed in Section 3.2.1.

Audit Comment – Groundwater Level Trends

KCGM's quarterly reports on groundwater monitoring data for the last two quarters of 2006 and first quarter of 2007 list monitor bores where the depth to the water table might lead to decisions to increase pumping capacity according to criteria in the above table. With one exception, all of these bores are close to the TSFs and are within the defined Operational Area.

Shallow groundwater levels (~4 mBGL) have occurred for a few years in one bore (MB F22) located adjacent to a catch pit near the Fimiston Mill. This bore is located in a highly disturbed area and near a waste rock dump. Groundwater level trends in the nearest monitor bores to MB F22 indicate that the shallow water table at MB F22 is probably localised, and for this reason is not of major concern. There also does not appear to be any impact to natural vegetation as a consequence of the high water table at MB F22.

Contour plans of changes in groundwater levels presented in the previous two annual reviews indicate groundwater levels in the broader floodway area between the TSFs and southwest of the Fimiston II TSF have fallen slightly (~1 m – 2 m) since 2002 in response to ongoing operation of the Eastern Borefield. However groundwater levels in this area in particular may increase rapidly in response to widespread natural recharge from an extreme rainfall event. Groundwater level hydrographs from monitor bores in the central part of the floodway indicate groundwater levels can rise by up to 2 m after flooding occurs.

KCGM's management criteria indicate that the pumping capacity of the Eastern Borefield will be increased within two or three quarters on the basis of groundwater levels and trends. This concept is reasonable from the perspective that groundwater levels tend to change slowly, and the proposed timeframes should generally be sufficient to allow appropriate action to be taken. However it is not in KCGM's interests to allow groundwater levels to increase unchecked in areas where the water table is >6 mBGL as this will prolong the overall pumping effort required to achieve the historical groundwater level targets. This last point does not need to be explicitly recognised in the SGMP.

The SGMP notes that decisions to increase the number of production bores in the Eastern Borefield will be based on groundwater level trends in monitor bores and the objective of achieving water table depths >6 m outside the Operational Area. As noted in the previous audit, there may be situations where increasing the pumping capacity can be achieved by upgrading existing infrastructure, such as pumps and pipelines. This

needs to be acknowledged in the SGMP, as the successful operation of the Eastern Borefield relies on the integration of all associated infrastructure.

3.2.2 Groundwater Quality Management

The hydrochemistry of groundwater samples from the monitor bores and production bores of the Eastern Borefield are being monitored according to schedules in DEC Licence 6420/11 and DoW Licence 66252(5) – see Sections 3.1.1.1 and 3.1.1.2 of this report.

3.2.2.1 Monitoring

Section 5.1 of the SGMP discusses the hydrochemical monitoring program for monitor bores that was introduced when the SGMP was implemented in October 2005.

Audit Comment – Groundwater Quality Monitoring

KCGM has undertaken the required groundwater monitoring tasks during the audit period in accordance with the schedules in DEC Licence 6420/11 and DoW Licence 66252(5).

As required by the SGMP, these data were presented and discussed in the 2006 annual review of monitoring data. Hydrochemical monitoring data are also presented in the quarterly reports to the DEC.

The scope of hydrochemical monitoring conducted under the SGMP is greater than the scope which applied prior to the SGMP being implemented in October 2005. A suite of trace elements has been included in the monitoring program, and several bores are now being sampled at greater frequencies.

As indicated in the SGMP, the 2006 annual review of monitoring data included an assessment of the efficacy of the expanded scope of groundwater monitoring that was introduced with the SGMP. Recommendations were included in that review to reduce the scope of the hydrochemical monitoring program, and KCGM needs to discuss these recommendations with the DEC.

While groundwater quality monitoring does not contribute much information to the management of groundwater levels and the protection of vegetation, spatial and temporal variations in groundwater chemistry provide useful information that contributes to the larger understanding of how an aquifer behaves. The latter information is important in the context of the overall management of the Eastern Borefield and achievement of the longer-term objectives of the SGMP.

3.2.2.2 Groundwater Recovery

Section 5.2 of the SGMP discusses groundwater recovery for the purpose of managing groundwater quality.

Audit Comment – Groundwater Recovery

The SGMP notes that the recovery of groundwater for the purpose of managing hydrochemistry is secondary to the recovery of groundwater for the purpose of managing groundwater levels. The SGMP also notes that the presence of TSF seepage in some of the natural groundwater has not impacted the beneficial use of this resource for mineral processing.

Both of these positions are considered reasonable, and there is no particular need to revise either position at this stage.

3.2.3 Vegetation Monitoring

KCGM completed a review of their vegetation monitoring program in 2005 as required by the first draft of the SGMP. After review and consultation on this document, including input from the DEC and KCGM's Community Reference Group, a revised vegetation monitoring program was developed by KCGM (KCGM, 2007b). This program has since been implemented by KCGM.

Under WPCC W14 of DEC Licence 6420/11, KCGM is required to undertake a vegetation survey at the Fimiston TSFs, and report the results of this survey in the Annual Environmental Report.

Audit Comment – Vegetation Monitoring

KCGM completed the required vegetation monitoring in September 2006 according to the monitoring plan in place at that time. As required, the results of this survey were included in the 2006 Annual Environmental Report (KCGM, 2007c). This survey concluded that the vegetation in the survey area was in good health.

4 ASSESSMENT OF PROGRESS TOWARDS ACHIEVING SGMP OBJECTIVES

The objectives of the SGMP are listed in Section 2 of this report.

The primary objective of the SGMP is to minimise the environmental impacts of operating the Fimiston I and Fimiston II TSFs, and in particular preventing harm to vegetation assemblages. The secondary objective of the SGMP is to ultimately restore groundwater levels to agreed targets based upon the historical groundwater levels for the region.

Audit Comment – Assessment of Progress Towards Achieving Objectives

As indicated by the vegetation survey discussed in the KCGM's 2006 Annual Environmental Report, the primary objective of protecting the vegetation assemblages in the vicinity of the Fimiston TSFs has been satisfactorily achieved, at least at the time of the survey. The auditor is not aware of any adverse impacts to vegetation that occurred during the remainder of the audit period.

Groundwater levels have changed slowly during the audit period over most of the area being monitored, and this is not unusual. The annual review of monitoring data indicates water tables in the central floodway area between the Fimiston TSFs and southwest of the Fimiston II TSF have fallen by up to 1 m over the twelve month period to December 2006, and this is a positive result in the context of the SGMP's secondary objective.

There are some areas near the TSF walls where shallow water tables occur, and in particular on the eastern side of the Fimiston II TSF and northern side of the Fimiston I TSF. At this stage there appears to be enough production bores to reduce these high water tables, and it should be possible for KCGM to realise some increases in groundwater production rates in these areas. It is recommended that KCGM target these areas in the near term for improving groundwater production rates.

5 CONCLUSIONS

The main conclusions of this audit are as follows:

- The primary objective of the SGMP of protecting the vegetation assemblages in the area and the secondary objective of reducing groundwater levels to historic levels are considered reasonable, and provide appropriate direction for the management of seepage from the Fimiston I and Fimiston II TSFs. No changes to these objectives are recommended.
- During the audit period (1 July 2006 to 30 June 2007) the health of the vegetation assemblages in the area remained satisfactory and there were some declines in groundwater levels in the broader floodway between the Fimiston TSFs and southwest of the Fimiston II TSF. Shallow water tables occur in some areas near the TSF walls, and in particular on the eastern side of the Fimiston II TSF and

northern side of the Fimiston I TSF. At this stage there appears to be enough production bores to reduce these high water tables, and it should be possible for KCGM to realise some increases in groundwater production rates in these areas. It is recommended that KCGM target these areas in the near term for improving groundwater production rates.

- KCGM has mostly achieved their groundwater monitoring obligations outlined in DEC Licence 6420/10, and completed all monitoring required by DoW Licence 66252(5) during the audit period. Two monitor bores were damaged and subsequently repaired, and three of the required samples could not be collected while these bores were damaged. Samples were collected from 19 of the required 20 monitor bores during July, August, September, and October 2006. The oversight of not collecting four of the required groundwater samples is very unlikely to have resulted in any significant loss of data that might impact management decisions for the Eastern Borefield. It is important, however, that KCGM ensure sampling is conducted according to DEC Licence conditions.
- Samples were not collected from some of the monitor bores included in the schedules because the bores were either dry or contained insufficient water to permit sampling. This will be an ongoing condition that is likely affect other monitor bores in the Eastern Borefield as groundwater levels in the area are lowered. It is recommended that monitor bores in this category not be removed from the sampling schedules. Rather, a determination should be made at the time of the scheduled sampling whether collection of a sample is possible, and bores that can not be sampled should be listed in the required quarterly and annual reports to the DEC.
- During the audit period (1 July 2006 to 30 June 2007), KCGM has conducted work required by all of the tasks listed in the SGMP. Particular tasks and the progress towards their completion are as follows:
 - ◆ Develop estimate of historic groundwater level distribution: a revised draft report was released for public comment in May 2007. This document will be finalised by KCGM after comments have been received and considered.
 - ◆ Maintain the area of the supernatant pools of water on top of the TSFs less than 15 ha: pool areas have ranged between 0.5 ha and 14.4 ha, and median pool areas were 1.7 ha on the Fimiston I TSF, and 7.8 ha on the individual cells of the Fimiston II TSF.
 - ◆ At least 90% of production bores in the Eastern Borefield to be operating over any full calendar month: the proportion of production bores operating each month during the audit period ranged between 88% and 98%, and averaged

94% for the whole year. The non-achievement of the 90% target occurred in January 2007, and was due to a combination of a minor shut down of the Fimiston Mill and problems with borefield equipment. The non-achievement of the 90% borefield utilisation target in one month of the audit period is not considered to be detrimental to the overall performance of the borefield and long-term objectives of the SGMP.

- ◆ Install five groundwater level sensors and logging units in selected monitor bores: these units were installed in January 2006. Several problems have occurred with some of these instruments, and these have been overcome with the assistance of the equipment supplier. Only three of the units have produced long-term records. It is recommended that KCGM conduct the appropriate maintenance to ensure all of these sensors and loggers are working properly, and continue with the monitoring of the current set of five bores. Data from these instruments should be assessed in the 2007 annual review (as required by the SGMP) with the objective of determining whether these instruments should be moved to other monitor bores and whether the purpose of this monitoring should be redefined.
- ◆ Monitor groundwater level trends to determine where increased groundwater pumping is required: this information has been collected and presented in the quarterly reports to the DEC. The SGMP defines the Operational Area of the TSFs as the tailings footprint plus a halo of maximum width 100 m around the perimeter of each facility, and indicates that achieving water tables >4 mBGL in this area may be difficult. The SGMP allows shallow water tables < 6 mBGL to occur within the Operational Area of the TSFs without triggering the need for increasing groundwater pumping capacities. This is considered a reasonable proposition, however it is noted that it is not within KCGM's interest to have shallow water tables in these areas.
- ◆ Monitor groundwater quality: as noted above, groundwater chemistry has been monitored for the most part in accordance with schedules in DEC Licence 6420/11 and DoW Licence 66252(5) during the audit period. With the introduction of the SGMP in October 2005 the scope of the hydrochemical monitoring was increased to include a suite of trace elements, and the frequency of sampling monitor bores was increased. The efficacy of collecting the additional monitoring data was reviewed in the 2006 annual review of monitoring data for the Eastern Borefield. Recommendations were included in that review to reduce the scope of the hydrochemical monitoring program, and KCGM needs to discuss these recommendations with the DEC.

- ◆ Vegetation monitoring: vegetation monitoring was conducted as required during the audit period, and results included in the 2006 Annual Environmental Report. The survey concluded the health of the vegetation in the surveyed areas was good. KCGM completed a review of their vegetation monitoring program in 2005 as required by the first draft of the SGMP. This review was finalised in early 2007 after consultation with the DEC and KCGM's Community Reference Group. KCGM has since implemented the revised vegetation monitoring program.

Peter Clifton & Associates

P M Clifton
Director

REFERENCES

- KCGM, 2005, "Fimiston Operations Seepage and Groundwater Management Plan", prepared by Kalgoorlie Consolidated Gold Mines Pty Ltd, September 2005.
- KCGM, 2007a, "Fimiston Operations Seepage and Groundwater Management Plan", prepared by Kalgoorlie Consolidated Gold Mines Pty Ltd, February 2007.
- KCGM, 2007b, "Revised Vegetation Monitoring Programme, Fimiston Tailings Storage Facilities", prepared by Kalgoorlie Consolidated Gold Mines Pty Ltd, March 2007.
- KCGM, 2007c, "2006 Annual Environment Report", prepared by Kalgoorlie Consolidated Gold Mines Pty Ltd, March 2007.
- Peter Clifton & Associates, 2006, "2006 Annual Audit, Seepage and Groundwater Management Plan, Fimiston I and Fimiston II Tailings Storage Facilities", consultant report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd, 9505_R62, August 2006.

Table 1: Audit of Particular Conditions in DEC Licence 6420/11 Referenced in the SGMP

DEC Licence 6420/11 Condition	Requirement for Fimiston I & Fimiston II TSFs and/or Eastern Borefield	Audit Comments
W3 Freeboard	Maintain minimum operational freeboard of 300 mm on TSFs	<i>KCGM has determined freeboard depths on operational cells of the Fimiston I and Fimiston II TSFs by means of survey at least twice per month during the audit period. The results of all surveys indicate the minimum 300 mm freeboard criterion has been satisfied. The minimum surveyed freeboard during the audit period was 1.86 m at C Paddock, Fimiston II TSF in September 2006.</i>
W4 Pipeline bunds	Bunding of pipelines between the Fimiston Mill and Fimiston I & II TSFs	<i>KCGM inspects pipeline bunds at least once per shift during visual inspections of the TSFs as required by Condition W5. Any issues with bunds are recorded on the visual inspection log for subsequent action. No reportable environmental incidents associated with Condition W4 occurred during the audit period.</i>
W5 Visual inspections	Visual inspection of: (i) tailings delivery lines, (ii) return water lines, (iii) tailings deposition, (iv) ponding on the surface of the TSFs, (v) internal embankment freeboard, and (vi) external walls of TSFs. Inspections to be conducted at least every six hours. Results to be recorded in a log book and signed by the person conducting the inspection.	<i>KCGM conducts the required visual inspections at the Fimiston I and Fimiston II TSFs generally every three hours. Results are recorded on log sheets and signed by the person conducting the inspection and the Shift Supervisor. No reportable environmental incidents associated with Condition W5 occurred during the audit period.</i>

continued...

Table 1 (cont): Audit of Particular Conditions in DEC Licence 6420/11 Referenced in the SGMP

DEC Licence 6420/11 Condition	Requirement for Fimiston I & Fimiston II TSFs and/or Eastern Borefield	Audit Comments
W6 Stormwater diversion	Diversion of stormwater runoff away from TSFs.	<p><i>KCGM made provision for stormwater diversion at the Fimiston I and Fimiston II TSFs during the initial design of these facilities. Drains have been constructed on the down-stream side of these TSFs to divert surface water runoff.</i></p> <p><i>No reportable environmental incidents associated with Condition W6 occurred during the audit period.</i></p>
W11 Groundwater monitoring	This condition requires KCGM to analyse groundwater samples from the production and monitor bores and measure static water levels in monitor bores according to a given schedule.	<p><i>The extent that KCGM has completed the required sampling and monitoring is as follows:</i></p> <ul style="list-style-type: none"> <i>• Monthly sampling of production bores, trenches (Fimiston I North, Fimiston II South), and TSF decants, and analysis for pH and EC – completed, and 90% sampling criterion for production bore sampling satisfied for all quarters during the audit period. No samples collected from trenches due to small flows.</i> <i>• Annual sampling of production bores, trenches (Fimiston I North, Fimiston II South), and TSF decants, and analysis for TDS and cyanide concentrations – all production bores and the TSF decants have been sampled at least once during the audit period. No samples collected from trenches due to small flows.</i> <i>• Quarterly recording of SWL in monitor bores – completed; SWL recorded more than once per quarter in many of the monitor bores.</i> <p><i>(continued...)</i></p>

continued...

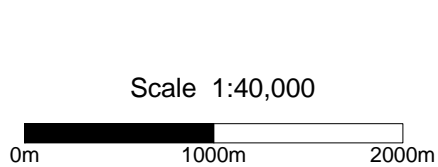
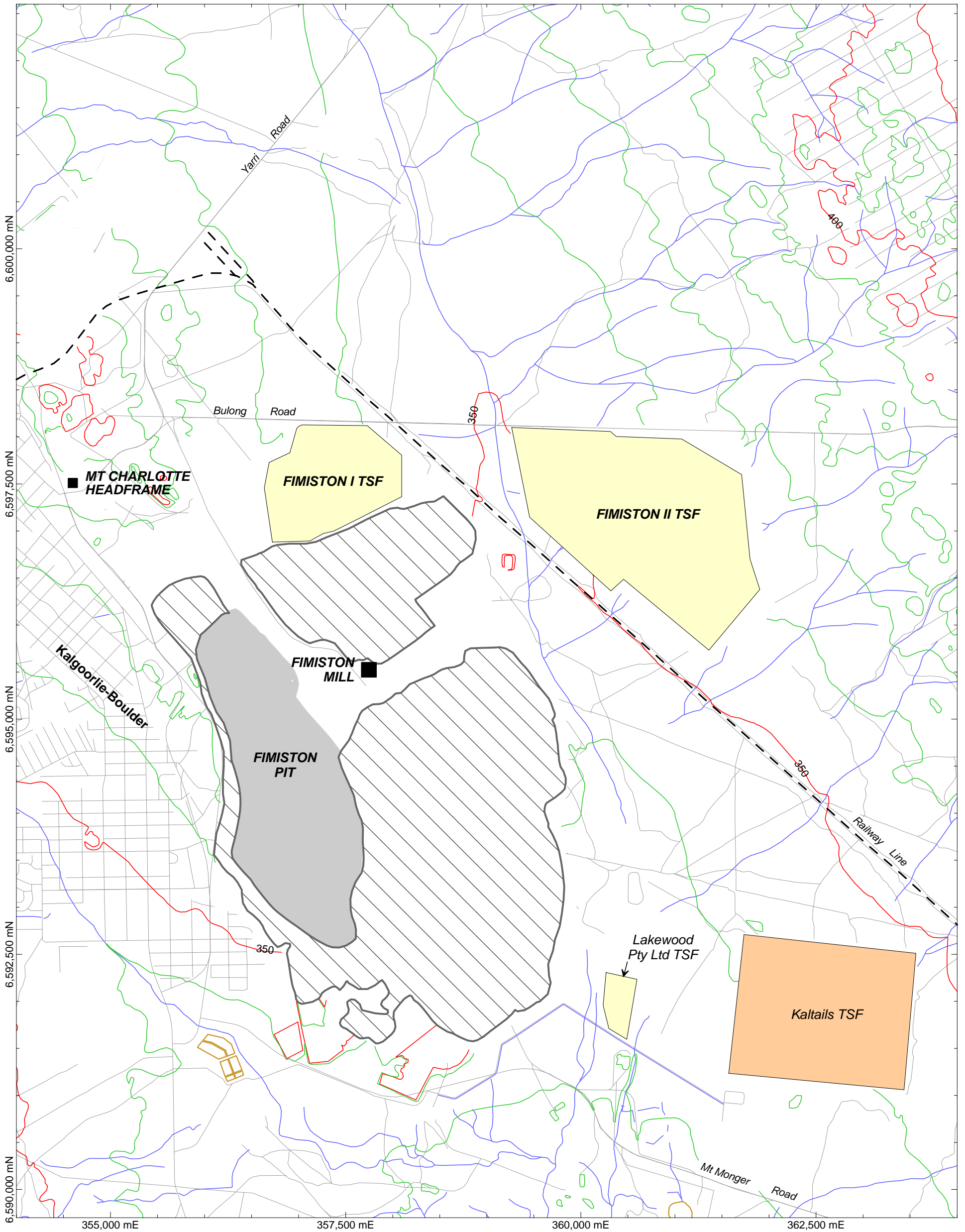
Table 1 (cont): Audit of Particular Conditions in DEC Licence 6420/11 Referenced in the SGMP

DEC Licence 6420/11 Condition	Requirement for Fimiston I & Fimiston II TSFs and/or Eastern Borefield	Audit Comments
W11 Groundwater monitoring (continued)		<ul style="list-style-type: none"> • Quarterly sampling of monitor bores, and analysis for pH, EC, TDS, cyanide, and trace element concentrations – completed where bores contained sufficient water to allow sampling (47 to 49 of the 58 bores in this list were sampled each quarter). • Monthly sampling of 20 monitor bores, and analysis for TDS, cyanide, and trace element concentrations – fully completed for 7 months during the audit period, and 19 of the 20 bores were sampled during 5 months of the audit period.
W14 Vegetation monitoring	Complete a specified vegetation survey and report results in the Annual Environmental Report.	<p>Vegetation monitoring was completed in September 2006. As required results were presented in KCGM's Annual Environmental Report for 2006 (KCGM, 2007b). The report indicates that at the time of the September 2006 survey and in the surveyed areas the vegetation health was assessed to be good.</p> <p>No recommendations for groundwater management at the Fimiston I and Fimiston II TSFs, or for the SGMP, resulted from the 2006 vegetation survey.</p>

continued...

Table 1 (cont): Audit of Particular Conditions in DEC Licence 6420/11 Referenced in the SGMP

DEC Licence 6420/11 Condition	Requirement for Fimiston I & Fimiston II TSFs and/or Eastern Borefield	Audit Comments
W11 Quarterly reports	WPCC W11(d) requires KCGM to prepare reports on the results of the groundwater monitoring program in WPCC W11(a) and submit these to the Director, DEC, each quarter.	<i>KCGM has prepared and submitted the required quarterly reports during the last half of 2006 and first quarter of 2007. The quarterly report for the second quarter of 2007 (April to June) was in preparation at the time of this audit. This quarterly report is due to be submitted by 15 August 2007.</i>
G2 Annual Environmental Report	KCGM is required to prepare an Annual Environmental Report that provides and overview of monitoring data and other data required by Licence 6420/11, and submit this report by 31 March.	<i>KCGM prepared and submitted the 2006 Annual Environmental Report for Licence 6420/11 as required (KCGM, 2007b).</i>

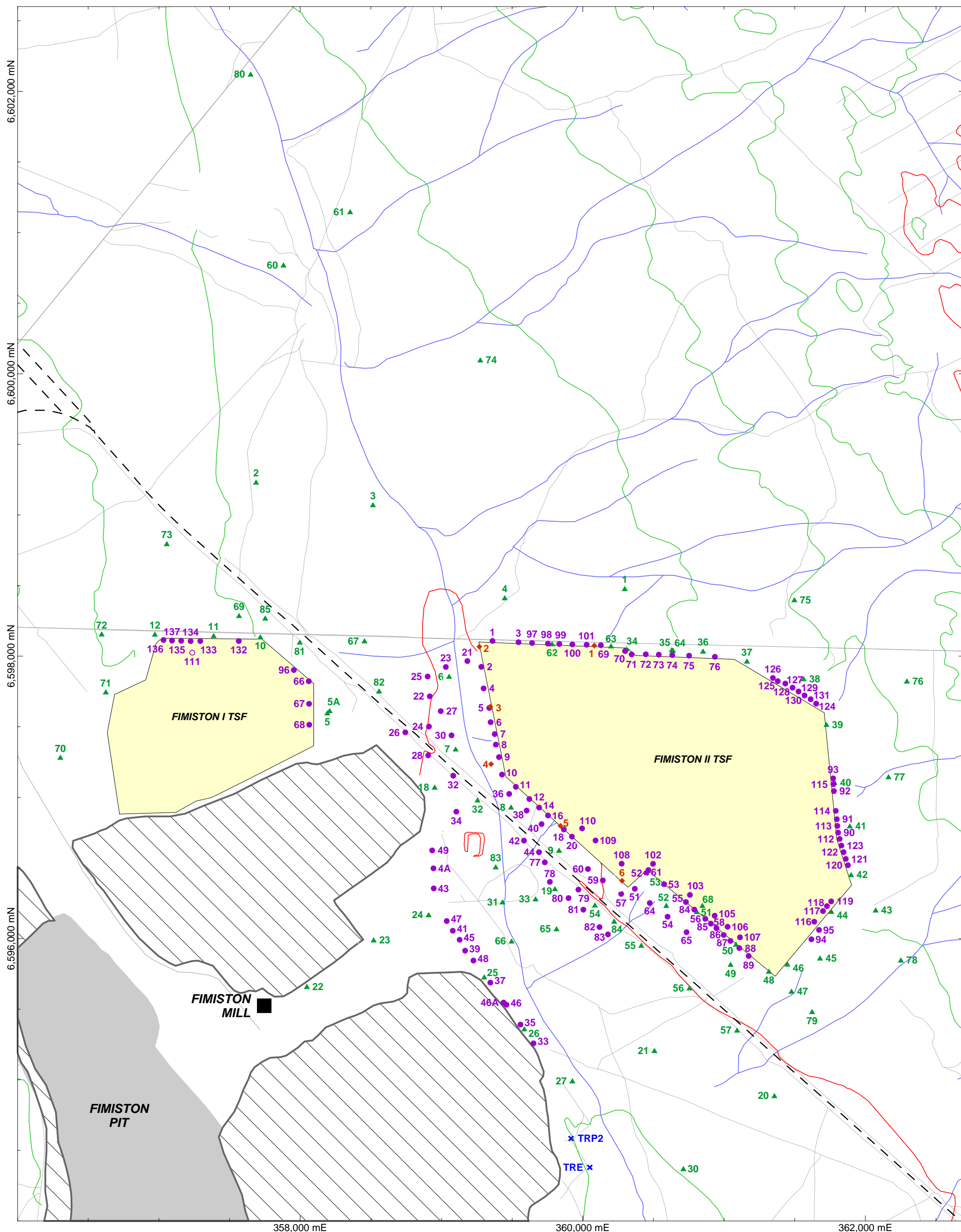


- Active Tailings Storage Facility
- Closed Tailings Storage Facility
- Waste rock dump (Dec 2006)

Grid coordinates: MGA94, Zone 51

Topographic data reproduced by permission of the Department of Land Information, Perth, Western Australia
Copyright Licence 1/2006
KCGM infrastructure from KCGM Survey Department

FIGURE 1.
Location of KCGM Fimiston Operations and Tailings Storage Facilities



Scale 1:25,000



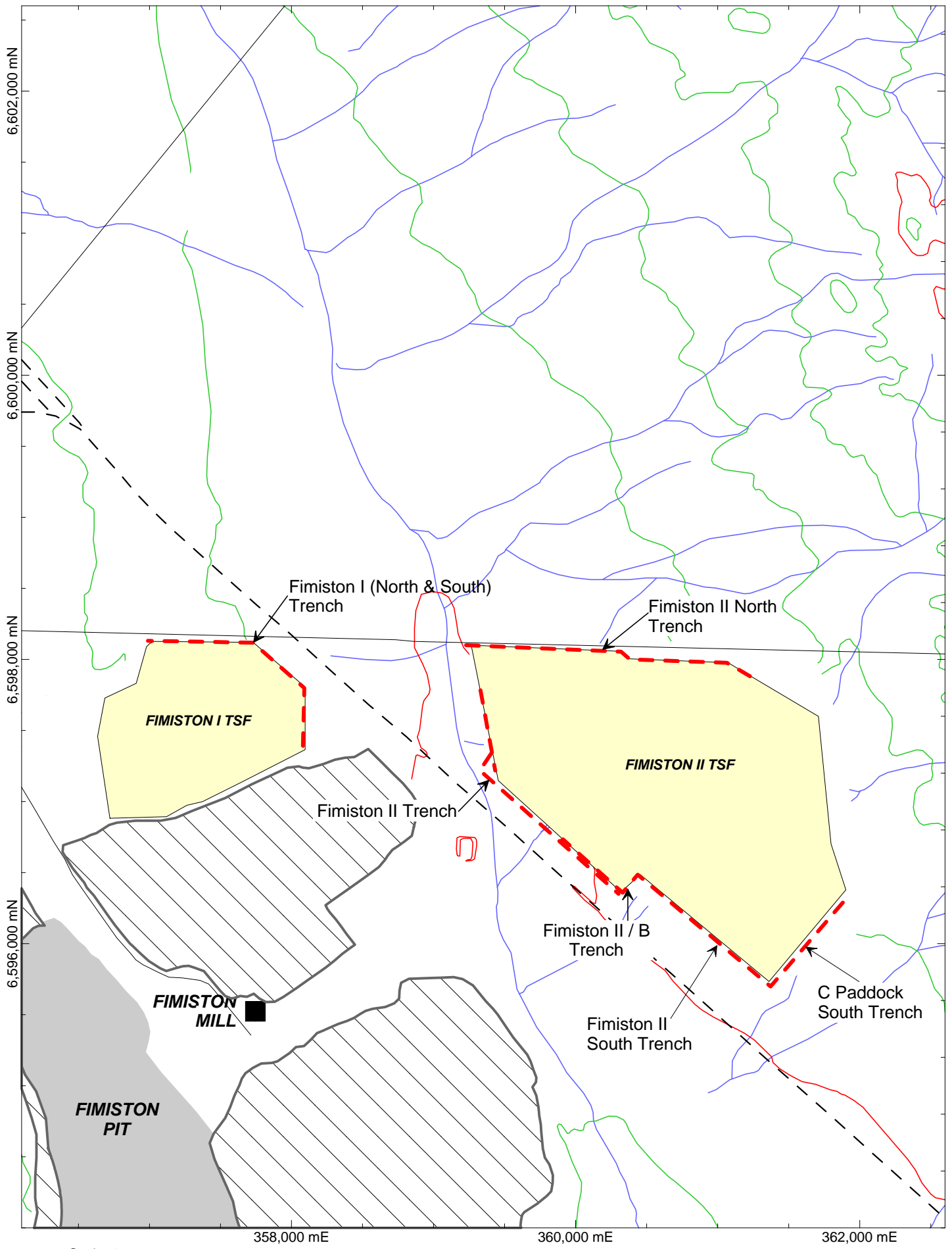
Grid coordinates: MGA94, Zone 51

Topographic data reproduced by permission of the Department of Land Information, Perth, Western Australia
 Copyright Licence 1/2006
 KCGM infrastructure from KCGM Survey Department

- Production Bore, "PB F" series
- "PB F" series bore, not equipped
- ▲ Monitor Bore, "MB F" series
- ◆ Monitor Bore, "NTD" series
- ✕ Monitor Bore, other
- ▨ Waste rock dump (Dec 2006)

FIGURE 2

Eastern Borefield
 Production and Monitor Bore Location Plan



Scale 1:35,000



Waste rock dump (Dec 2006)

Grid coordinates: MGA94, Zone 51

Topographic data reproduced by permission of the Department of Land Information, Perth, Western Australia
 Copyright Licence 1/2006
 KCGM infrastructure from KCGM Survey Department

FIGURE 3
 Eastern Borefield
 Seepage Interception Trench Location Plan

APPENDIX A
STATEMENT OF INDEPENDENCE OF AUDITOR

***Statement of Independence of Peter Clifton & Associates in the Matter of the 2007
Audit of KCGM's Seepage and Groundwater Management Plan***

This audit of KCGM's Seepage and Groundwater Management Plan has been conducted by Mr Peter Clifton of Peter Clifton & Associates, a Perth based hydrogeological consulting practice providing services primarily to the mining industry in Australia. Mr Clifton has degrees in geology from the University of Western Australia, and a degree in hydrology and water resources from the University of Arizona. Mr Clifton has more than 25 years of work experience in the United States of America and Australia, and established Peter Clifton & Associates in 1994.

Both Peter Clifton and Peter Clifton & Associates are independent of Kalgoorlie Consolidated Gold Mines Pty Ltd, and the joint owners of the mining operations managed by KCGM – Barrick Gold of Australia Ltd and Newmont Australia Limited. Both Peter Clifton and Peter Clifton & Associates have no financial interests and have never had any financial interests in KCGM, Barrick Gold of Australia Ltd, or Newmont Australia Limited.

Peter Clifton & Associates has provided hydrogeological advice and services to KCGM in the past on a commercial basis according to accepted professional practices. No benefits from KCGM, other than professional fees, will be realised by Peter Clifton & Associates as a result of conducting this audit.

APPENDIX B

RESPONSES TO INVITATION FOR PUBLIC COMMENT ON AUDIT REPORT