Appendix 13-E

Water Quality Assessment of the Reasonable Upper Limit Case

HARPER CREEK PROJECT

Application for an Environmental Assessment Certificate / Environmental Impact Statement

Memorandum

Refer to File: http://minervahub.erm.com/Projects/HarperCreekProject/EA Application Report/Screening Comments 2014/Water Quality/Reasonable Upper Limit Case Water Quality Assessment.docx

Date: December 30, 2014

To: Charlene Higgins, VP, Environment, Community & First Nations Relations, Harper Creek Mining Corporation

From: ERM Consultants Canada Ltd.

Subject: **Proposed Harper Creek Project - Water Quality Assessment of the Reasonable Upper Limit Case**

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1. INTRODUCTION

Harper Creek Mining Corporation (HCMC) submitted an Application for an Environmental Assessment Certificate/Environmental Impact Statement (Application/EIS) for screening review on November 10, 2014. The Surface Water Quality Effects Assessment (Chapter 13) indicated that "a modified upper bound case [was] being developed to present a more realistic upper limit on the uncertainty in the water quality model. Results from this sensitivity analysis will be available during the Application/EIS review period." This memorandum is intended to present the results of the reasonable upper limit case water quality predictions. This memorandum also partially responds to Comment ID# 459 received from the Ministry of the Environment via the Environmental Assessment Office (EAO) on December 10, 2014:

Section 13.5.2.3 states: "A modified upper bound case is being developed to present a more realistic upper limit on the uncertainty in the water quality model. Results from this sensitivity analysis will be available during the Application/EIS review period." This item is missing from the application, but I am fine receiving it during the review period.

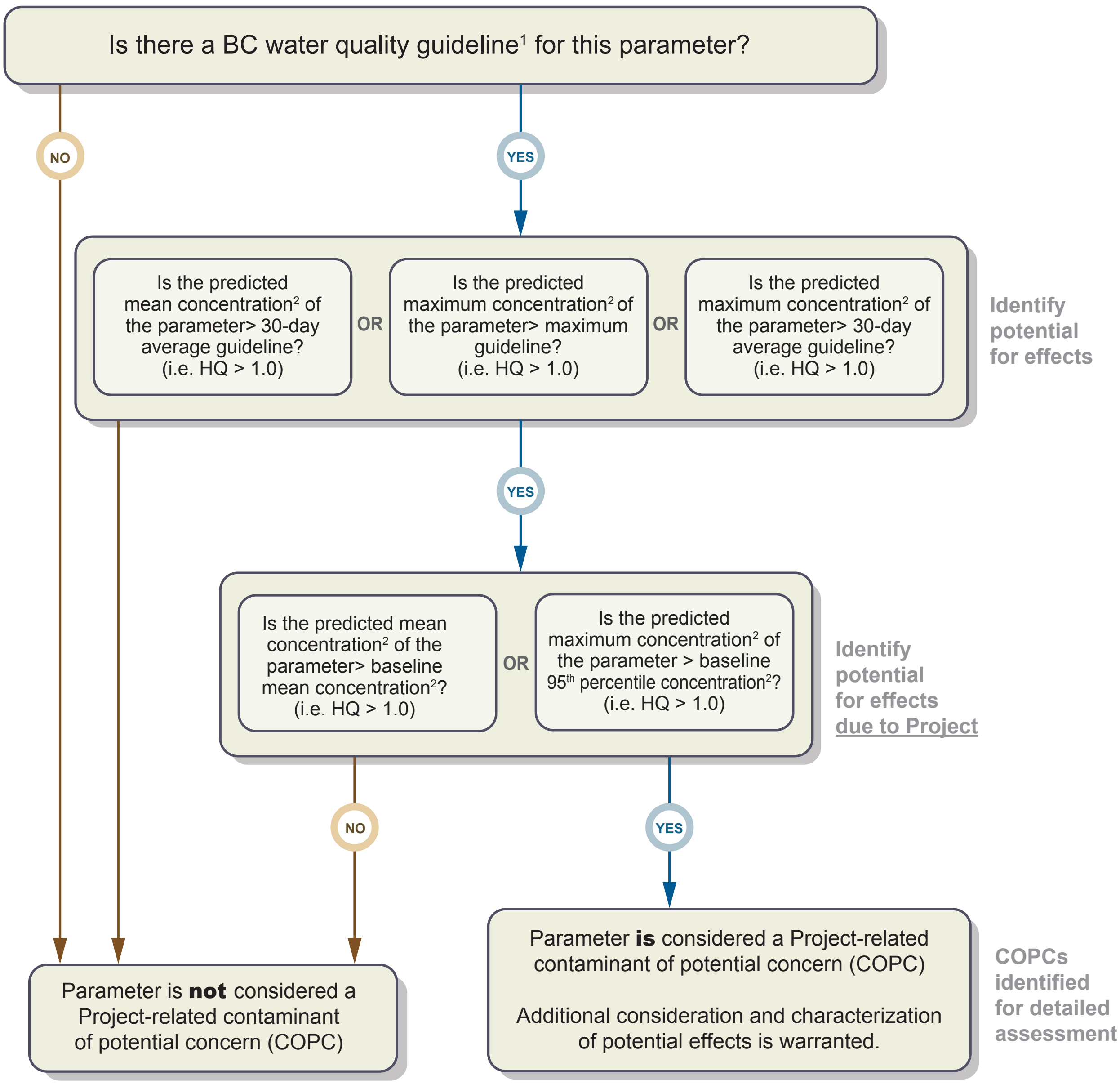
2. METHODS

The primary objective of the water quality modelling for the Project was to predict the concentrations of total and dissolved metals, nutrients, and anions within the Project Site and in the surrounding surface waters that will receive chemical loadings from Project components. Water quality modelling also considered various model sensitivity analyses or model cases that accounted for uncertainty in the model assumptions (KP 2014a; Appendix 13-C of the Application/EIS). In responses to comments from the BC Ministry of Energy and Mines and Ministry of the Environment, SRK Consulting Inc. (SRK) generated new geochemical source terms to provide a better quantification of a reasonable upper limit for water quality predictions than the upper bound source terms provided in the Application/EIS. Knight Piésold Consulting (KP) incorporated the new source terms to provide water quality predictions in an additional sensitivity analysis (Table 2-1; KP 2014b; Appendix A) for use in the water quality effects assessment.

The methods used to identify contaminants of potential concern (COPC) remain the same as those used in Chapter 13 of the Application/EIS (Figure 2-1).

Figure 2-1

Screening Process for Selection of Contaminants of Potential Concern (COPC) for Surface Water Quality Assessment, Harper Creek Project



Notes: COPC = contaminant of potential concern.
HQ = hazard quotient.
[1] Approved and working BC water quality guidelines.
[2] Concentrations (predicted and baseline) were assessed on a monthly basis.

Table 2-1. Updated Water Quality Model Cases

Model Case	Climate Case	Geochemical Source Terms	Seepage Inputs
Expected case	Average Climate Inputs	Expected case source terms	LOM Watershed Model
Sensitivity Analyses			
Reasonable upper limit case	Average Climate Inputs	Reasonable upper limit source terms	LOM Watershed Model
Upper bound case	Average Climate Inputs	Upper bound case source terms	LOM Watershed Model
Low precipitation case[1]	5th Percentile Precipitation	Expected case source terms	LOM Watershed Model
High precipitation case[1]	95th Percentile Precipitation	Expected case source terms	LOM Watershed Model
Unrecovered seepage sensitivity case[2]	Average Climate Inputs	Expected case source terms	SEEP/W and MODFLOW

[1] *Only model nodes HM, HT, and HB*
[2] *Only model nodes HP, P Creek, and HM*

3. WATER QUALITY ASSESSMENT

3.1 Overview

In Section 13.5.4 of the Application/EIS, residual surface water quality effects were primarily determined based on the results of the expected case predictive water quality model. The expected case water quality model is considered to predict the conditions that are most likely to occur and is considered to present results that are conservative based on the methods of source term development and modelling (KP 2014c; Appendix 13-C, Water Quality Predictions). Uncertainty in the expected case was assessed through the additional COPCs and/or increased concentrations predicted in the sensitivity scenarios (Table 2-1).

Confidence, which can also be understood as the level of uncertainty associated with the assessment, is a measure of how well residual effects are understood and the confidence associated with the baseline data, modelling techniques used, assumptions made, effectiveness of mitigation, and resulting predictions. Based primarily on the results of the upper bound case predictions, the confidence in the significance prediction and mitigation measures being followed was rated as **medium** for the residual effect of the Project on surface water quality.

Uncertainty and confidence in the expected case predictions is assessed in the context of the reasonable upper limit case predictions in the following section for the aquatic environment downstream of Project components to the boundary of the quantitative water quality predictions in lower Harper Creek. Further description of the reasonable upper limit case can be found in Appendix A.

3.2 Updated Surface Water Quality Effects Assessment

Project-related COPCs for sensitivity analyses (Table 2-1) including the reasonable upper limit case are presented in Table 3-1. In general, water quality predictions are more sensitive to changes in chemical loadings (i.e., changes in source terms) than changes in climate (i.e., changes in precipitation).

3.2.1 P Creek

No Project-related loads report to P Creek in the LOM watershed model; therefore, the results of the expected case and reasonable upper limit case do not identify any Project-related COPC in P Creek.

3.2.2 T Creek

T Creek receives chemical loading from unrecovered seepage from the TMF during Operations and discharge of excess water from the TMF during Closure and Post-Closure.

Screening of the expected case water quality predictions identified cadmium, copper, selenium, sulphate, and zinc as COPCs in the Closure and Post-Closure phases. Screening of the upper bound case water quality predictions additionally identified dissolved aluminum, total chromium, total cobalt, total manganese, total mercury, and total silver as COPCs in the Closure and Post-Closure phases.

Table 3-1. Contaminants of Potential Concern (COPC) Identified by Screening-level Assessment, Harper Creek Project

				P Creek				T Creek				Upper Harper Creek (HP, HM, and HT)			
Model Case	Climate Case	Groundwater Seepage	Geochemistry Source Terms	Construction	Operations	Closure	Post-Closure	Construction	Operations	Closure	Post-Closure	Construction	Operations	Closure	Post-Closure
Expected Case	average	LOM Watershed Model	expected case							cadmium, copper, selenium, sulphate	cadmium, copper, selenium, sulphate, zinc	copper	copper, selenium	cadmium, copper, selenium	cadmium, copper, selenium
Unrecovered Seepage Sensitivity[1]	average	SEEP/W and MODFLOW	expected case	copper, nitrite	ammonia, copper, nitrite, selenium	copper	copper					copper	copper, nitrite, selenium	copper	copper
Reasonable Upper Limit Case	average	LOM Watershed Model	reasonable upper limit case					cadmium	cadmium	cadmium, chromium, cobalt, copper, selenium, sulphate, vanadium, zinc	aluminum, cadmium, chromium, cobalt, copper, selenium, sulphate, vanadium, zinc	copper	copper, selenium	cadmium, copper, selenium	aluminum, cadmium, cobalt, copper, selenium, zinc
Upper Bound Case	average	LOM Watershed Model	upper bound case					cadmium	cadmium	aluminum, cadmium, chromium, cobalt, copper, manganese, mercury, selenium, silver, sulphate, zinc	aluminum, cadmium, chromium, cobalt, copper, manganese, mercury, selenium, silver, sulphate, zinc	copper	cobalt, copper, selenium	cadmium, cobalt, copper, mercury, selenium	cadmium, cobalt, copper, mercury, selenium, zinc
5th Percentile Precipitation[2]	5th percentile precipitation	LOM Watershed Model	expected case										copper, selenium	copper, selenium	cadmium, copper, selenium
95th Percentile Precipitation[2]	95th percentile precipitation	LOM Watershed Model	expected case										cadmium, copper, nitrite, selenium	cadmium, copper, selenium	cadmium, copper, selenium

				Lower Harper Creek (HB)				Baker Creek (BK0)			
Model Case	Climate Case	Groundwater Seepage	Geochemistry Source Terms	Construction	Operations	Closure	Post-Closure	Construction	Operations	Closure	Post-Closure
Expected Case	average	LOM Watershed Model	expected case			cadmium, copper, selenium	cadmium, copper, selenium		chromium	chromium	chromium
Unrecovered Seepage Sensitivity[1]	average	SEEP/W and MODFLOW	expected case								
Reasonable Upper Limit Case	average	LOM Watershed Model	reasonable upper limit case			cadmium, copper, selenium	cadmium, copper, selenium		chromium	chromium	chromium
Upper Bound Case	average	LOM Watershed Model	upper bound case		copper	cadmium, copper, selenium	cadmium, cobalt, copper, mercury, selenium		chromium	chromium	chromium
5th Percentile Precipitation[2]	5th percentile precipitation	LOM Watershed Model	expected case				cadmium, copper, selenium				
95th Percentile Precipitation[2]	95th percentile precipitation	LOM Watershed Model	expected case		cadmium, copper, selenium	cadmium, copper, selenium	cadmium, copper, selenium				

Note: Aluminum and cadmium are dissolved parameters

[1] *Only P Creek, HP, and HM assessed in this case*

[2] *Only HM, HT, and HB assessed in this case*

For the COPCs identified in the expected case, the reasonable upper limit case predictions indicate:

- maximum cadmium concentrations that are approximately 1.5 times greater than the expected case;
- maximum copper concentrations that are approximately two times greater than the expected case;
- maximum selenium concentrations that are approximately three times greater than the expected case;
- maximum sulphate concentrations that are approximately 1.5 times greater than the expected case; and
- maximum zinc concentrations that are approximately 1.2 times greater than the expected case.

Dissolved aluminum, total manganese, total mercury, and total silver are not predicted to be COPCs compared to the upper bound case COPC screening results. The only COPC not previously identified is total vanadium, indicating that the revision to the source term for total vanadium in the reasonable upper limit case has increased predicted concentrations for this parameter relative to the upper bound case.

3.2.3 Upper Harper Creek (HP, HM, and HT)

3.2.3.1 Assessment Node HP

No Project-related loads report to assessment node HP in the LOM watershed model; therefore, the results of the expected case and reasonable upper limit case do not identify any Project-related COPC at HP.

3.2.3.2 Assessment Node HM

The assessment node HM is located downstream from the confluence with P Creek and upstream of the confluence with T Creek. HM represents the point in Harper Creek where seepage losses from the temporary non-PAG LGO stockpile (only on the surface for 5 years), PAG LGO, and the non-PAG waste rock stockpile, and associated water management ponds are expected to intercept with Harper Creek.

Screening of the expected case water quality predictions identified selenium as a COPC in Operations. Screening of the upper bound case water quality predictions additionally identified total cobalt as a COPC.

For the COPC identified in the expected case, the reasonable upper limit case predictions indicate maximum selenium concentrations that are approximately 1.5 times greater than the expected case.

Compared to the upper bound case, total cobalt was not identified as a COPC in the reasonable upper limit case. No additional COPC were identified by the reasonable upper limit case at assessment node HM.

3.2.3.3 *Assessment Node HT*

Project-related loadings in Harper Creek at assessment node HT originate from unrecovered seepage reporting upstream in Harper Creek and from Closure and Post-Closure discharge of excess water from the TMF to T Creek.

Screening of the expected case water quality predictions identified cadmium, copper, and selenium as COPCs in the Closure and Post-Closure phases. Screening of the upper bound case water quality predictions additionally identified total cobalt and total mercury as COPCs in the Closure and Post-Closure phases.

For the COPCs identified in the expected case, the reasonable upper limit case predictions indicate:

- maximum cadmium concentrations that are approximately 1.5 times greater than the expected case;
- maximum copper concentrations that are approximately 1.5 times greater than the expected case; and
- maximum selenium concentrations that are approximately three times greater than the expected case.

Compared to the upper bound case, total mercury was not identified as a COPC in the reasonable upper limit case. No additional COPC were identified by the reasonable upper limit case at assessment node HT.

3.2.4 *Lower Harper Creek (HB)*

The HB assessment node is located in Harper Creek just upstream from North Barrière Lake at the edge of the LSA.

Screening of the expected case water quality predictions identified cadmium, copper, and selenium as COPCs in the Closure and Post-Closure phases. Screening of the upper bound case water quality predictions additionally identified total cobalt and total mercury as COPCs in the Closure and Post-Closure phases.

For the COPCs identified in the expected case, the reasonable upper limit case predictions indicate:

- maximum cadmium concentrations that are approximately 1.5 times greater than the expected case;
- maximum copper concentrations that are approximately 1.05 times greater than the expected case; and
- maximum selenium concentrations that are approximately three times greater than the expected case.

Compared to the upper bound case, total cobalt and total mercury were not identified as COPCs in the reasonable upper limit case. No additional COPC were identified by the reasonable upper limit case at assessment node HT.

4. CONCLUSIONS

The reasonable upper limit water quality predictions are considered to represent a more realistic upper bound to the water quality predictions. The reasonable upper limit water quality predictions are generally lower than the upper bound case, most substantially for predicted copper concentrations. The reasonable upper limit case predicts maximum concentrations of COPC that are within three times of the predictions in the expected case. Based on the results of the reasonable upper limit case predictions, the confidence in the significance prediction is revised to **high** from **medium** for the residual effect of the Project on surface water quality. Section 13.5 of Chapter 13 will be revised to reflect the updates introduced in this memo.

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REFERENCES

KP. 2014a. *Harper Creek Project – Water Quality Predictions*. Ref No. VA101-456/14-3. Rev 0. Knight Piésold Limited: Vancouver, BC.

KP. 2014b. *Harper Creek Project – Water Quality Model Update – Reasonable Upper Limit (RUL) Predictions.* Ref No. VA101-458/17-A.01. Knight Piésold Limited: Vancouver, BC.

— Appendix A —

Harper Creek Project: Water Quality Model Update – Reasonable Upper Limit (RUL) Predictions

Knight Piésold CONSULTING

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MEMORANDUM

To:	Ms. Charlene Higgins	Date:	December 19, 2014
Copy To:	Jessica Mackie, Dan Fontaine	File No.:	VA101-458/17-A.01
From:	Liz Ashby	Cont. No.:	VA14-01825
Re:	Harper Creek Project Water Quality Model Update - Reasonable Upper Limit (RUL) Predictions		

1 – PURPOSE OF MEMORANDUM

The purpose of this memorandum is to provide the results of the Harper Creek Project Water Quality Model (the model), based on revised geochemical source terms provided by SRK Consulting Inc., and to compare these results with those provided in the Environmental Assessment Application (the Application). These geochemical source terms were prepared upon request of the BC Ministry of Energy and Mines and Ministry of Environment as a means of quantifying a more reasonable upper limit for the water quality predictions than the "Upper Bound" source term case previously provided in the Application.

The input parameter by which these source terms were adjusted was pH; adjusting the potential parameter loading according to the probability level of the expected 5th percentile for pH. The lower, 5th percentile pH is more conservative for this project than higher pH and creates resulting source terms that are equivalent to the 95th percentile. These source terms and resulting water quality predictions are termed the Reasonable Upper Limit (RUL) and are not intended to replace the Upper Bound Case (UC) or the Expected Case (EC) results that were provided in the Application.

All other inputs and assumption remain the same as those listed in support of the model for the Application, with the exception of the new source terms. This memorandum only provides the revised results with a comparison to previous results that were presented in the Application. Detailed discussion of all other aspects of the model are provided in the Knight Piesold Ltd. *Water Quality Predictions* report VA101-458/14-3, issued October 17, 2014 (in Appendix 13-C; Appendix 13-D of the Application).

2 – TAILINGS MANAGEMENT FACILITY (TMF)

2.1 SELENIUM

Predicted mean and maximum RUL selenium concentrations in the TMF range from 0.023 mg/L to 0.031 mg/L or two to four times greater than the mean and maximum EC concentrations, and equal to the UC concentrations (Table 1). Predicted RUL selenium concentrations are equal in magnitude to the UC concentrations. RUL selenium concentrations in the TMF are predicted to be 0.03 mg/L to 0.04 mg/L above the BCWQG-Wildlife (0.002 mg/L) (see Appendix A1). Maximum RUL selenium concentrations are reached earlier when compared with the EC (Year 19 when compared with Year 25). Compared with the EC results (and consistent with the UC case), RUL results show: 1) greater effects of ore processing during Operations 1 and 2) greater effects on concentrations from Open Pit load transfer to TMF during Post-Closure.

Table 1 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Selenium in the TMF

	Operations 1		Operations 2		Closure		Closure and Post-Closure	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max
TMF (EC)	0.010	0.015	0.015	0.016	0.012	0.014	0.008	0.011
TMF (RUL)	0.037	0.046	0.042	0.044	0.035	0.038	0.033	0.035
TMF (UC)	0.037	0.046	0.042	0.044	0.035	0.038	0.033	0.035
RUL/EC	3.85	2.99	2.77	2.80	2.92	2.74	4.31	3.23
UC/EC	3.85	2.98	2.77	2.80	2.92	2.74	4.31	3.23

NOTES:
1. ALL CONCENTRATIONS ARE PROVIDED IN mg/L.
2. OPERATIONS 1 (YEAR 0 THROUGH 23.5), OPERATIONS II (YEAR 23.5 THROUGH 28), CLOSURE (YEAR 29 THROUGH 35), POST-CLOSURE (YEAR 36+).
3. APPLICABLE GUIDELINES INCLUDE: BCWQG-WILDLIFE (0.002 mg/L).

2.2 CADMIUM

Predicted mean and maximum RUL cadmium concentrations in the TMF range from 0.00004 mg/L to 0.00020 mg/L higher or 1.5 to 4 times greater than mean and maximum EC concentrations (Table 2). Predicted RUL cadmium concentrations are approximately 60% of the UC cadmium predictions. No MMER discharge criteria or BCWQG-Wildlife exist for cadmium. Maximum RUL cadmium concentrations are reached during Operations 1 (Year 6), which differs from the EC predictions (maximum concentrations occur in Year 55) (see Appendix A2). Compared with the EC results, the RUL results show greater effects of ore processing during Operations 1.

Table 2 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Cadmium in the TMF

	Operations 1		Operations II		Closure		Closure and Post-Closure	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max
TMF (EC)	0.00006	0.00007	0.00006	0.00007	0.00005	0.00005	0.00009	0.00011
TMF (RUL)	0.00017	0.00027	0.00013	0.00016	0.00009	0.00011	0.00016	0.00018
TMF (UC)	0.00027	0.00045	0.00021	0.00025	0.00015	0.00017	0.00024	0.00030
RUL/EC	2.79	3.80	2.11	2.23	1.89	1.97	1.84	1.59
UC/EC	4.49	6.30	3.40	3.58	3.04	3.18	2.83	2.61

NOTES:
1. ALL CONCENTRATIONS ARE PROVIDED IN mg/L.
2. OPERATIONS 1 (YEAR 0 THROUGH 23.5), OPERATIONS II (YEAR 23.5 THROUGH 28), CLOSURE (YEAR 29 THROUGH 35), POST-CLOSURE (YEAR 36+).
3. THERE ARE NO APPLICALBE GUIDELINES.

2.3 COPPER

Predicted RUL copper concentrations in the TMF range from 0.0018 mg/L to 0.0225 mg/L higher or 1.4 to 4 times greater than the EC concentrations and 10% to 28% of the UC predictions (see Table 3). RUL concentrations (maximum concentration of approximately 0.03 mg/L) are not expected to exceed MMER discharge limits(0.3 mg/L average; 0.6 mg/L maximum) or the BCWQG-Wildlife (0.3 mg/L). The peak RUL concentration for copper occurs during Operations 1, in contrast with predictions for the EC, where maximum concentrations are reached in Operations II. The concentration trend for predicted RUL copper concentrations is slightly altered when compared to the EC: 1) the effects of ore processing during Operations 1 are pronounced in the RUL and 2) less pronounced effect from the load transfer from the Open Pit to TMF during Post-Closure when compared to the higher concentrations predicted in Operations.

Table 3 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Copper in the TMF

	Operations 1		Operations II		Closure		Post-Closure	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max
TMF (EC)	0.0056	0.0069	0.0066	0.0073	0.0052	0.0058	0.0044	0.0051
TMF (RUL)	0.017	0.029	0.014	0.016	0.0096	0.011	0.0062	0.0084
TMF (UC)	0.080	0.11	0.12	0.13	0.094	0.11	0.036	0.079
RUL/EC	3.09	4.27	2.07	2.18	1.87	1.95	1.42	1.67
UC/EC	14.16	15.35	18.01	17.88	18.23	19.72	8.18	15.68

NOTES:
1. ALL CONCENTRATIONS ARE PROVIDED IN mg/L.
2. OPERATIONS 2 (YEAR 0 THROUGH 23.5), OPERATIONS II (YEAR 23.5 THROUGH 28), CLOSURE (YEAR 29 THROUGH 35), POST-CLOSURE (YEAR 36+).
3. APPLICABLE GUIDELINES INCLUDE: BCWQG-WILDLIFE MAX (0.3 mg/L), MMER MEAN (0.3 mg/L) AND MMER MAX (0.6 mg/L).

2.4 ADDITIONAL PARAMETERS

Molybdenum is the only additional parameter that is predicted to be above the BCWQG-Wildlife (0.05 mg/L) in the TMF under the RUL. Maximum predicted concentrations (0.06 mg/L) are just above the guideline for one year during construction as a result of diversion of water necessary for construction.

3 – OPEN PIT

3.1 SELENIUM

Predicted RUL maximum selenium concentrations occur in the Open Pit during Closure (0.15 mg/L), and are approximately 0.13 mg/L higher or 8 times greater than the EC concentrations (0.019 mg/L) and equal to the predicted UC predictions (Table 4). Maximum RUL selenium concentrations are reached at the same time as predicted in the EC (end of Operations 2). RUL concentrations in the TMF remain above the BCWQG-Wildlife (0.002 mg/L) throughout the model period.

Table 4 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Selenium in the Open Pit

	Operations 1		Operations 2		Closure		Post-Closure	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max
OP (EC)	0.0021	0.0096	0.014	0.019	0.015	0.019	0.006	0.013
OP (RUL)	0.015	0.050	0.085	0.15	0.12	0.15	0.042	0.097
OP (UB)	0.015	0.050	0.085	0.15	0.12	0.15	0.042	0.097
RUL/EC	6.96	5.20	6.11	8.05	7.87	8.04	6.66	7.71
UC/EC	6.96	5.20	6.11	8.05	7.87	8.04	6.66	7.71

NOTES:
1. ALL CONCENTRATIONS ARE PROVIDED IN mg/L.
2. OPERATIONS 2 (YEAR 0 THROUGH 23.5), OPERATIONS 2 (YEAR 23.5 THROUGH 28), CLOSURE (YEAR 29 THROUGH 35), POST-CLOSURE (YEAR 36+).
3. APPLICABLE GUIDELINES INCLUDE: BCWQG-WILDLIFE (0.002 mg/L).

3.2 CADMIUM

Predicted RUL maximum cadmium concentrations occur in the Open Pit during Closure (0.0028 mg/L), and are approximately 0.0012 mg/L higher or 1.4 times the maximum EC concentrations (0.0016 mg/L) (Table 5). The Operations 1 maximum RUL cadmium concentration (0.00044 mg/L) is approximately 5.5 times higher than the EC (0.000081 mg/L) and 55% of the predicted UC (Table 5). No MMER discharge criteria or BCWQG-Wildlife exist for cadmium. Maximum cadmium concentrations are reached at the same time as the EC (end of Operations 2). Compared with the EC results, RUL results show very similar concentration trends.

Table 5 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Cadmium in the Open Pit

	Operations 1		Operations 2		Closure		Closure and Post-Closure	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max
OP (EC)	0.000040	0.000081	0.0010	0.0021	0.0016	0.0016	0.0004	0.0013
OP (RUL)	0.000152	0.00044	0.0016	0.0028	0.0023	0.0028	0.0010	0.0019
OP (UC)	0.000257	0.00081	0.0027	0.0050	0.0040	0.0050	0.0014	0.0032
RUL/EC	3.81	5.52	1.54	1.37	1.42	1.77	2.37	1.48
UC/EC	6.44	10.05	2.67	2.43	2.49	3.14	3.45	2.55

NOTES:
1. ALL CONCENTRATIONS ARE PROVIDED IN mg/L.
2. OPERATIONS 1 (YEAR 0 THROUGH 23.5), OPERATIONS 2 (YEAR 23.5 THROUGH 28), CLOSURE (YEAR 29 THROUGH 35), POST-CLOSURE (YEAR 36+).
3. THERE ARE NO APPLICALBE GUIDELINES.

3.3 COPPER

Predicted maximum RUL copper concentrations occur in the Open Pit during closure (0.037 mg/L), and are approximately equal to the EC predictions (0.035mg/L), and are equal to the UC predictions (Table 6). The largest differences between the RUL/UC and the EC are noted during Operations. Predicted RUL copper concentrations closely follow the overall trends for the EC during Operations 2, Closure and Post-Closure. Solubility limits (0.036 mg/L) restrict the maximum possible concentration for copper in both models. An elevated spike does occur within the RUL model at the onset Operations 2. This is explained by a combination of the increased loading during Operations 1 combined with the small volume in the Open Pit as filling commences. RUL maximum copper concentrations occur during Operations 1 (0.075 mg/L), and are not expected to exceed MMER discharge limits (0.3 mg/L average; 0.6 mg/L maximum) or the BCWQG-Wildlife (0.3 mg/L) .

Table 6 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Copper in the Open Pit

	Operations 1		Operations 2		Closure		Closure and Post-Closure	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max
OP (EC)	0.0025	0.023	0.035	0.036	0.027	0.035	0.0089	0.023
OP (RUL)	0.0084	0.075	0.036	0.037	0.030	0.037	0.015	0.026
OP (UC)	0.0084	0.075	0.036	0.037	0.030	0.037	0.015	0.026
RUL/EC	3.35	3.22	1.05	1.04	1.10	1.05	1.66	1.15
UC/EC	3.35	3.22	1.05	1.04	1.10	1.05	1.66	1.15

NOTES:
1. ALL CONCENTRATIONS ARE PROVIDED IN mg/L.
2. OPERATIONS 1 (YEAR 0 THROUGH 23.5), OPERATIONS 2 (YEAR 23.5 THROUGH 28), CLOSURE (YEAR 29 THROUGH 35), POST-CLOSURE (YEAR 36+).
3. APPLICABLE GUIDELINES INCLUDE: BCWQG-WILDLIFE MAX (0.3 mg/L), MMER MEAN (0.3 mg/L) AND MMER MAX (0.6 mg/L).

3.4 ADDITIONAL PARAMETERS

The following additional parameters have predicted RUL concentrations in the Open Pit above the BCWQG-Wildlife:

- Arsenic: maximum predicted RUL arsenic concentrations are 0.028 mg/L (Operations 2 and Closure), which is slightly above the 0.025 mg/L guideline. Predicted mean and maximum RUL concentrations in the Open Pit are between 2 to 5 times greater than the EC concentrations.
- Molybdenum: predicted RUL molybdenum concentrations in the Open Pit are above the BCWQG-Wildlife Max (0.05 mg/L) seasonally during Operations 1 and consistently during Operations 2, Closure, and the first 23 years of Closure. There is a short term spike in Molybdenum concentrations during construction as result of water re-routing). Outside of this anomalous year, maximum RUL molybdenum concentrations are predicted to be less than 0.04 mg/L.
- Mercury: predicted maximum RUL mercury concentrations occur in the Open Pit during Operations 1 (0.00023 mg/L) and are approximately 0.000145 mg/L higher or 2.6 times the maximum EC concentrations (0.000085 mg/L). RUL mercury concentrations are above the BCWQG-Wildlife Max (0.00002 mg/L) for the duration Closure and Post-Closure.
- Fluoride: predicted maximum RUL fluoride concentrations are approximately equal to or only slightly elevated (1.0 to 1.3 times) when compared to EC concentrations. Predicted maximum RUL fluoride concentrations (1.47) are above BCWQG-Wildlife Avg (1 mg/L) for one year at the end of Operations 1.

4 – P-CREEK

Since no mine-related loading reports to P-Creek in the watershed model, results from the RUL equal those of the EC and UC. Total copper is the only parameter predicted to be above the BCWQG FWAL-30 D and CEQG. As discussed above, all concentrations within P-Creek reflect loading attributed to background levels.

5 – T-CREEK

5.1 SELENIUM

Predicted maximum RUL selenium concentrations in T-Creek (0.035 mg/L) are 0.023 mg/L higher or approximately 3 times greater than the maximum EC concentrations (0.012 mg/L), and equal to the UC concentrations (Table 7). RUL selenium concentrations in T-Creek are predicted to be above the BCWQG-30D (0.002 mg/L) and CEQG (0.001 mg/L). Maximum RUL selenium concentrations are predicted to be reached during the Closure and Post-Closure periods of the model, which is also observed in the EC (Year 31). Compared with the EC, the RUL results show greater effects from the Open Pit load transfer to TMF during Post-Closure. Increased concentrations are expected to be observed in the TMF prior to reaching T-Creek.

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Table 7 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Selenium at T-Creek

	Operations 1		Operations 2		Closure		Closure and Post-Closure	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max
T-Creek (EC)	0.000092	0.00057	0.000088	0.00013	0.0067	0.012	0.0068	0.011
T-Creek (RUL)	0.00010	0.0013	0.000088	0.00013	0.020	0.035	0.029	0.035
T-Creek (UC)	0.00010	0.0013	0.000088	0.00013	0.020	0.035	0.029	0.035
RUL/EC	1.10	2.34	1.00	1.00	2.97	2.90	4.31	3.22
UC/EC	1.10	2.34	1.00	1.00	2.97	2.90	4.31	3.22

NOTES:

1. ALL CONCENTRATIONS ARE PROVIDED IN mg/L.
2. OPERATIONS 1 (YEAR 0 THROUGH 23.5), OPERATIONS 2 (YEAR 23.5 THROUGH 28), CLOSURE (YEAR 29 THROUGH 35), POST-CLOSURE (YEAR 36+).
3. APPLICABLE GUIDELINES: BCWQG-30D (0.002 mg/L) and CEQG (0.001 mg/L).

5.2 CADMIUM

Predicted maximum RUL cadmium concentrations in T-Creek (0.00018 mg/L) are approximately 0.00007 mg/L higher or 2 times greater than the EC concentrations (approximately 0.00011 mg/L) and are equal to the UC concentrations (Table 8). No MMER discharge criteria have been developed for cadmium. Predicted RUL cadmium is above the BCWQG-30D[1] (draft) (0.000039 mg/L), BCWQG-Max[1] (draft) (0.000059 mg/L) and CEQG[1] (0.000022 mg/L) consistently during the last five years of Closure and consistently during Post Closure. Predicted RUL cadmium is seasonally above the BCWQG-30D (draft) during operations and is above the CEQG during one year of Operations. Maximum RUL cadmium concentrations are reached during the same year as the EC (Year 52). Compared with the EC results, the RUL results show similar trends that are increased in magnitude, with a slower rate of decrease of maximum concentrations during Post Closure.

Table 8 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Cadmium at T-Creek

	Operations 1		Operations II		Closure		Closure and Post-Closure	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max
T-Creek (EC)	0.000014	0.000041	0.000014	0.000041	0.000033	0.000049	0.000079	0.00011
T-Creek (RUL)	0.000014	0.000054	0.000014	0.000041	0.000057	0.000093	0.00014	0.00018
T-Creek (UC)	0.000014	0.000054	0.000014	0.000041	0.000087	0.000150	0.00022	0.00030
RUL/EC	1.04	1.31	1.00	1.00	1.69	1.90	1.81	1.59
UC/EC	1.04	1.31	1.00	1.00	2.60	3.06	2.78	2.60

NOTES:

1. ALL CONCENTRATIONS ARE PROVIDED IN mg/L.
2. OPERATIONS 1 (YEAR 0 THROUGH 23.5), OPERATIONS II (YEAR 23.5 THROUGH 28), CLOSURE (YEAR 29 THROUGH 35), POST-CLOSURE (YEAR 36+).
3. APPLICABLE GUIDELINES INCLUDE: BCWQG-30D[1] (draft) (0.000039 mg/L), BCWQG-Max[1] (draft) (0.000059 mg/L) and CEQG[1] (0.000022 mg/L)

[1] As calculated with average baseline values.

5.3 COPPER

Predicted maximum RUL copper concentrations in T-Creek (0.0097 mg/L) are 0.0045 mg/L higher or approximately 2 times greater than maximum EC concentrations (0.0052 mg/L) (Table 9). RUL copper concentrations are predicted to be above BCWQG-Max (0.0038 mg/L) and CEQG (0.002 mg/L) consistently during the last five years of Closure and the entirety of Post Closure. Predicted RUL copper concentrations are not predicted to be above guidelines during Operations. The peak concentration for RUL cadmium is predicted to occur at Year 31, consistent with predictions for the EC. The concentration trend for RUL cadmium concentrations is slightly altered when compared to the EC in two ways: 1) the effects of ore processing during Operations 1 are pronounced in the RUL, and 2) reduced effect from the load transfer from the Open Pit to TMF during Post-Closure.

Table 9 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Copper Concentrations at T-Creek

	Operations 1		Operations II		Closure		Closure and Post-Closure	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max
T-Creek (EC)	0.00066	0.0017	0.00067	0.0017	0.003	0.0052	0.0040	0.005
T-Creek (RUL)	0.00066	0.0017	0.00067	0.0017	0.006	0.0097	0.0056	0.008
T-Creek (UC)	0.00066	0.0017	0.00067	0.0017	0.051	0.095	0.032	0.079
RUL/EC	1.01	1.00	1.00	1.00	1.76	1.88	1.41	1.67
UC/EC	1.01	1.00	1.00	1.00	16.22	18.37	8.06	15.73

NOTES:

1. ALL CONCENTRATIONS ARE PROVIDED IN mg/L.
2. OPERATIONS 1 (YEAR 0 THROUGH 23.5), OPERATIONS II (YEAR 23.5 THROUGH 28), CLOSURE (YEAR 29 THROUGH 35), POST-CLOSURE (YEAR 36+).
3. APPLICABLE GUIDELINES (CALCULATED WITH BASELINE HARDNESS): BCWQG-Max (0.0038 mg/L) AND CEQG (0.002 mg/L)

5.4 ADDITIONAL PARAMETERS

The parameters that are predicted to be above provincial and federal aquatic life guidelines in T-Creek under RUL conditions include:

- Aluminum: Maximum RUL aluminum (0.089 mg/L) is predicted to be seasonally above the BCWQG-30 D (0.048 mg/L) and below the CEQG / BCWQG-Max (0.1 mg/L) during Operations (average baseline pH used to calculate guidelines). RUL aluminum is predicted to be seasonally above the BCWQG-30 D during Closure and continually above the BCWQG-30 D for the duration of Post-Closure.
- Cobalt: Maximum RUL cobalt (0.011 mg/L) is predicted to be above the BCWQG-30 D (0.004 mg/L), but below the BCWQG-Max (0.11mg/L) during the majority of Closure and duration of Post-Closure.
- Chromium: Maximum RUL chromium (0.0016 mg/L) is predicted to be above BCWQG-Max/CEQG (0.001 mg/L[2]) for the majority of Closure and duration of Post-Closure, but is expected to only seasonally exceed these guidelines during from Year 77 onwards.
- Fluoride: Maximum RUL fluoride (0.17 mg/L) is predicted to be just above the CEQG (0.12 mg/L), but below the BCWQG FWAL-30 D (0.66 mg/L) for a portion of Closure and Post-Closure (average baseline hardness used to calculate guidelines).
- Sulphate: Maximum RUL sulphate (373 mg/L) is predicted to be above BCWQG-30 D (128 mg/L), calculated using average baseline hardness) for the majority of Closure and duration of Post-Closure (average baseline hardness used to calculate guidelines). The maximum RUL sulphate concentration is approximately 1.7 times greater than the maximum EC concentration (224 mg/L).

[2] Guides for Chromium (IV), the species most common in well oxygenated surface waters.

- Zinc: Maximum RUL zinc (0.014 mg/L) is predicted to be above BCWQG-30 D (0.0075 mg/L) and below CEQG (0.03 mg/L) and BCWQG-Max (0.033 mg/L) for the majority of Closure and duration of Post-Closure (all guidelines calculated with average baseline hardness).

6 – HARPER CREEK

6.1 SELENIUM

Selenium predictions within Harper Creek are discussed from the most upstream node (Harper Creek below P-Creek) to the most downstream node (Base of Harper Creek).

- Harper Creek below P-Creek (HP): Within the EC, RUL Case and UC, no mine-related loading reports to P-Creek, and results from the EC equal those of the RUL and UC. Total selenium concentrations are below all applicable guidelines.
- Mid-Harper Creek (HM): Predicted maximum RUL selenium concentrations (0.0041 mg/L) are 0.0013 mg/L higher or 1.5 times greater than maximum EC concentrations (0.0028 mg/L) and equal to predictions for the UC (Table 10). RUL and UC selenium concentrations are predicted to have seasonal peaks slightly above the CEQG (0.001 mg/L) and BCWQG-30 D (0.002 mg/L) for the duration of Operations 2 and a portion of Operations 1 (0.0037 mg/L and 0.0041 mg/L, respectively). During Closure and Post-Closure predicted RUL and UC selenium is not expected to be above any applicable guidelines.
- Harper Creek below T-Creek (HT): Predicted maximum RUL selenium concentrations (0.019 mg/L) during Post Closure are 0.013 mg/L higher or approximately 3 times the EC concentrations (0.0059 mg/L) and equal to UC predictions (Table 10). RUL and UC selenium concentrations are predicted to have seasonal peaks slightly above the CEQG (0.001 mg/L) and BCWQG-30 D (0.002 mg/L) for a portion of Operations 1 and the duration of Operations II. During Closure and Post-Closure, predicted RUL and UC selenium concentrations remain elevated above both guidelines. It is worth noting that elevated concentrations in the RUL and UC in Closure and Post-Closure are first observed in the TMF and Open Pit concentrations.
- Base of Harper Creek (HB): Predicted maximum RUL selenium concentrations (0.010 mg/L) are 0.0068 mg/L higher or approximately 3 times the EC concentrations (0.0032 mg/L) and equal to the UC predictions (Table 10). RUL and UC selenium concentrations are predicted to have seasonal peaks roughly equal to the CEQG (0.001 mg/L) and BCWQG-30 D (0.002 mg/L) for a portion of Operations 1 and the duration of Operations II. During Closure and Post-Closure, RUL and UC selenium concentrations are predicted to remain above guidelines for both maximum and mean values at 0.0103 mg/L and 0.0039 mg/L, respectively.

Table 10 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Selenium Concentrations in Harper Creek

	Operations 1		Operations II		Closure		Closure and Post-Closure	
	Mean	**Max**	**Mean**	**Max**	**Mean**	**Max**	**Mean**	**Max**
HP (EC)	0.00015	0.00021	0.00015	0.00021	0.00015	0.00021	0.00015	0.00021
HP (RUL)	0.00015	0.00021	0.00015	0.00021	0.00015	0.00021	0.00015	0.00021
HP (UC)	0.00015	0.00021	0.00015	0.00021	0.00015	0.00021	0.00015	0.00021
UC/EC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RUL/EC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HM (EC)	0.00062	0.0025	0.0013	0.0028	0.00019	0.00028	0.00018	0.00026
HM (RUL)	0.00085	0.0037	0.0018	0.0041	0.00047	0.00087	0.00043	0.00077
HM (UC)	0.00085	0.0037	0.0018	0.0041	0.00047	0.00087	0.00043	0.00077
UC/EC	1.37	1.44	1.46	1.49	2.45	3.07	2.35	2.95
RUL/EC	1.37	1.44	1.46	1.49	2.45	3.07	2.35	2.95
HT (EC)	0.00062	0.0025	0.0012	0.0028	0.0021	0.005	0.0024	0.006
HT (RUL)	0.00084	0.0037	0.0018	0.0041	0.0062	0.013	0.0099	0.019
HT (UC)	0.00084	0.0037	0.0018	0.0041	0.0062	0.013	0.0099	0.019
UC/EC	1.36	1.44	1.46	1.49	2.94	2.88	4.19	3.21
RUL/EC	1.36	1.44	1.46	1.49	2.94	2.88	4.19	3.21
HB (EC)	0.0003	0.0009	0.0005	0.0010	0.0008	0.0020	0.0010	0.0032
HB (RUL)	0.0003	0.0013	0.0006	0.0015	0.0023	0.0059	0.0039	0.0103
HB (UC)	0.0003	0.0013	0.0006	0.0015	0.0023	0.0059	0.0039	0.0103
UC/EC	1.28	1.43	1.39	1.47	2.80	2.88	4.01	3.20
RUL/EC	1.28	1.43	1.39	1.47	2.80	2.88	4.01	3.20

NOTES:
1. CONCENTRATIONS ARE PROVIDED IN mg/L AND RATIOS HAVE NO UNITS.
2. APPLICABLE GUIDELNES INCLUDE: CEQG (0.001 mg/L) AND BCWQG-30 D (0.002 mg/L)

6.2 CADMIUM

Cadmium predictions within Harper Creek are discussed from the most upstream node (Harper Creek below P-Creek) to the most downstream node (Base of Harper Creek).

- Harper Creek below P-Creek (HP): Within the EC, RUL and UC, no mine-related loading reports to P-Creek, and results from the EC equal those of the RUL and UC. Total cadmium concentrations are below all applicable guidelines.
- Mid-Harper Creek (HM): Predicted maximum RUL total cadmium concentrations (0.00020 mg/L) are equal to the predicted EC concentrations and are equal UC predictions (Table 11). Predicted total cadmium EC, RUL and UC cadmium concentrations remain below the CEQG for the duration of mine life. Dissolved maximum cadmium concentrations at HM (0.017 mg/L) are predicted to be below the BCWQG-30 D (Draft) (0.000037 mg/L), BCWQG-Max (Draft) (0.00012 mg/L) and CEQG (0.0000071 mg/L).
- Harper Creek below T-Creek (HT): Predicted maximum RUL total and dissolved cadmium concentrations (0.00010 mg/L) are approximately 0.000035 mg/L higher or two times greater than the EC concentrations (0.000065 mg/L) and are approximately 62% of the UC concentrations (Table 11).

RUL total cadmium concentrations at HT are predicted to be seasonally above the CEQG (0.000065 mg/L) for the duration of Post-Closure.

- Base of Harper Creek (HB): Predicted maximum RUL total cadmium concentrations (0.000059 mg/L) are approximately 0.000019 mg/L higher or 1.5 times greater than the EC concentrations (0.000040 mg/L) and approximately 60% of UC concentrations (Table 11). RUL total cadmium concentrations at HB are predicted to be seasonally above the CEQG (0.000042 mg/L) for the majority of Post-Closure. Seasonal maximum concentrations for dissolved cadmium (0.000057 mg/L) are predicted to be seasonally above the BCWQG-30 D (Draft) (0.000023 mg/L) and CEQG (0.000042 mg/L) for the duration of Post Closure, and remain below the BCWQG-Max (0.000064 mg/L) for the duration of Post Closure.

Table 11 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Cadmium Concentrations in Harper Creek

	Operations 1		Operations II		Closure		Closure and Post-Closure	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max
HP (EC)	0.000013	0.000034	0.000012	0.000034	0.000013	0.000034	0.000013	0.000034
HP (RUL)	0.000013	0.000034	0.000012	0.000034	0.000013	0.000034	0.000013	0.000034
HP (UC)	0.000013	0.000034	0.000012	0.000034	0.000013	0.000034	0.000013	0.000034
UC/EC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RUL/EC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HM (EC)	0.000012	0.000020	0.000014	0.000020	0.000012	0.000020	0.000012	0.000020
HM (RUL)	0.000012	0.000020	0.000014	0.000020	0.000012	0.000020	0.000012	0.000020
HM (UC)	0.000013	0.000020	0.000015	0.000020	0.000012	0.000020	0.000012	0.000020
UC/EC	1.07	1.01	1.13	1.02	1.02	1.00	1.00	1.00
RUL/EC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HT (EC)	0.000013	0.000019	0.000014	0.000019	0.000018	0.000028	0.000034	0.00006
HT (RUL)	0.000013	0.000019	0.000014	0.000019	0.000025	0.000043	0.000055	0.00010
HT (UC)	0.000014	0.000019	0.000016	0.000019	0.000034	0.000061	0.000080	0.00016
UC/EC	1.07	1.01	1.13	1.01	1.89	2.16	2.38	2.50
RUL/EC	1.00	1.00	1.00	1.00	1.38	1.50	1.62	1.55
HB (EC)	0.000013	0.000018	0.000013	0.000018	0.000015	0.000021	0.000021	0.000040
HB (RUL)	0.000013	0.000018	0.000013	0.000018	0.000017	0.000026	0.000029	0.000059
HB (UC)	0.000013	0.000018	0.000014	0.000019	0.000020	0.000033	0.00004	0.00009
UC/EC	1.02	1.01	1.04	1.02	1.40	1.56	1.87	2.29
RUL/EC	1.00	1.00	1.00	1.00	1.17	1.21	1.39	1.47

NOTES:
1. CONCENTRATIONS ARE PROVIDED IN mg/L AND RATIOS HAVE NO UNITS.
2. APPICABLE GUIDELINES: CEQG (0.000071 mg/L at HM; 0.000066 mg/L AT HT AND 0.000042 mg/L).

6.3 COPPER

Copper predictions within Harper Creek are discussed from the most upstream node (Harper Creek below P-Creek) to the most downstream node (Base of Harper Creek).

- Harper Creek below P-Creek (HP): Within the EC, RUL Case and UC, no mine-related loading reports to P-Creek, and results from the EC equal those of the RUL and UC. Total copper is the only parameter expected to be above the BCWQG-30 D and CEQG. As discussed above, all concentrations within P-Creek reflect loading attributed to background levels.

- Mid-Harper Creek (HM): RUL total copper concentrations are predicted to have seasonal maximums of approximately 0.0027 mg/L at HM, which are equal to the seasonal maximums predicted in the EC, and are 7% of the predicted UC cooper concentrations (Table 12). RUL seasonal maximum copper concentrations at HM (0.027 mg/L) are greater than the CEQG (0.002 mg/L) and BCWQG-30 D (0.0056 mg/L) for the duration of mode (guidelines calculated using average baseline hardness). A portion of the elevated concentrations is a result of elevated background levels of copper, noted at HP.
- Harper Creek below T-Creek (HT): RUL copper concentrations are predicted to have seasonal maximums of approximately 0.0048 mg/L (compared to 0.0033 mg/L under the EC and 0.043 mg/L under the UC; Table 12). RUL copper concentrations are up to 0.0015 mg/L higher or 1.5 times greater than EC concentrations. Predicted RUL copper concentrations are greater than the CEQG (0.002 mg/L) and BCWQG-30 D (0.0052 mg/L) during Operations 1, Operations II (seasonally above guidelines) and Closure and Post-Closure (continually above guidelines until Year 60, seasonally above guidelines Year 60+).
- Base of Harper Creek (HB): RUL copper concentrations are predicted to have seasonal maximums of approximately 0.0028 mg/L (compared to 0.0024 mg/L under the EC and 0.023 mg/L under the UC; Table 12). RUL copper concentrations are predicted to be a maximum of 0.0004 mg/L higher or 1.23 times the EC concentrations. Predicted RUL copper concentrations are greater than the BCWQG-30 D/CEQG (0.002 mg/L) during the majority of Operations 1, Operations II (seasonal maximum above guideline) and Closure and Post-Closure (seasonally above guidelines for several months a year). Predicted copper concentrations remain below BCWQG-Max (0.0039 mg/L) for the duration of the model predictions.

Table 12 Comparison of Predicted Expected Case (EC), Reasonable Upper Limit (RUL) and Upper Bound Case (UC) for Copper Concentrations in Harper Creek

	Operations 1		Operations II		Closure		Closure and Post-Closure	
	Mean	**Max**	**Mean**	**Max**	**Mean**	**Max**	**Mean**	**Max**
HP (EC)	0.00097	0.00351	0.00095	0.00351	0.00097	0.00351	0.00097	0.0035
HP (RUL)	0.00097	0.00351	0.00095	0.00351	0.00097	0.00351	0.00097	0.0035
HP (UC)	0.00097	0.00351	0.00095	0.00351	0.00097	0.00351	0.00097	0.0035
UC/EC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RUL/EC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HM (EC)	0.0010	0.0027	0.0011	0.0027	0.0009	0.0027	0.0009	0.0027
HM (RUL)	0.0010	0.0027	0.0011	0.0027	0.0009	0.0027	0.0009	0.0027
HM (UC)	0.0095	0.037	0.019	0.040	0.0012	0.0027	0.0011	0.0027
UC/EC	9.68	13.85	17.64	14.94	1.28	1.03	1.25	1.03
RUL/EC	1.01	1.00	1.03	1.00	1.01	1.00	1.00	1.00
HT (EC)	0.00093	0.0024	0.0010	0.0024	0.0015	0.0033	0.0019	0.0032
HT (RUL)	0.00095	0.0024	0.0011	0.0024	0.0023	0.0047	0.0024	0.0048
HT (UC)	0.0093	0.037	0.019	0.040	0.016	0.035	0.011	0.043
UC/EC	10.04	15.71	18.17	16.94	10.22	10.71	6.02	13.24
RUL/EC	1.02	1.00	1.03	1.00	1.46	1.45	1.29	1.47
HB (EC)	0.00088	0.00213	0.00091	0.0021	0.0011	0.0024	0.0013	0.0023
HB (RUL)	0.00088	0.00214	0.00092	0.0022	0.0014	0.0028	0.0015	0.0027
HB (UC)	0.0035	0.0133	0.0064	0.0144	0.0063	0.0156	0.0050	0.0233
UC/EC	4.03	6.26	7.05	6.74	5.72	6.58	3.94	10.02
RUL/EC	1.01	1.01	1.01	1.01	1.23	1.20	1.17	1.18

NOTES:

1. CONCENTRATIONS ARE PROVIDED IN mg/L AND RATIOS HAVE NO UNITS.
2. APPLICABLE GUIDELINES: BCWQG-MAX (0.0056 mg/L at HM; 0.0052 mg/L at HT AND 0.0039 mg/L AT HB) AND BCWQG-30 D/CEQG (0.002 mg/L at HM, HT AND HB).

6.4 ADDITIONAL PARAMETERS

In addition to the key parameters discussed above, the following parameters also are predicted to be above guidelines limits within Harper Creek:

- Aluminum: Dissolved RUL aluminum (0.0627 mg/L maximum) at HB is predicted to be above BCWQG-30 D (0.048 mg/L), but below CEQG/BCWQG-Max (0.1 mg/L) seasonally throughout mine life as a result of background concentrations. At the HT node, elevated dissolved aluminum loading (maximum value of 0.052 mg/L) is seasonally above guidelines during the last 30 years of the modelled years, as a result of mine loading.
- Cobalt: RUL seasonal maximum cobalt (0.0057 mg/L) is predicted to be above BCWQG-30D (0.004mg/L) until approximately year 70, but is predicted to remain below the BCWQG-Max (0.11 mg/L) for the duration
- Zinc: RUL seasonal maximum zinc concentrations (0.0076mg/L) are predicted to go just above the BCWQG-30 D (0.0075 mg/L) at HT for approximately 10 years during Post-Closure.

7 – BAKER CREEK

The following parameters are predicted to be above aquatic life guidelines under the RUL Case:

- Chromium: RUL maximum chromium (0.0010 mg/L) is predicted to be at the BCWQG-Max/CEQG guidelines (0.001 mg/L) at both BK0 and BK1 for all mine phases, as a result of background loading.
- Iron: RUL iron (0.76 mg/L) is predicted to be above the CEQG guidelines (0.3 mg/L) and below the BCWQG-Max (1 mg/L)n at both BK0 and BK1 for all mine phases, as a result of background loading.

8 – JONES CREEK

The following parameters are predicted to be above aquatic life guidelines within the RUL case:

- Chromium: Predicted RUL seasonal maximum chromium concentrations (0.0022 mg/L) are very similar to those predicted in the EC. Peak values for these parameters remain the same, since background loading is the driver for these concentrations, not mine-related loading.
- Iron: Predicted RUL total iron concentrations (0.80 mg/L) are very similar to those predicted in the EC. Peak values for these parameters remain the same, since background loading is the driver for these concentrations, not mine-related loading.
- Selenium: Peak RUL selenium concentrations (0.001 mg/L) are predicted to be 33% greater than the EC concentrations (0.0003 mg/L). Predicted RUL concentrations remain below all applicable guidelines (CEQG: 0.01 mg/L; BCWQG-30 D: 0.002 mg/L) for the duration of mine life. For one year during Closure RUL selenium concentrations are predicted to reach mg/L, but do not go above, the CEQG guideline (0.001 mg/L).

9 – CONCLUSION

Comparison of the RUL predictions to EC and UC predictions was completed in detail within this memorandum. Selenium was noted to have predicted RUL concentrations equal to UC predictions, throughout the model because selenium is not affected by pH adjustments to the source terms. The largest differences between the RUL and UC were noted for copper within the TMF and down-gradient of the waste rock and LGO stockpiles, as a result of large differences in input source terms for the NAG waste rock, Non-PAG LGO, PAG LGO and PAG waste rock stockpiles. Predicted RUL copper concentrations within the Open Pit are similar to predicted EC copper concentrations within the Open Pit, as a result of solubility constraints applied within the Open Pit. RUL cadmium is approximately 60% less than UC concentrations within the TMF and the Open Pit. These differences are noted during Closure and Post-Closure within T-Creek, and down-gradient of T-Creek within Harper Creek at HT and HB. In addition, within T-Creek, several parameters predicted to be above guidelines under the UC conditions (mercury, silver and manganese), fall below applicable guidelines under the RUL conditions.

Signed: ______________________
Liz Ashby, B.Sc., B.I.T.
Staff Scientist

Reviewed: ______________________
Jessica Mackie, EP
Senior Environmental Scientist

Approved: for. ______________________
Ken Brouwer, P.Eng.
President

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<u>Attachments:</u>

Appendix A1 Predicted Reasonable Upper Limit Case Predictions – TMF
Appendix A2 Predicted Reasonable Upper Limit Case Predictions – OP
Appendix A3 Predicted Reasonable Upper Limit Case Predictions – P-CREEK
Appendix A4 Predicted Reasonable Upper Limit Case Predictions – T-Creek
Appendix A5 Predicted Reasonable Upper Limit Case Predictions – Harper Creek below P-Creek
Appendix A6 Predicted Reasonable Upper Limit Case Predictions – Mid Harper Creek
Appendix A7 Predicted Reasonable Upper Limit Case Predictions – Harper Creek below T-Creek
Appendix A8 Predicted Reasonable Upper Limit Case Predictions – Base of Harper Creek
Appendix A9 Predicted Reasonable Upper Limit Case Predictions – Mid Baker Creek
Appendix A10 Predicted Reasonable Upper Limit Case Predictions – Lower Baker Creek
Appendix A11 Predicted Reasonable Upper Limit Case Predictions – Jones Creek

/la

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APPENDIX A

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS

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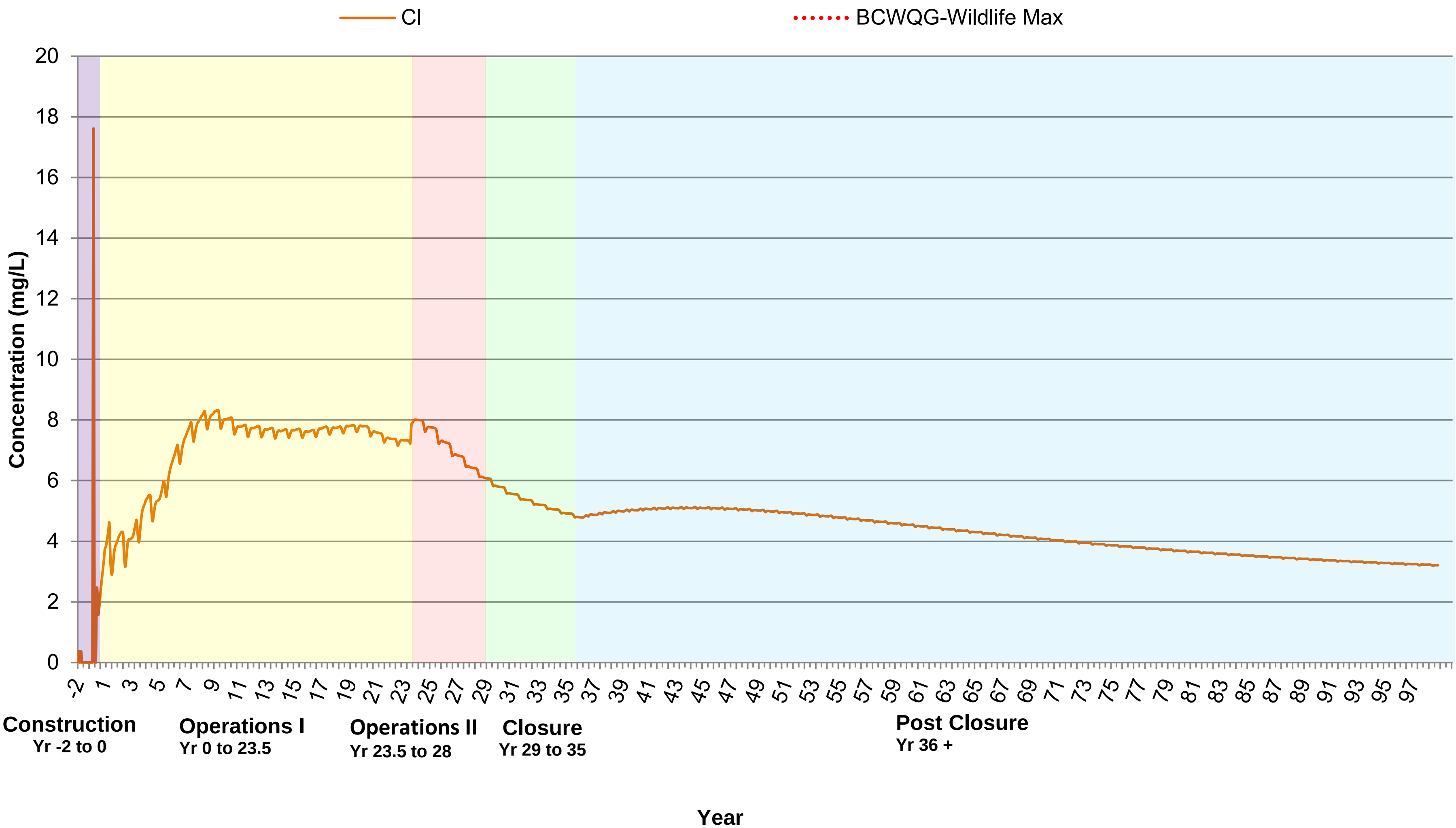
APPENDIX A1

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – TMF

(Pages A1-1 to A1-27)



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE BCWQG-WILDLIFE MAX GUIDELINE (600 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - TMF

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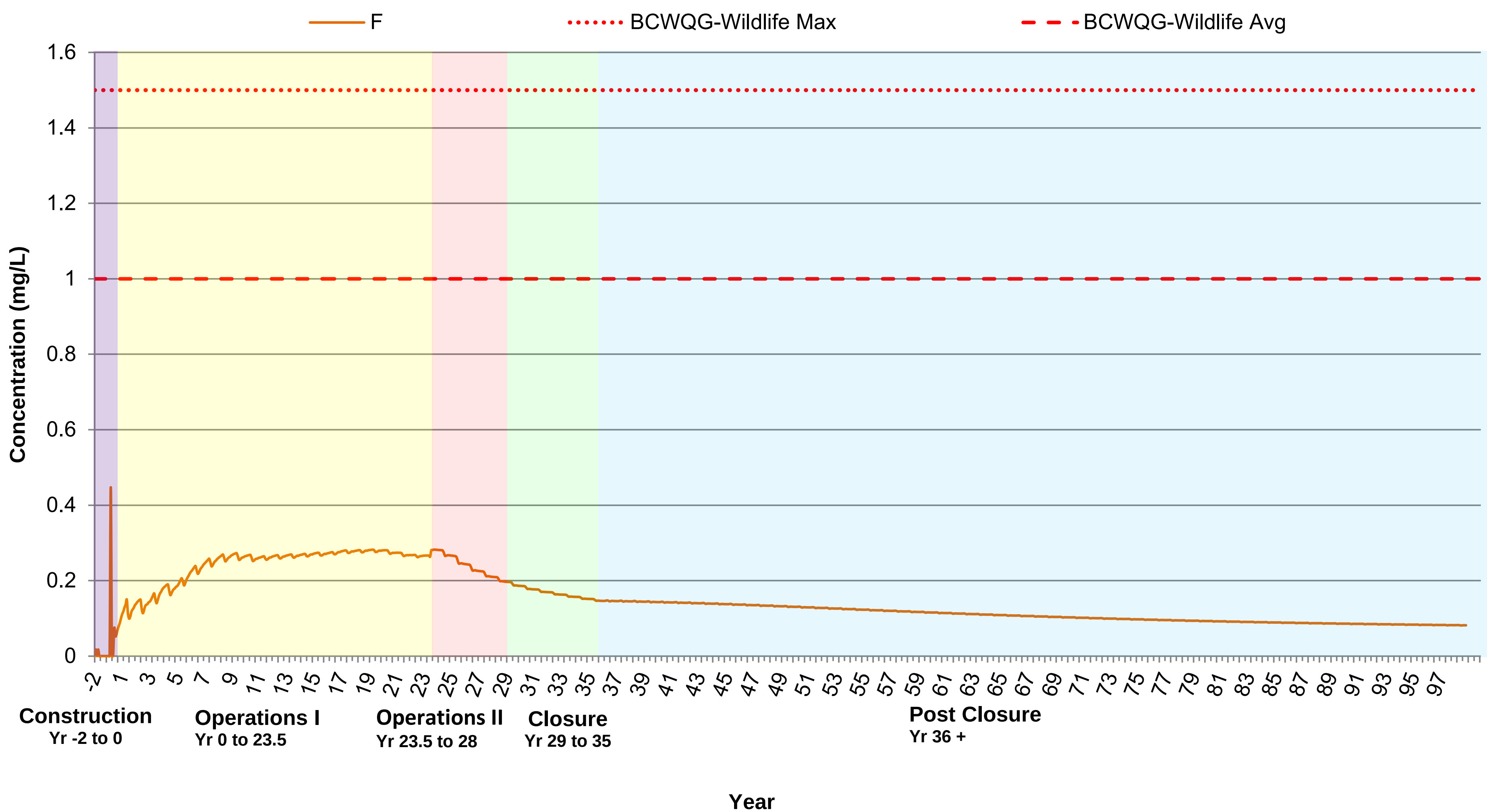
REF. NO. VA14-01825

FIGURE A1.CI

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - TMF

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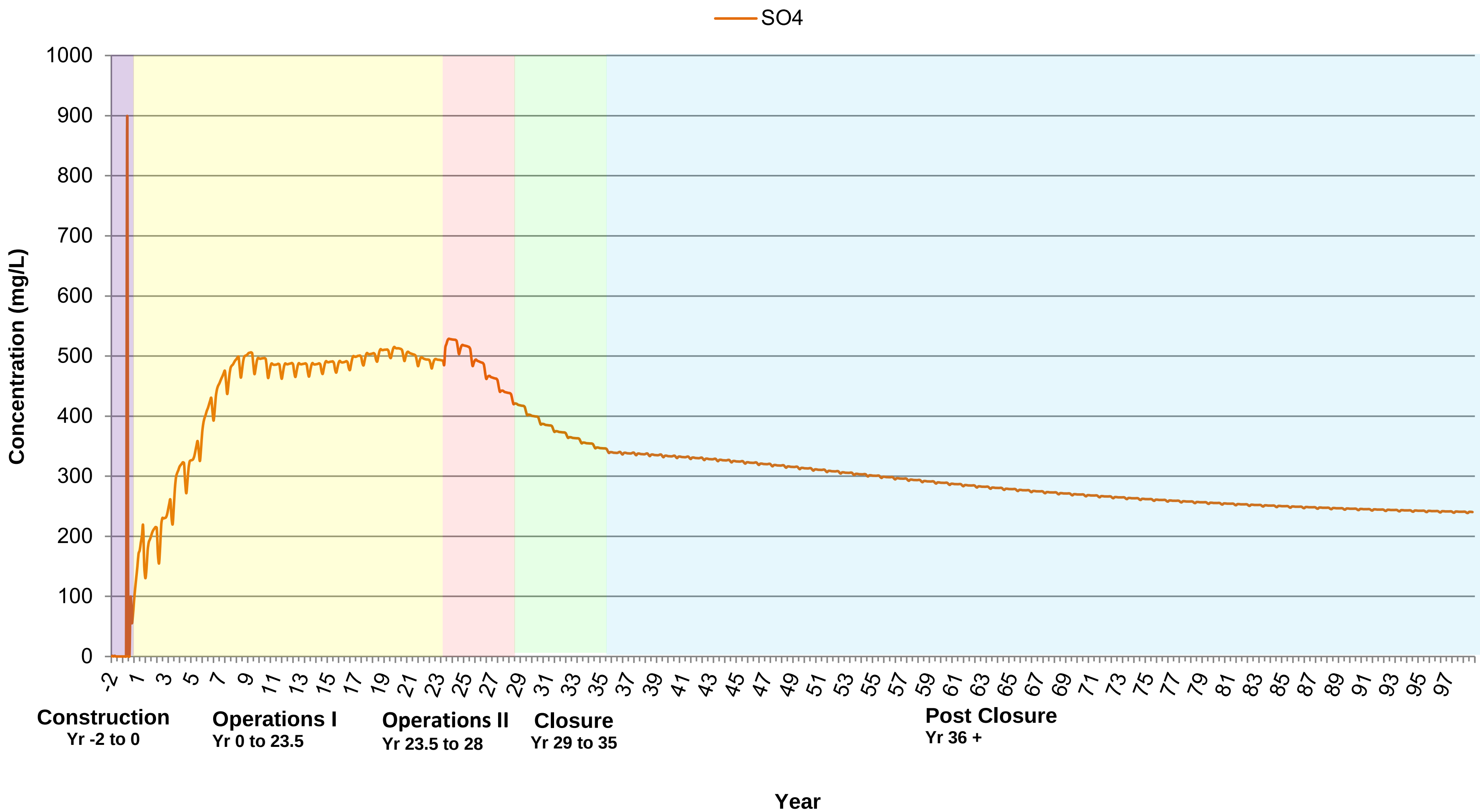
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.F

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - TMF

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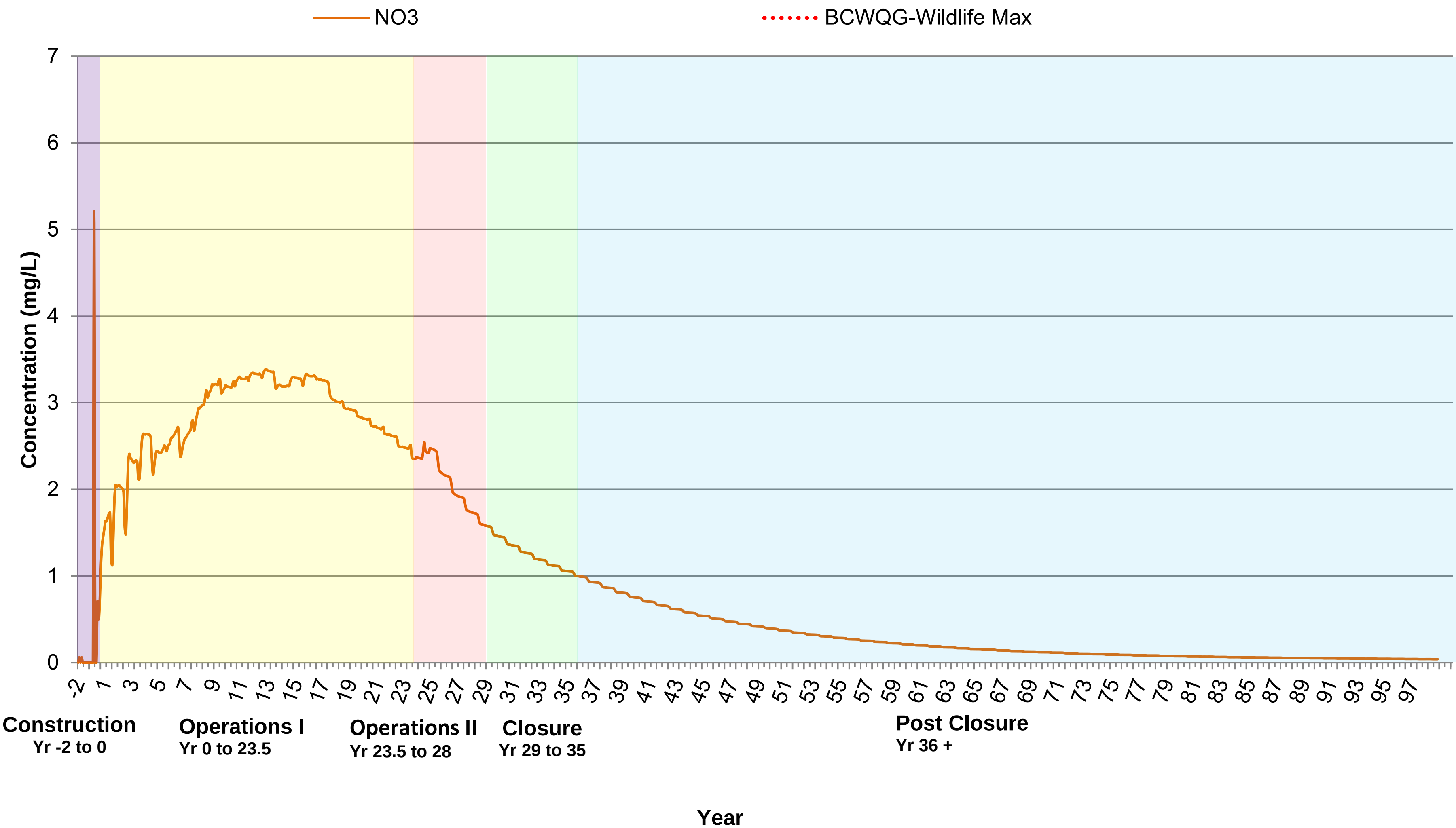
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.S04

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE BCWQG-WILDLIFE MAX GUIDELINE (100 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - TMF

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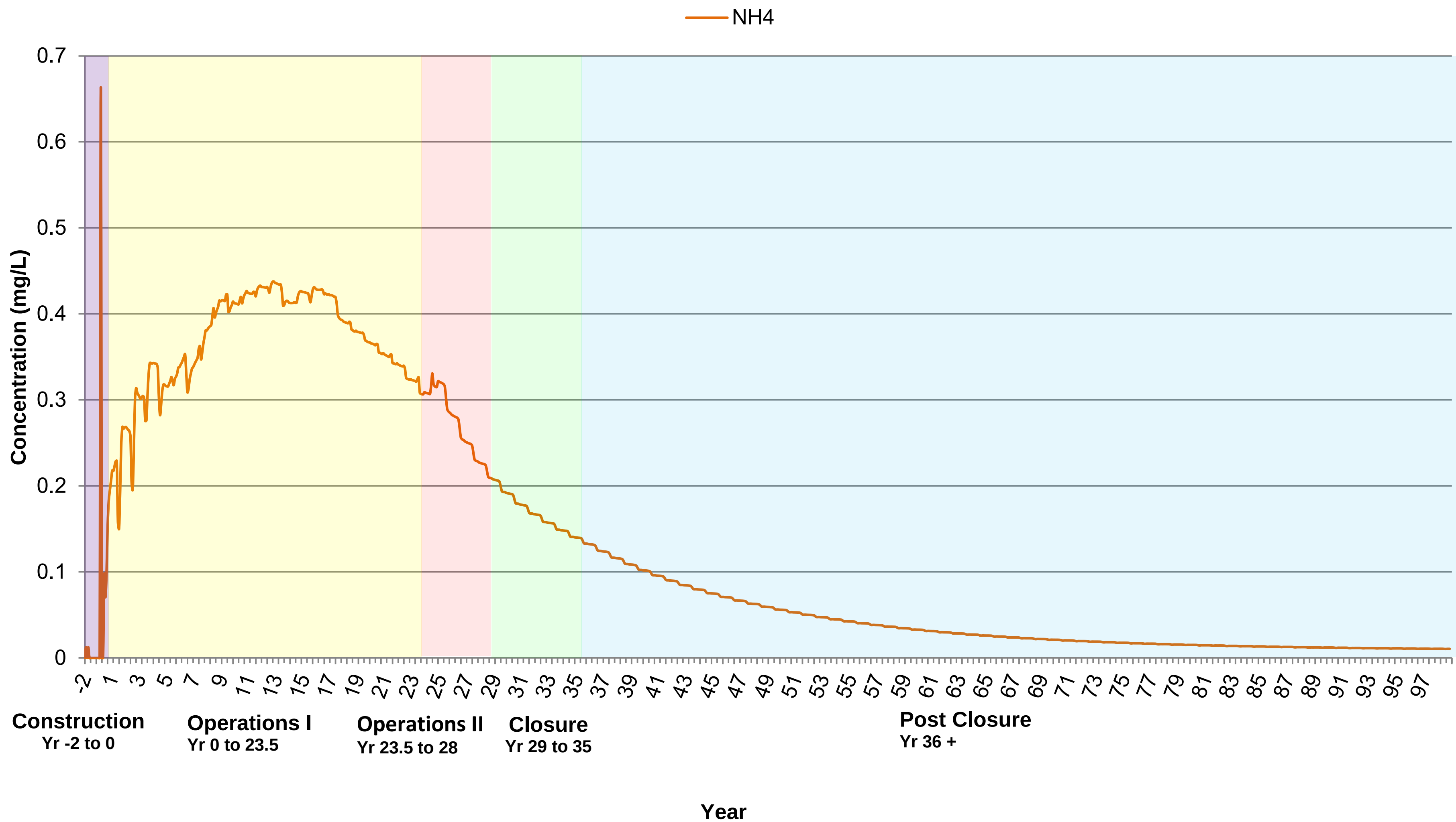
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.NO3

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - TMF

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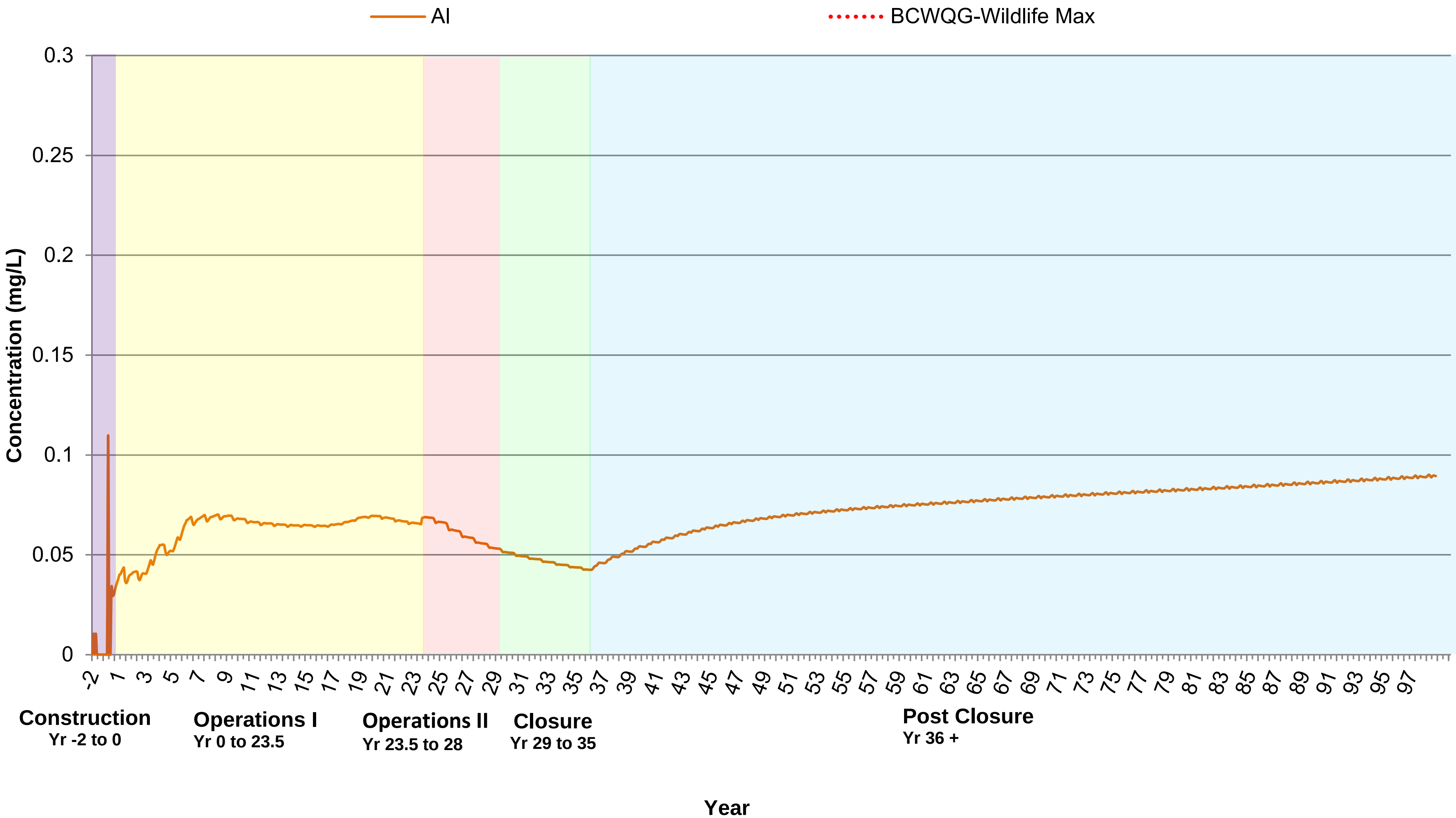
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.NH4

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE BCWQG-WILDLIFE MAX GUIDELINE (5 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ALUMINUM CONCENTRATIONS - TMF

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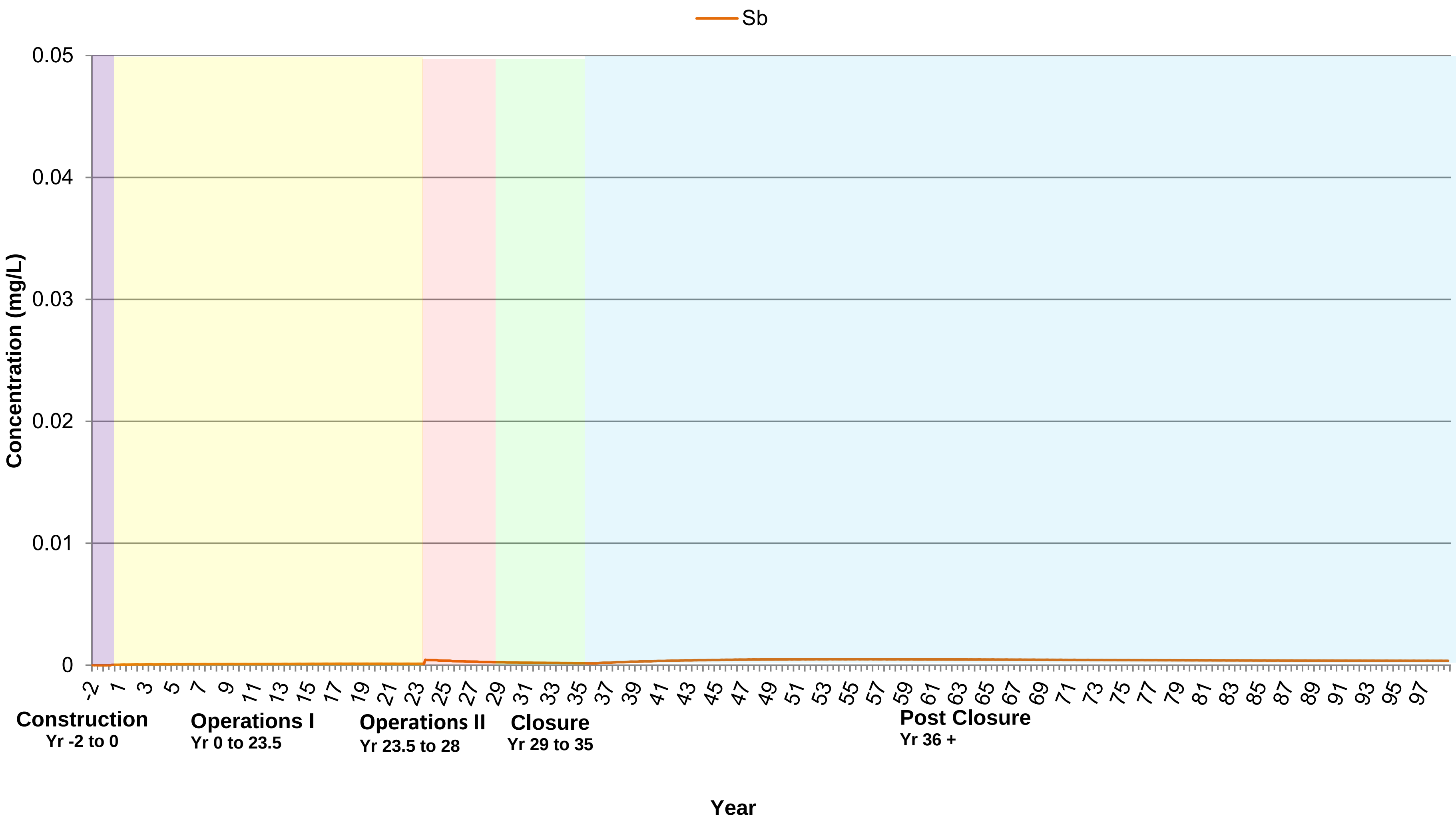
P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE A1.Al REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - TMF

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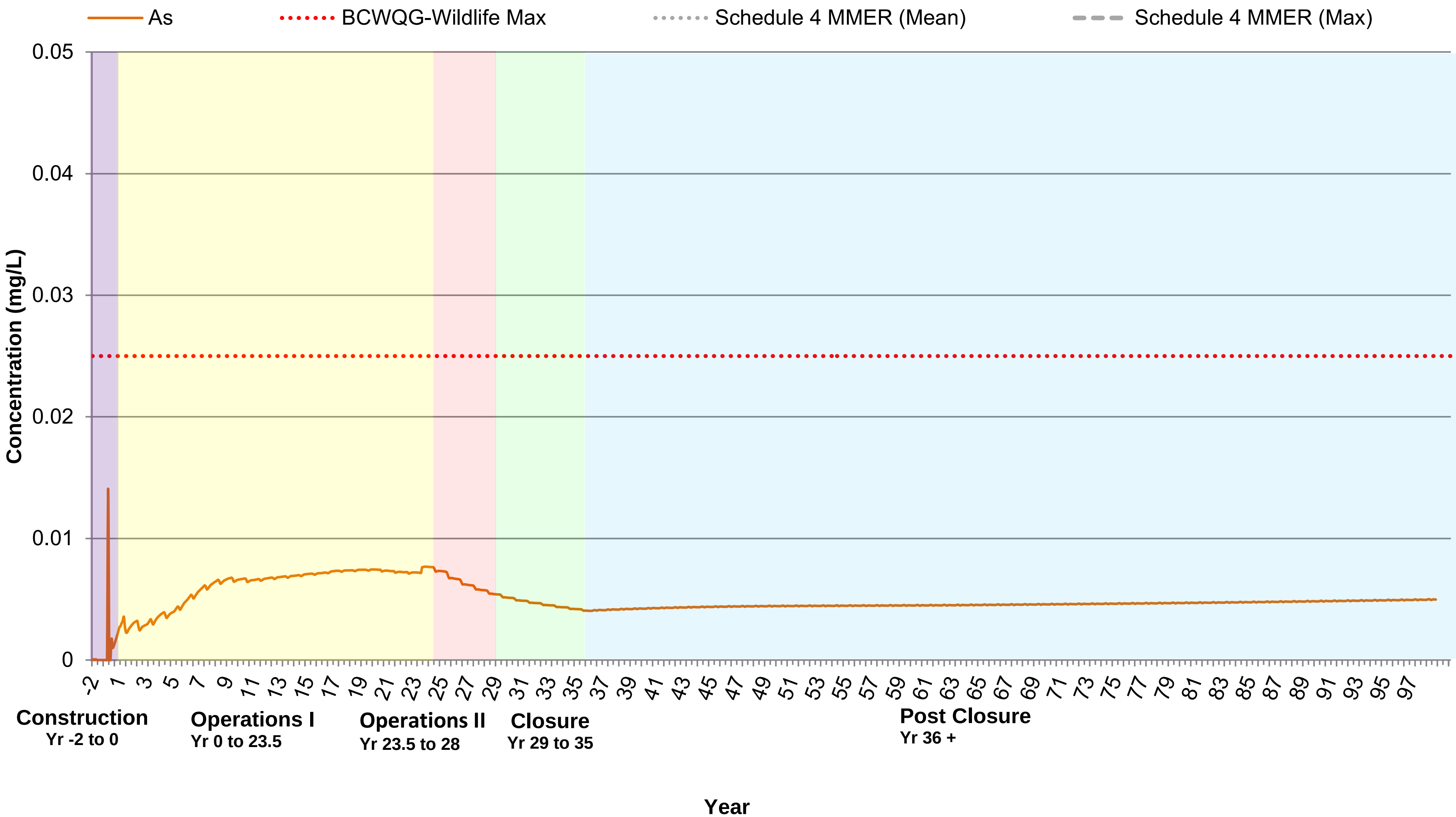
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Sb

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE MMER MAX (1 mg/L) AND MMER MEAN (0.5 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - TMF

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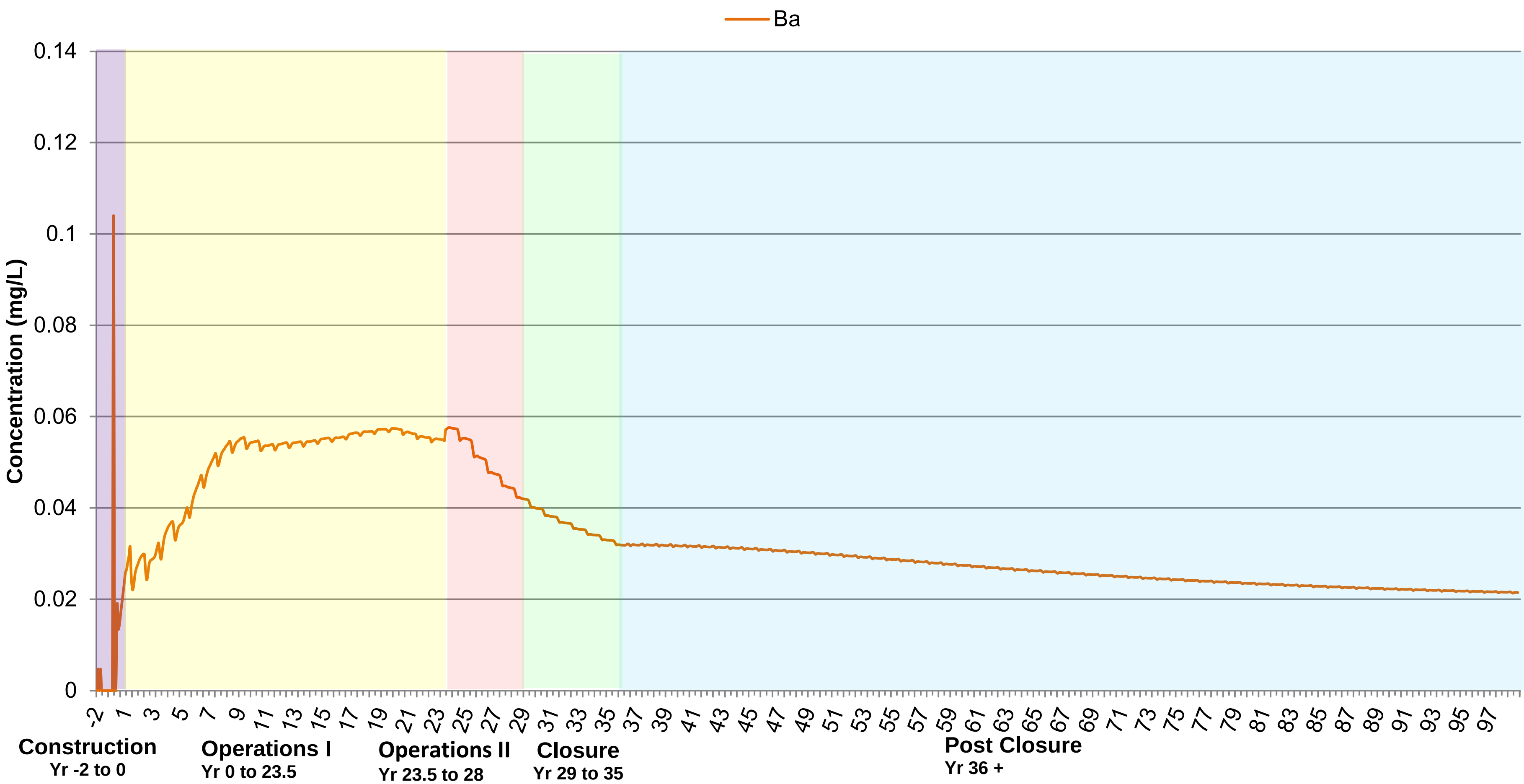
FIGURE A1.As

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - TMF

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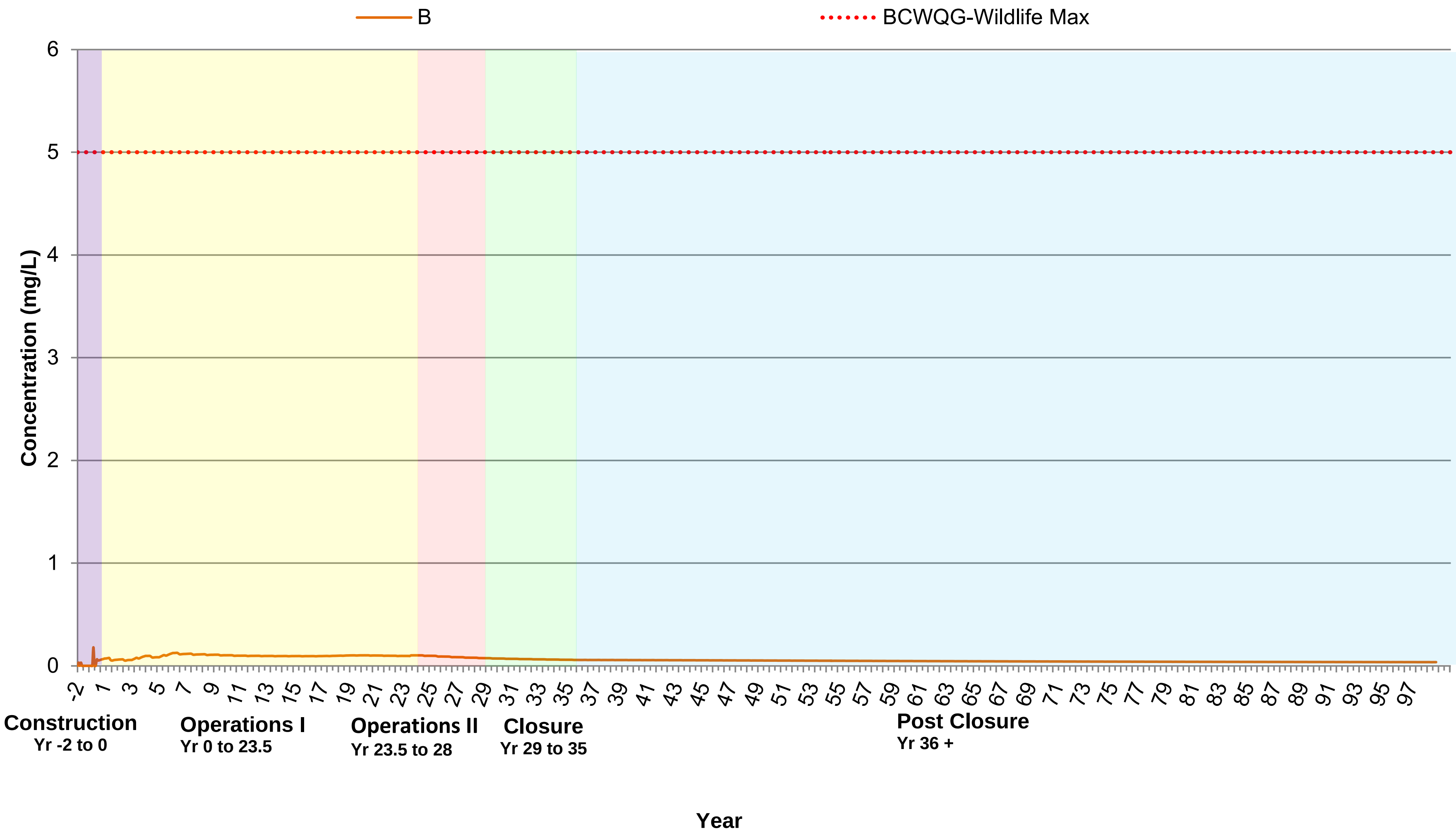
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Ba

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - TMF

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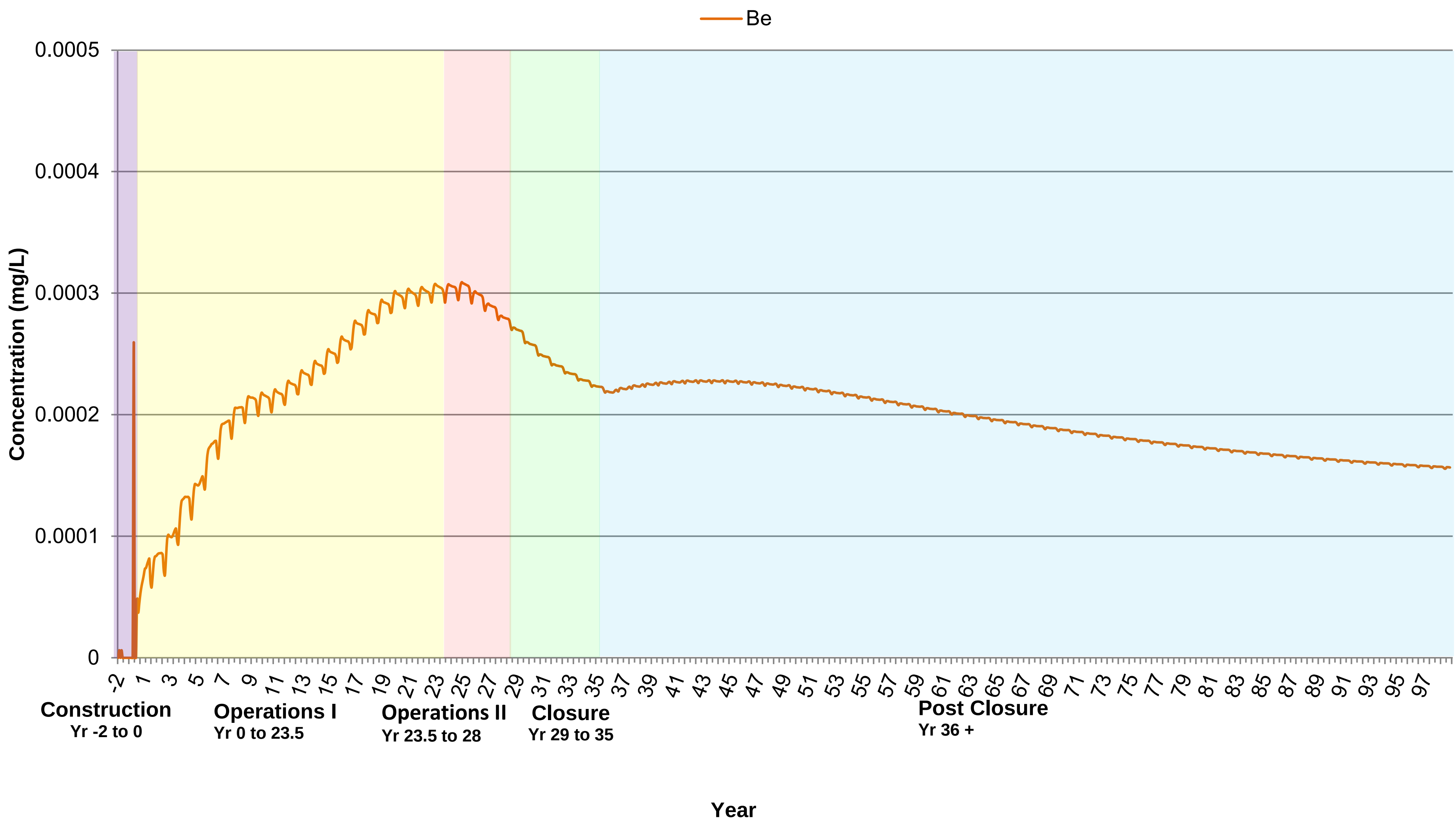
P/A NO. VA101-458/17	REF. NO. VA14-01825	
FIGURE A1.B	REV 0	



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BERYLLIUM CONCENTRATIONS - TMF

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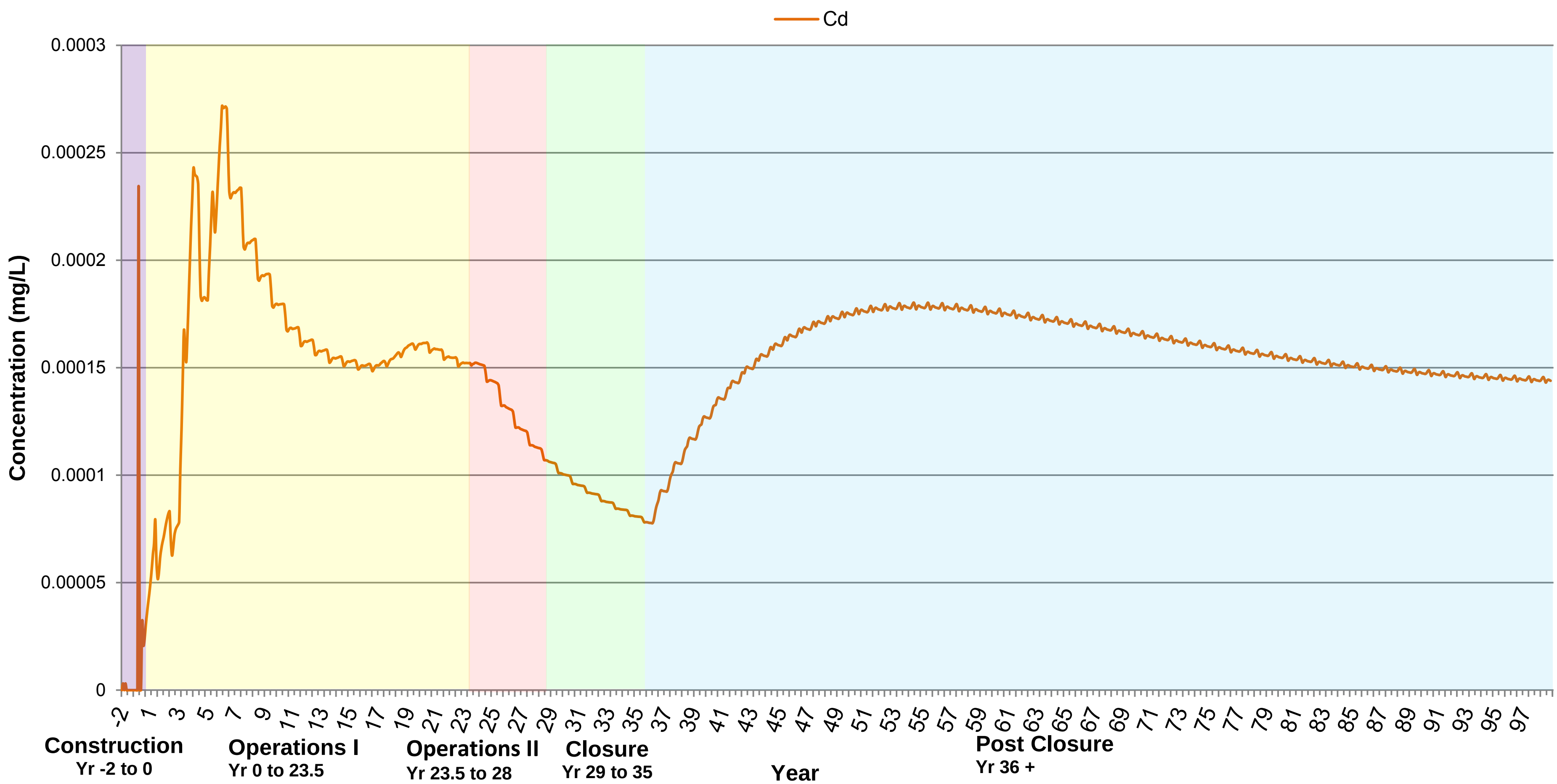
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Be

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - TMF

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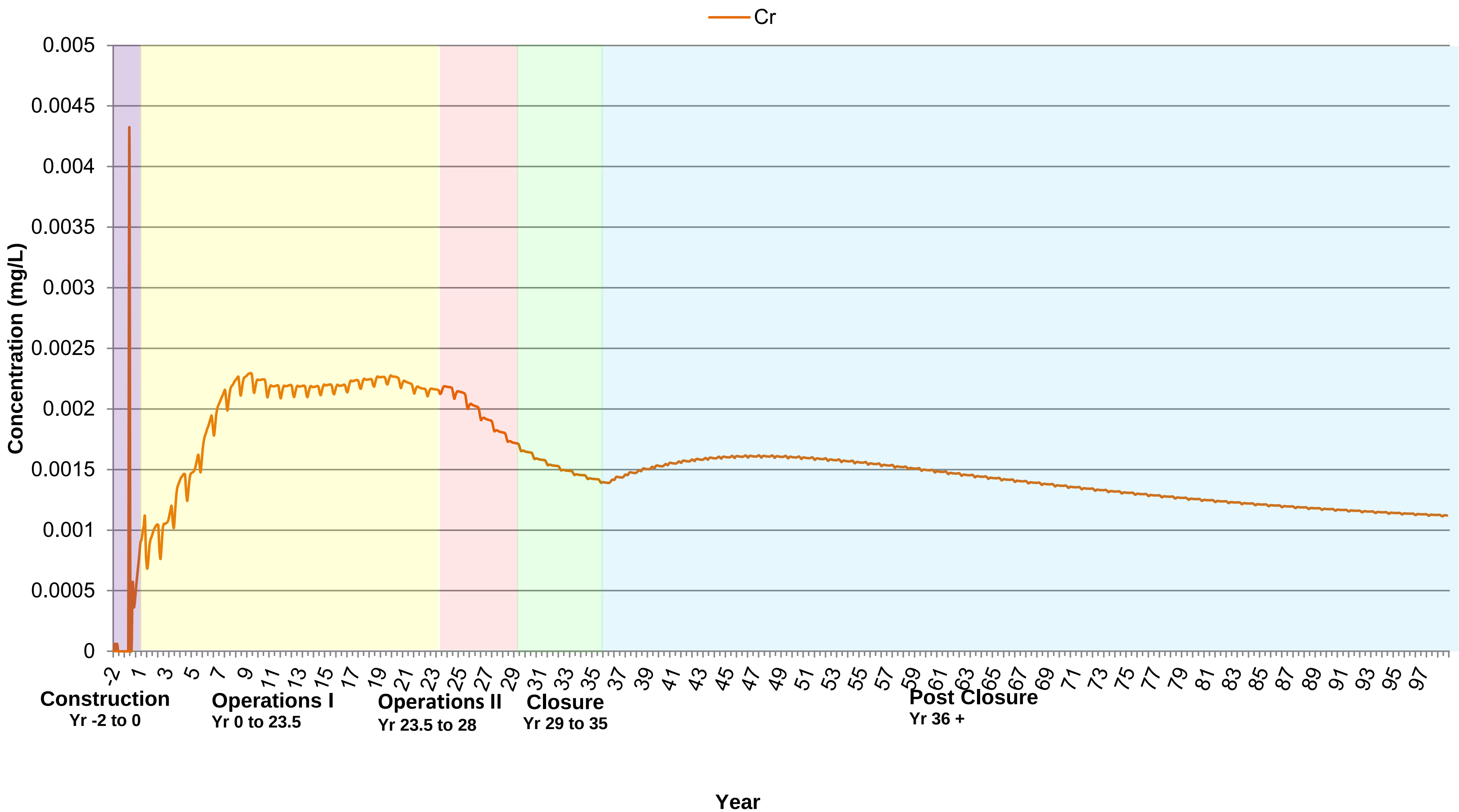
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Cd-D

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - TMF

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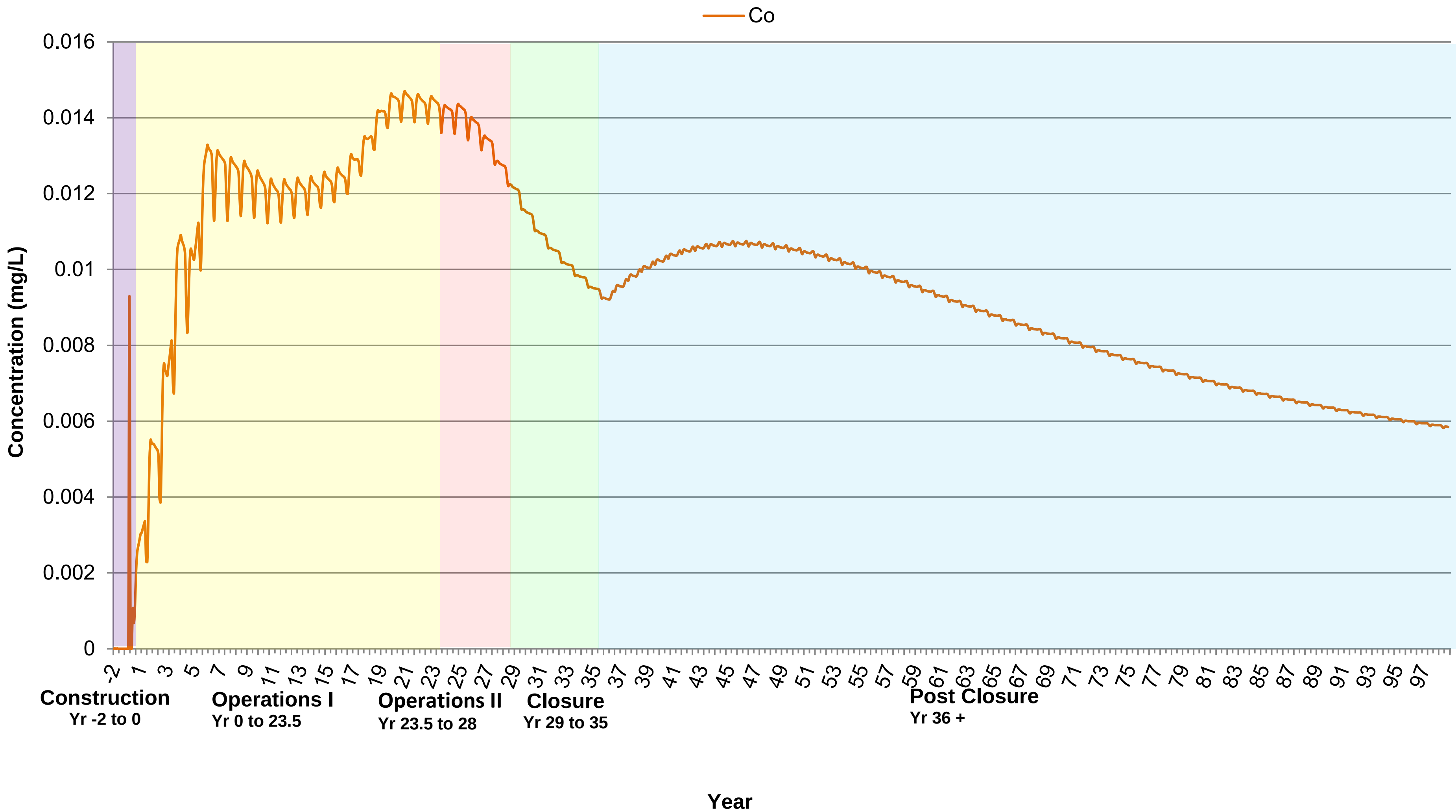
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Cr

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - TMF

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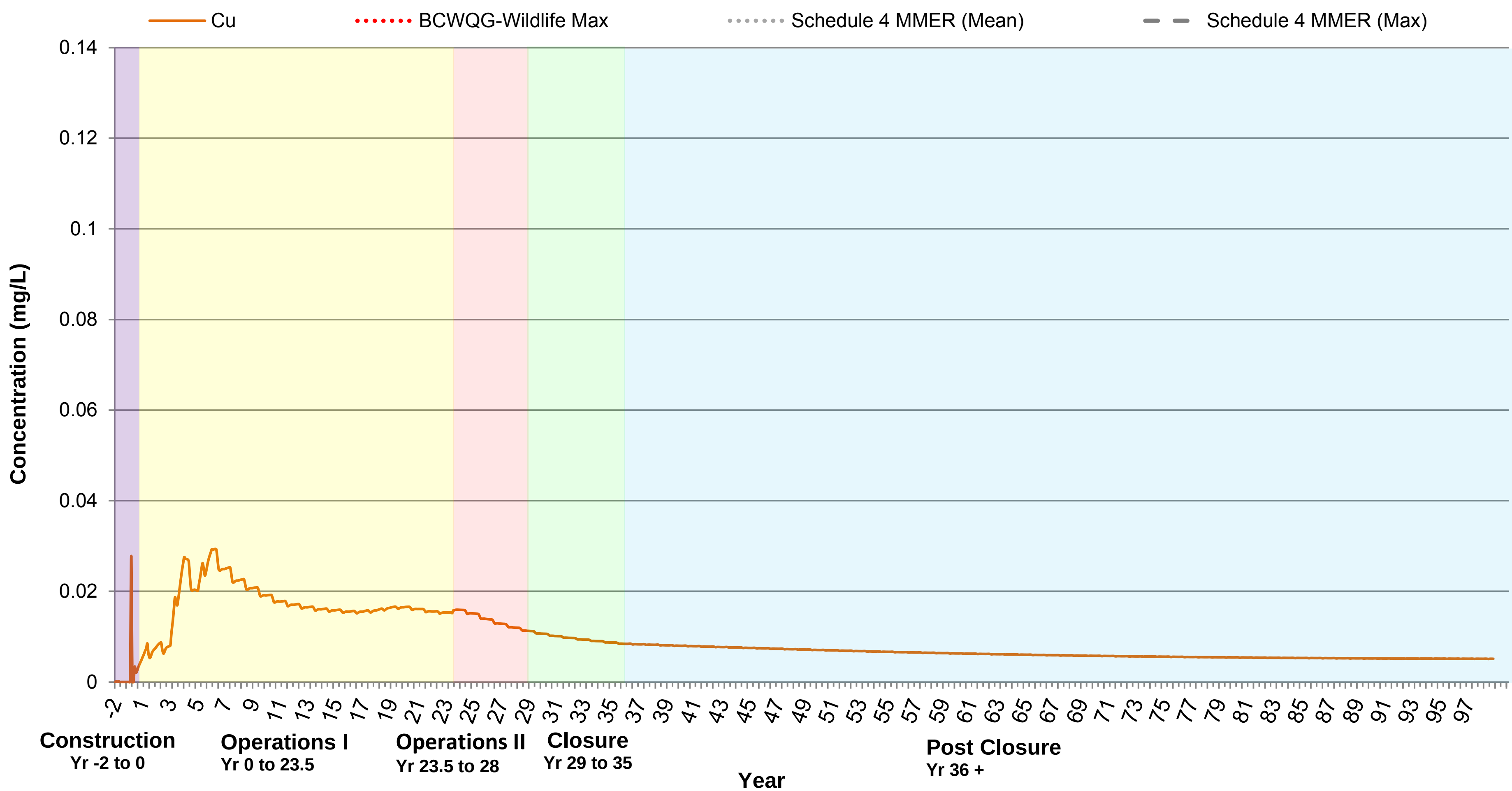
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Co

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. BCWQG-WILDLIFE MAX (0.3 mg/L), MMER MEAN (0.3 mg/L) AND MMER MAX (0.6 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - TMF

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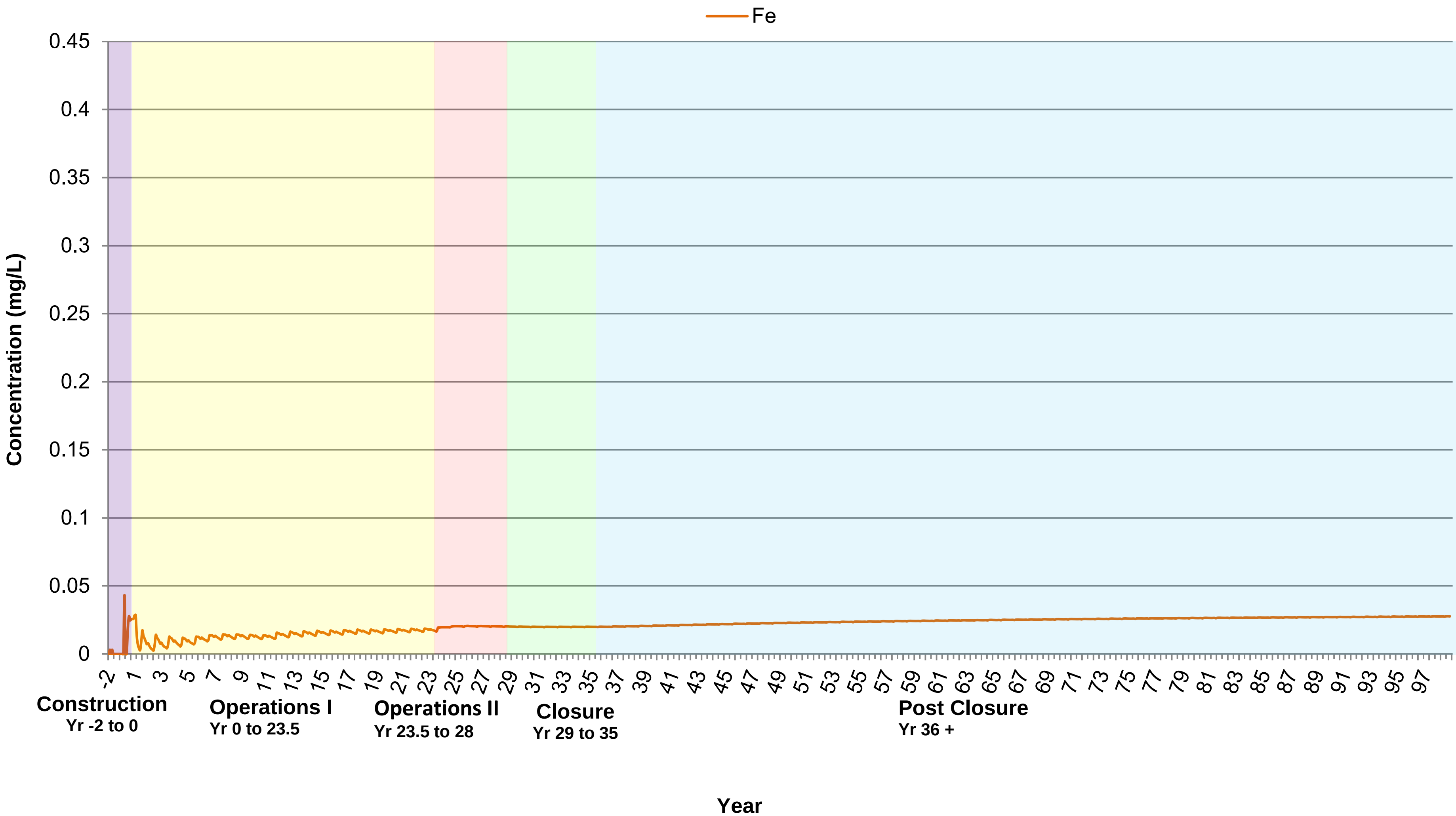
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Cu-T

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT IRON CONCENTRATIONS - TMF

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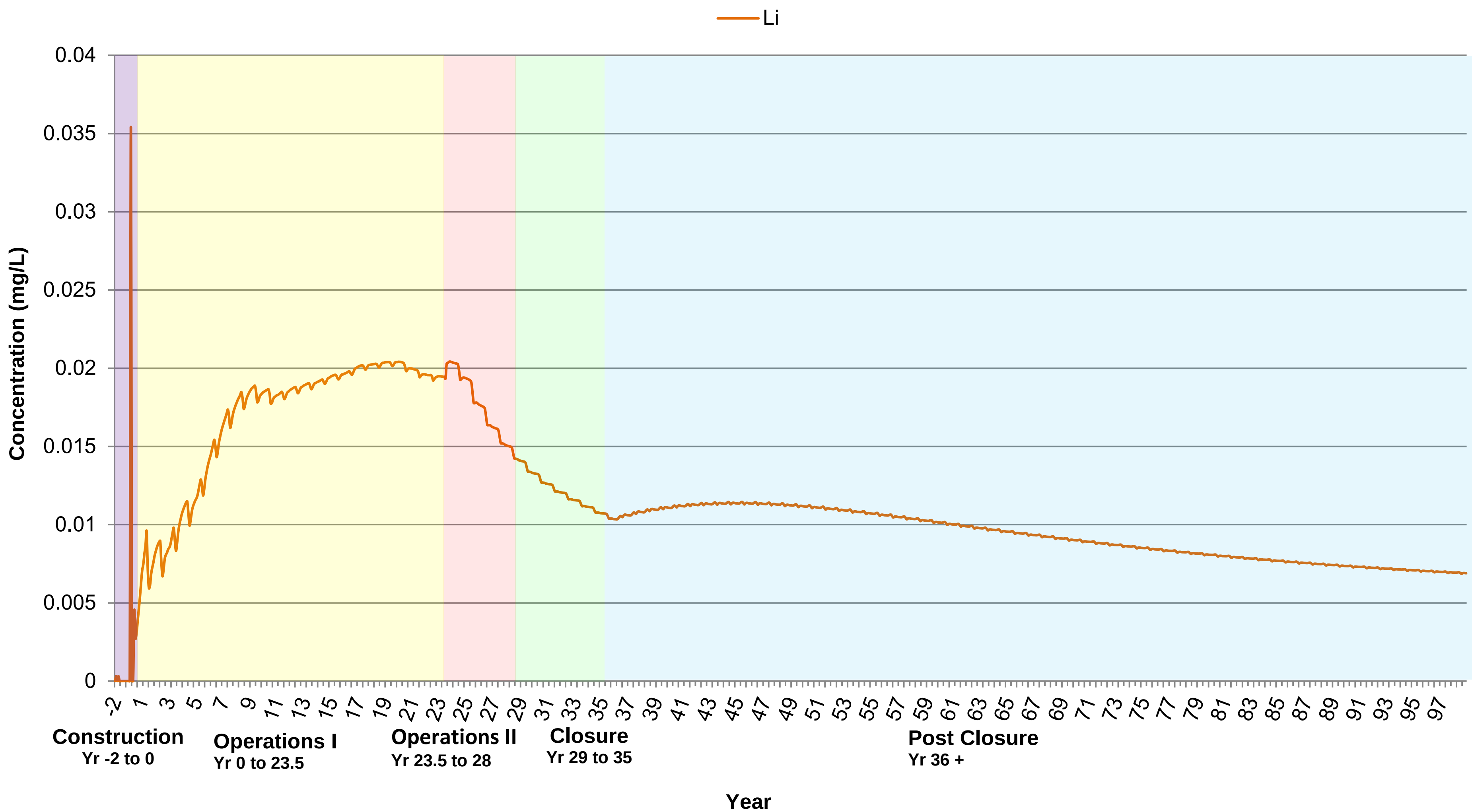
REF. NO. VA14-01825

FIGURE A1.Fe

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LITHIUM CONCENTRATIONS - TMF

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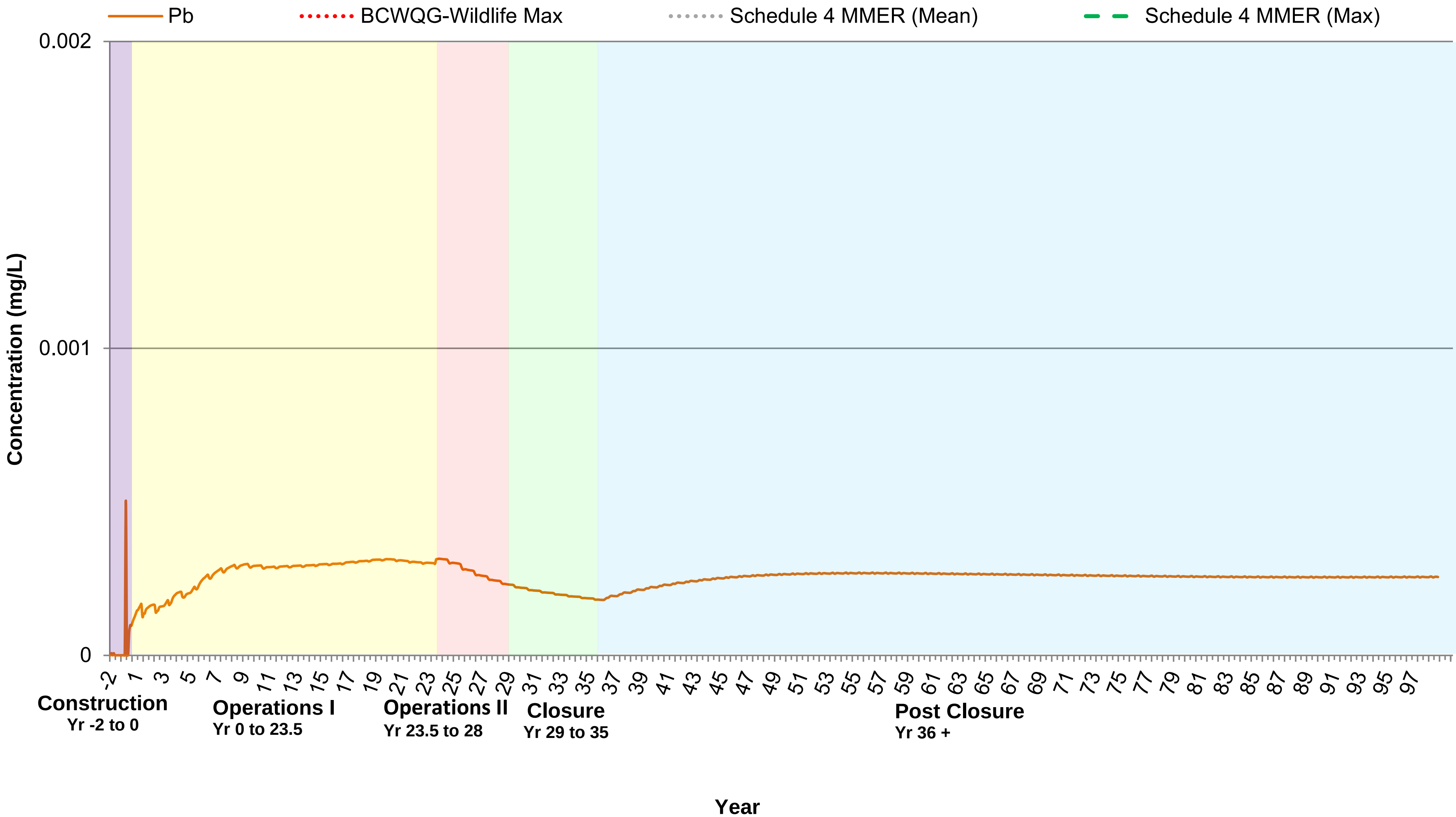
P/A NO. VA101-458/17 | REF. NO. VA14-01825

FIGURE A1.Li REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. BCWQG-WILDLIFE MAX (0.1 mg/L), MMER MEAN (0.2 mg/L) AND MMER MAX (0.4 mg/L) GUIDELINES ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - TMF

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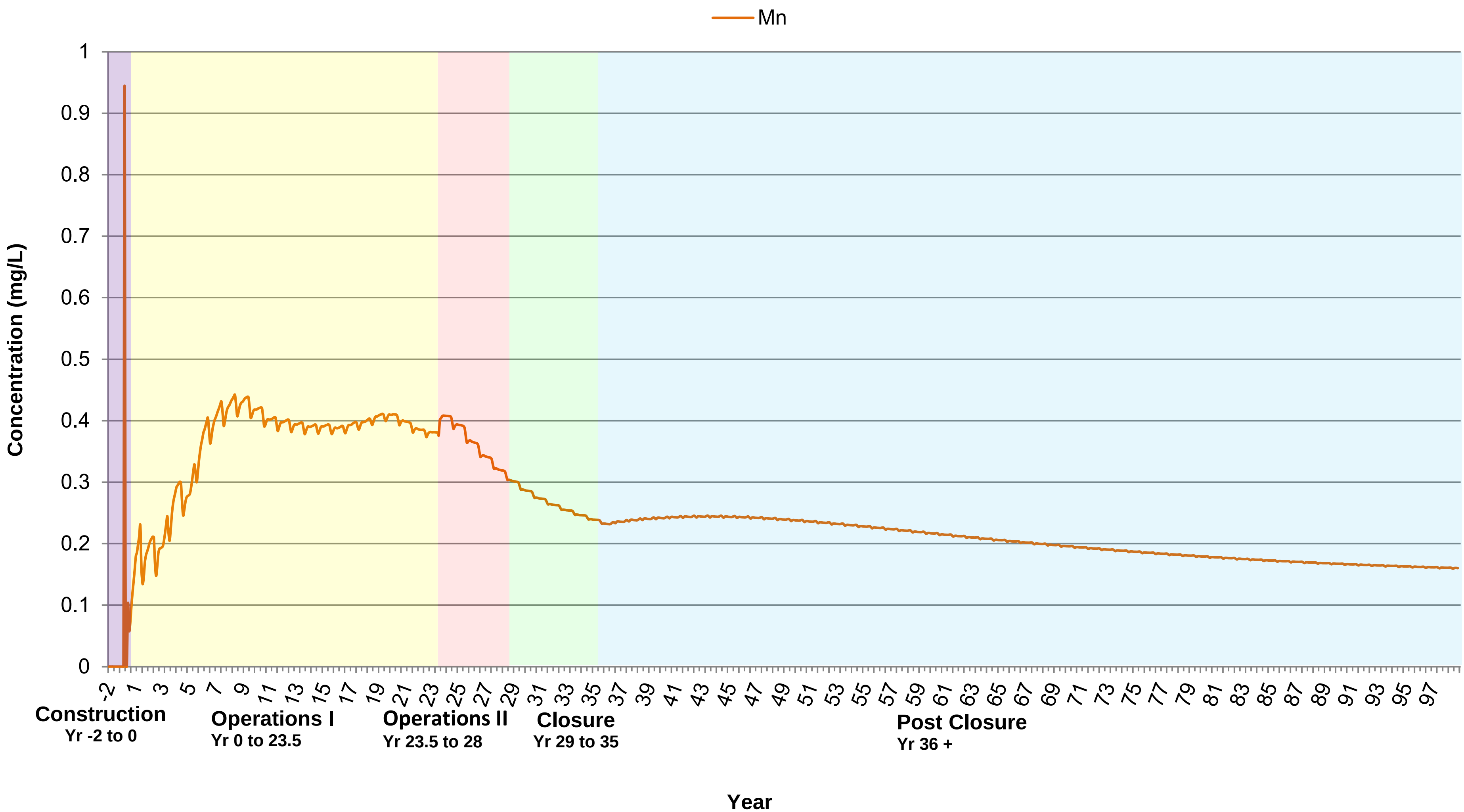
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Pb REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - TMF

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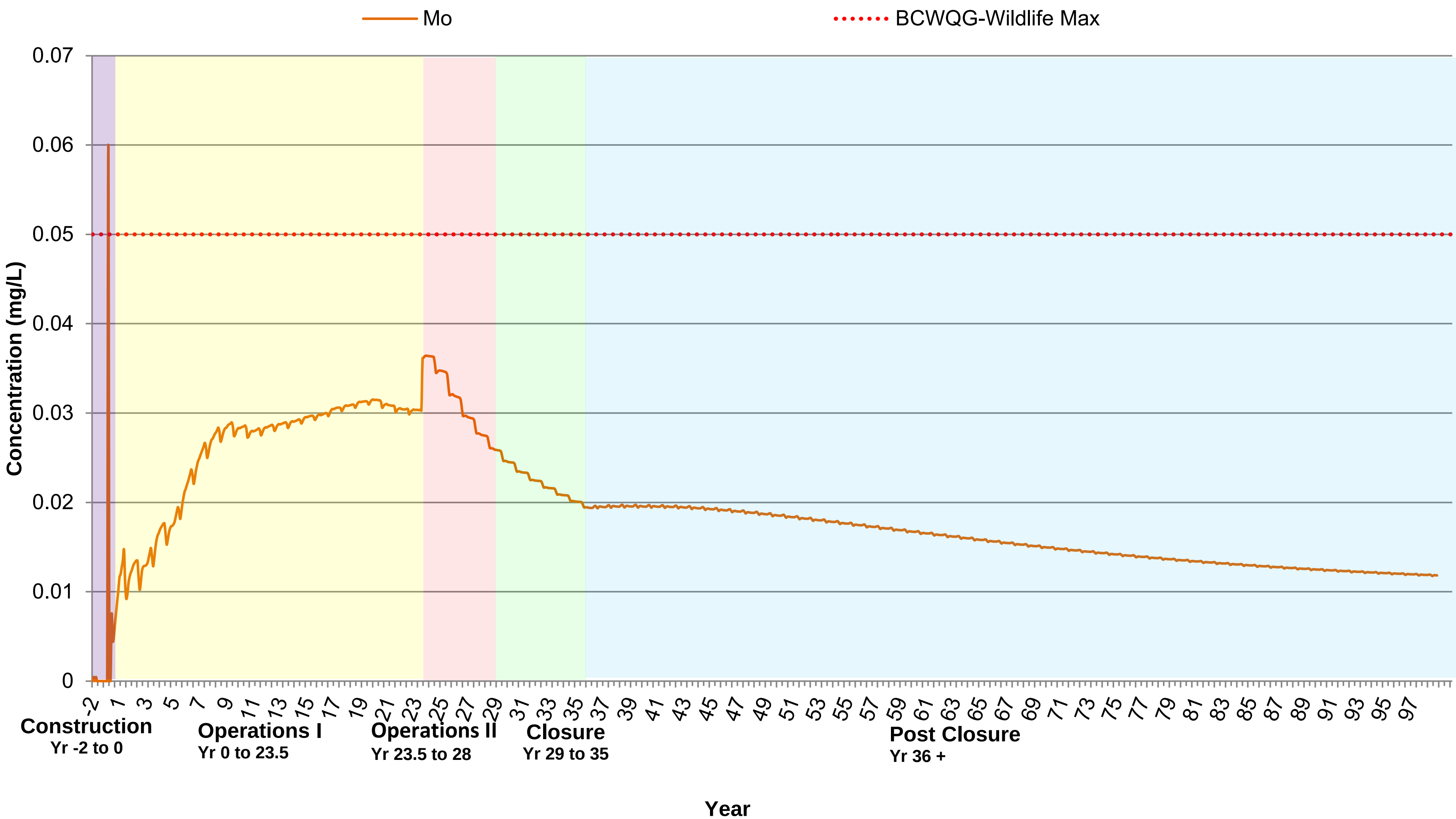
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Mn

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYDBENUM CONCENTRATIONS - TMF

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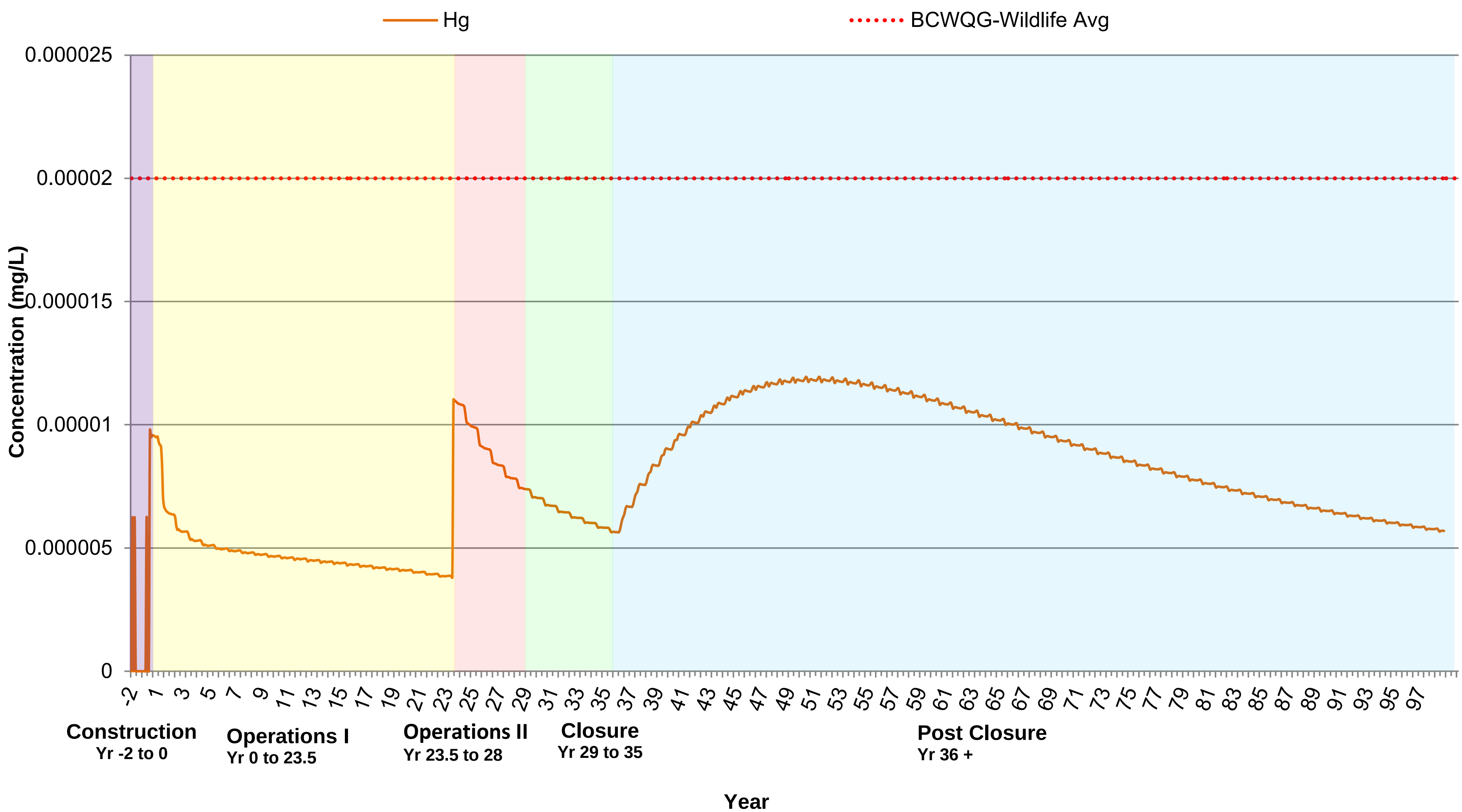
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Mo

REV 0

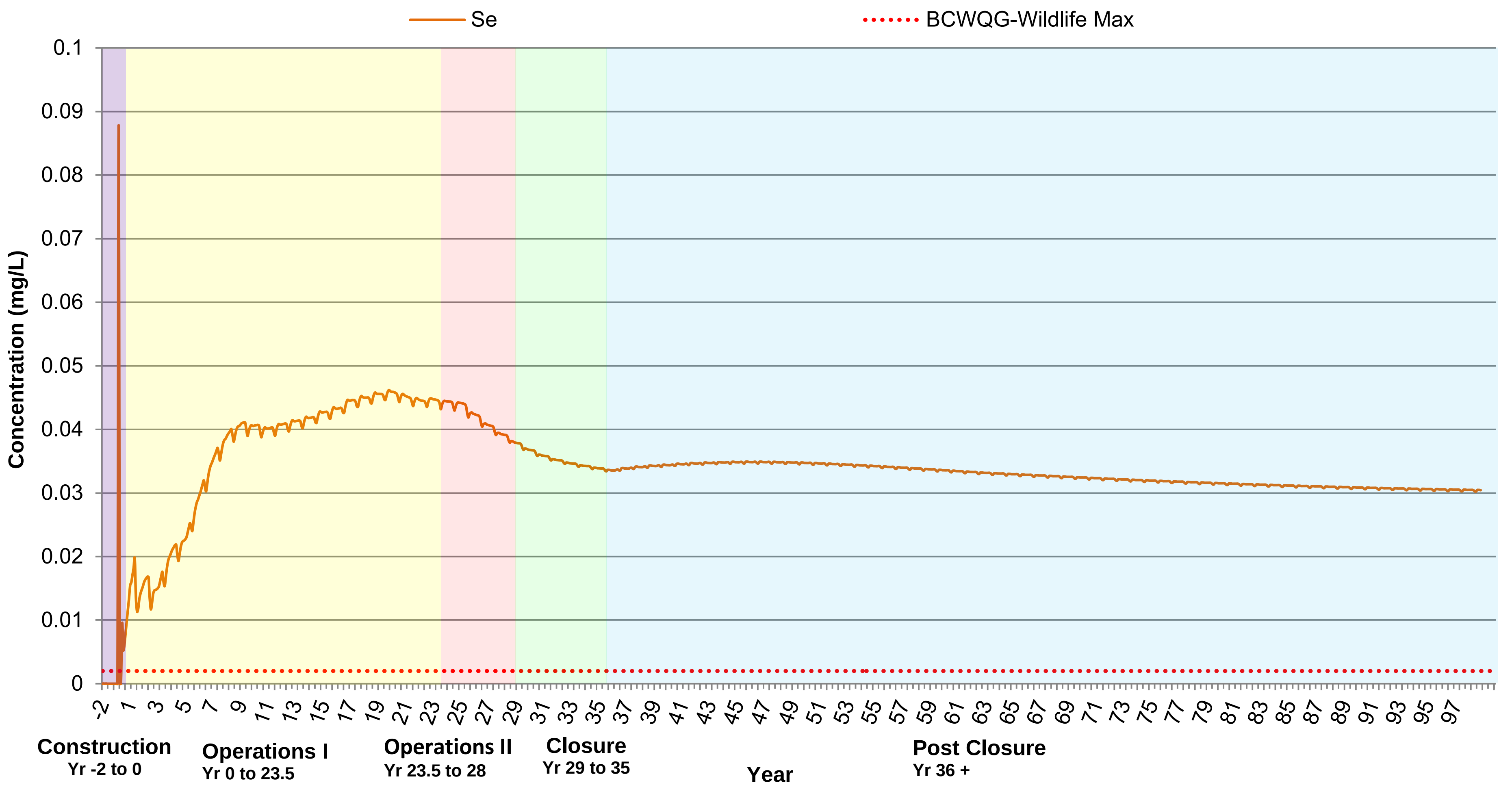


NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. GUIDELINE VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-Hg.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.		
HARPER CREEK PROJECT		
PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - TMF		
Knight Piésold CONSULTING	P/A NO. VA101-458/17	REF. NO. VA14-01825
	FIGURE A1.Hg	REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - TMF

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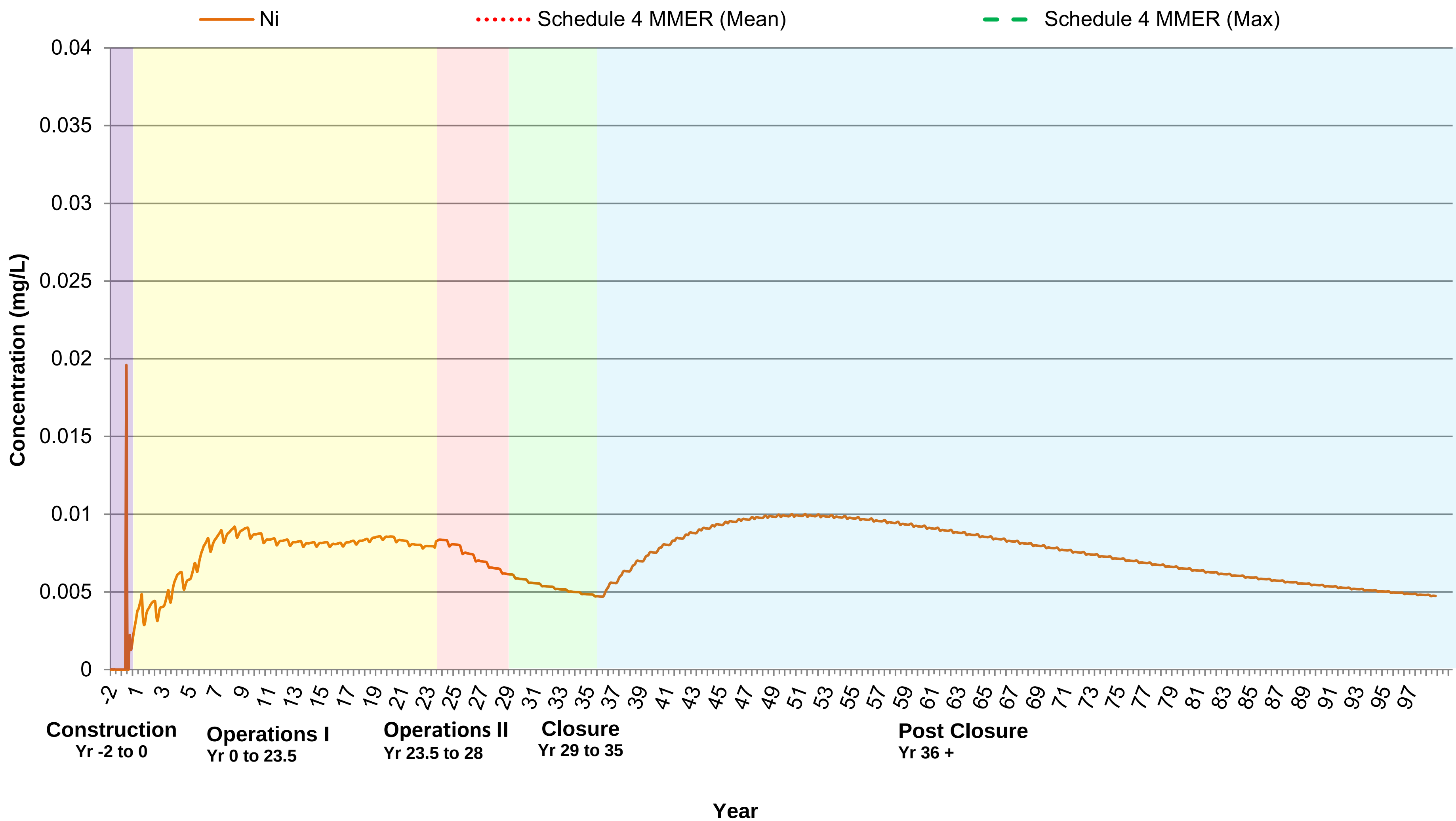
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Se

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE MMER MEAN (0.5 mg/L) AND MMER MAX (1.0 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - TMF

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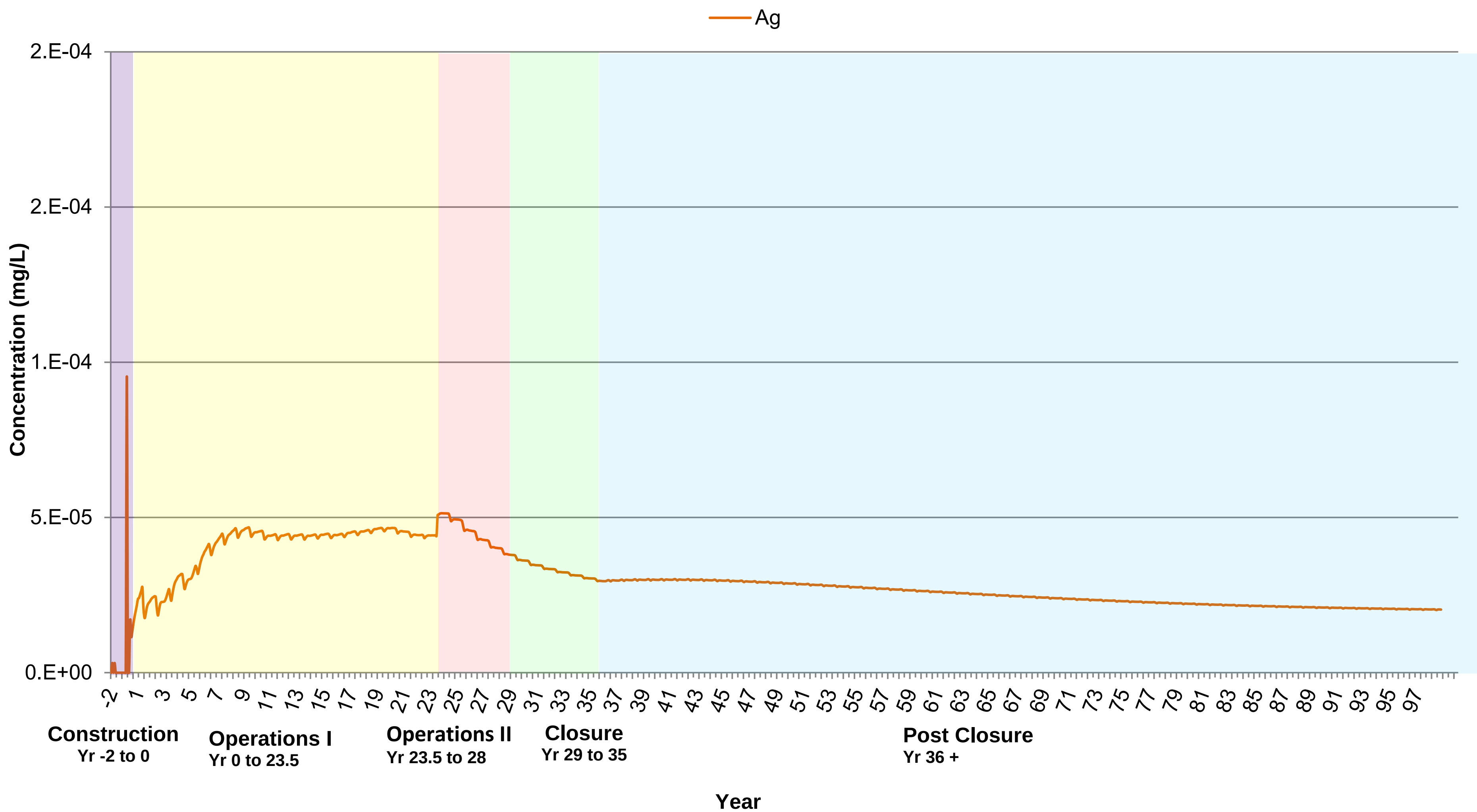
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Ni

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - TMF

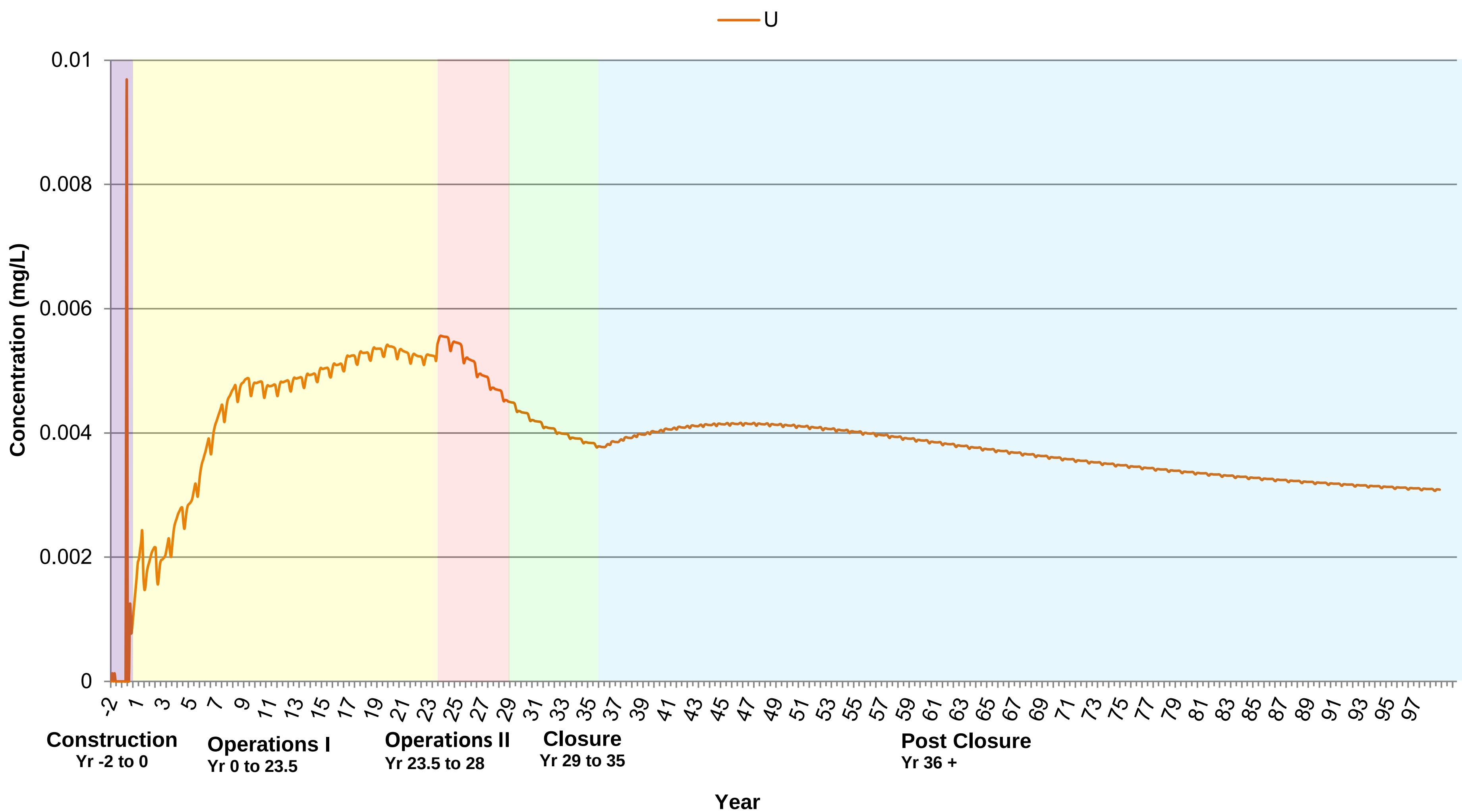
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Ag

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - TMF

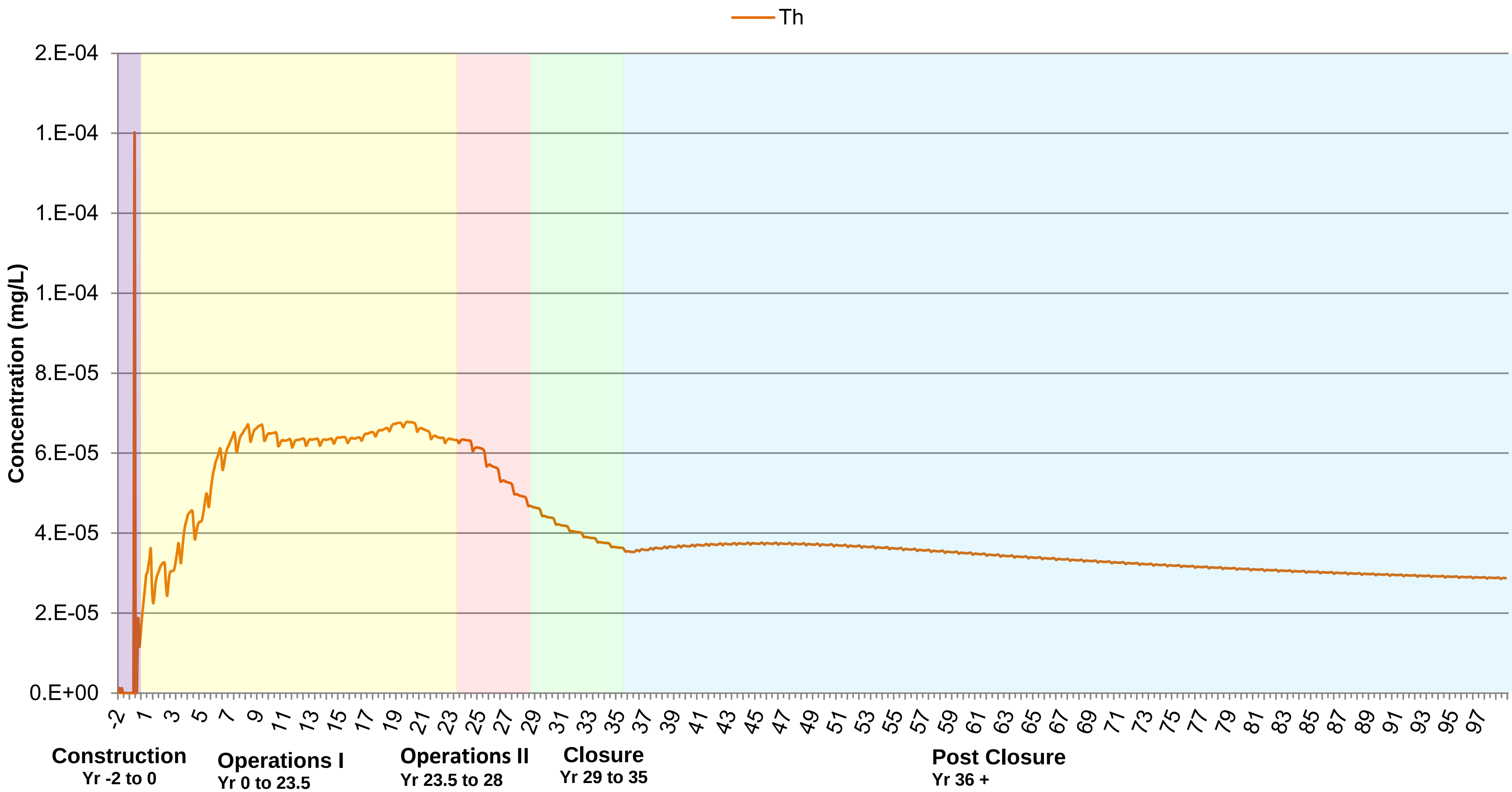
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.U

REV 0



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - TMF

Knight Piésold CONSULTING

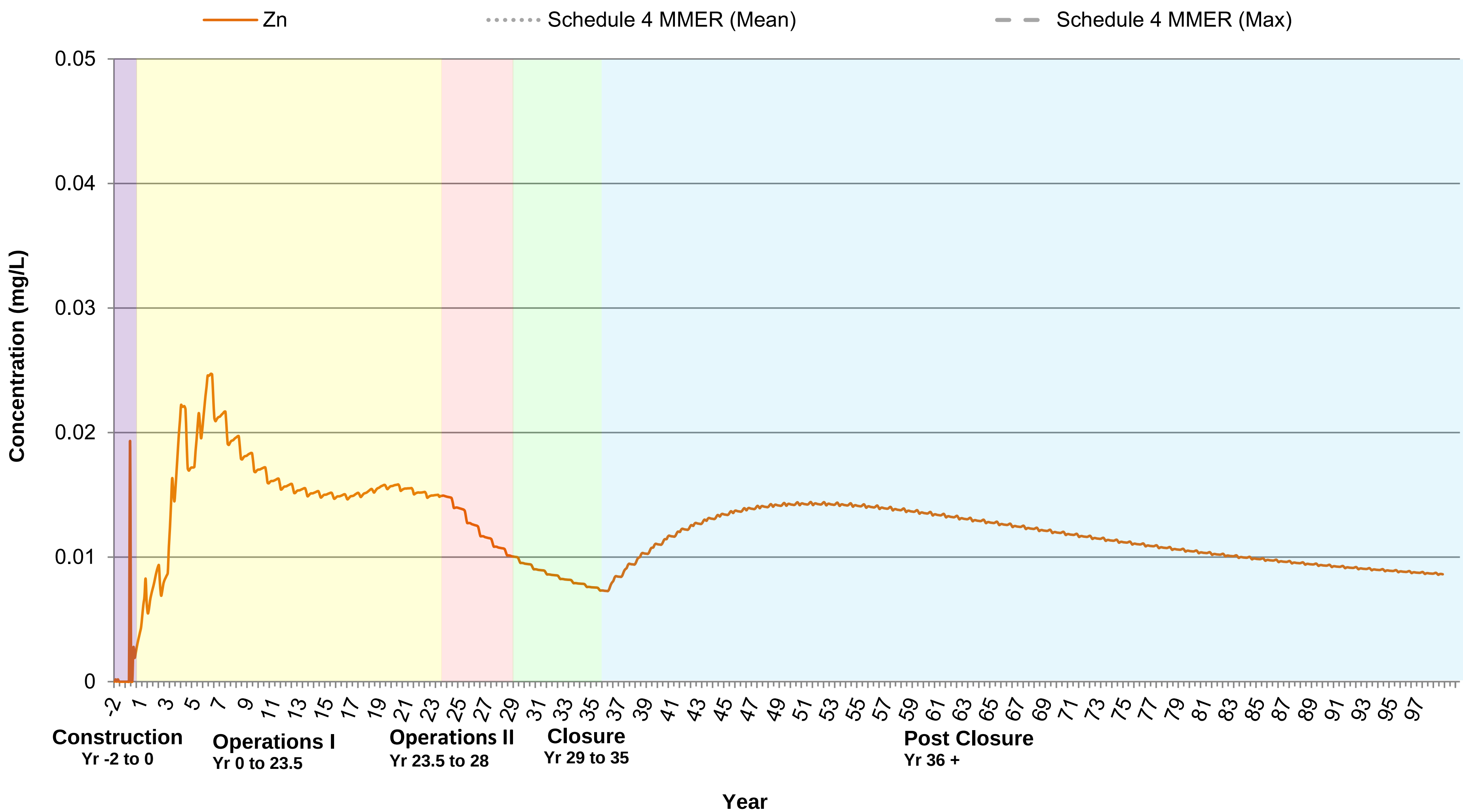
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Th

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB



NOTES:

1. THE TMF SPILLWAY COMMENCES DISCHARGE AT YEAR 29.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE MMER MEAN (0.5 mg/L) AND MMER MAX (1.0 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - TMF

Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A1.Zn

REV 0

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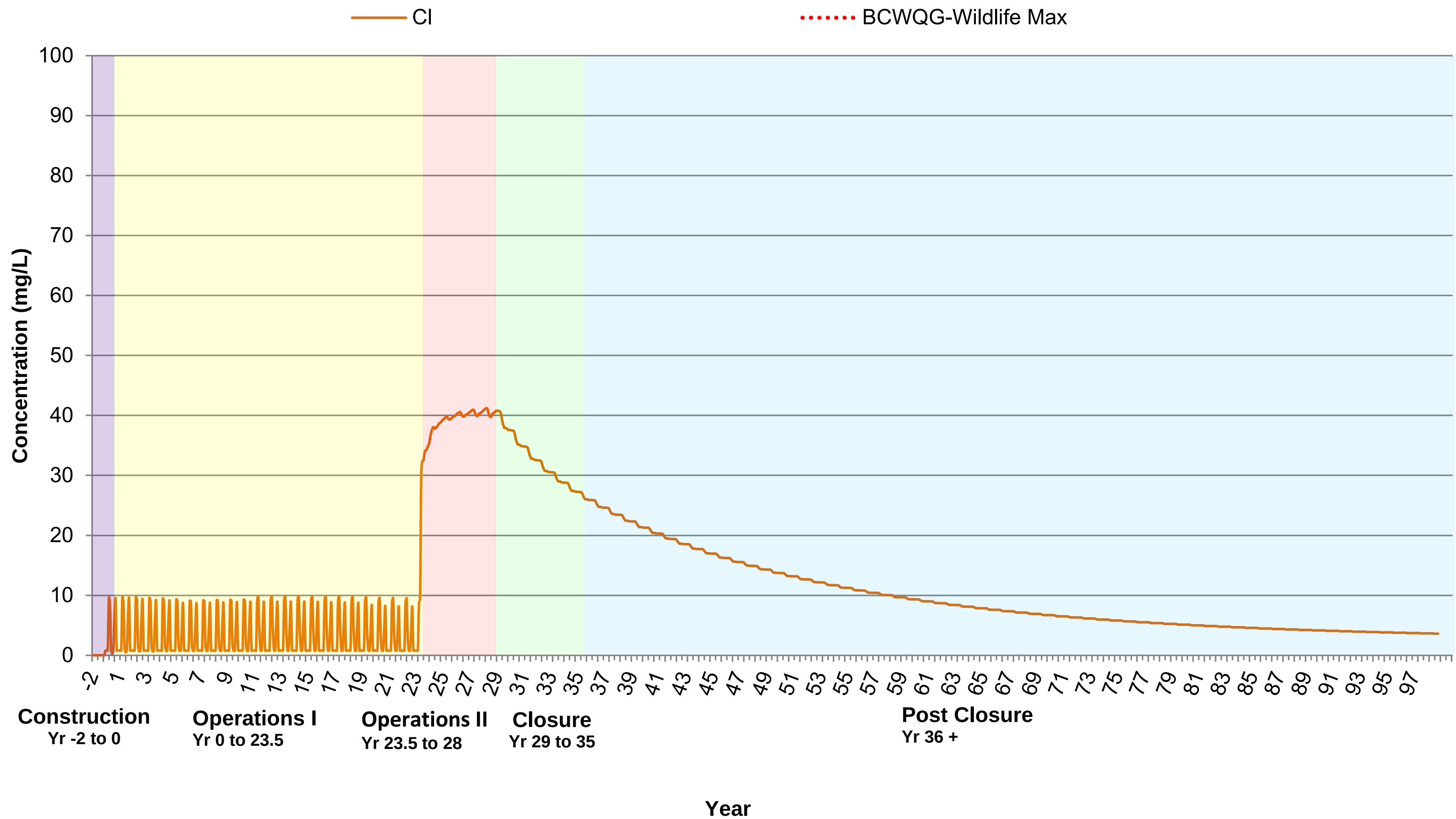
CONSULTING

APPENDIX A2

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – OP

(Pages A2-1 to A2-27)



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE BCWQG-WILDLIFE MAX GUIDELINE (600 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - OPEN PIT

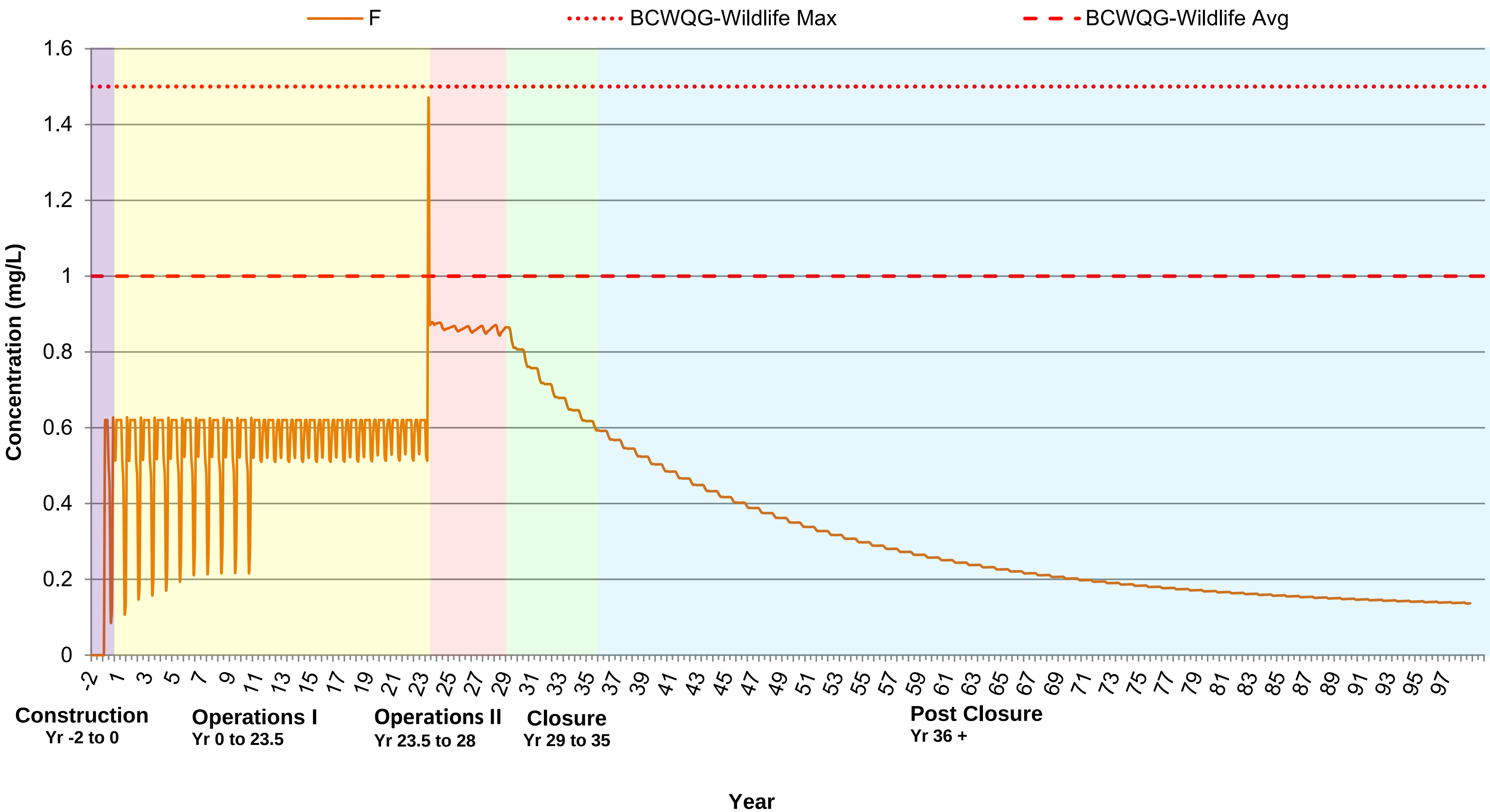
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Cl

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - OPEN PIT

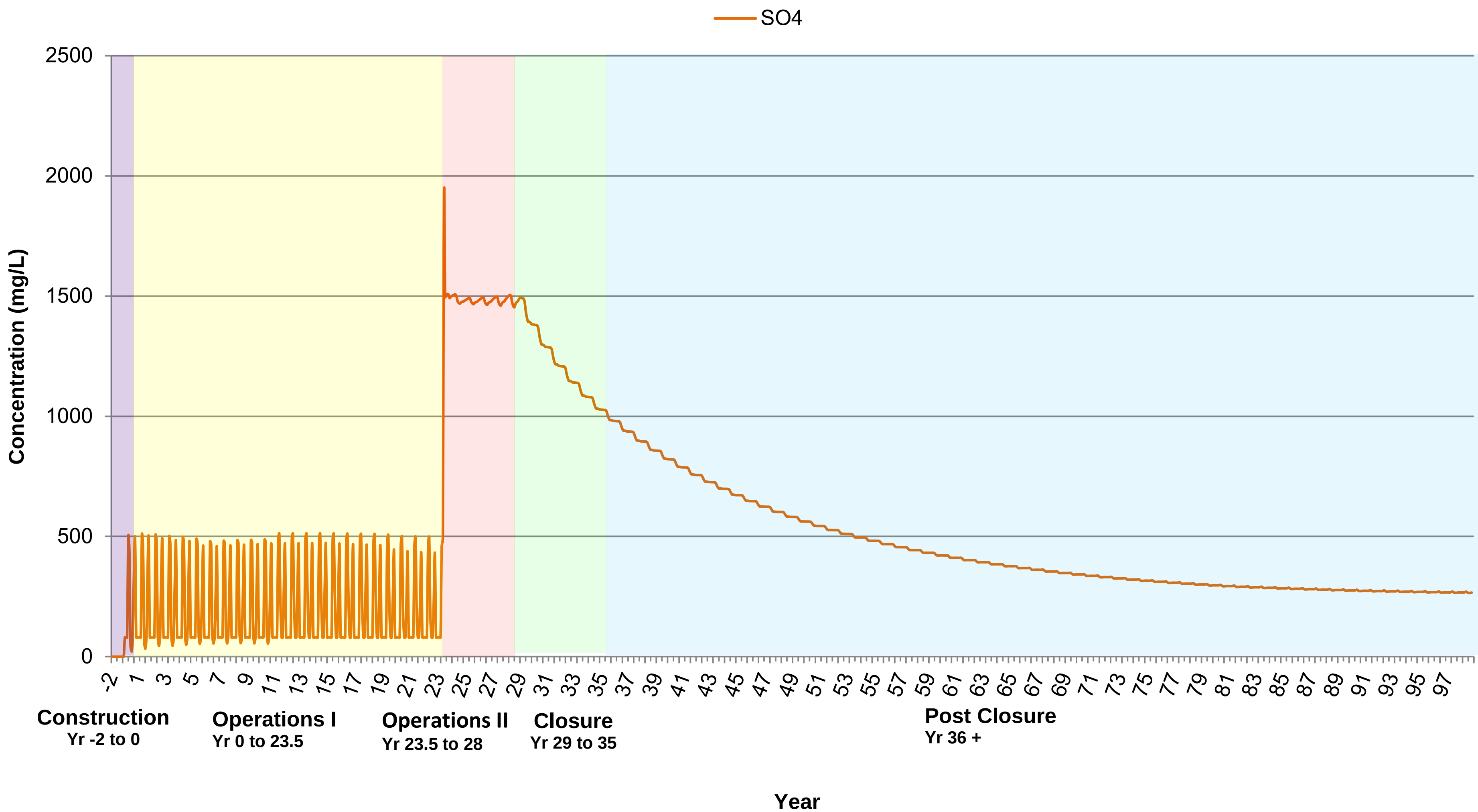
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.F

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - OPEN PIT

Knight Piésold CONSULTING

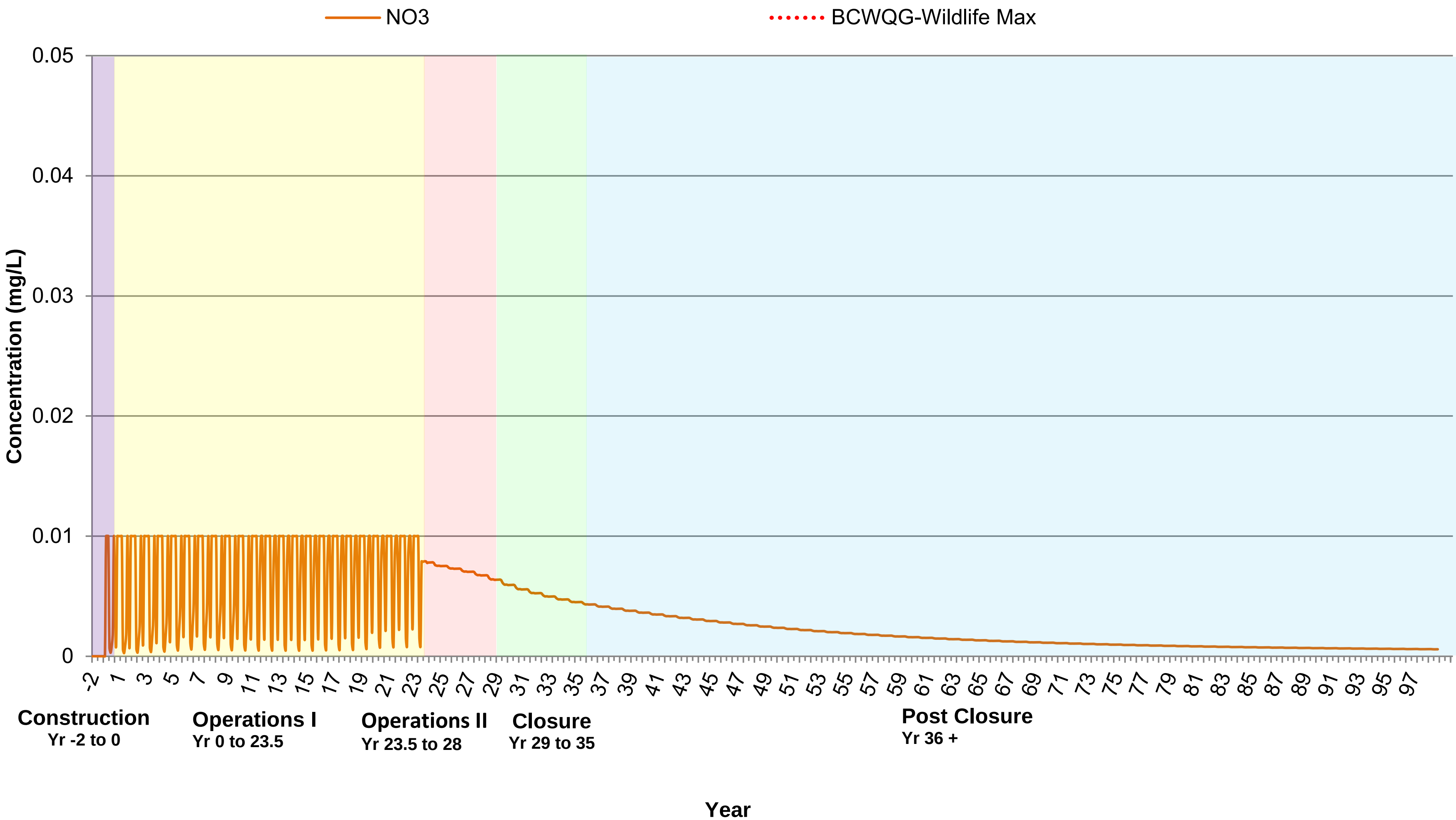
P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.S04

REV 0

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE BCWQG-WILDLIFE MAX GUIDELINE (100 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - OPEN PIT

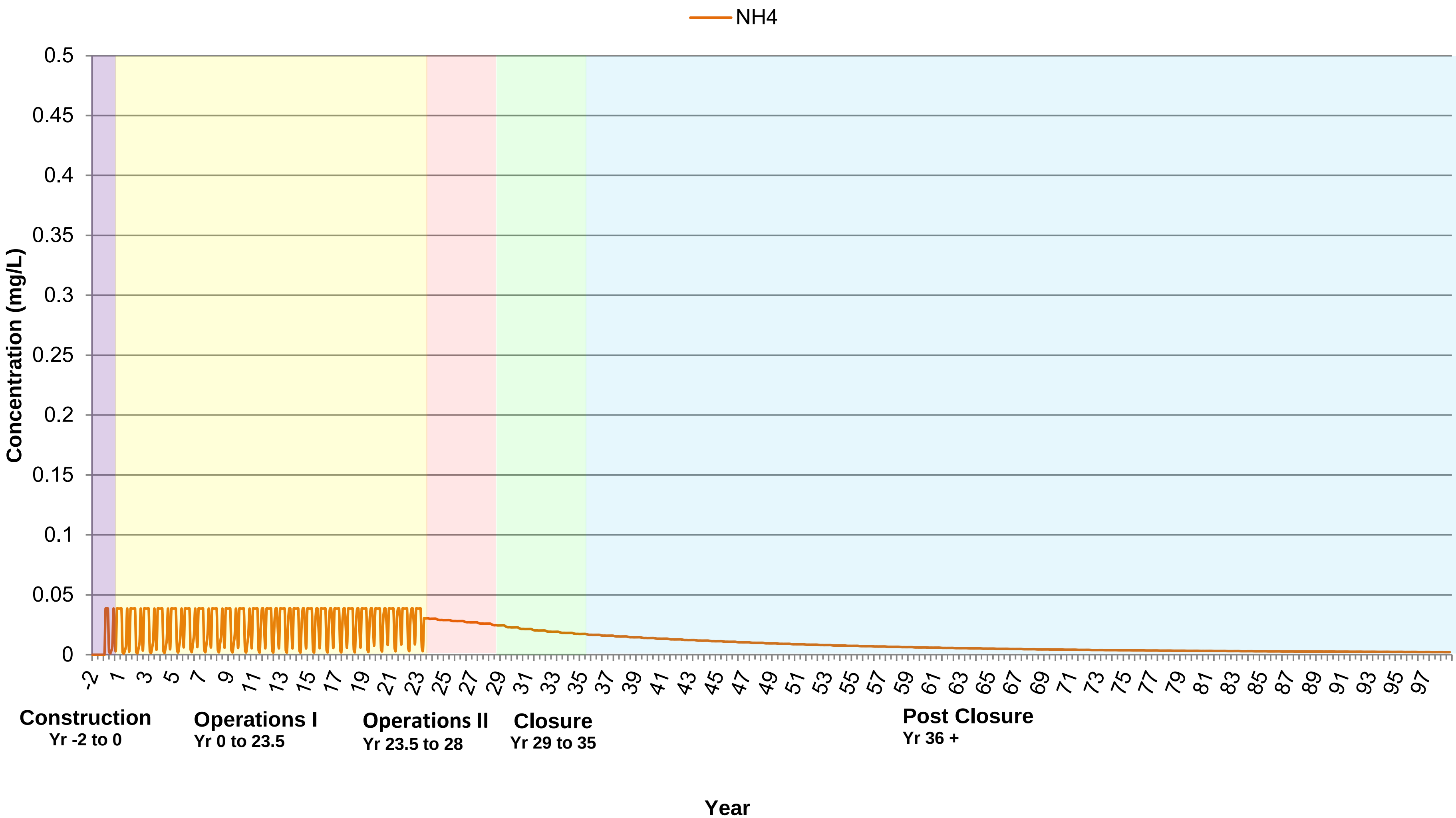
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.NO3

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - OPEN PIT

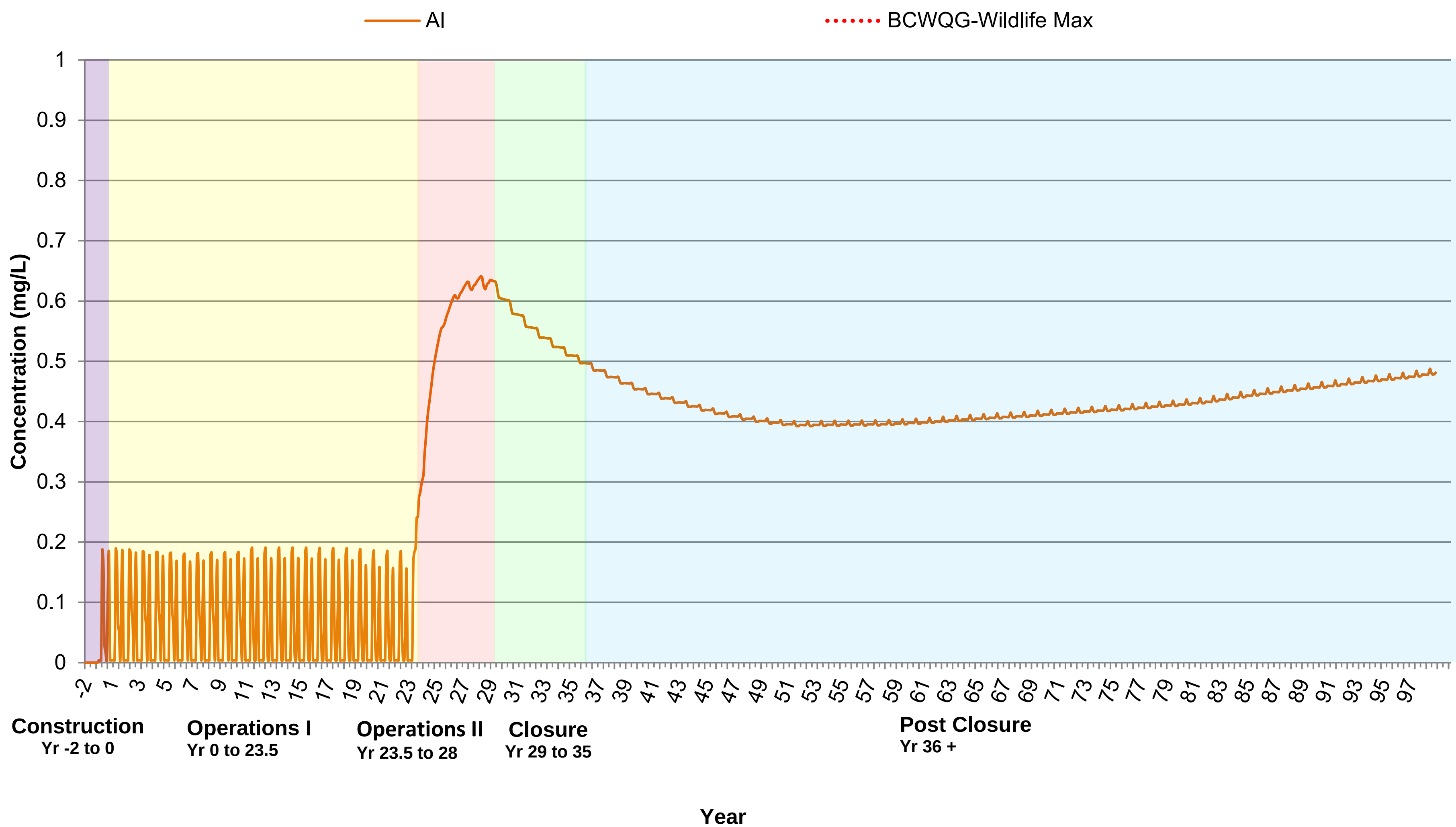
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.NH4

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE BCWQG-WILDLIFE MAX GUIDELINE (5 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ALUMINUM CONCENTRATIONS - OPEN PIT

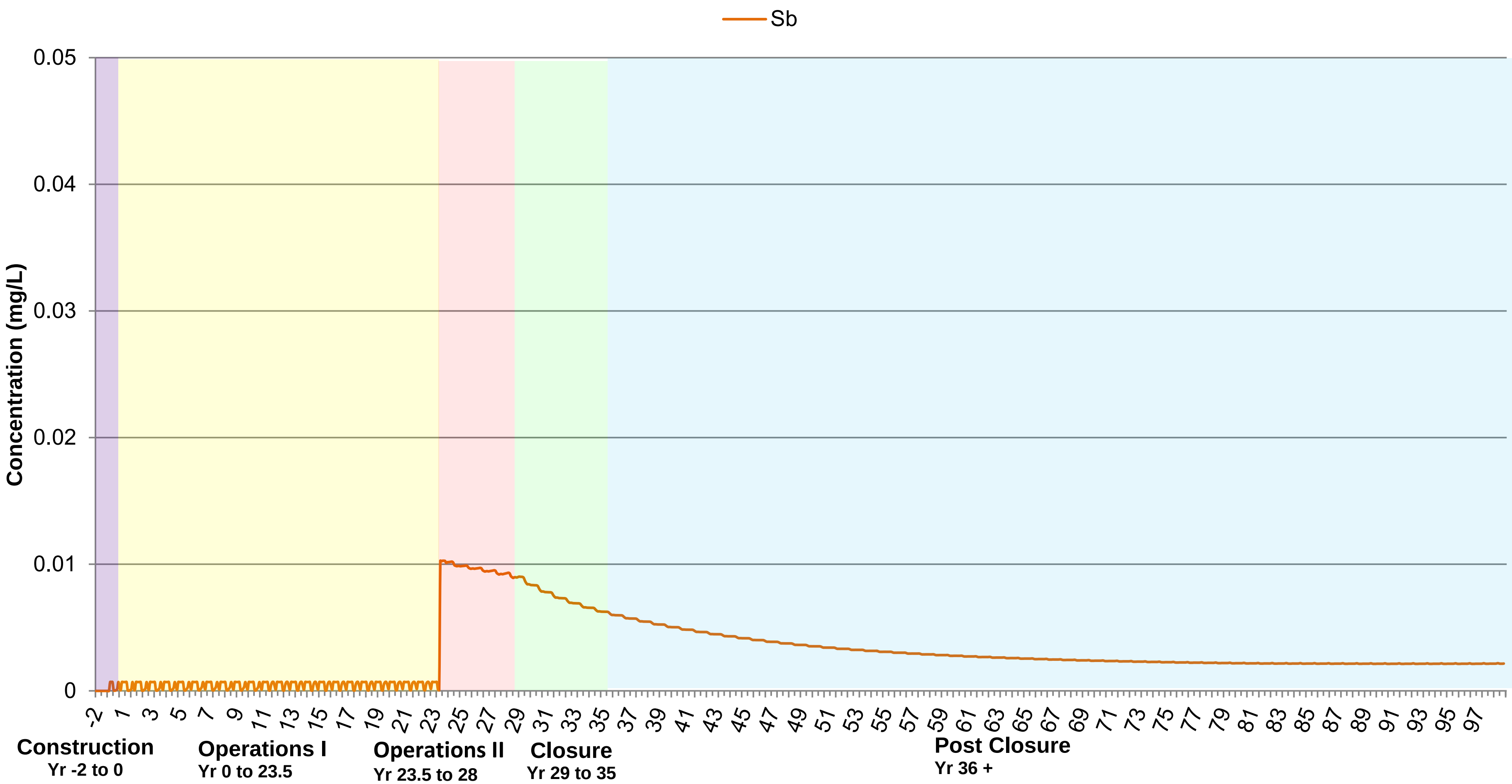
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Al

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - OPEN PIT

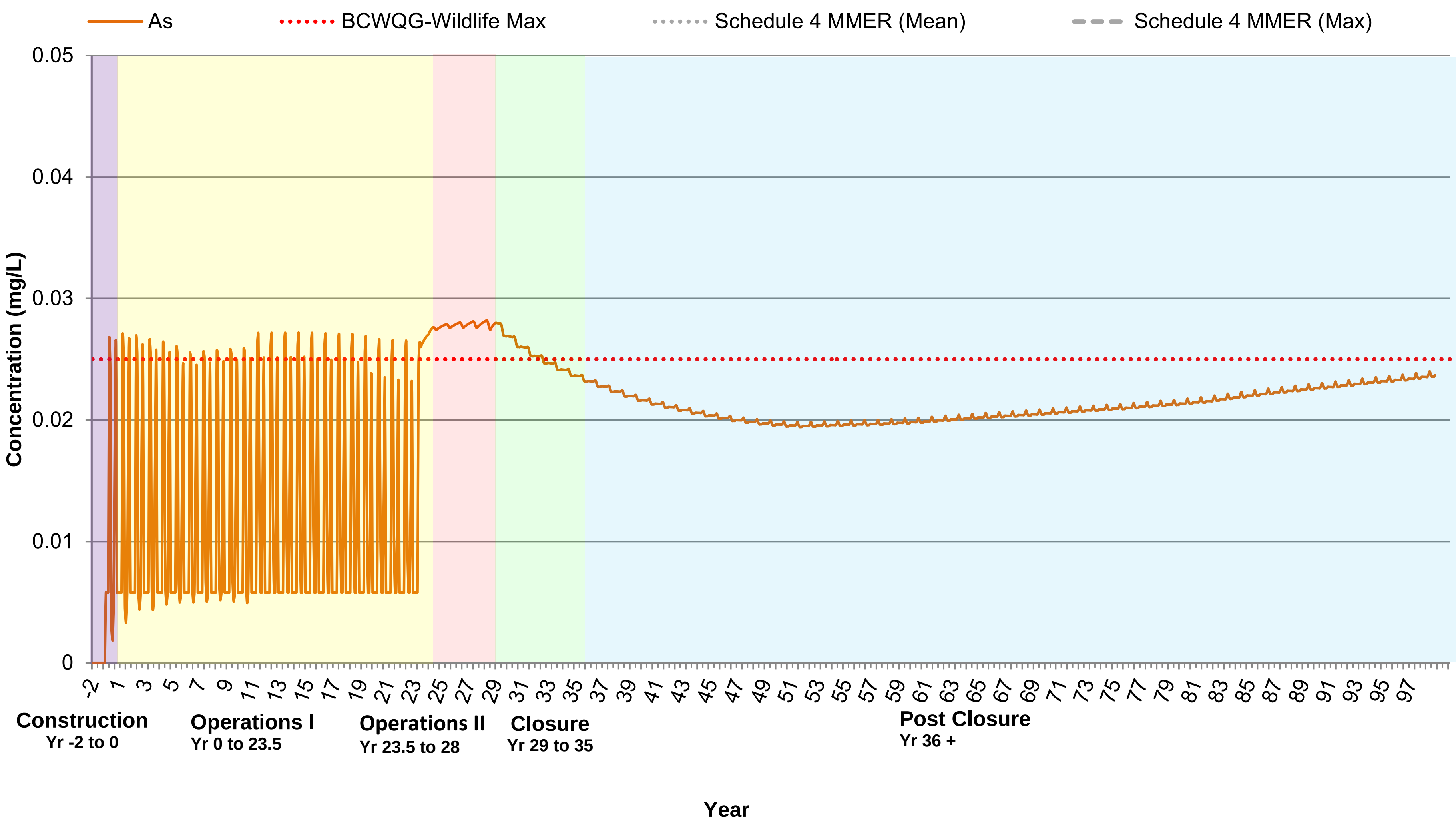
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Sb

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE MMER MAX (1 mg/L) AND MMER MEAN (0.5 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - OPEN PIT

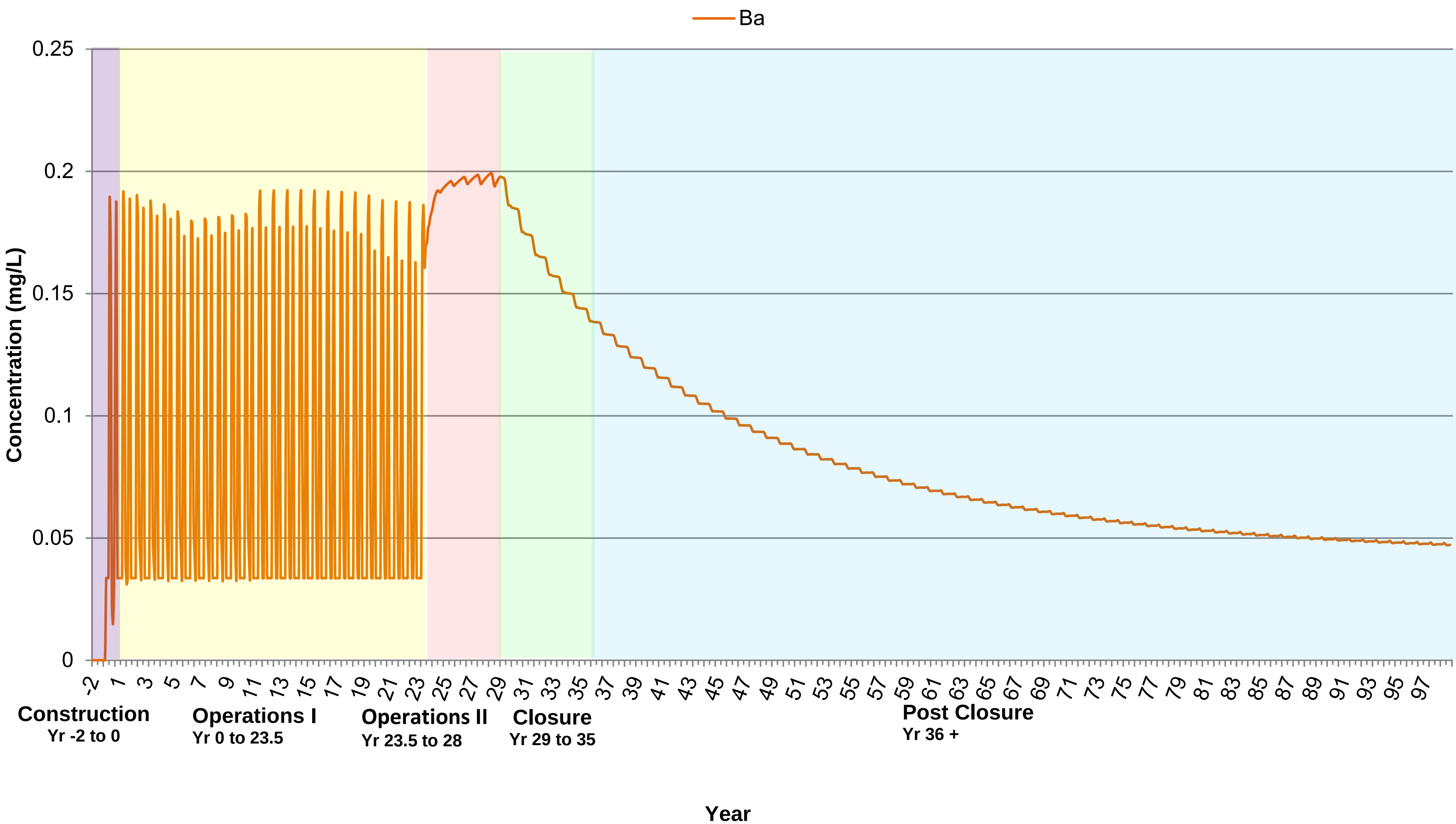
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.As

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - OPEN PIT

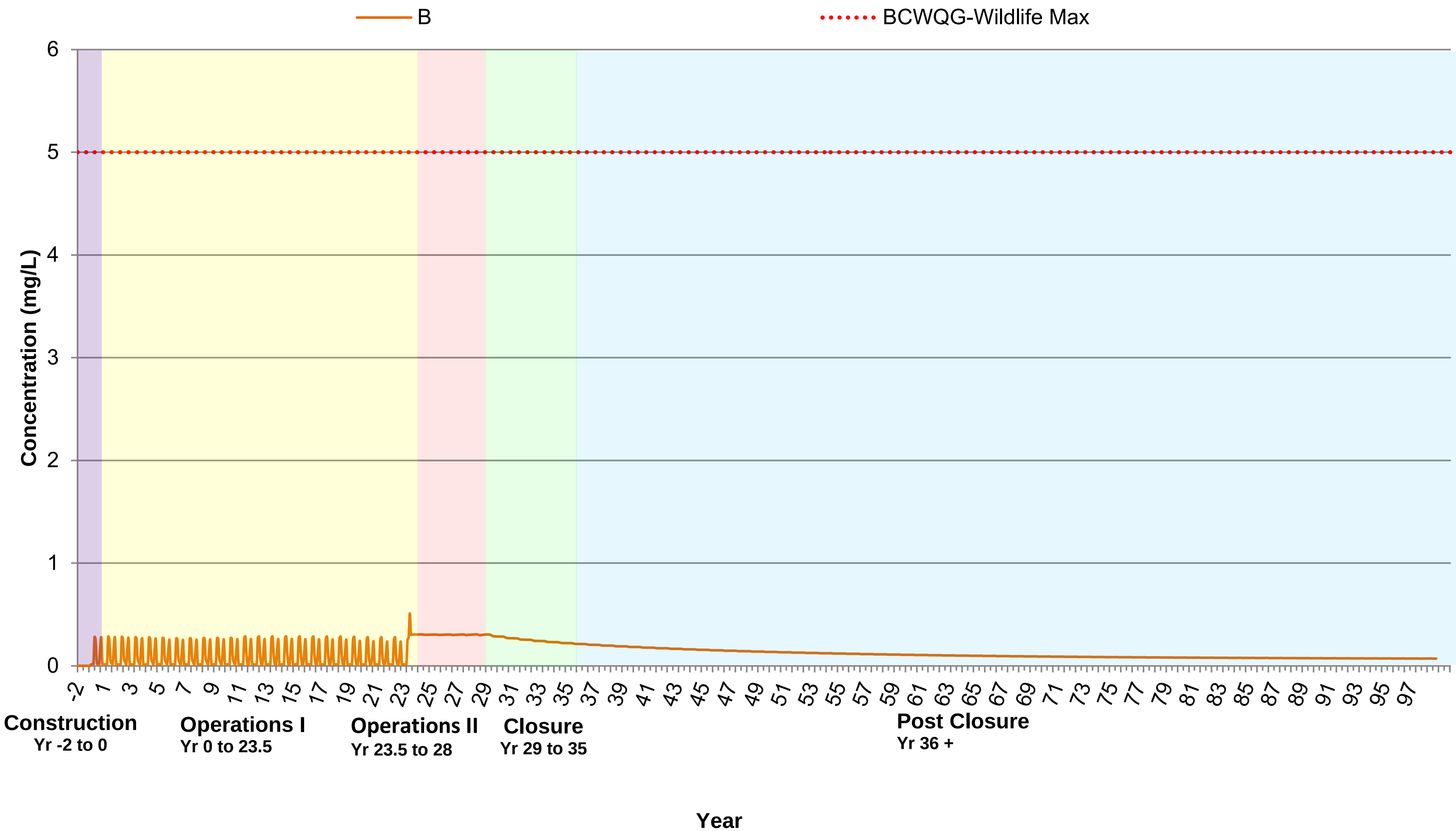
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Ba

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - OPEN PIT

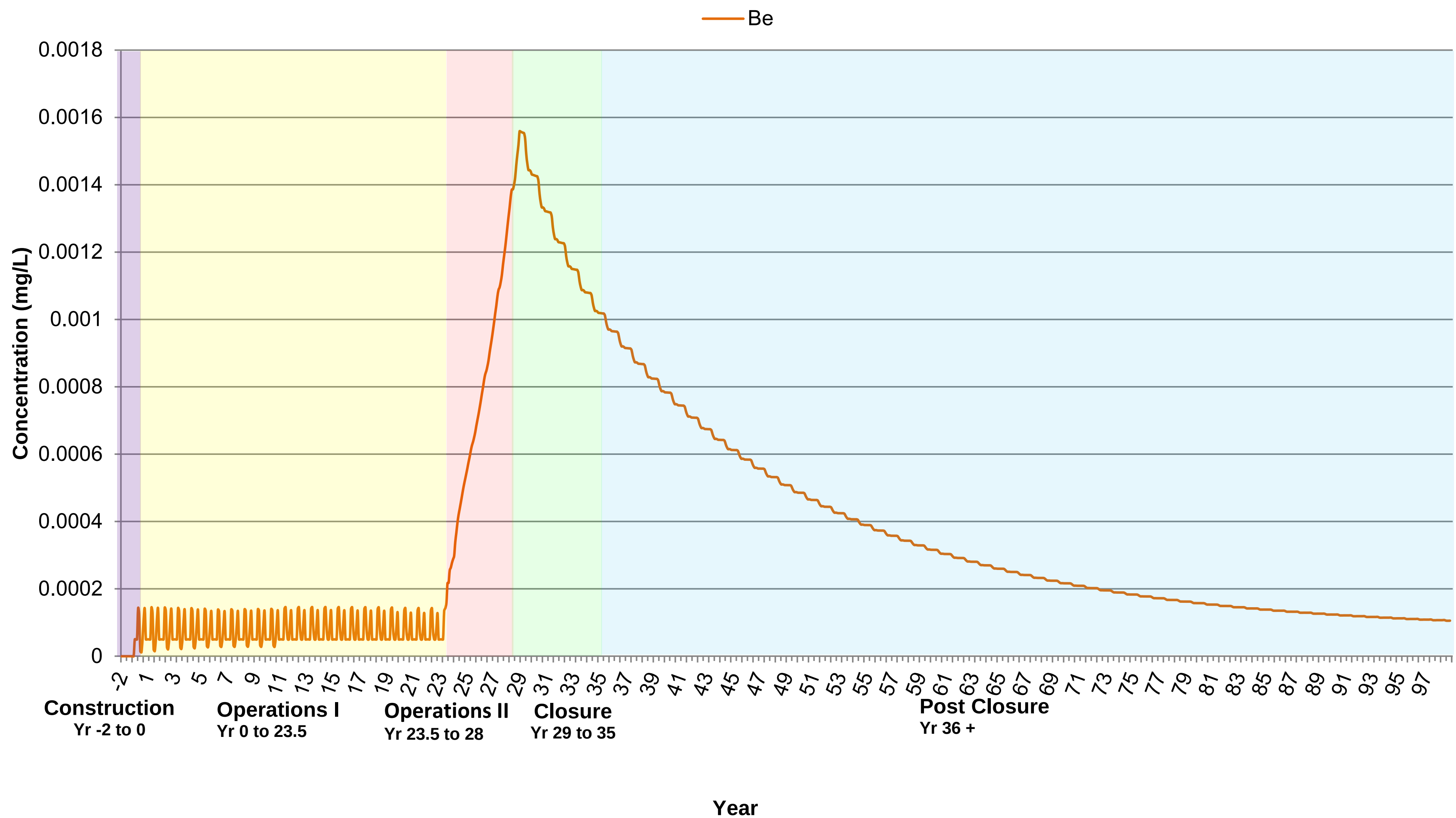
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.B

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

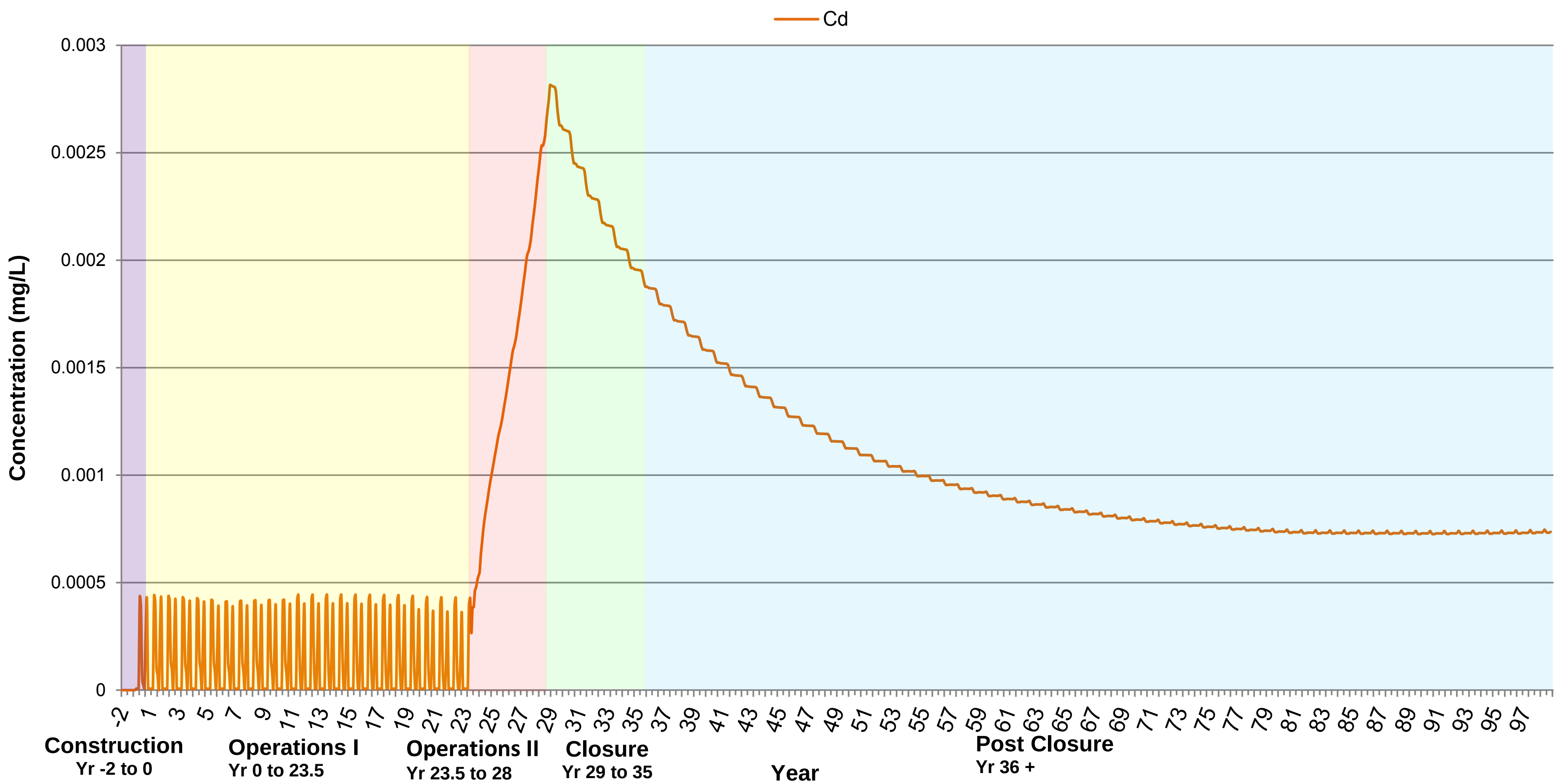
PREDICTED REASONABLE UPPER LIMIT BERYLLIUM CONCENTRATIONS - OPEN PIT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-0825

FIGURE A2.Be REV 0

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - OPEN PIT

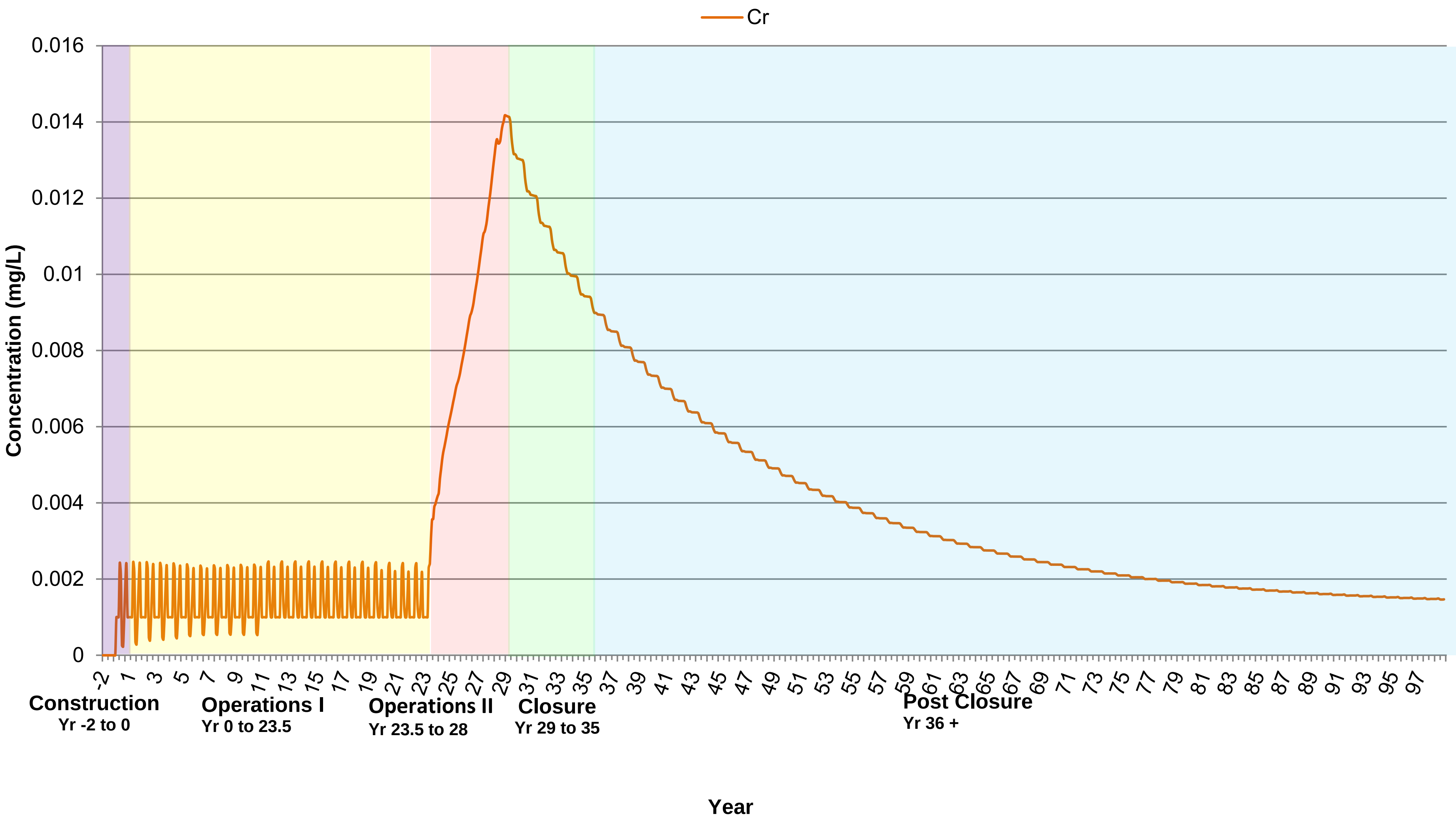
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Cd-D

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - OPEN PIT

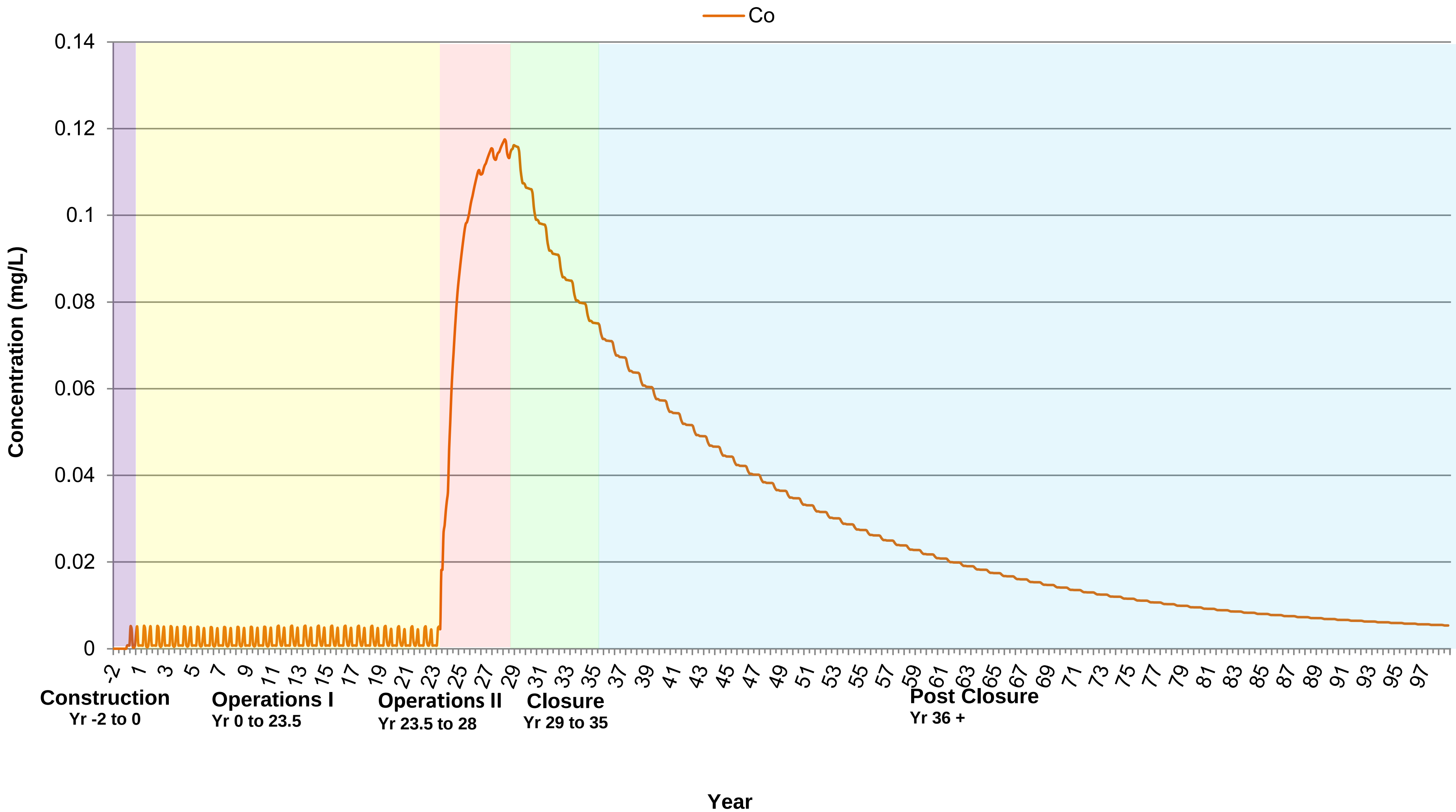
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Cr

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

HARPER CREEK MINING CORP.

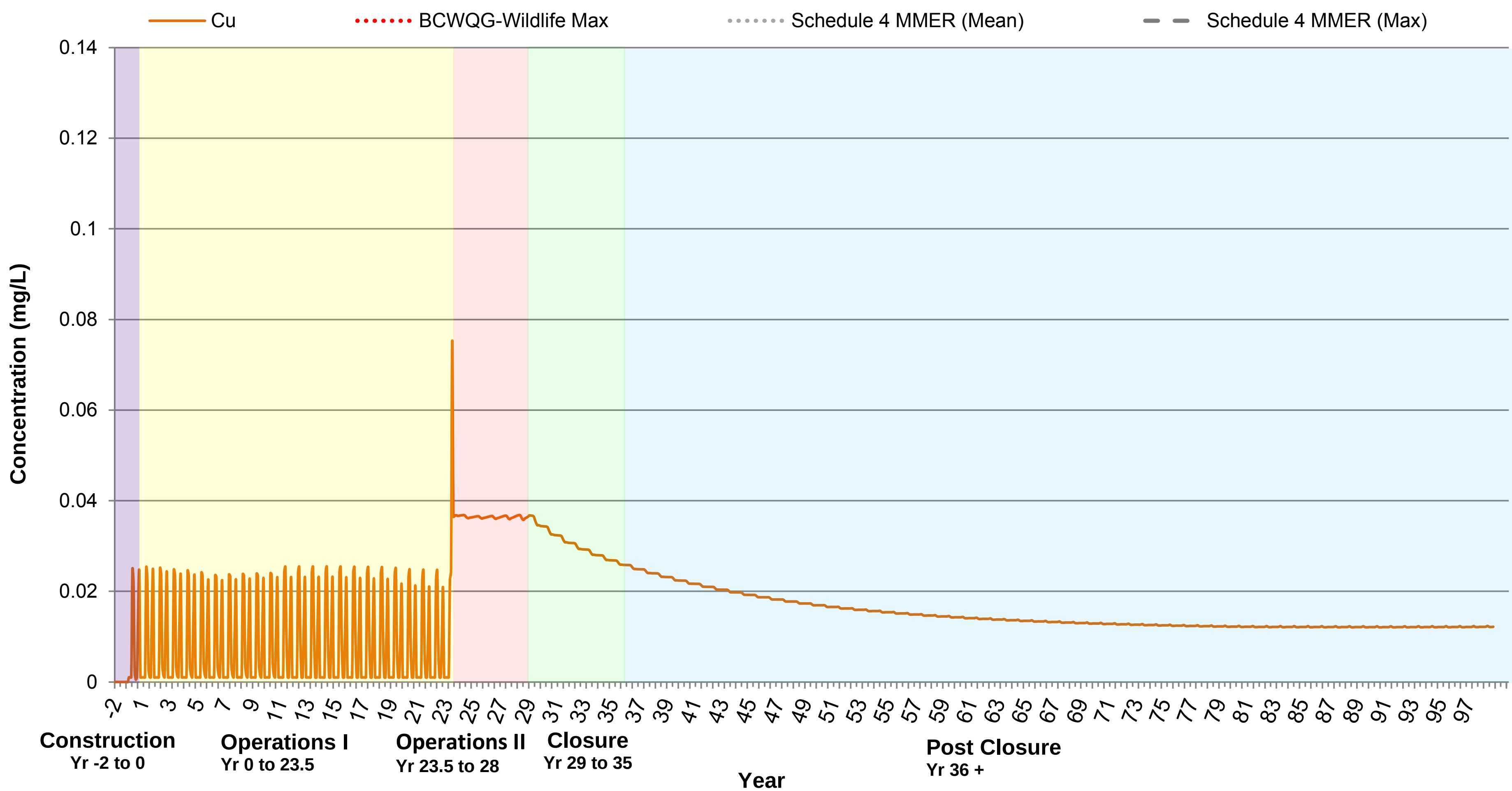
HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - OPEN PIT

Knight Piésold CONSULTING

P/A NO. VA101-458/17	REF. NO. VA14-0825	
FIGURE A2.Co		REV 0

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. BCWQG-WILDLIFE MAX (0.3 mg/L), MMER MEAN (0.3 mg/L) AND MMER MAX (0.6 mg/L)

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - OPEN PIT

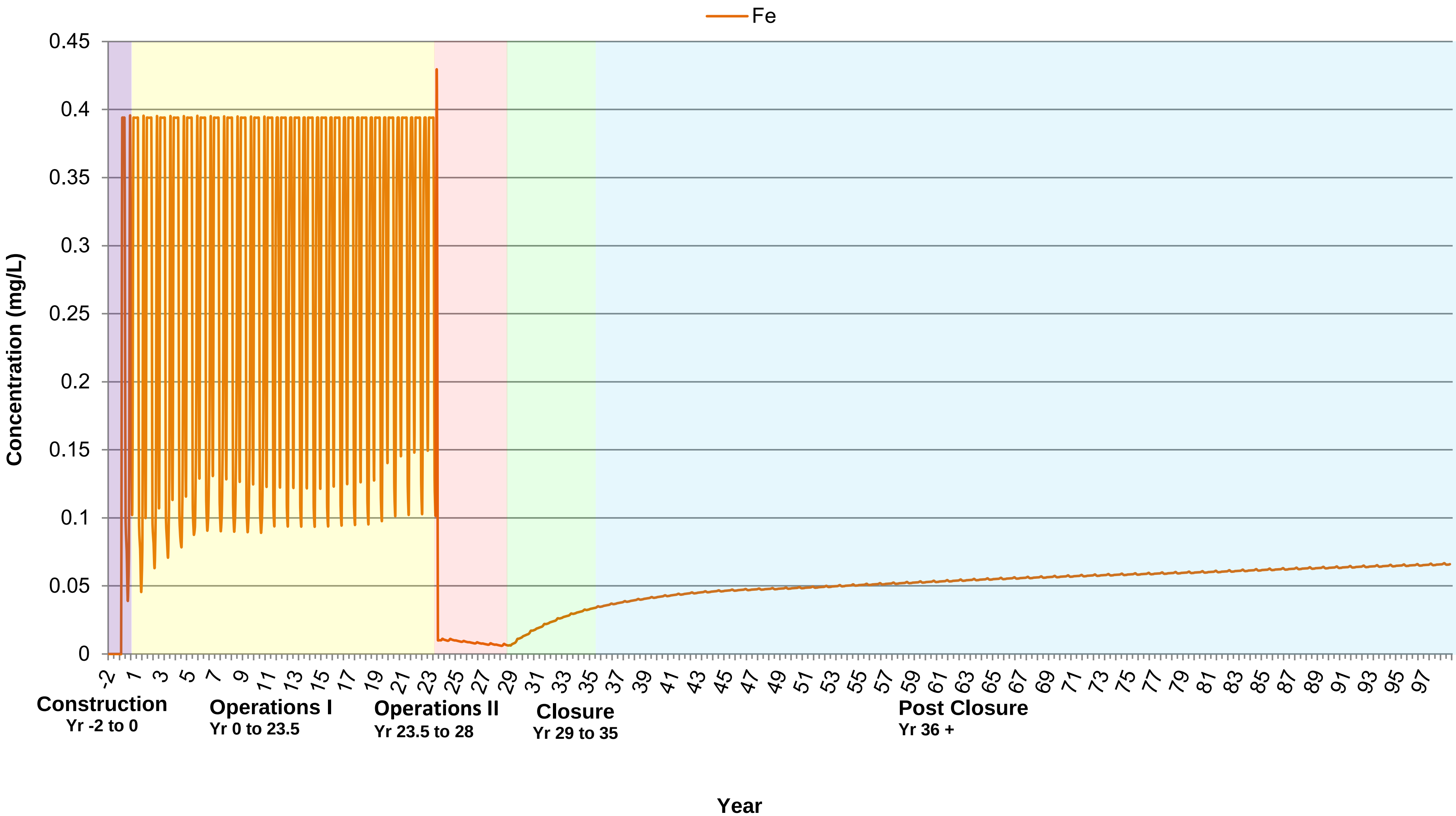
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Cu-T

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT IRON CONCENTRATIONS - OPEN PIT

Knight Piésold CONSULTING

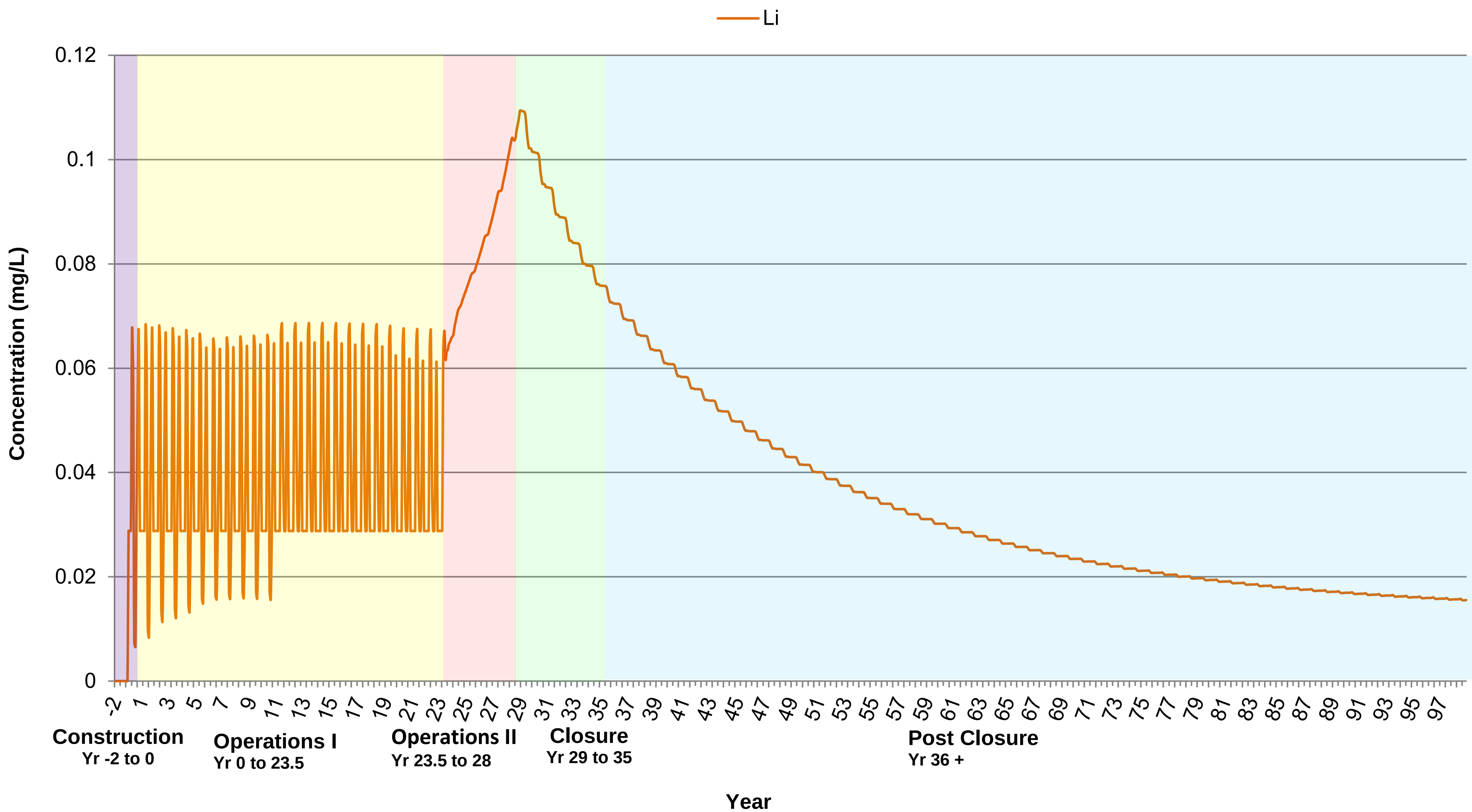
P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Fe

REV 0

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - OPEN PIT

Knight Piésold CONSULTING

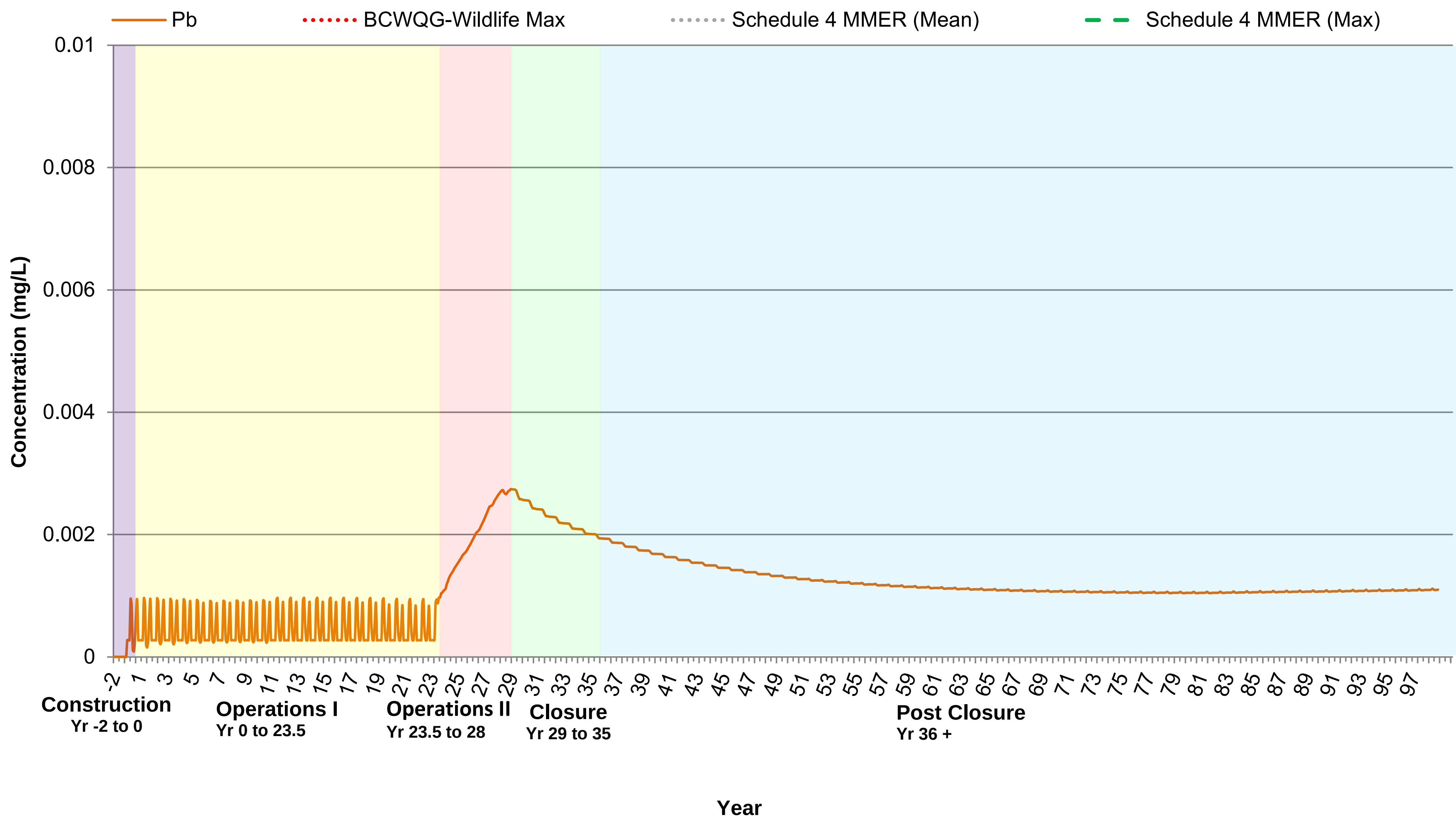
P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Zn

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. BCWQG-WILDLIFE MAX (0.1 mg/L), MMER MEAN (0.2 mg/L) AND MMER MAX (0.4 mg/L) GUIDELINES ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - OPEN PIT

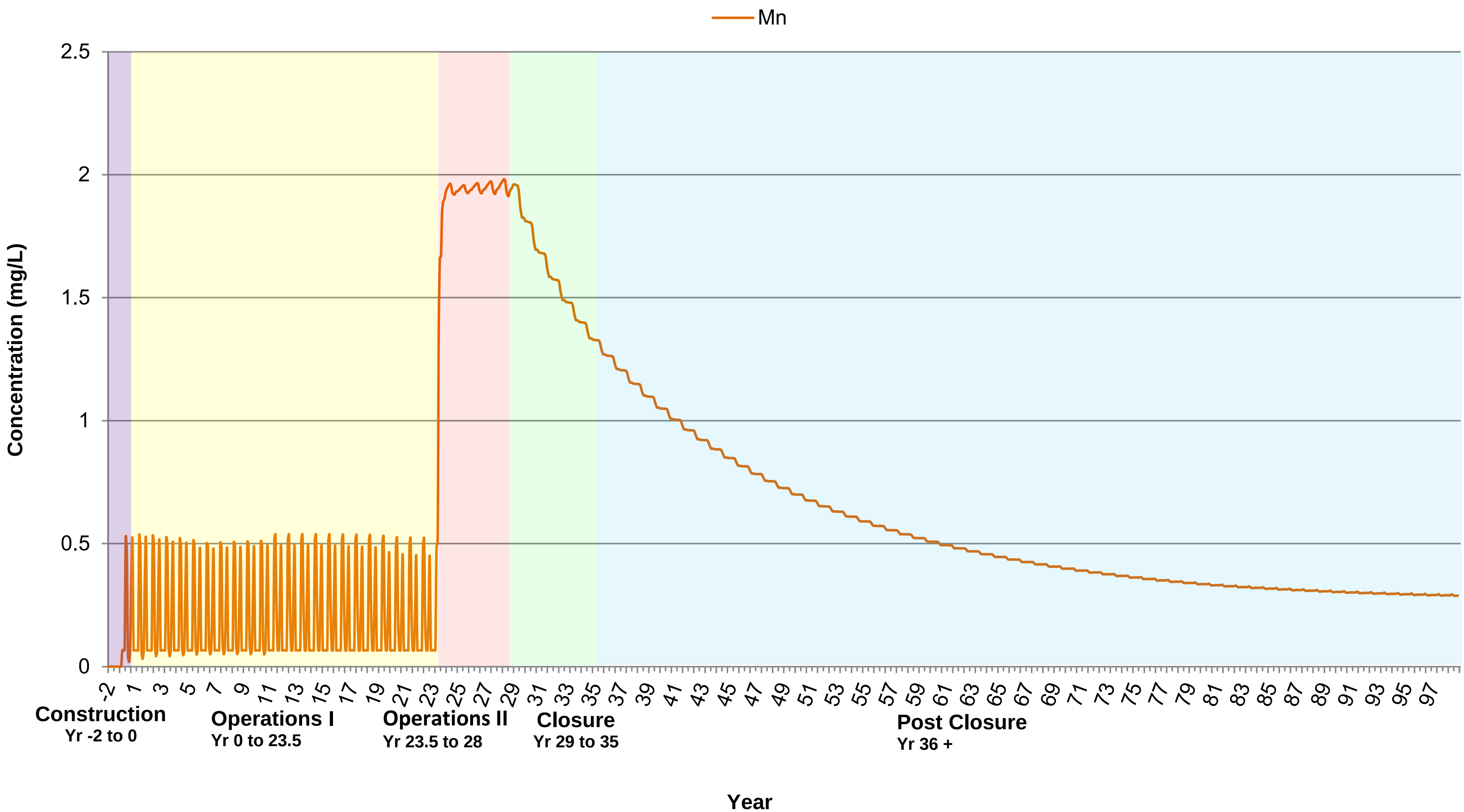
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Pb

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - OPEN PIT

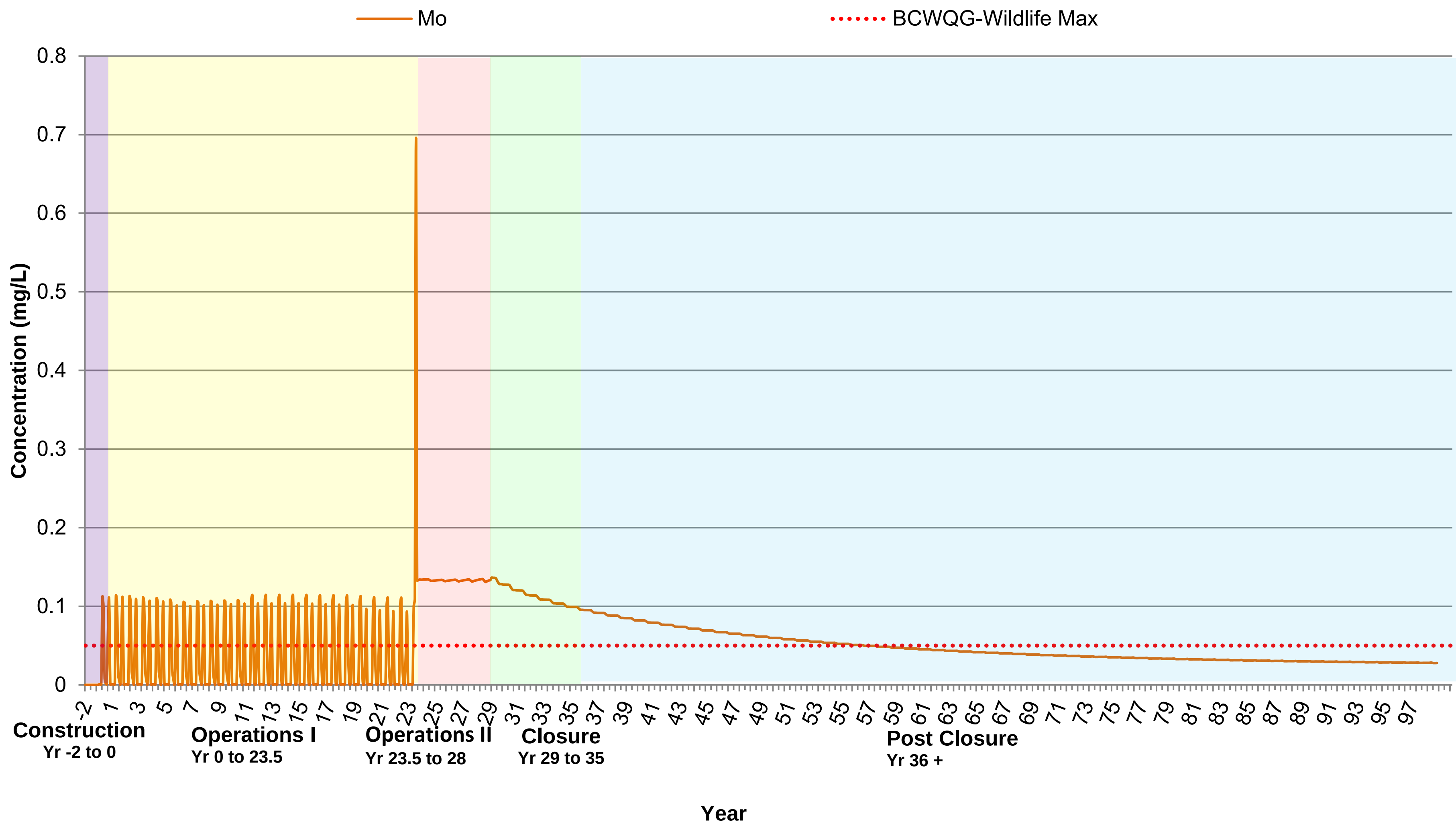
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Mn

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYBDENUM CONCENTRATIONS - OPEN PIT

Knight Piésold CONSULTING

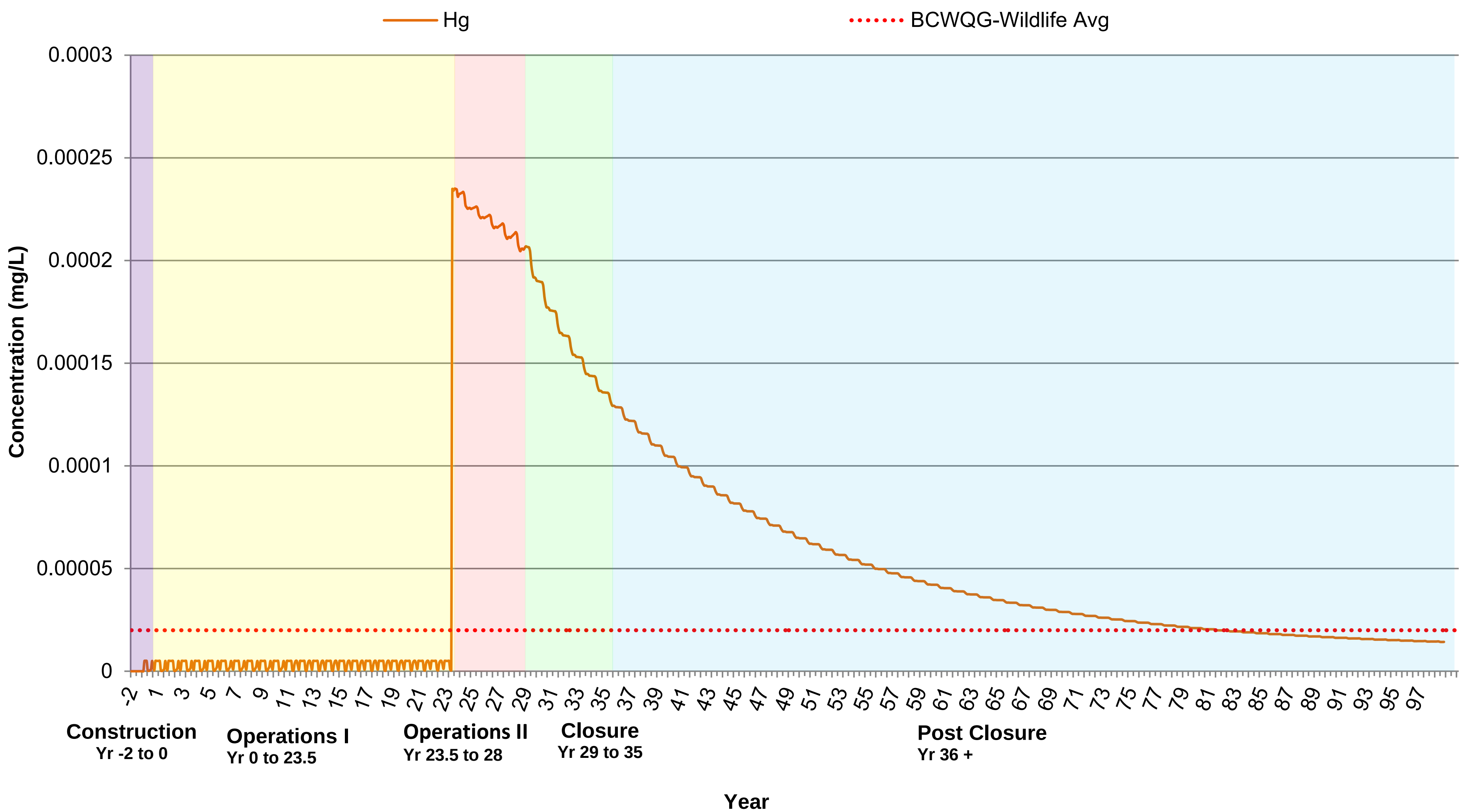
P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Mo

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. GUIDELINE VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-H

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

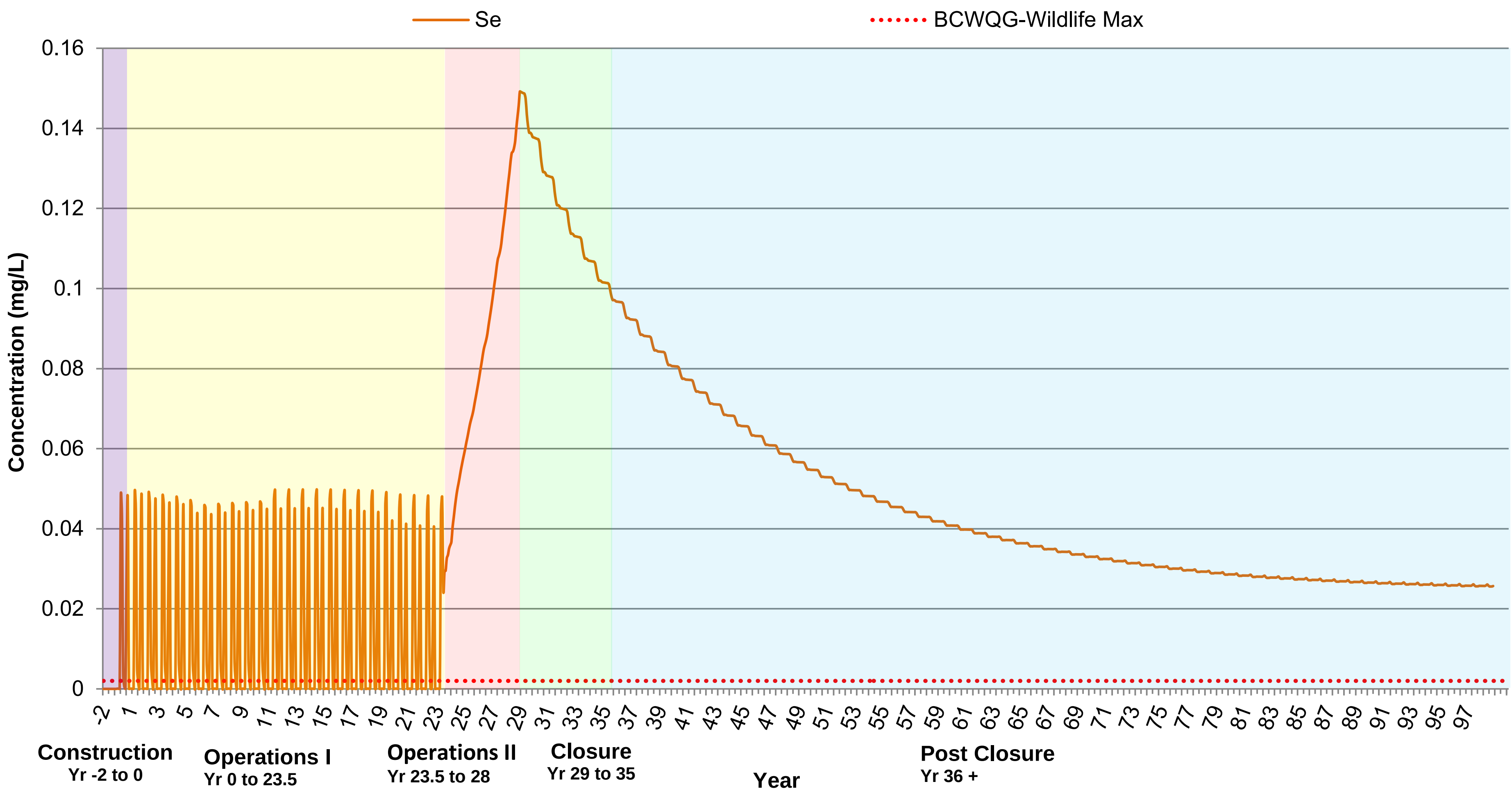
PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - OPEN PIT

Knight Piésold CONSULTING

P/A NO. VA101-458/17 | REF. NO. VA14-0825

FIGURE A2.Hg REV 0

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - OPEN PIT

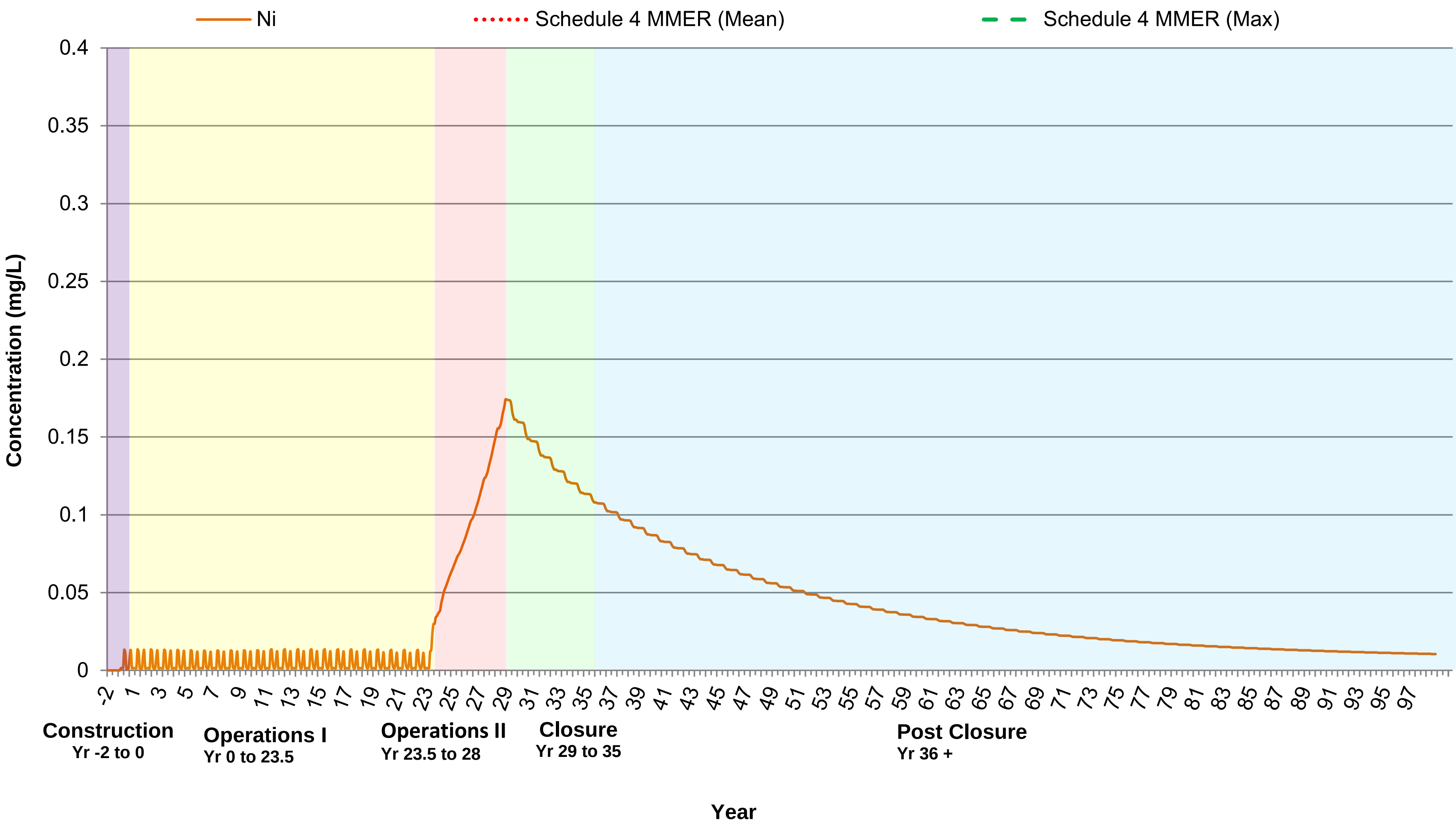
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Se

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE MMER MEAN (0.5 mg/L) AND MMER MAX (1.0 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - OPEN PIT

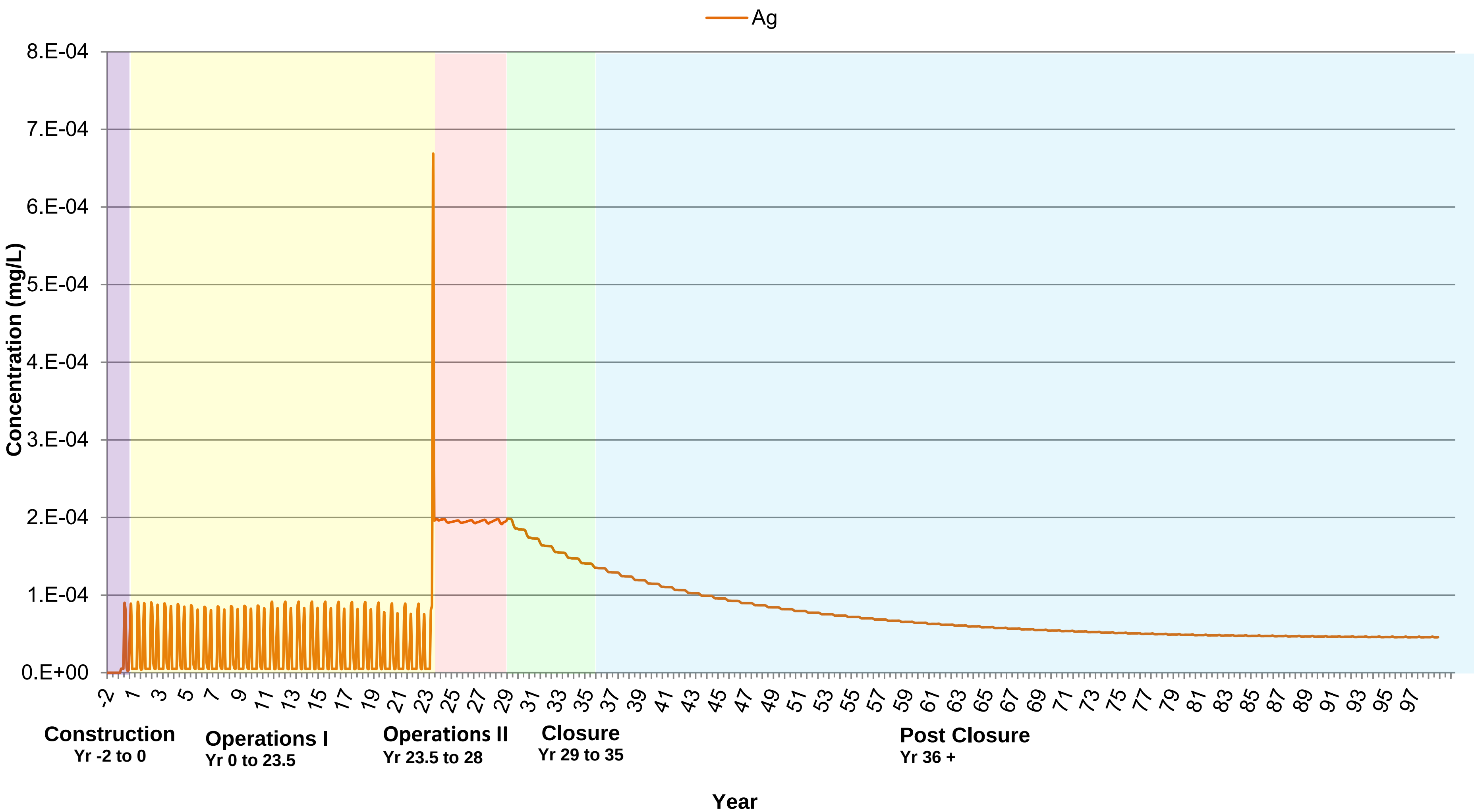
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Ni

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - OPEN PIT

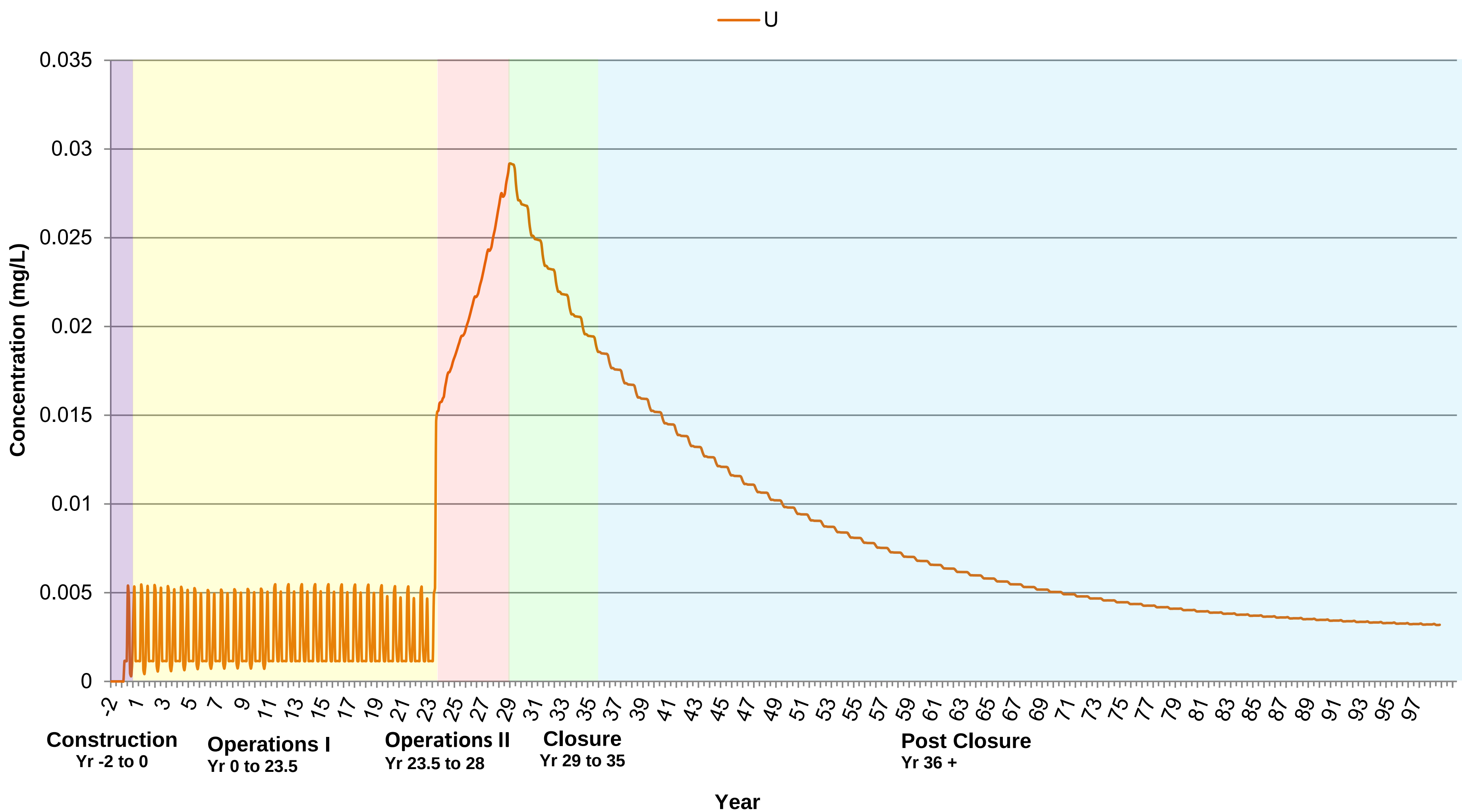
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Ag

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - OPEN PIT

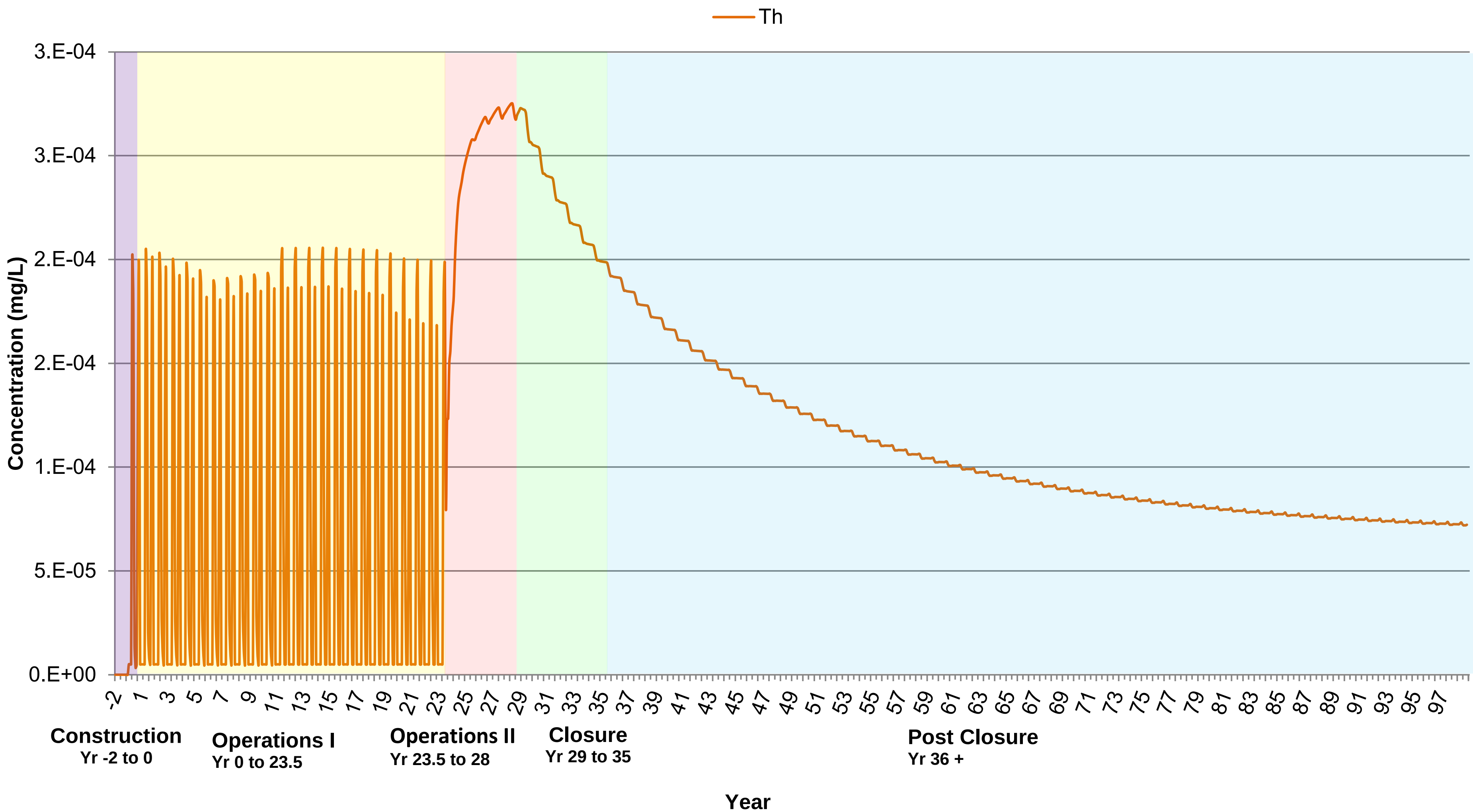
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.U

REV 0



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.

HARPER CREEK MINING CORP.

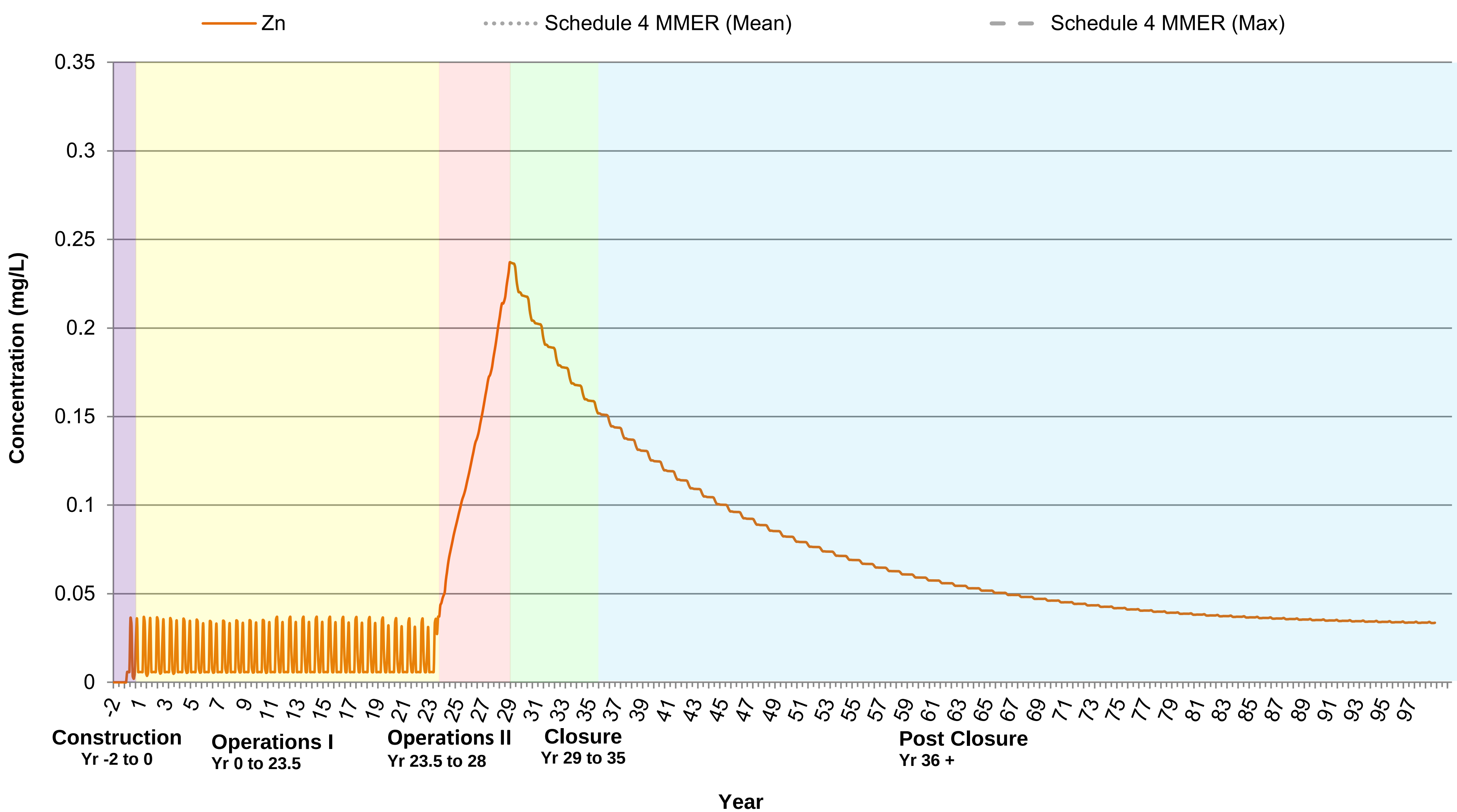
HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - OPEN PIT

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-458/17	VA14-0825	
FIGURE A2.Th		REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB



NOTES:

1. DURING OPERATIONS II WATER BEGINS ACCUMULATING IN THE OPEN PIT.
2. WATER IS PUMPED FROM THE OPEN PIT TO THE TMF STARTING AT YEAR 36.
3. ALL GUIDELINES ARE FIXED VALUES.
4. THE MMER MEAN (0.5 mg/L) AND MMER MAX (1.0 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-0825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - OPEN PIT

Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-0825

FIGURE A2.Zn

REV 0

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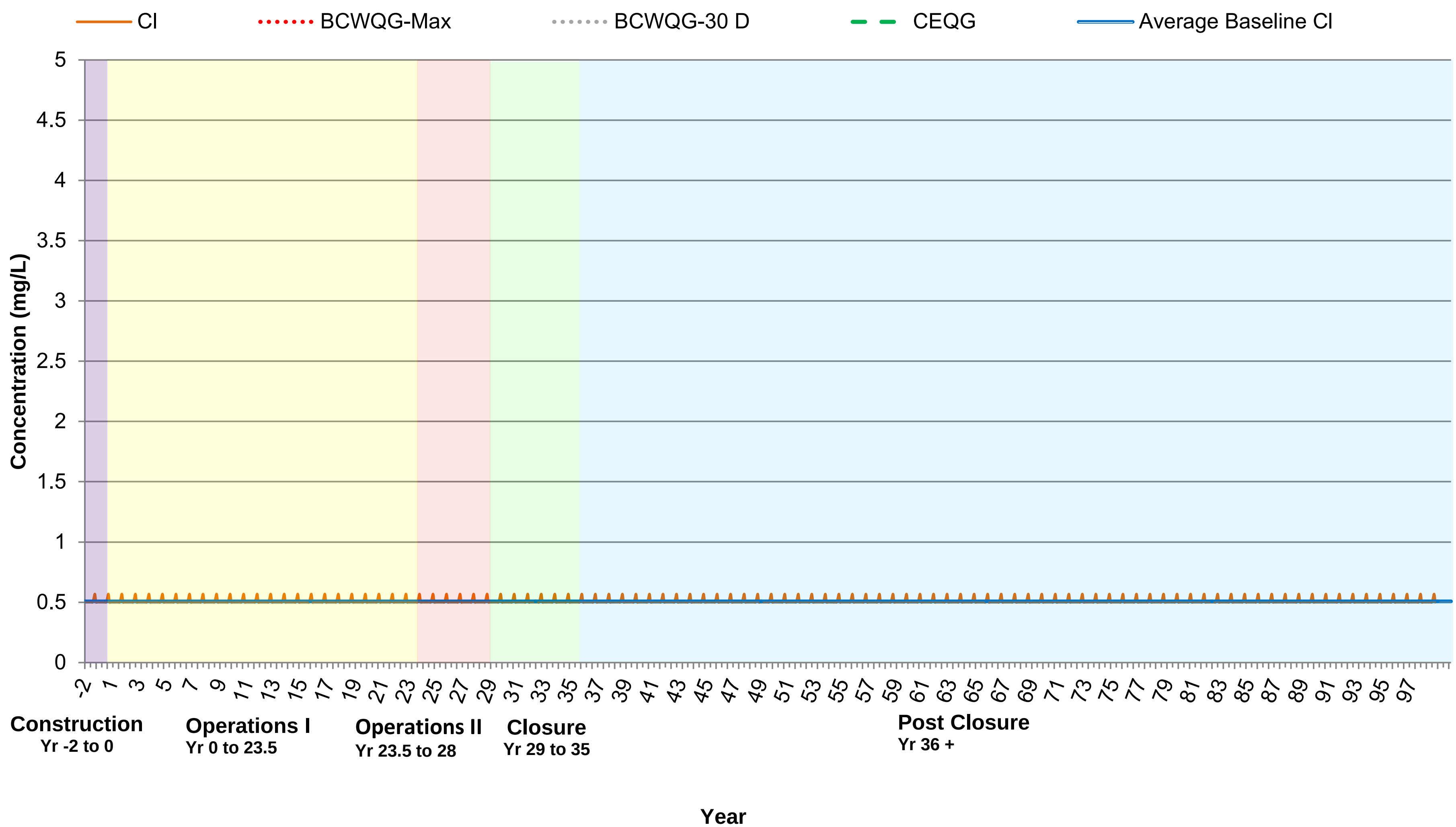
APPENDIX A3

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – P-CREEK

(Pages A3-1 to A3-30)



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. ALL GUIDELINES ARE NOT SHOWN: BCWQG-30 D (150 mg/L); BCWQG-MAX (600 mg/L); CEQG (120 mg/L AND 640 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

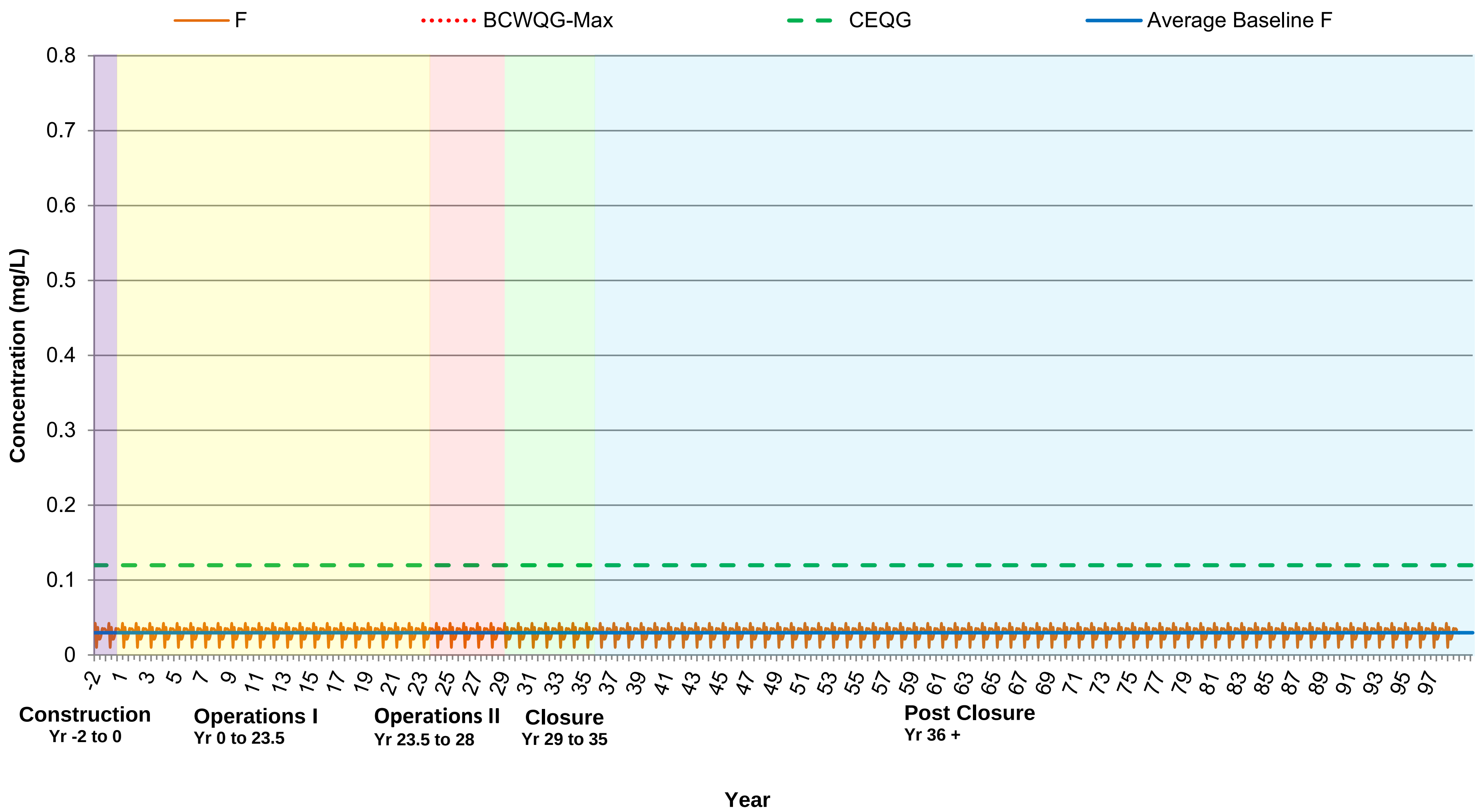
PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - P-CREEK

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE G3.CI REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB



NOTES:

1. THE BCWQG-MAX IS HARNDESS DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

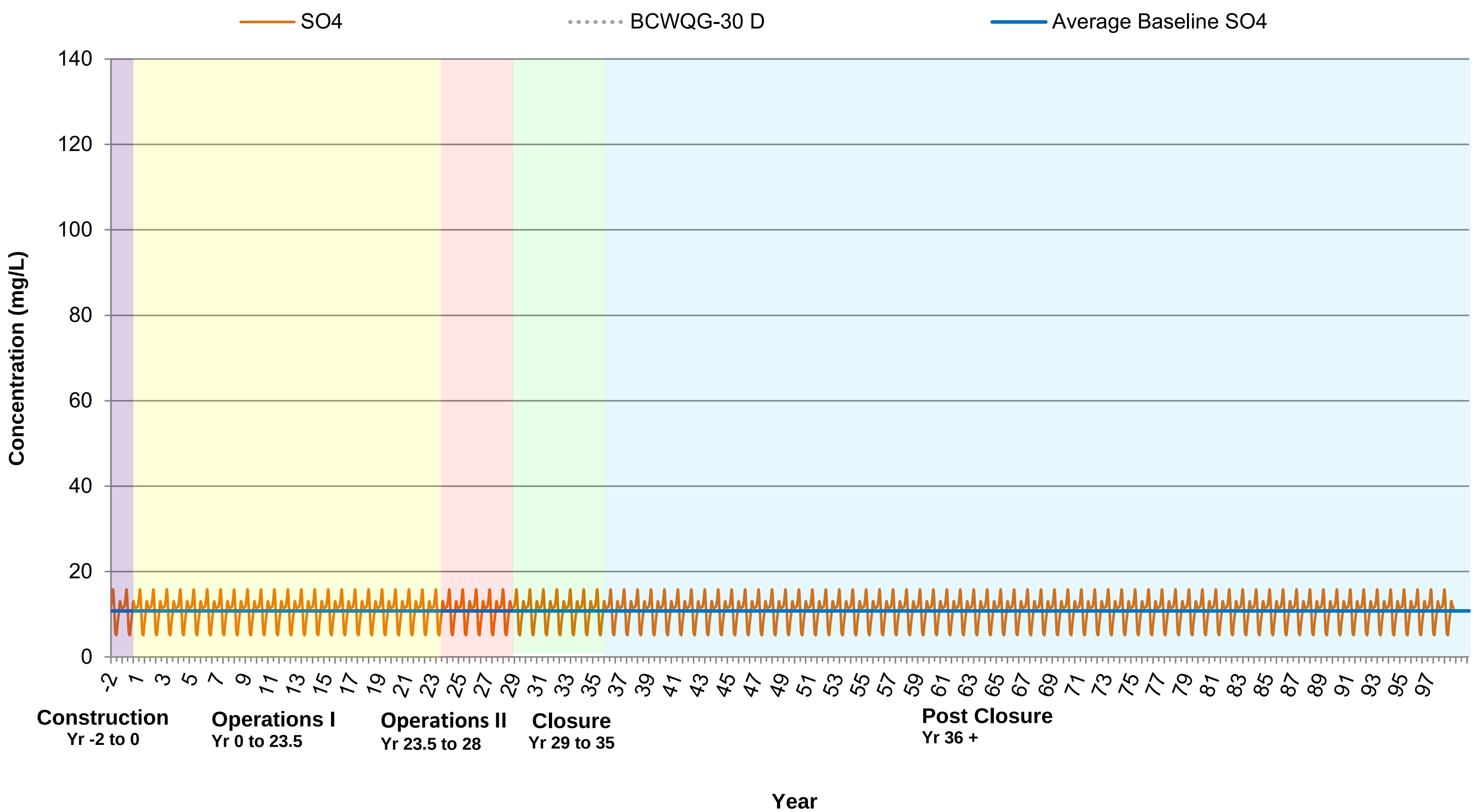
HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - P-CREEK

Knight Piésold CONSULTING

P/A NO. VA101-458/17 | REF. NO. VA14-01825

FIGURE G3.F REV 0



NOTES:

1. BCWQG-30 D IS HARDNESS DEPEDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - P-CREEK

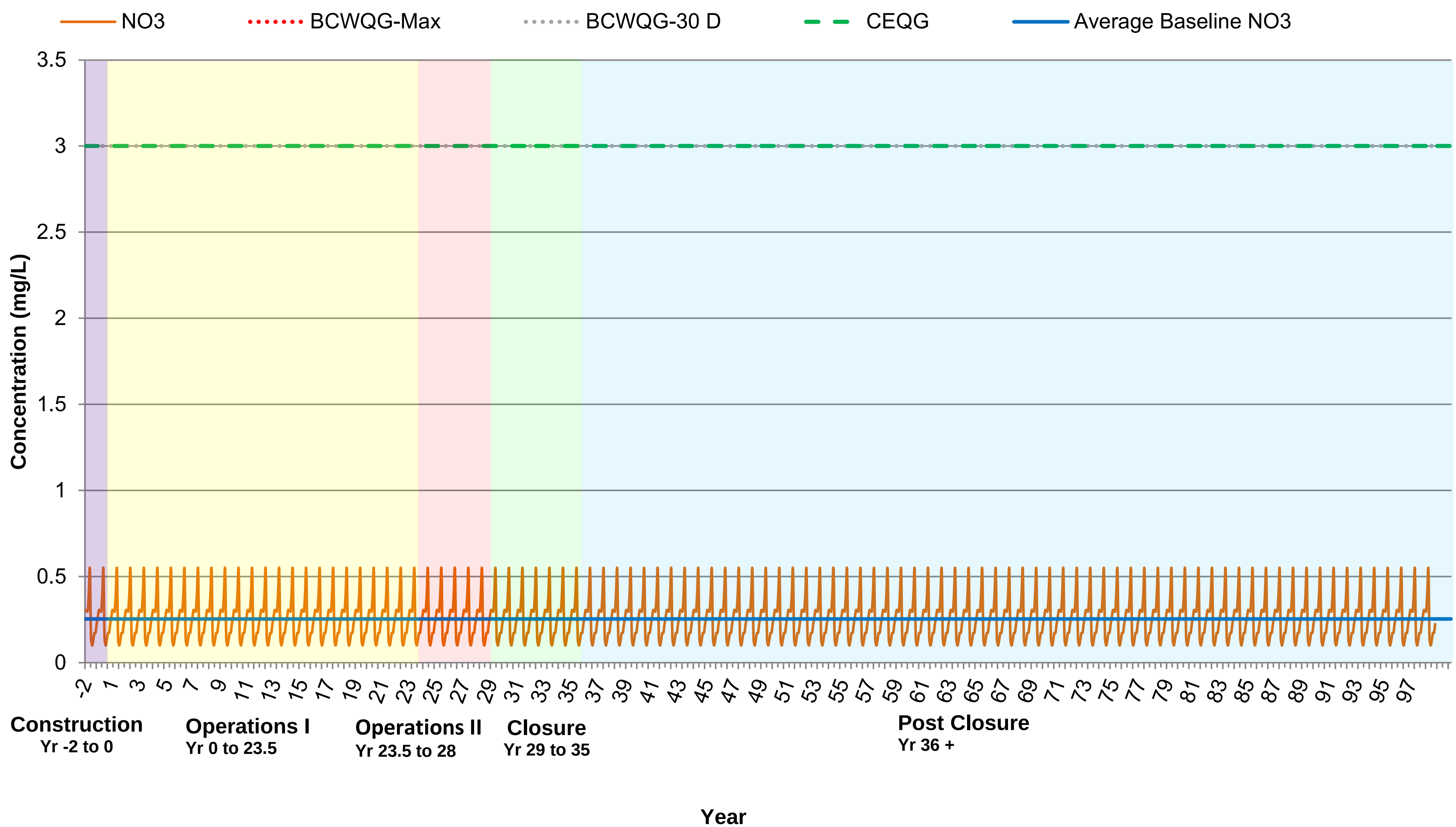
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.S04

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-MAX (32.8 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - P-CREEK

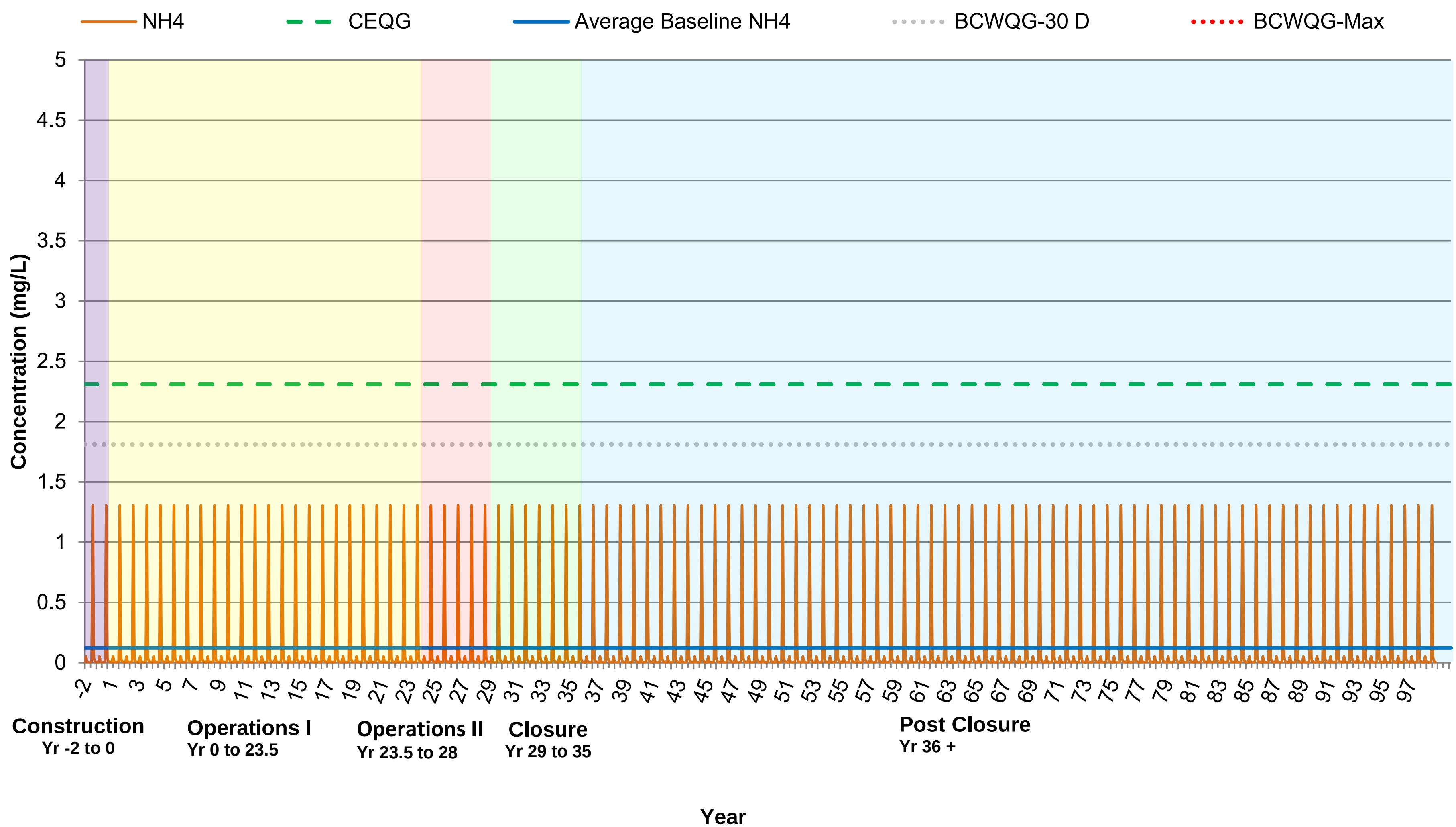
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.NO3

REV 0



NOTES:

1. THE BCWQG-30 D IS VALID FOR ONLY 6.5≤pH<9 AND 0°C≤T≤20°C.
2. THE BCWQG-MAX (20.15 mg/L) VALID FOR 6.5≤pH<9 IS NOT SHOWN.
3. THE CEQG IS TO BE USED WITH CAUTION FOR WATER WITH T<5°C AND pH>9.
4. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - P-CREEK

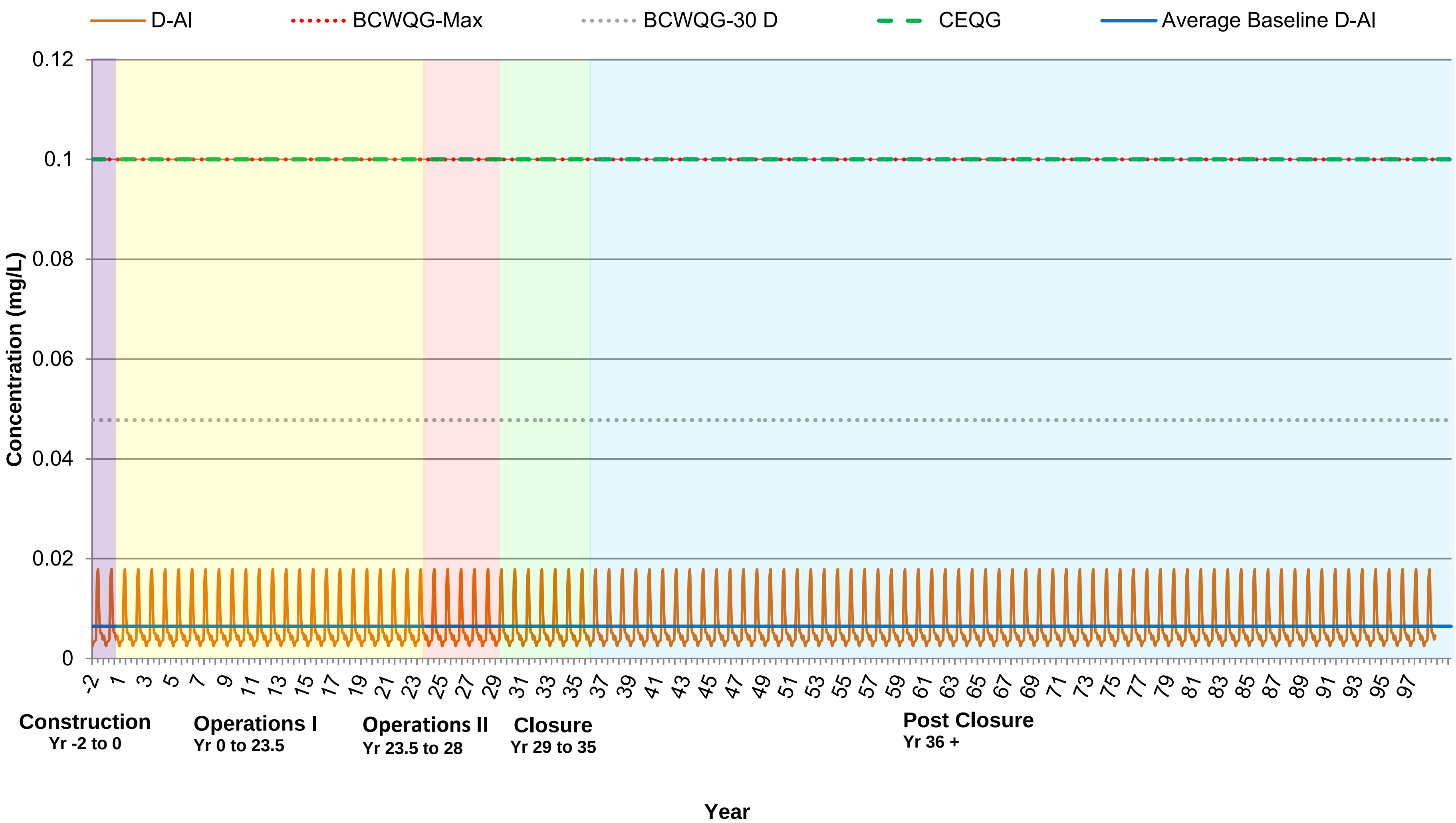
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.NH4

REV 0



NOTES:

1. ALL GUIDELINES ARE pH-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE pH USED TO CALCULATE GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED ALUMINUM CONCENTRATIONS - P-CREEK

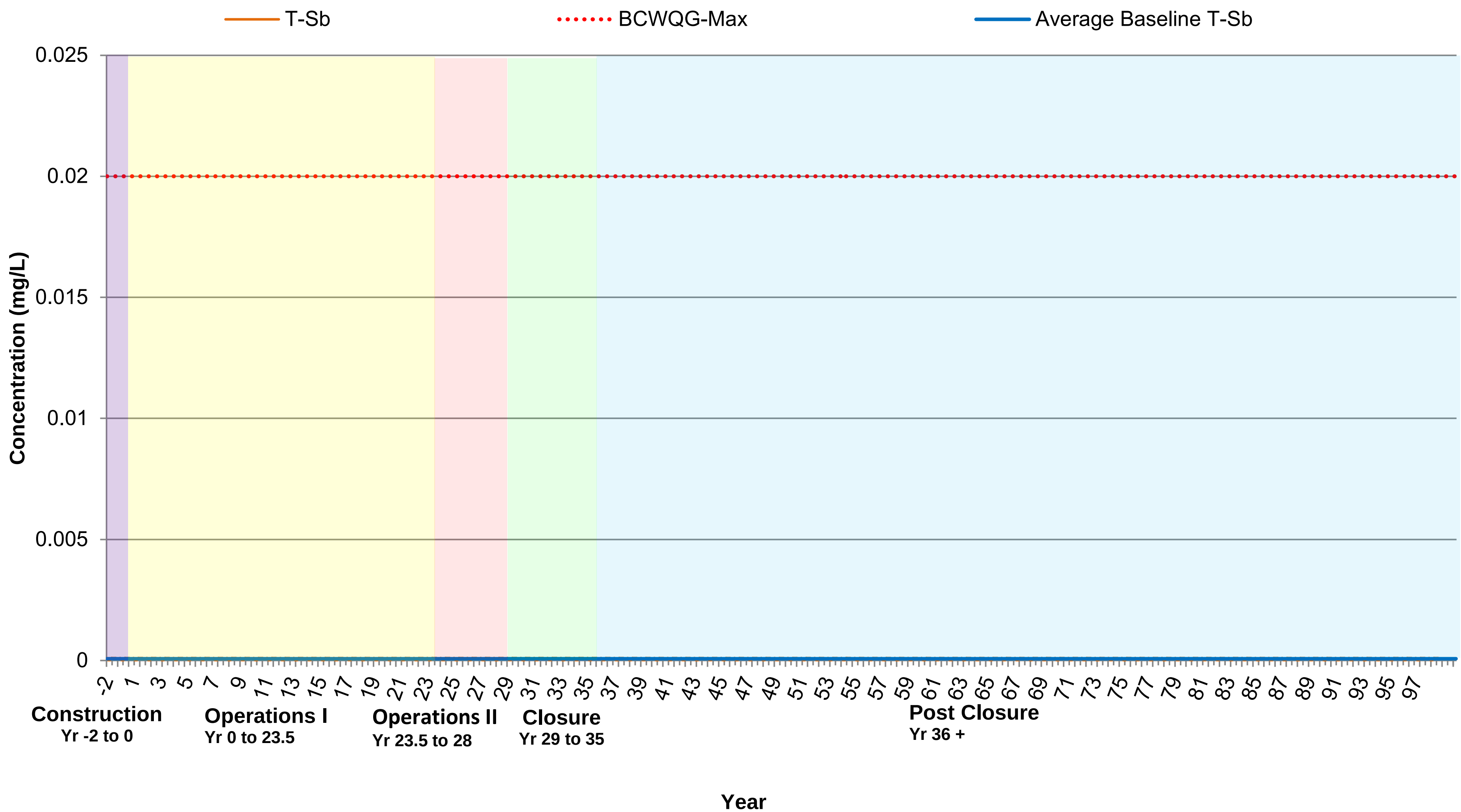
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Al

REV 0



NOTES:

1. THE BCWQG IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - P-CREEK

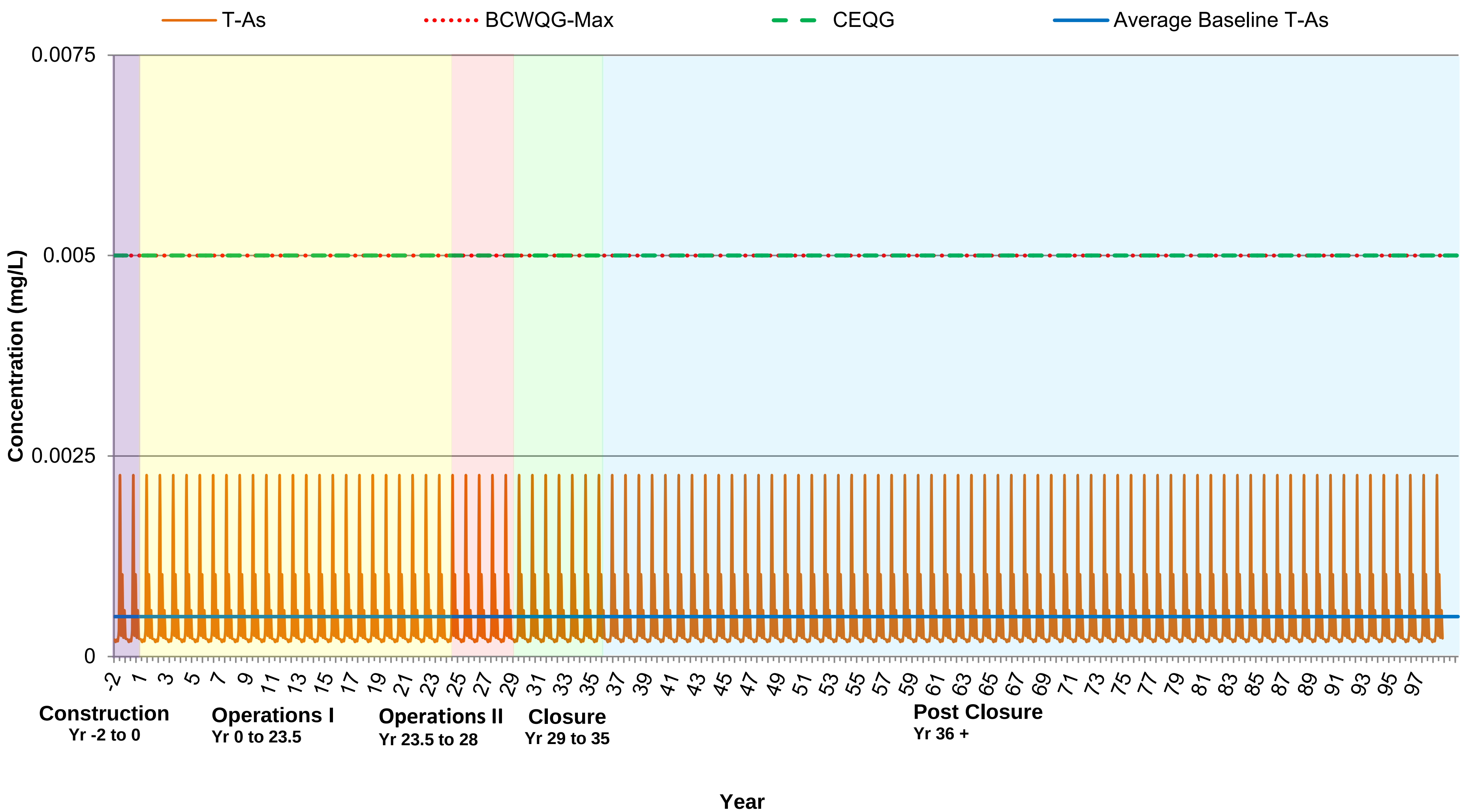
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Sb

REV 0



NOTES:

1. THE BCWQG AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - P-CREEK

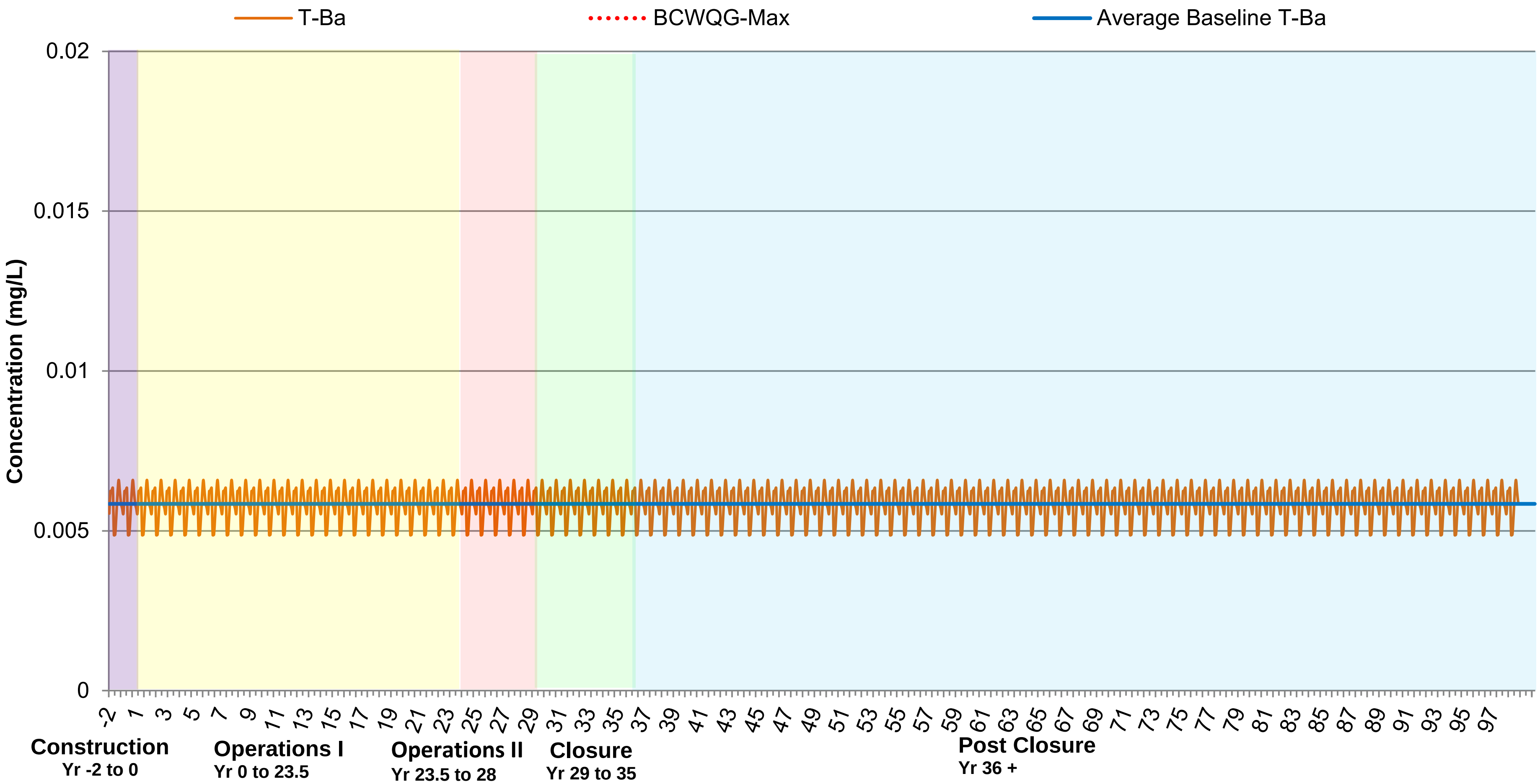
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.As

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-30 D (1 mg/L) AND BCWQG-MAX (5 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - P-CREEK

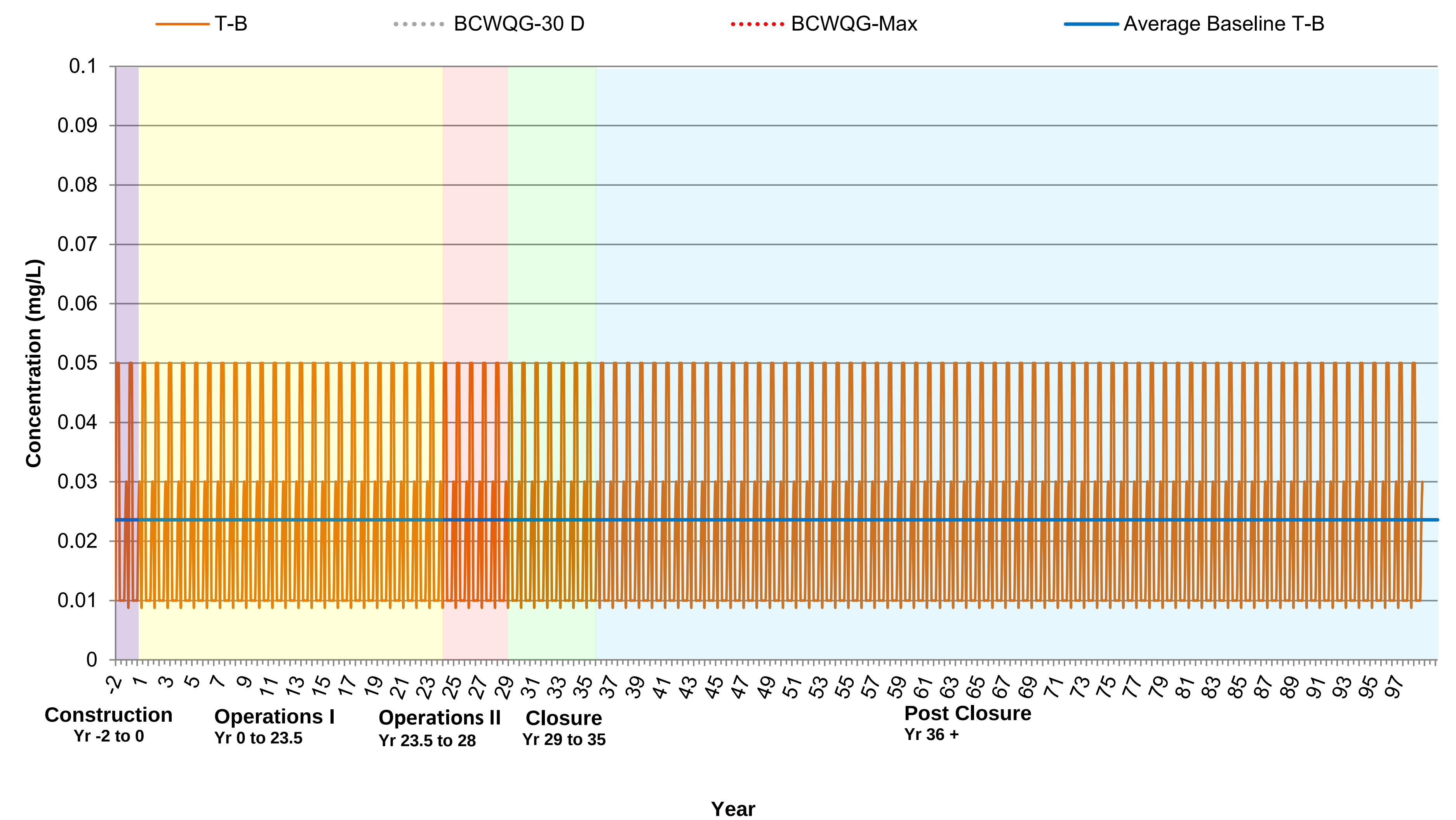
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Ba

REV 0



NOTES:

1. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
3. THE BCWQG-MAX (1.2 mg/L) IS NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

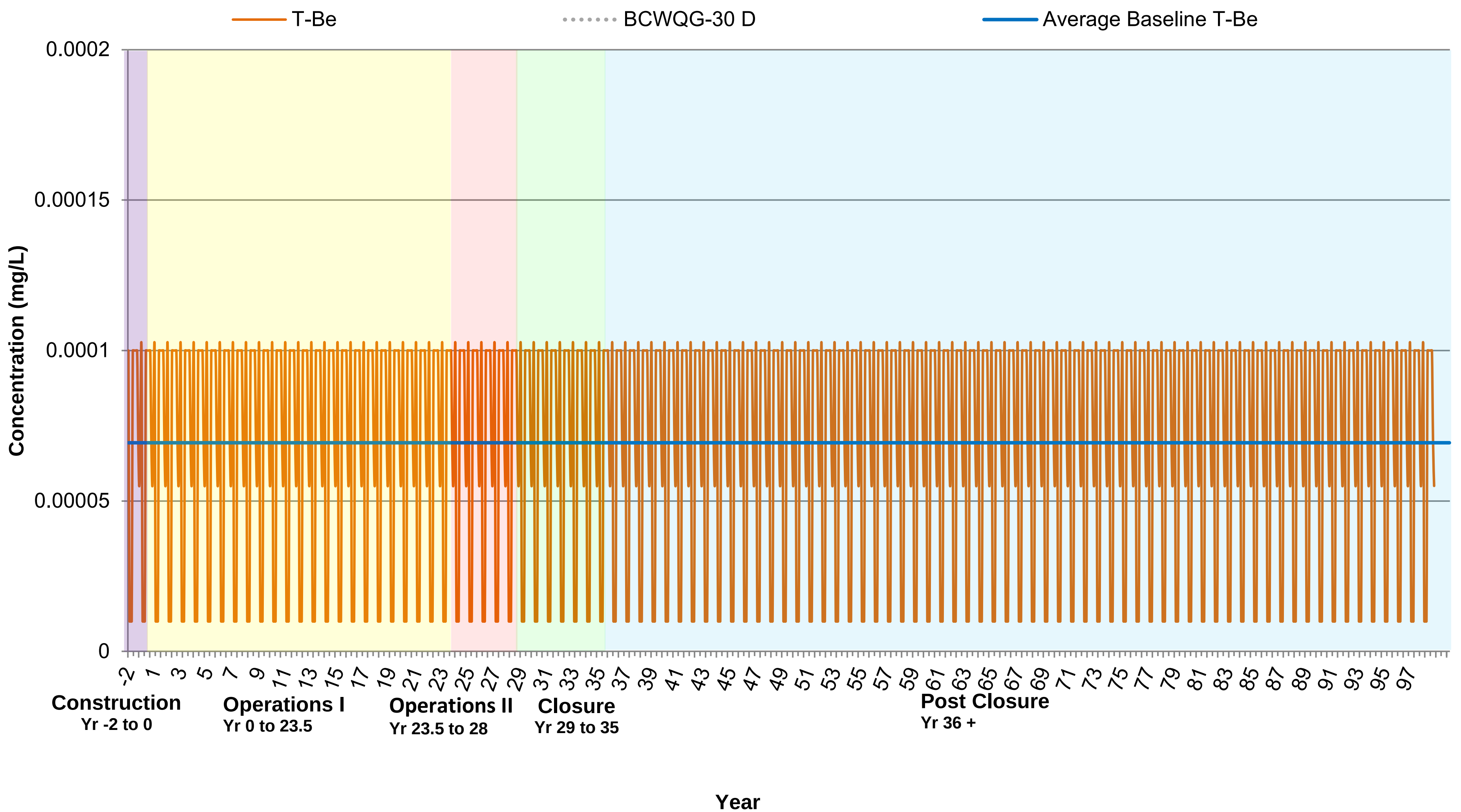
PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - P-CREEK

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE G3.B REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-30 D (0.0053 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BERYLLIUM CONCENTRATIONS - P-CREEK

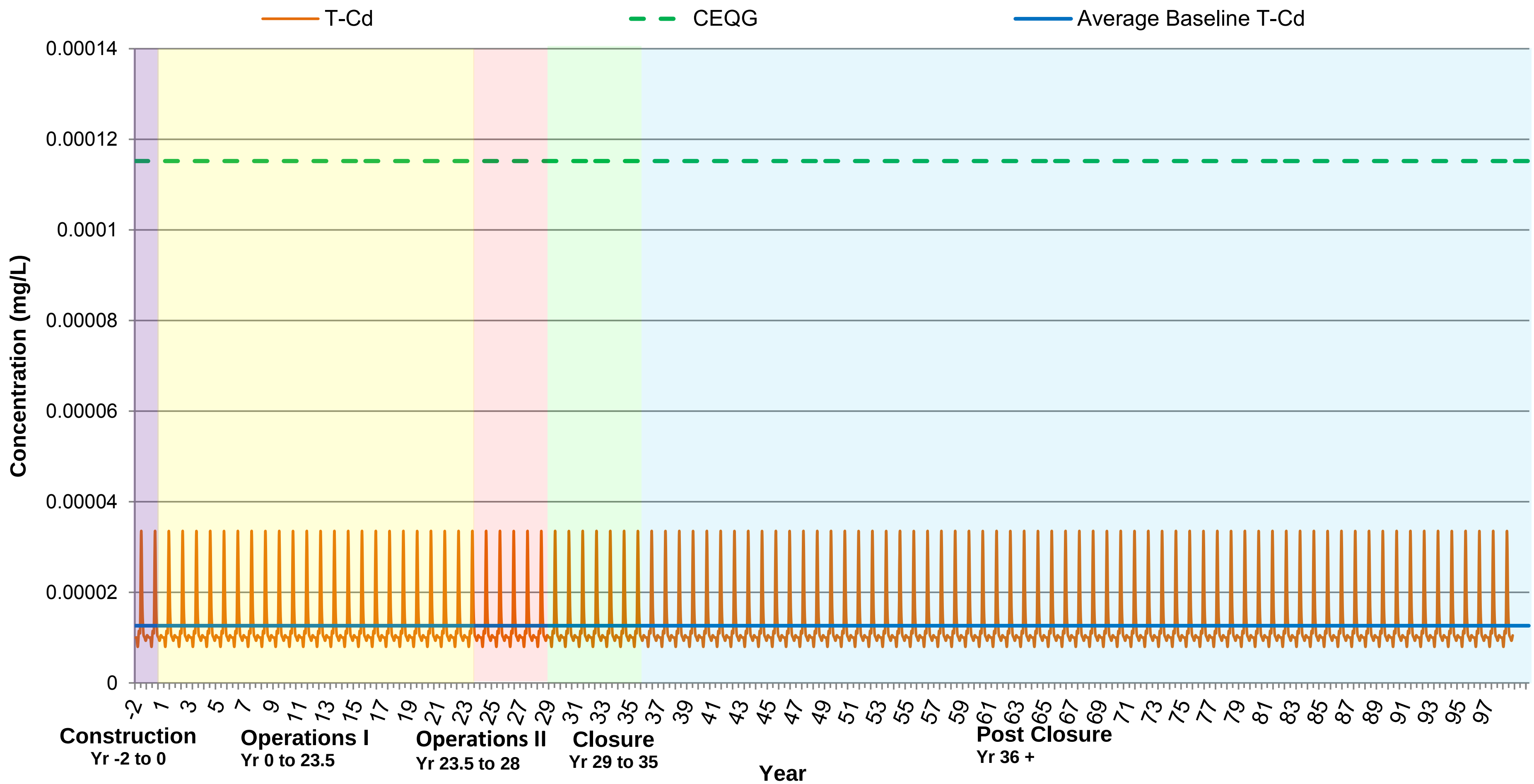
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Be

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. THE BCWQG ARE DRAFT GUIDELINES UNDER REVIEW (JUNE 2014).
3. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
4. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - P-CREEK

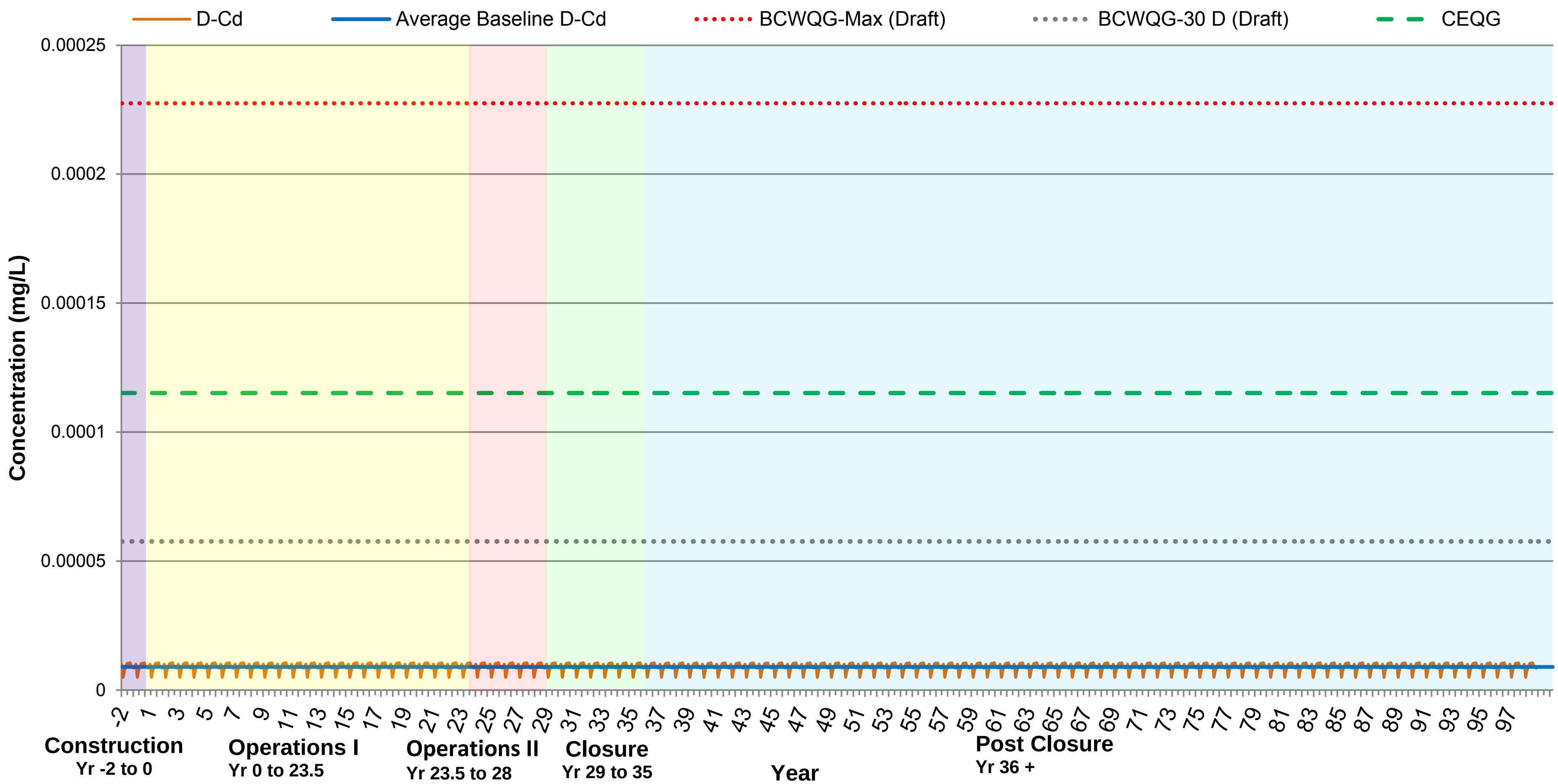
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Cd-T

REV 0



NOTES:

1. BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - P-CREEK

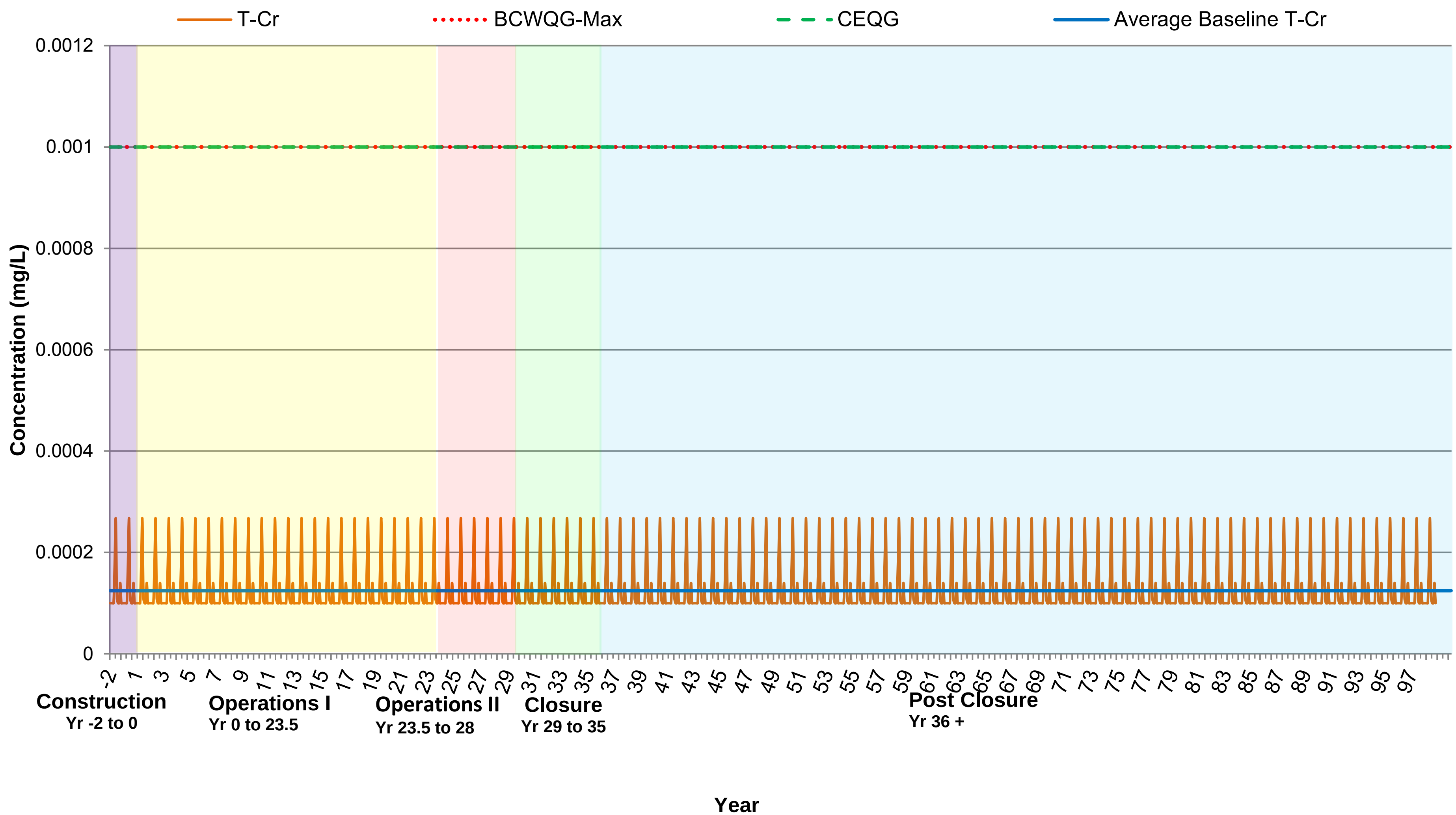
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Cd-D

REV 0



NOTES:

1. GUIDELINES ARE FOR CHROMIUM (IV), THE SPECIES MOST COMMON IN WELL OXYGENATED SURFACE WATERS.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - P-CREEK

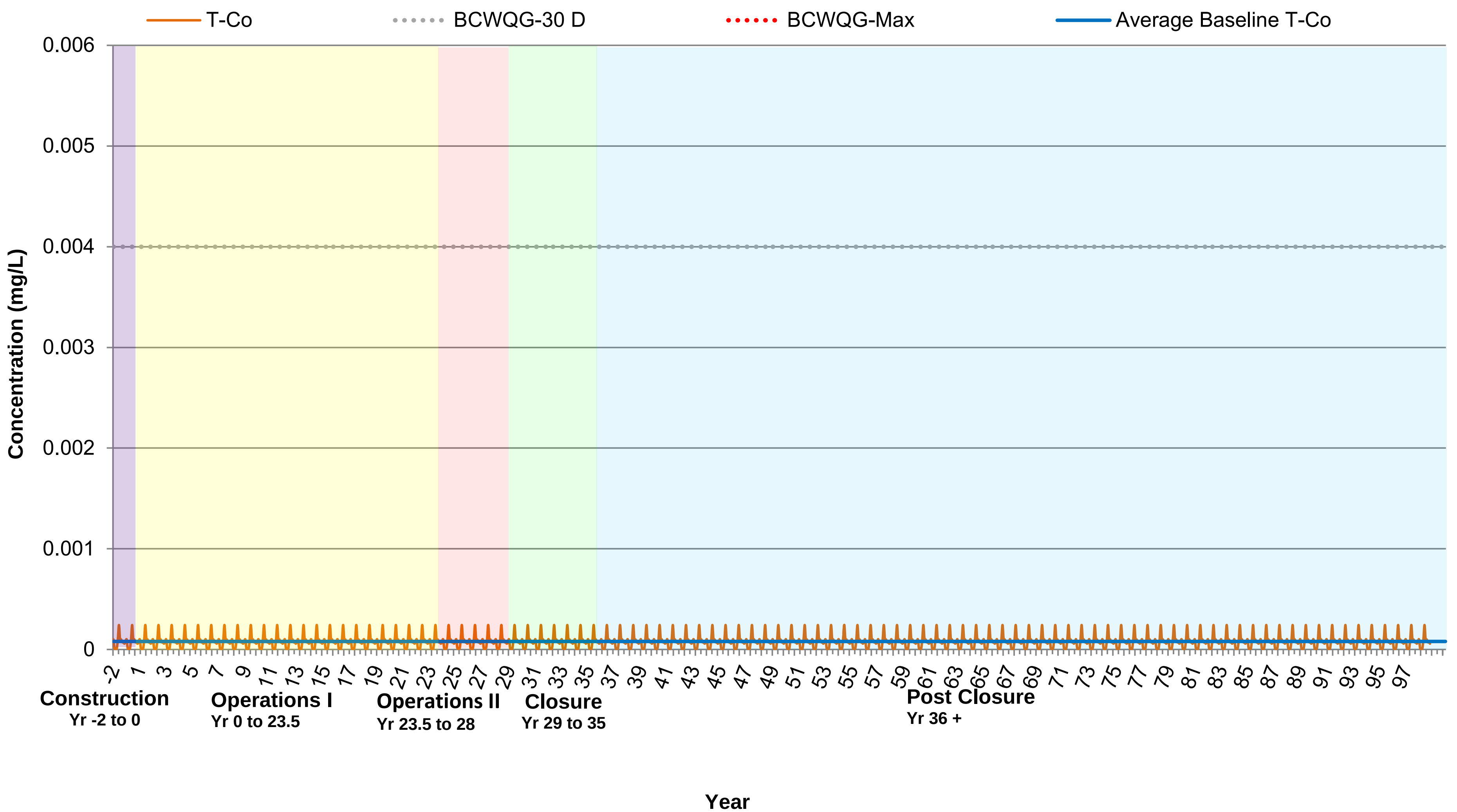
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Cr

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-MAX GUIDELINE (0.11 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - P-CREEK

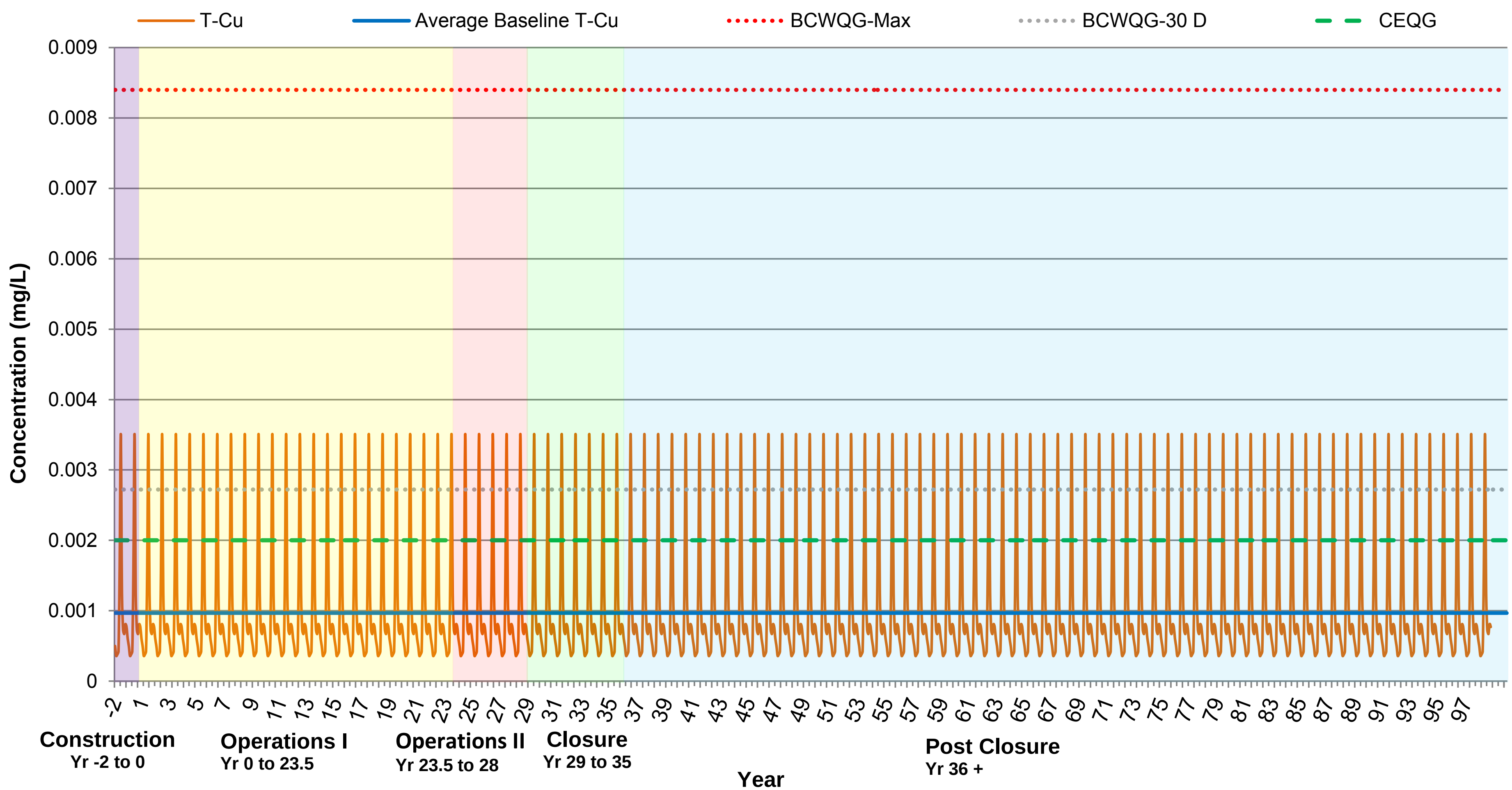
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Co

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - P-CREEK

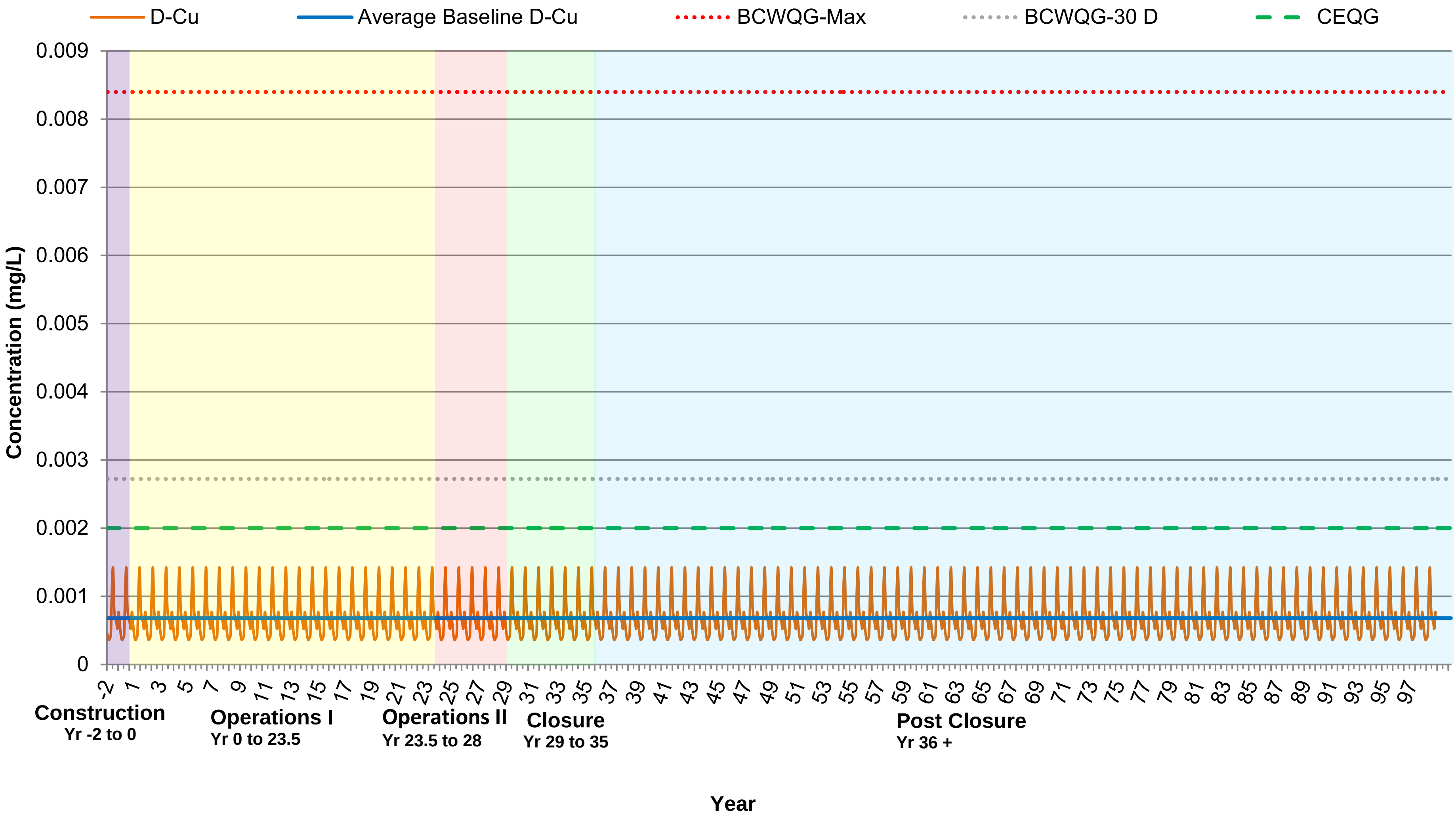
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Cu-T

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - P-CREEK

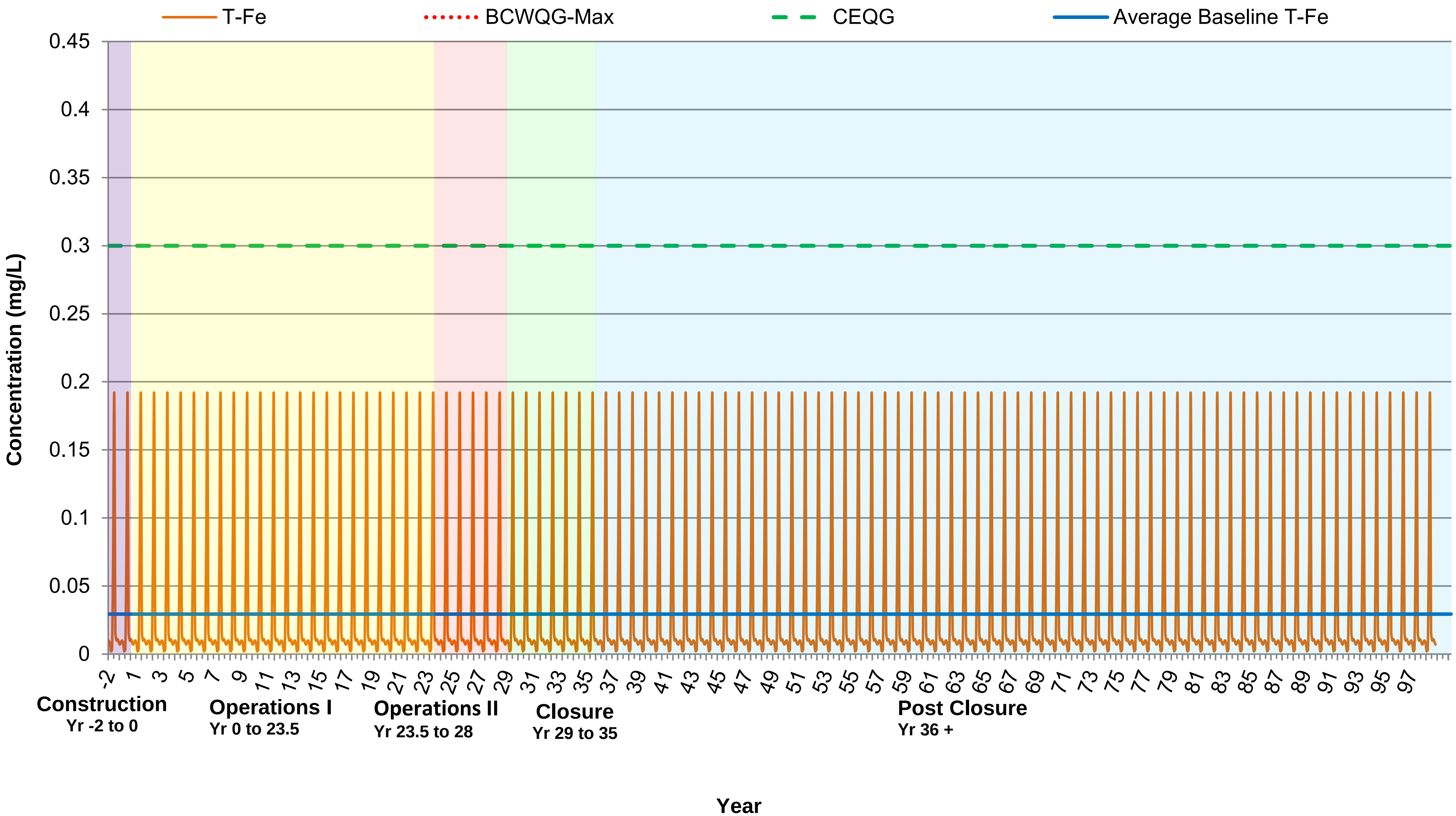
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Cu-D

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. BCWQG-MAX 1.0 mg/L IS NOT SHOWN ON GRAPH.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT TOTAL IRON CONCENTRATIONS - P-CREEK

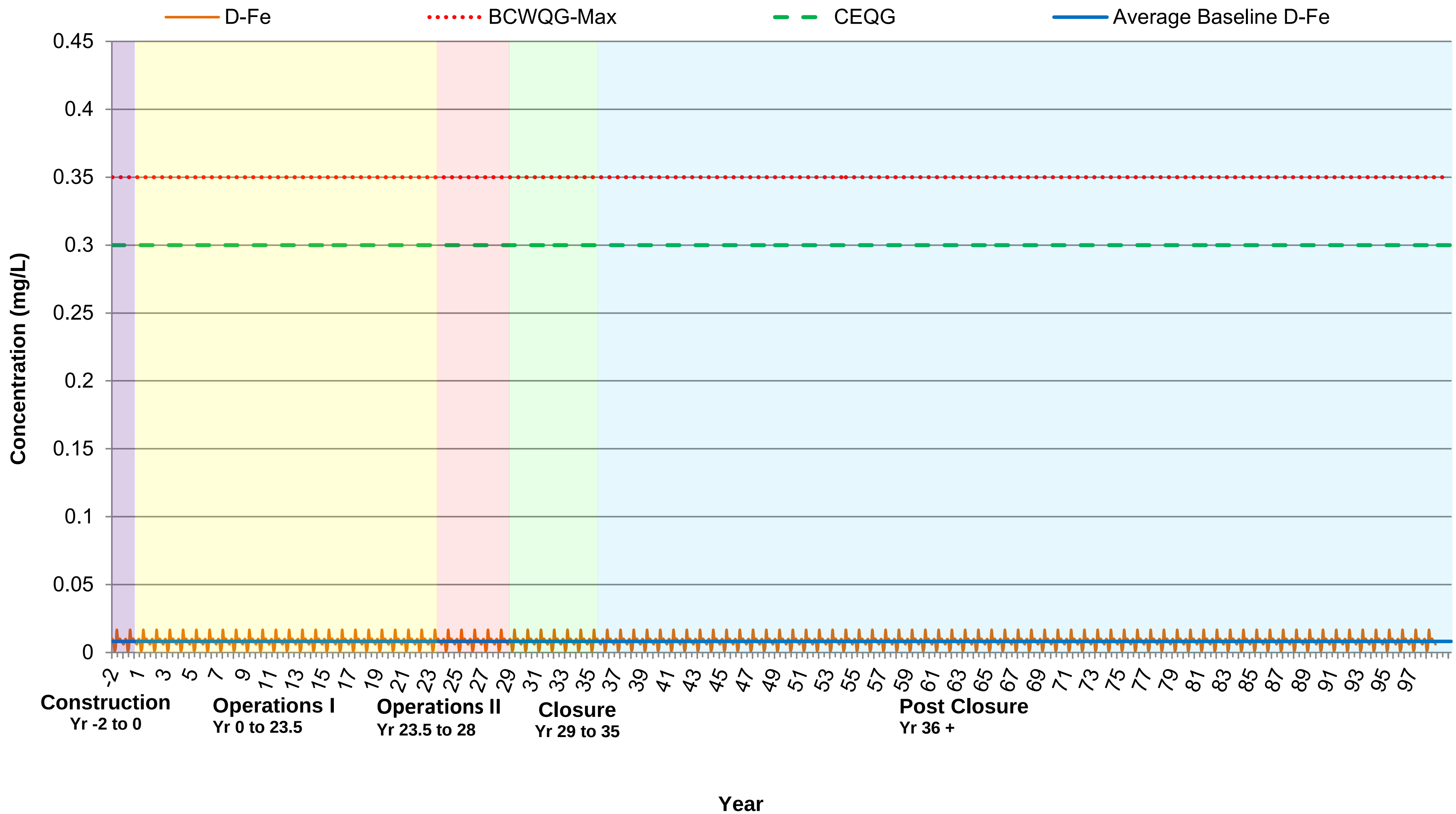
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Fe-T

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED IRON CONCENTRATIONS - P-CREEK

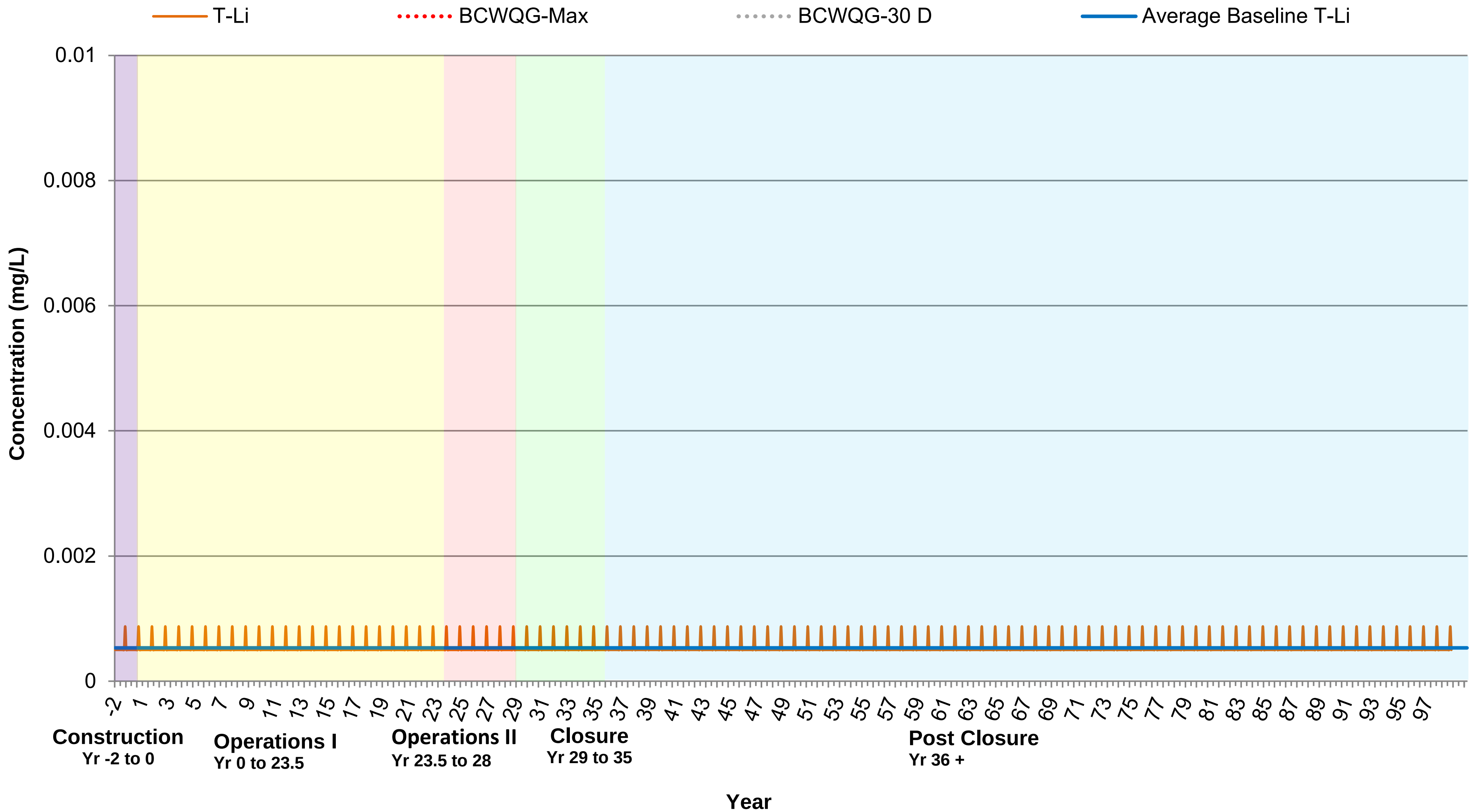
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Fe-D

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-30 D (0.096 mg/L) AND BCWQG-MAX (0.87 mg/L) ARE INTERIM (WORKING) AND ARE NOT SHOWN ON GRAPH.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LITHIUM CONCENTRATIONS - P-CREEK

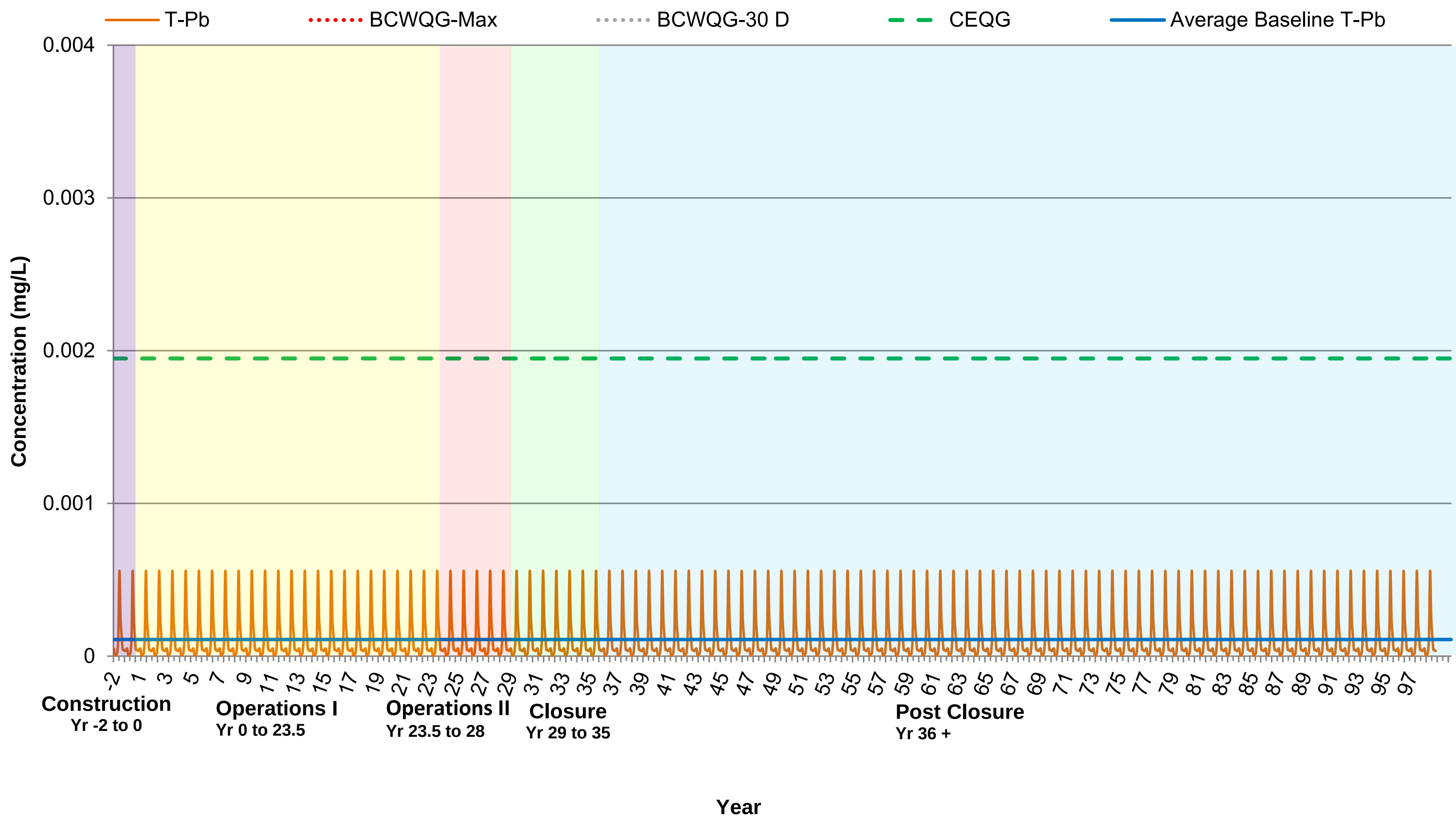
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Li

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
4. THE BCWQG-MAX (CALCULATED AT 0.011 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - P-CREEK

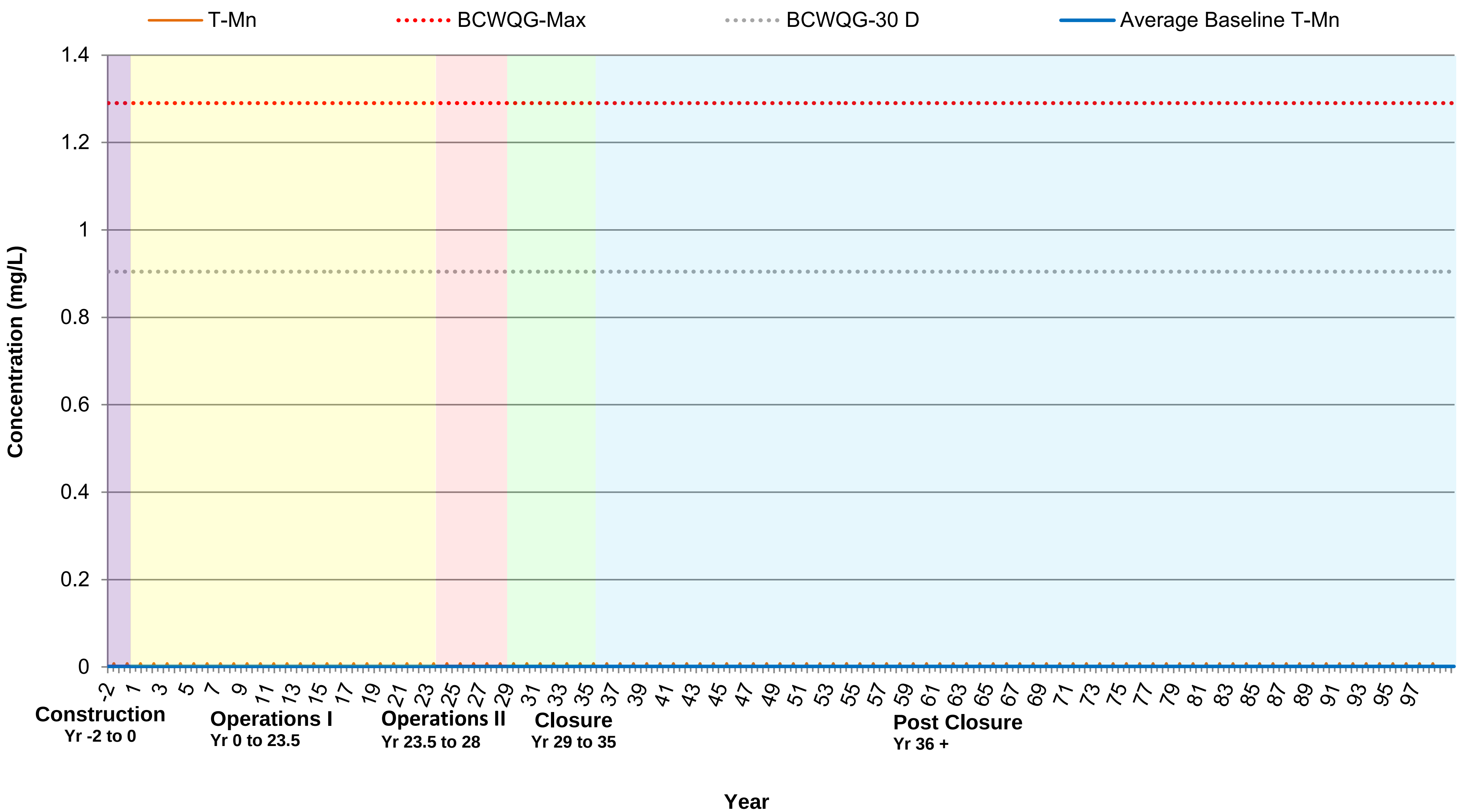
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Pb

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

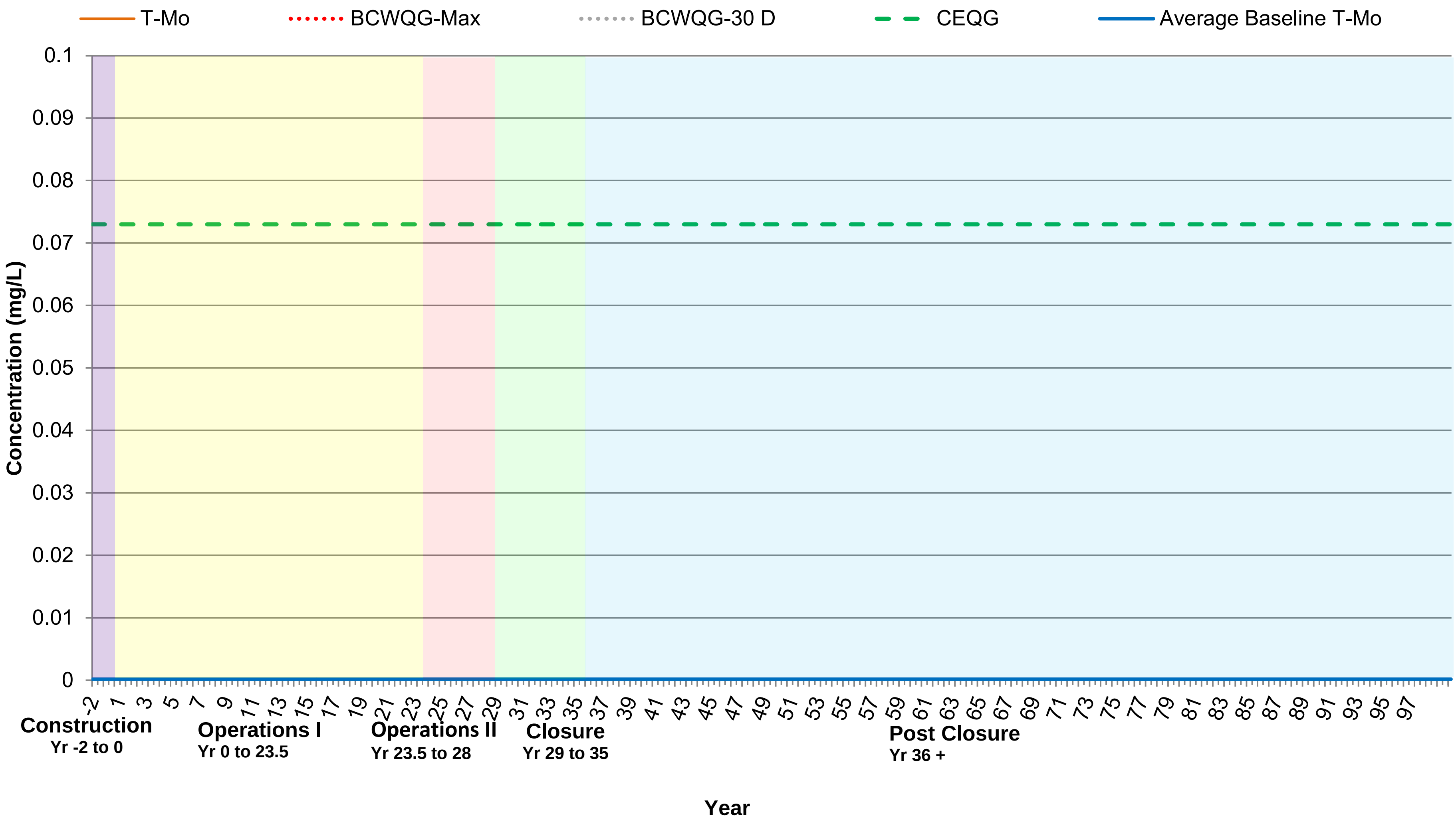
PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - P-CREEK

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE G3.Mn REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-MAX (2 mg/L) AND BCWQG-30 D (1 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

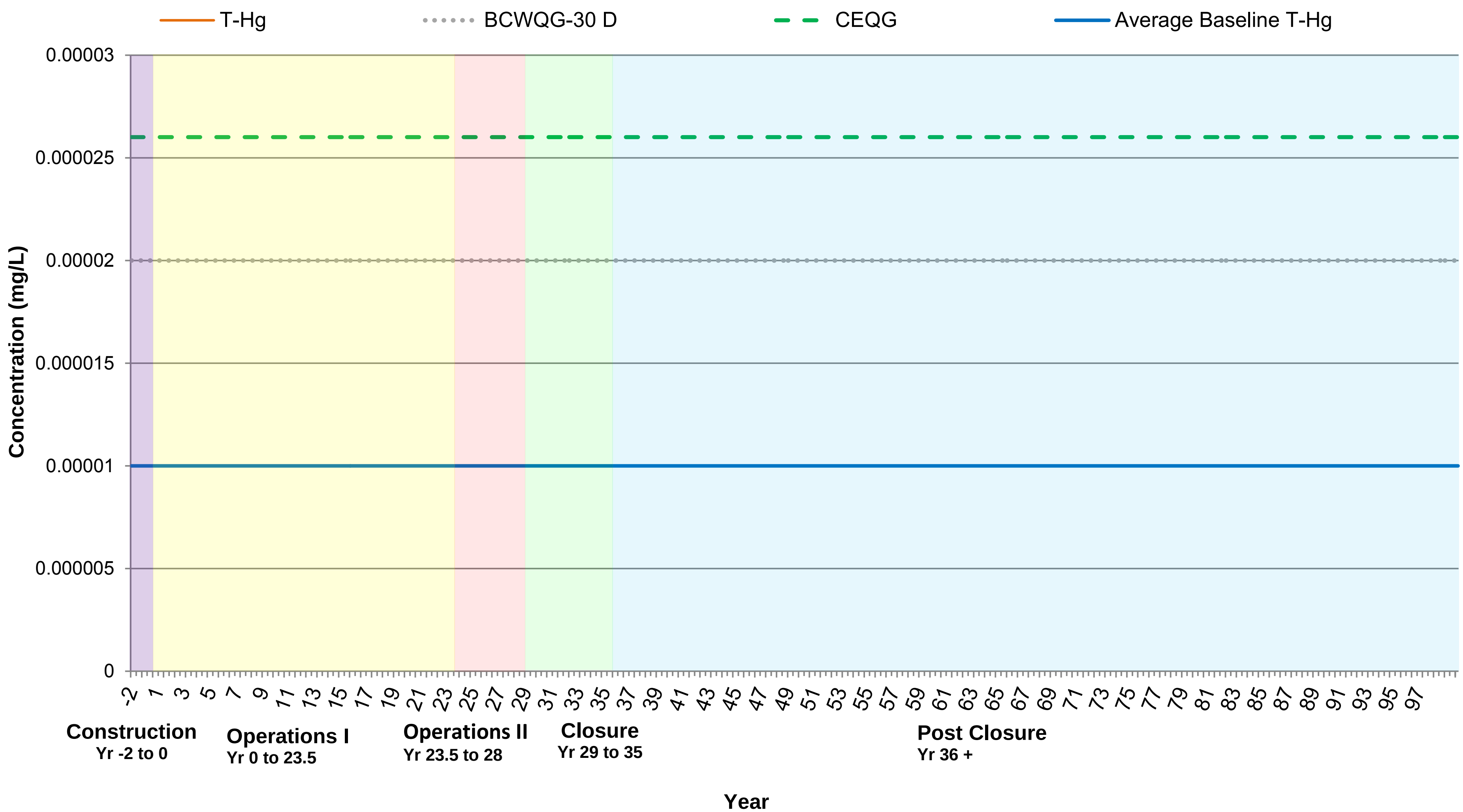
HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYBDENUM CONCENTRATIONS - P-CREEK

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-458/17	VA14-01825	
FIGURE G3.Mo		REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. BCWQG-30 D VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-Hg.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - P-CREEK

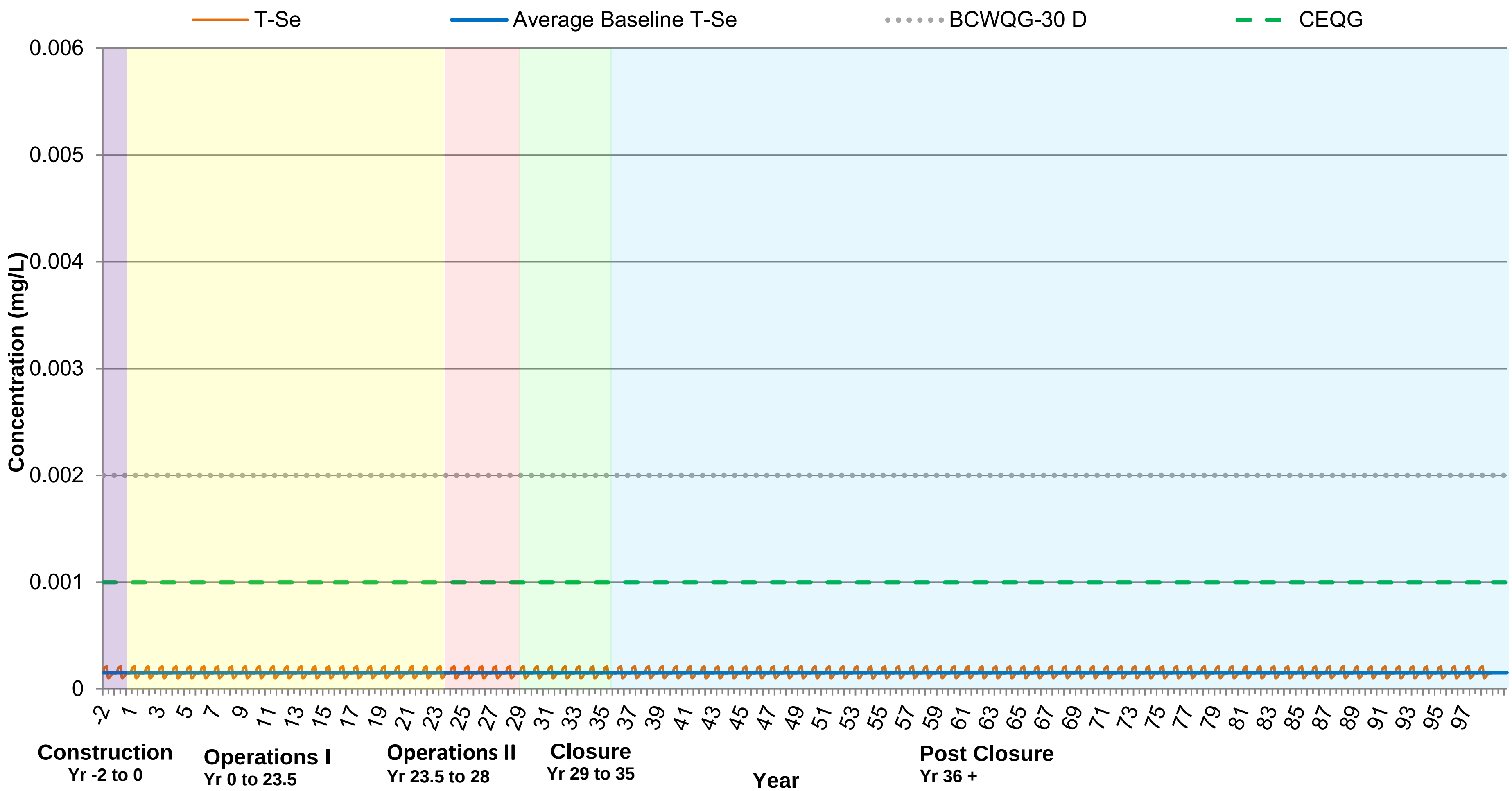
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Hg

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - P-CREEK

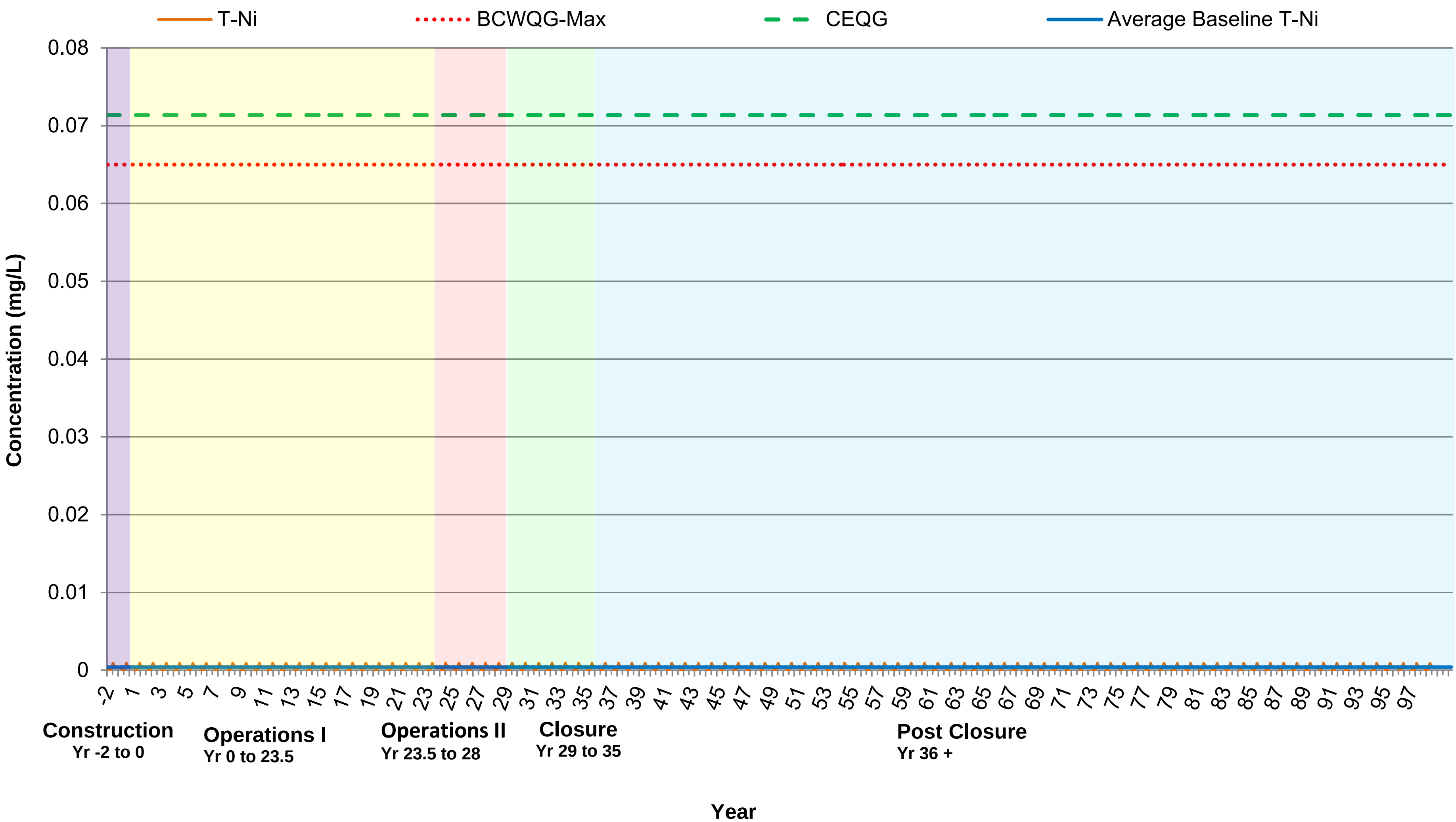
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Se

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - P-CREEK

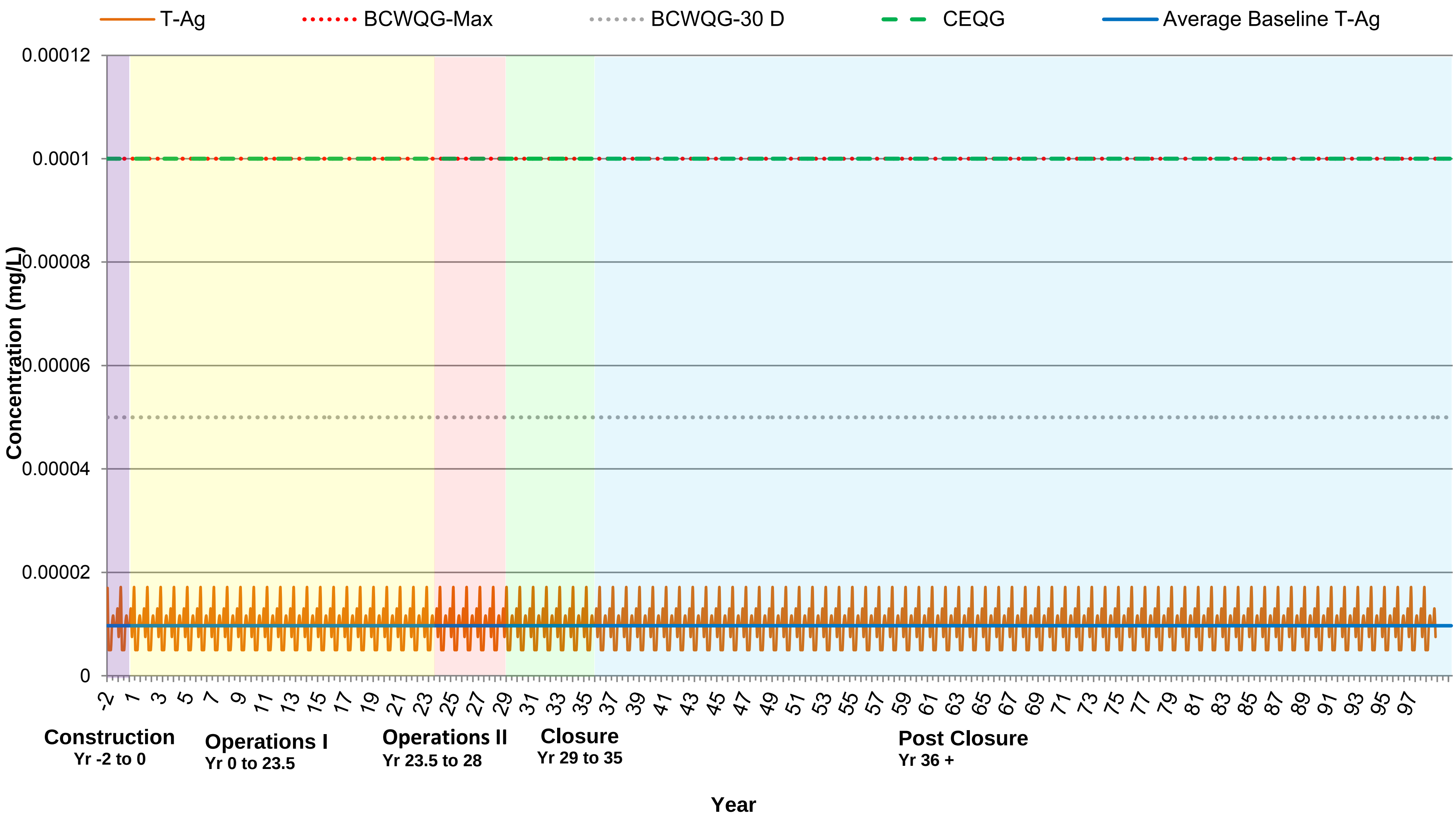
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Ni

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - P-CREEK

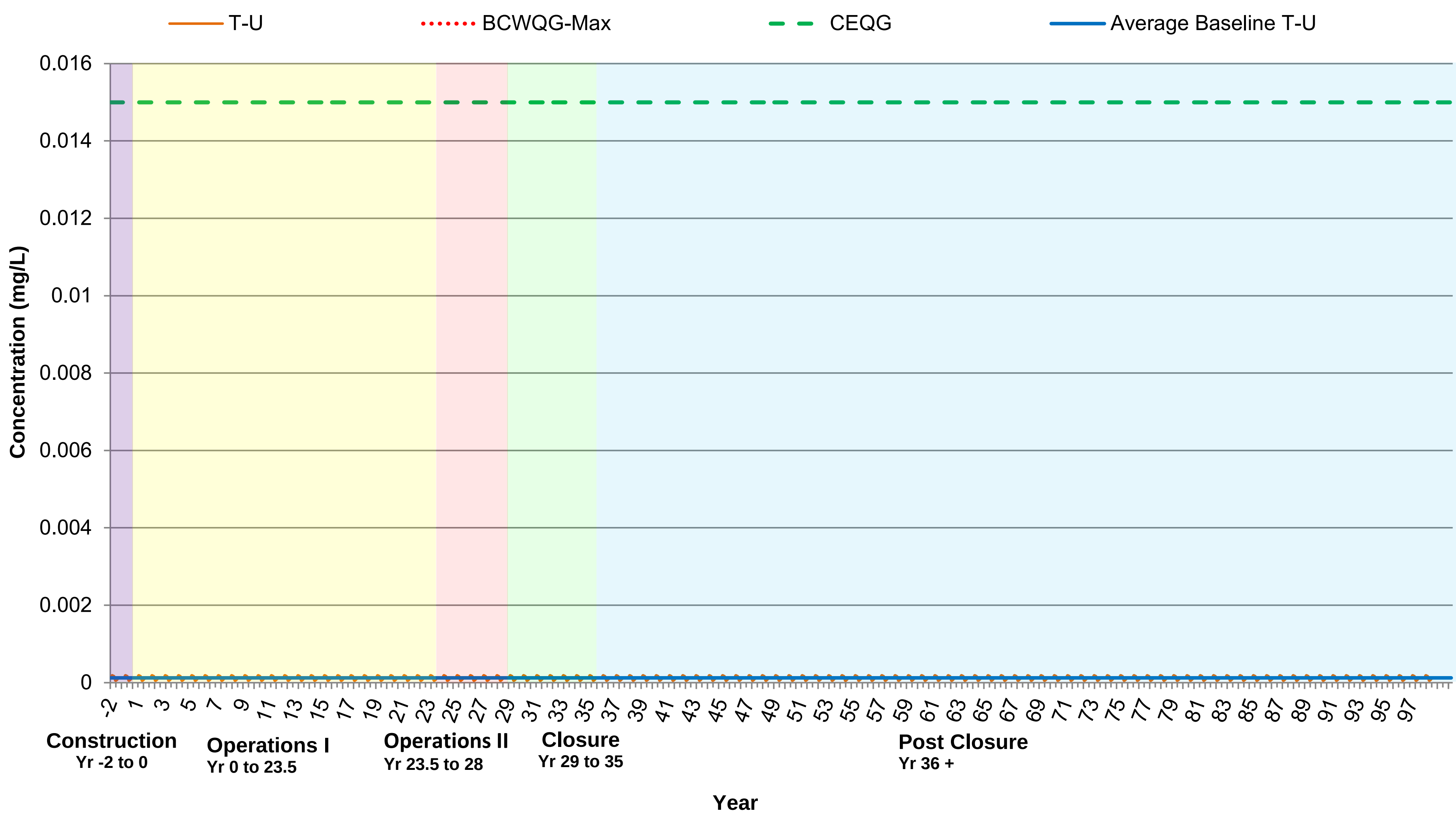
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Ag

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-MAX (0.3 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - P-CREEK

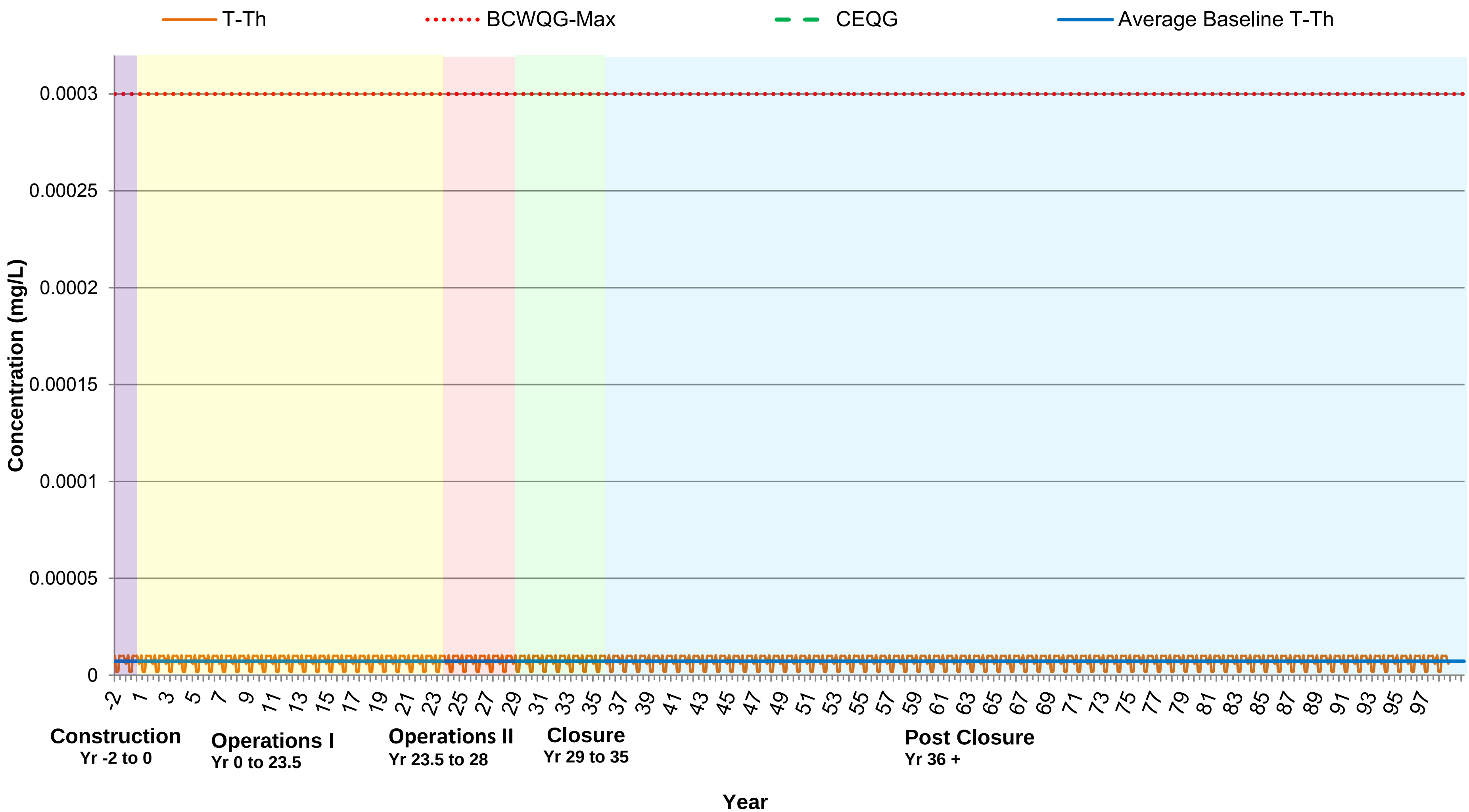
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.U

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE CEQG (0.0008 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - P-CREEK

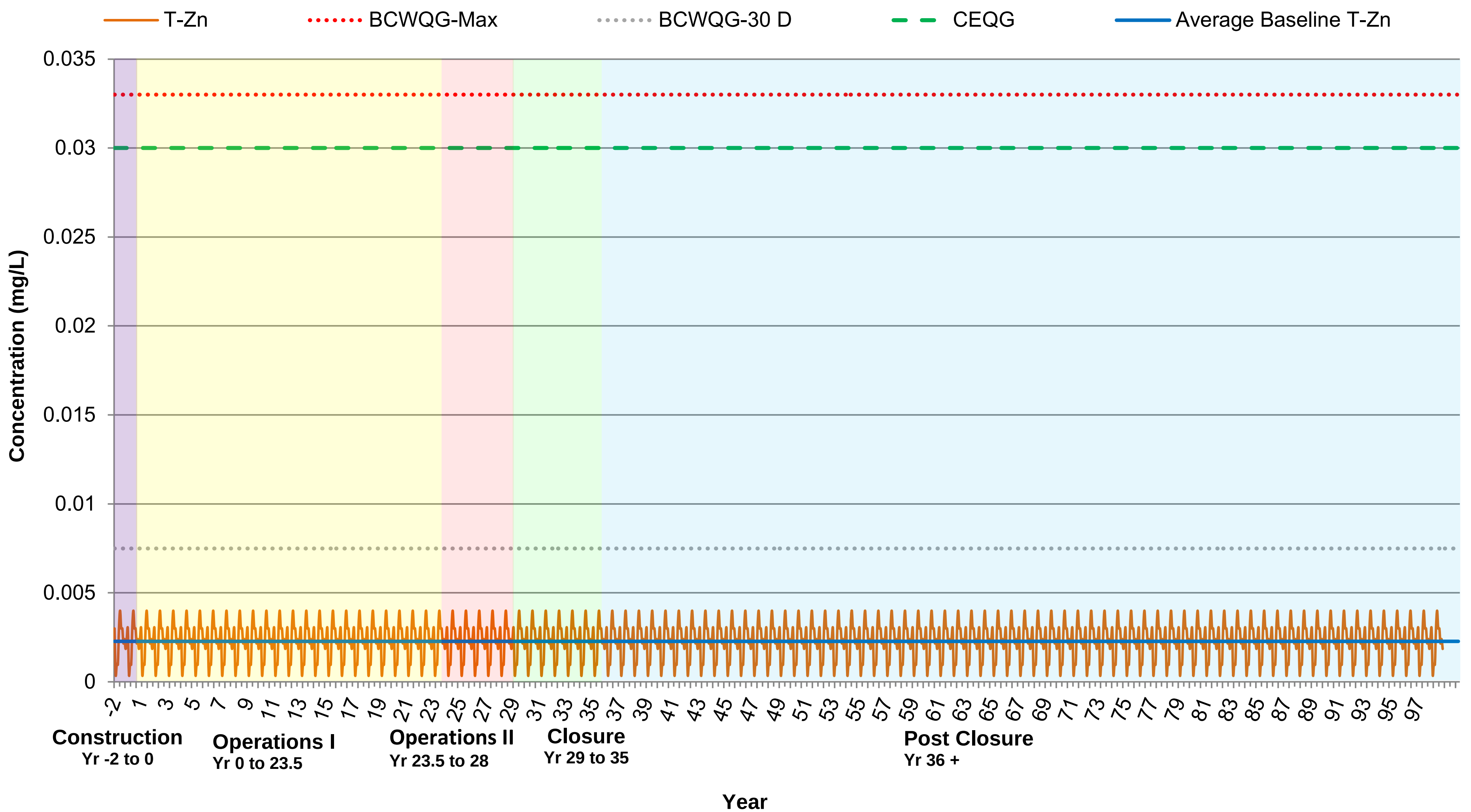
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Th

REV 0



NOTES:

1. BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - P-CREEK

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P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE G3.Zn

REV 0

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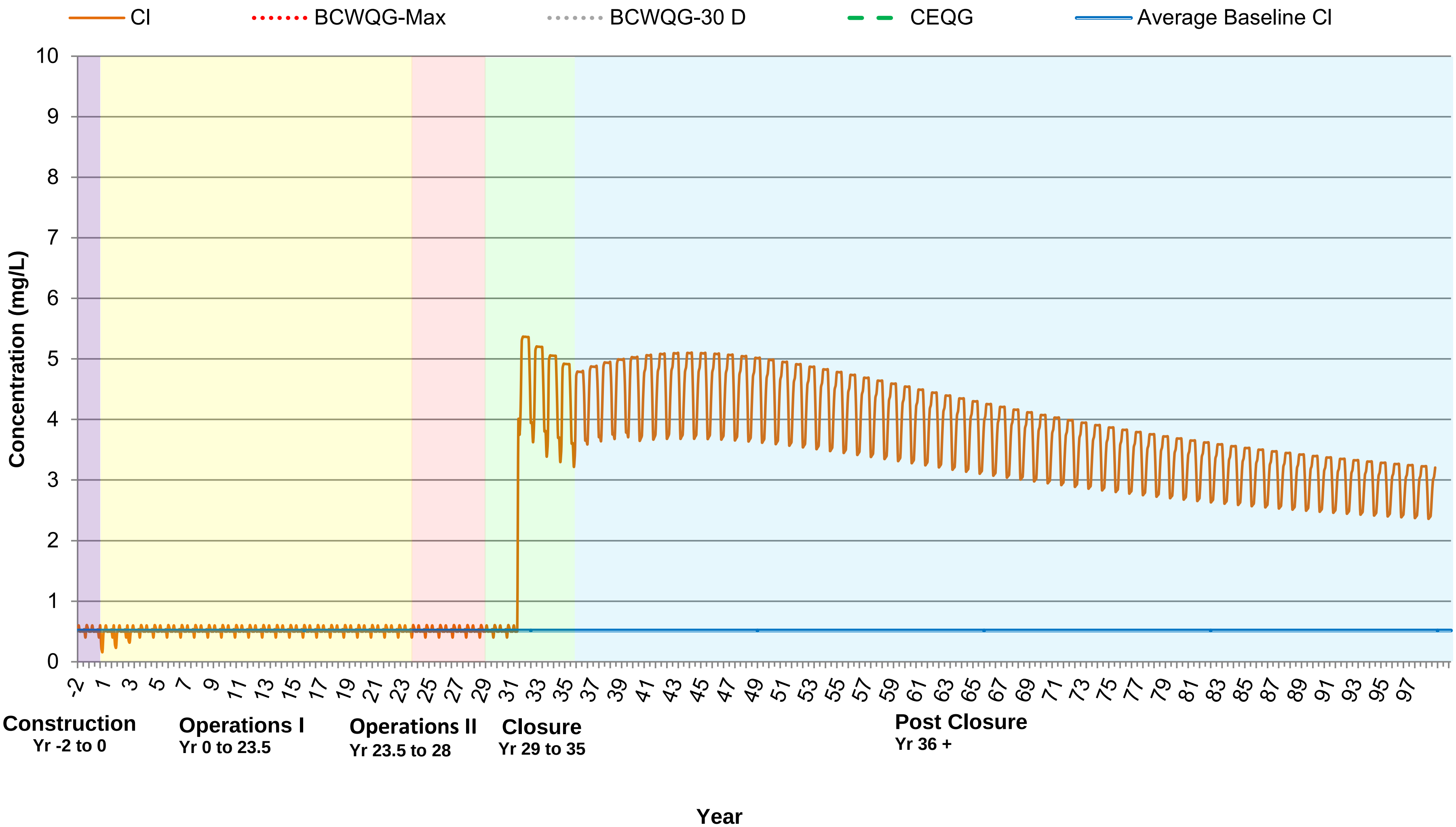
APPENDIX A4

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – T-CREEK

(Pages A4-1 to A4-30)



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. ALL GUIDELINES ARE NOT SHOWN: BCWQG-30 D (150 mg/L); BCWQG-MAX (600 mg/L); CEQG (120 mg/L AND 640 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - T-CREEK

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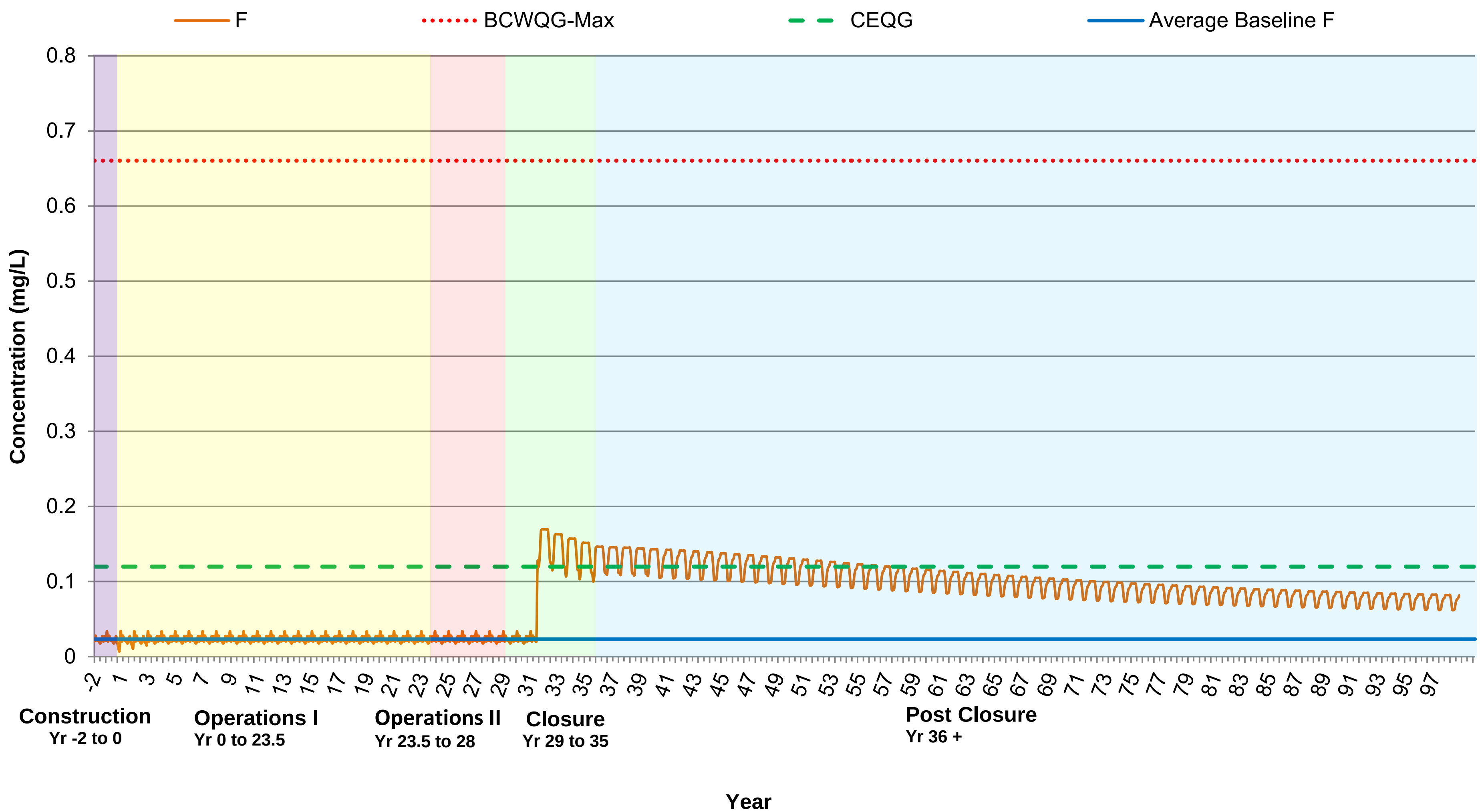
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.CI

REV 0



NOTES:

1. THE BCWQG-MAX IS HARNDESS DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - T-CREEK

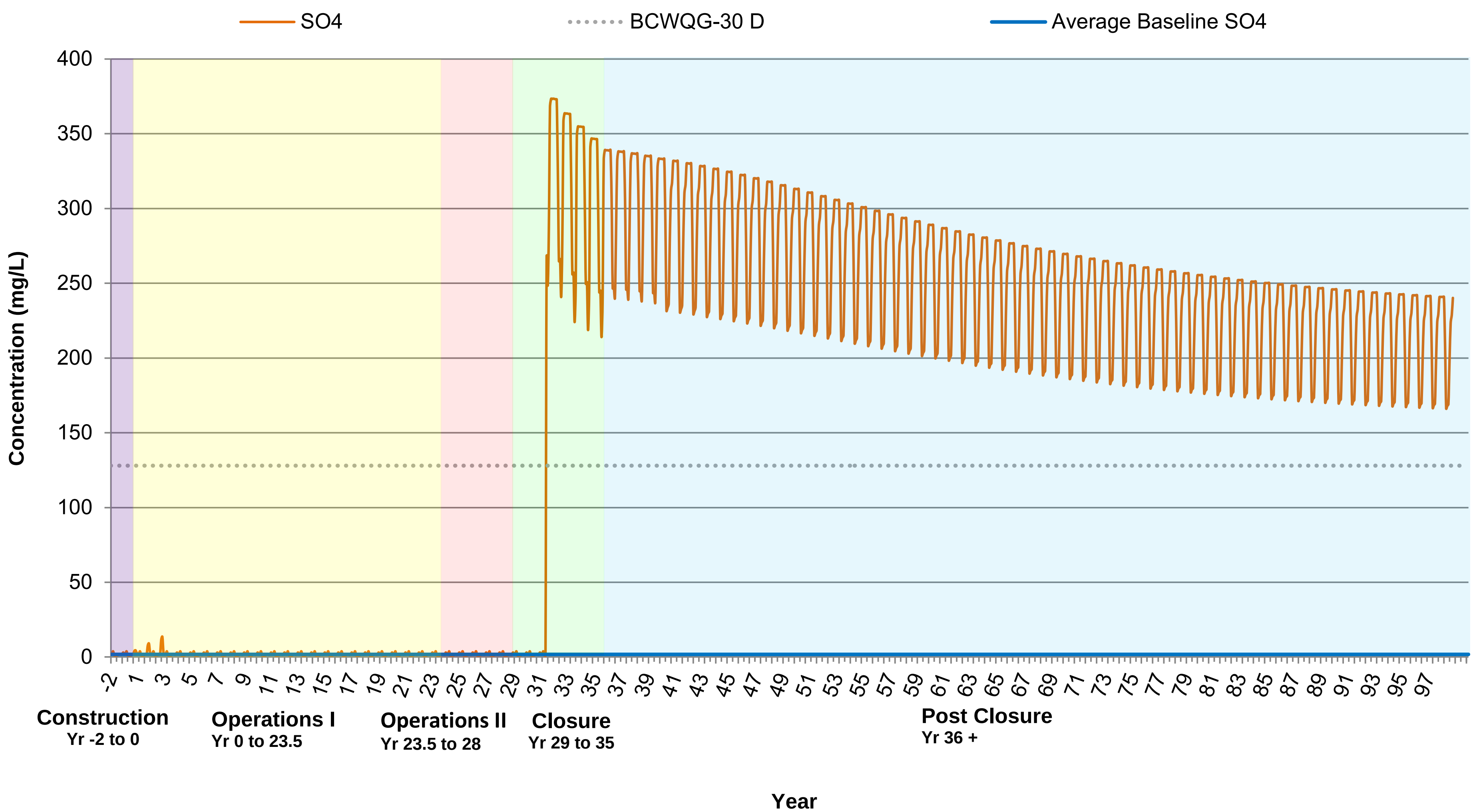
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.F

REV 0



NOTES:

1. BCWQG-30 D IS HARDNESS DEPEDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - T-CREEK

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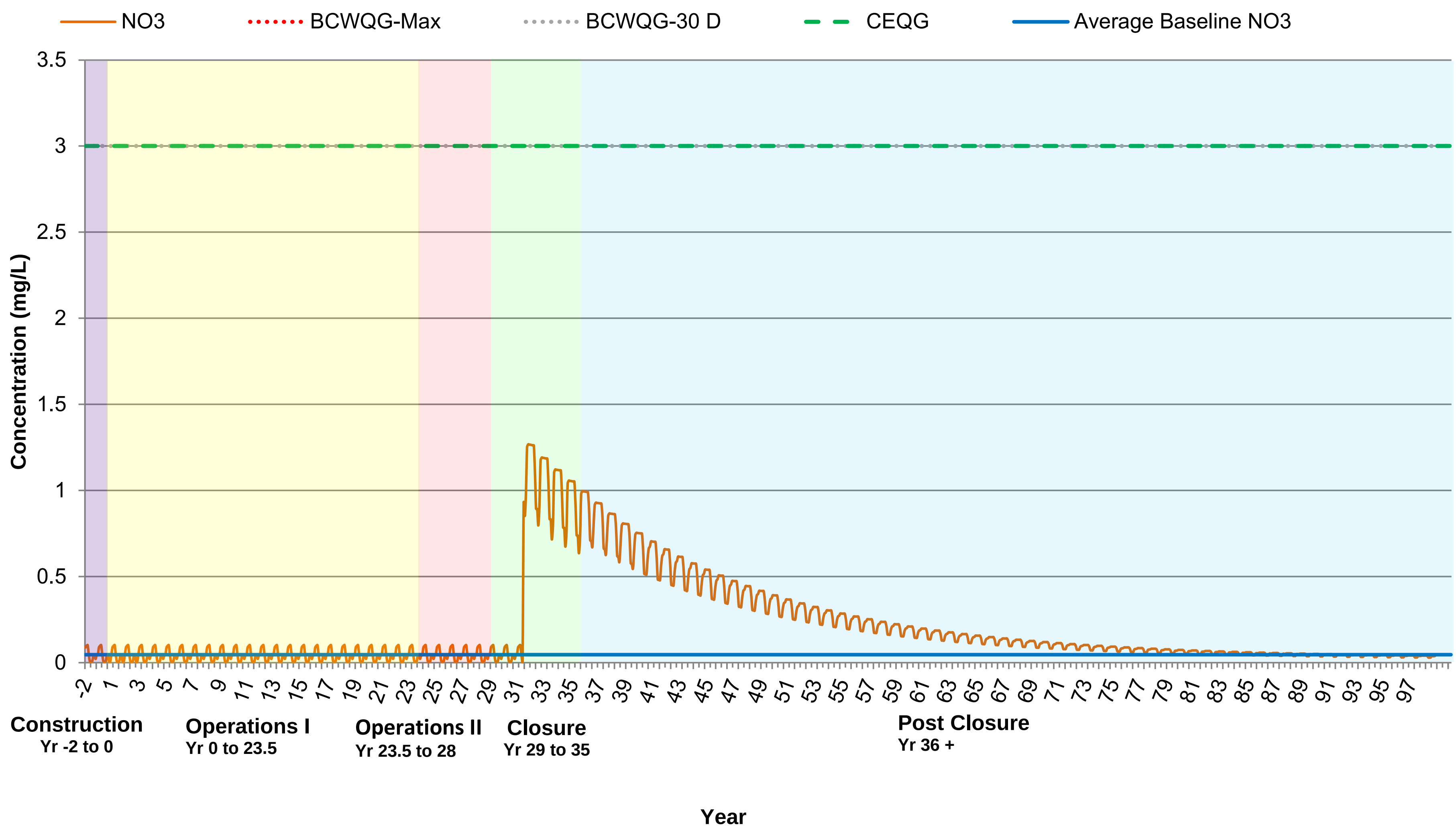
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.S04

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. THE BCWQG-MAX (32.8 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

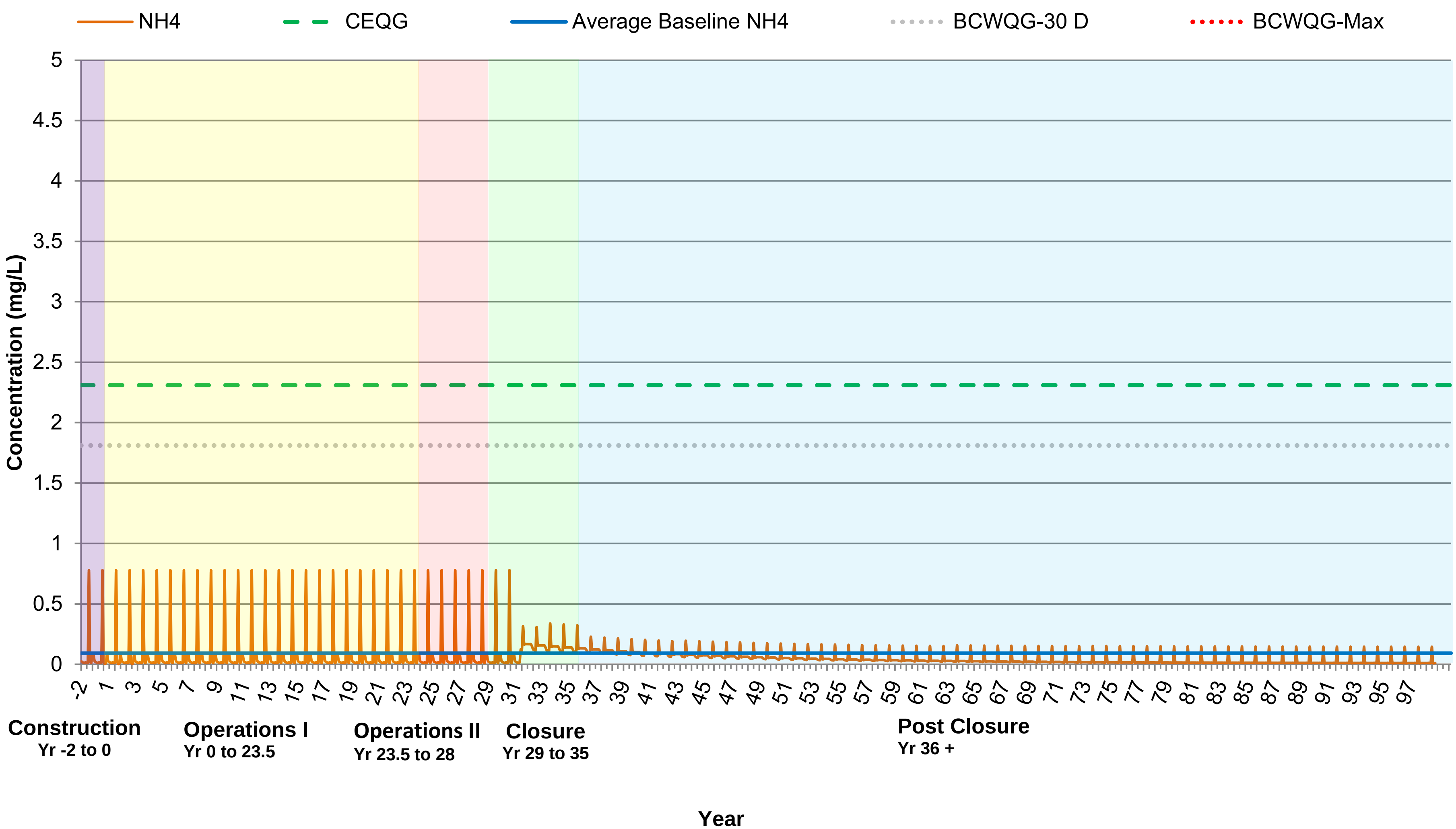
HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - T-CREEK

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-458/17	va14-01825	
FIGURE A4.NO3		REV 0



NOTES:

1. THE BCWQG-30 D IS VALID FOR ONLY 6.5≤pH<9 AND 0°C≤T≤20°C.
2. THE BCWQG-MAX (20.15 mg/L) VALID FOR 6.5≤pH<9 IS NOT SHOWN.
3. THE CEQG IS TO BE USED WITH CAUTION FOR WATER WITH T<5°C AND pH>9.
4. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - T-CREEK

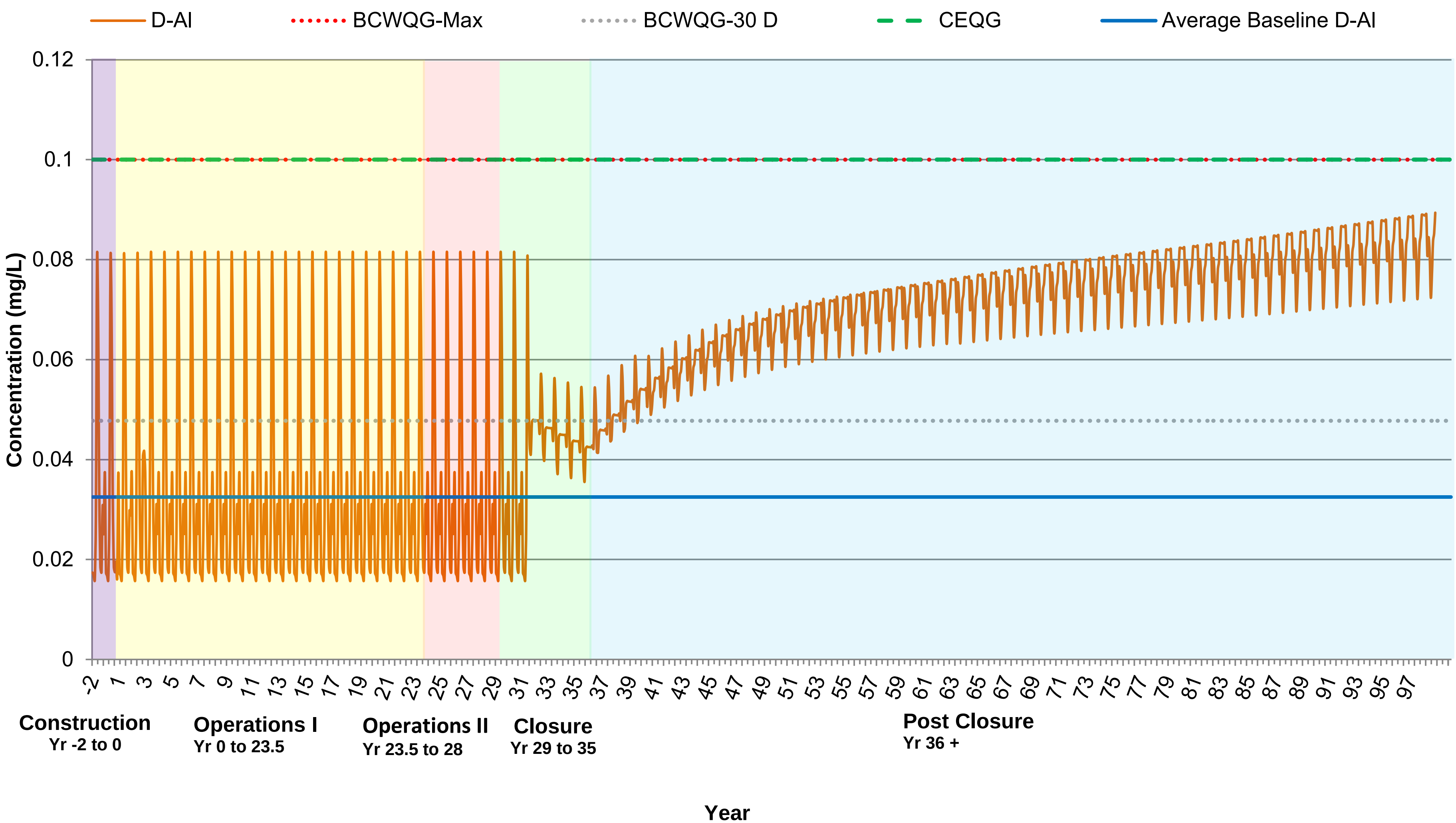
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.NH4

REV 0



NOTES:

1. ALL GUIDELINES ARE pH-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. AVERAGE BASELINE pH USED TO CALCULATE GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED ALUMINUM CONCENTRATIONS - T-CREEK

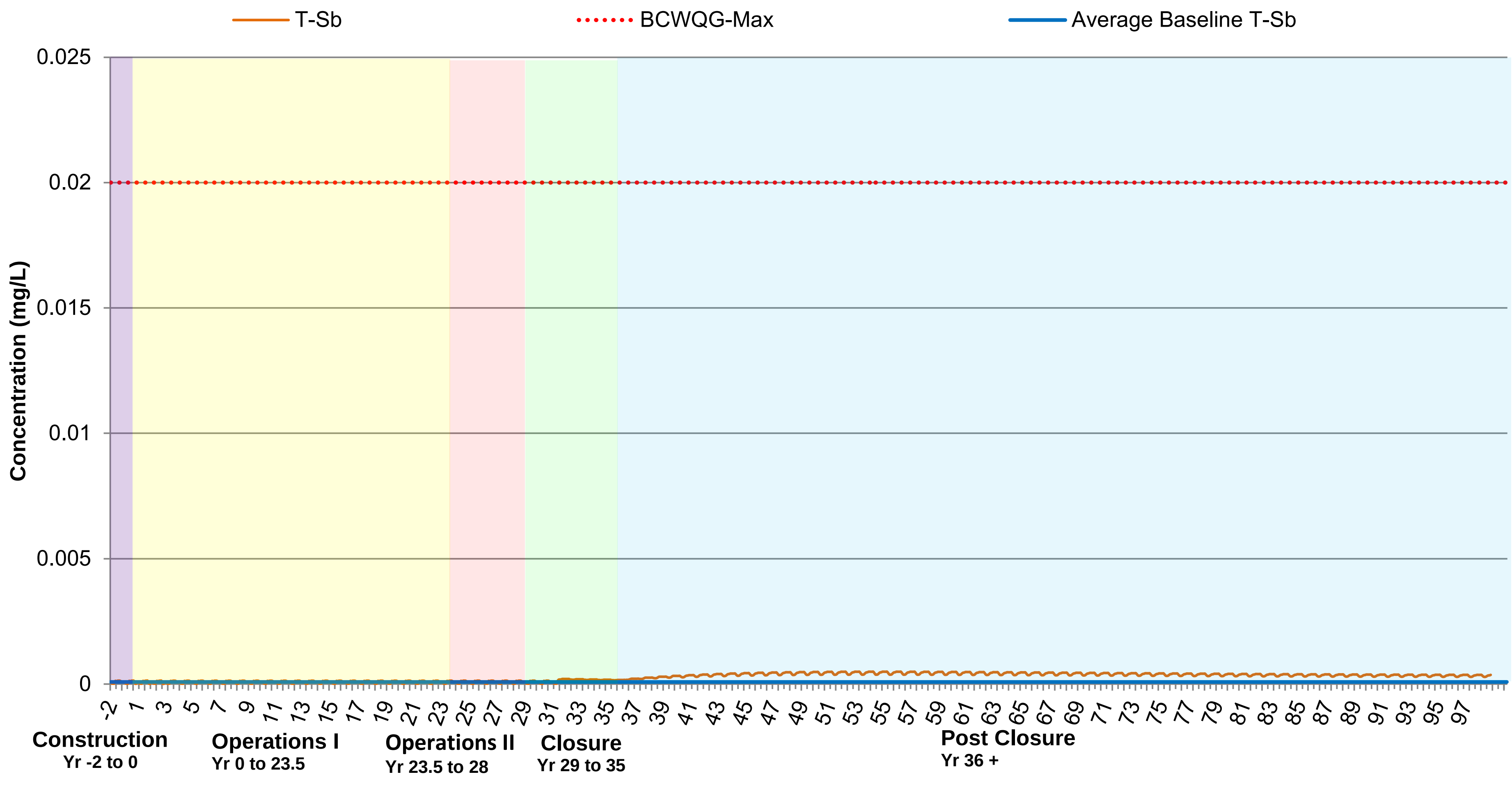
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Al

REV 0



NOTES:

1. THE BCWQG IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - T-CREEK

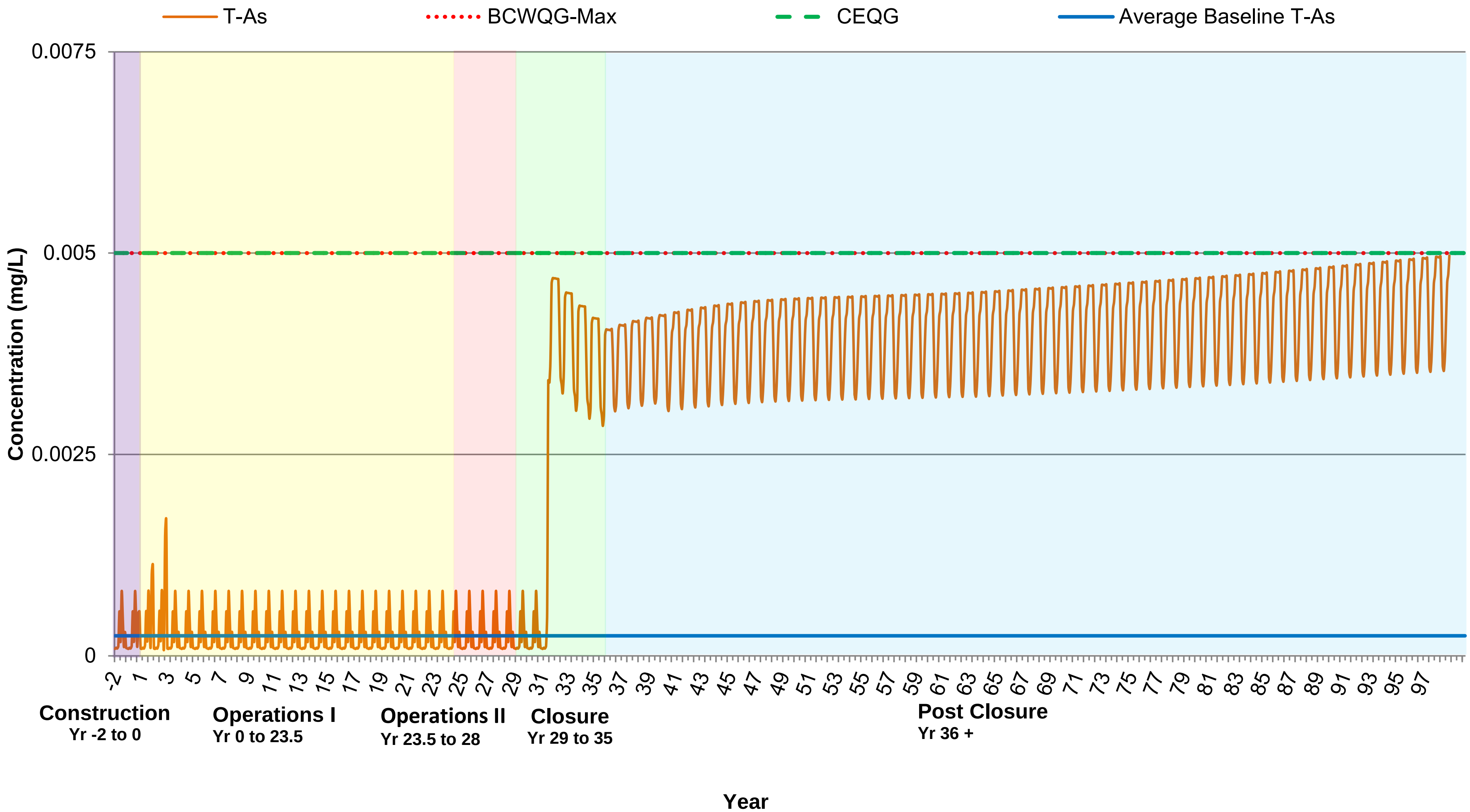
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Sb

REV 0



NOTES:

1. THE BCWQG AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

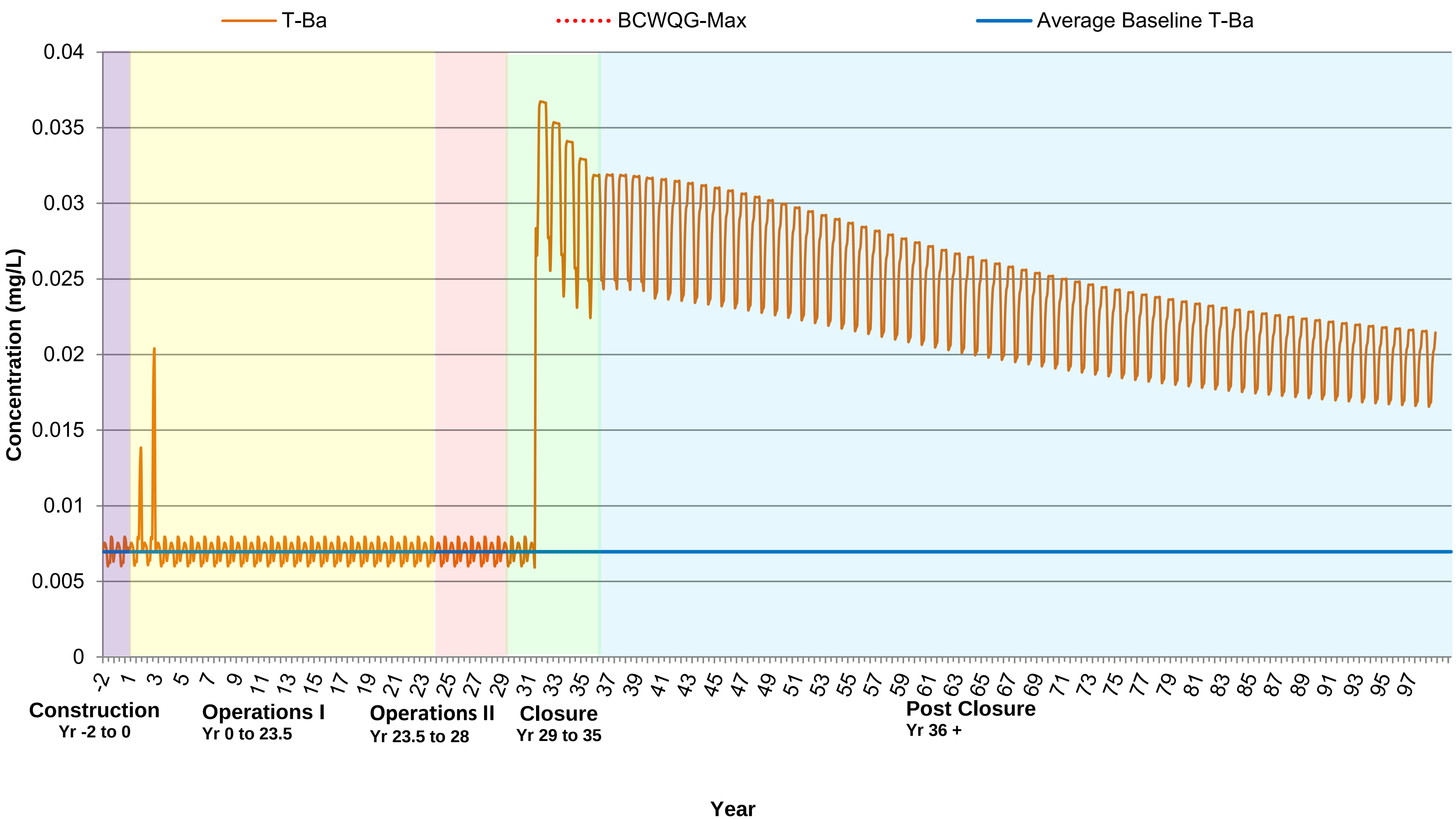
HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - T-CREEK

Knight Piésold CONSULTING

P/A NO. VA101-458/17	REF. NO. va14-01825	
FIGURE A4.As		REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. THE BCWQG-30 D (1 mg/L) AND BCWQG-MAX (5 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - T-CREEK

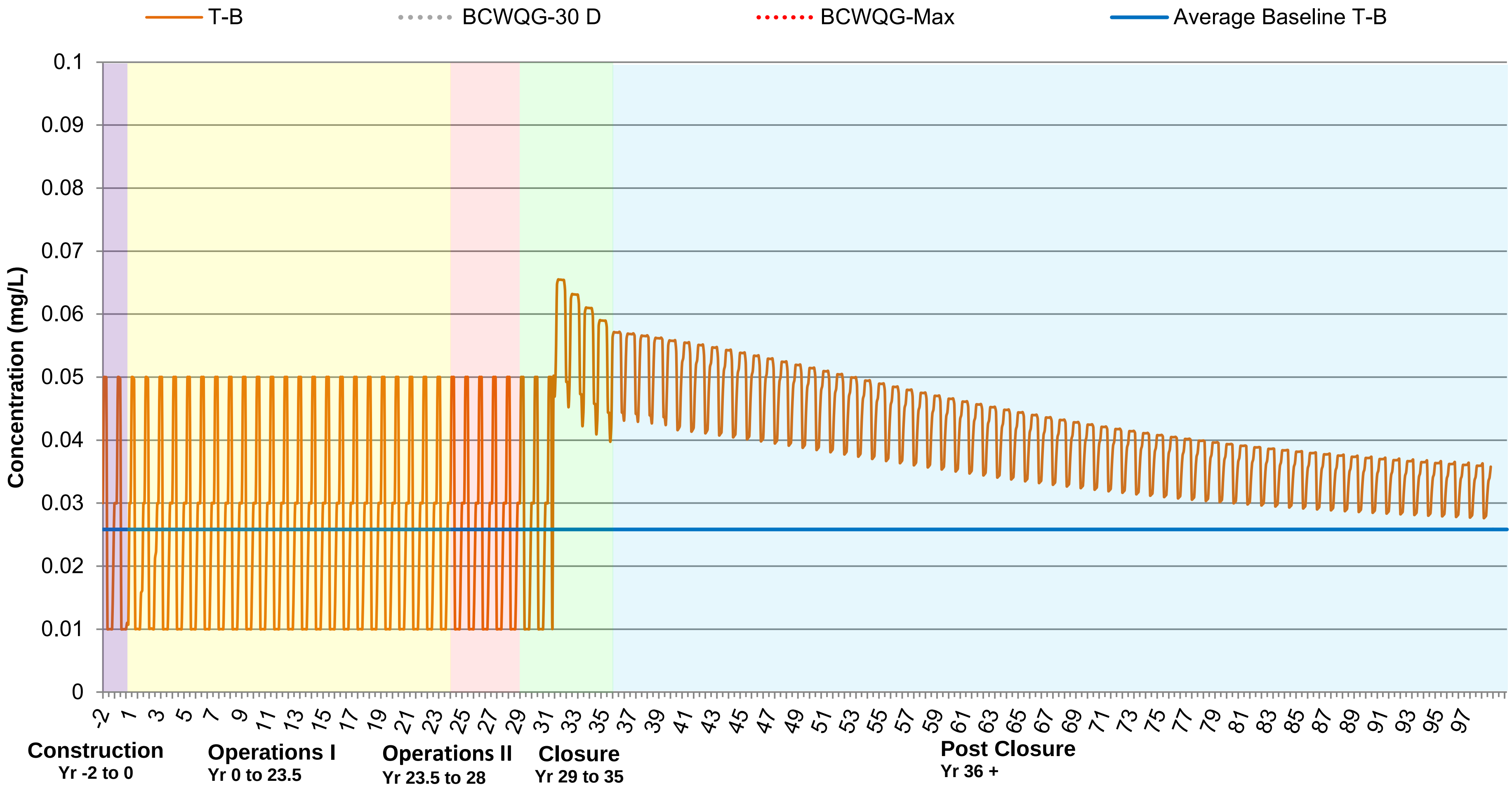
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Ba

REV 0



NOTES:

1. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
3. THE BCWQG-MAX (1.2 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

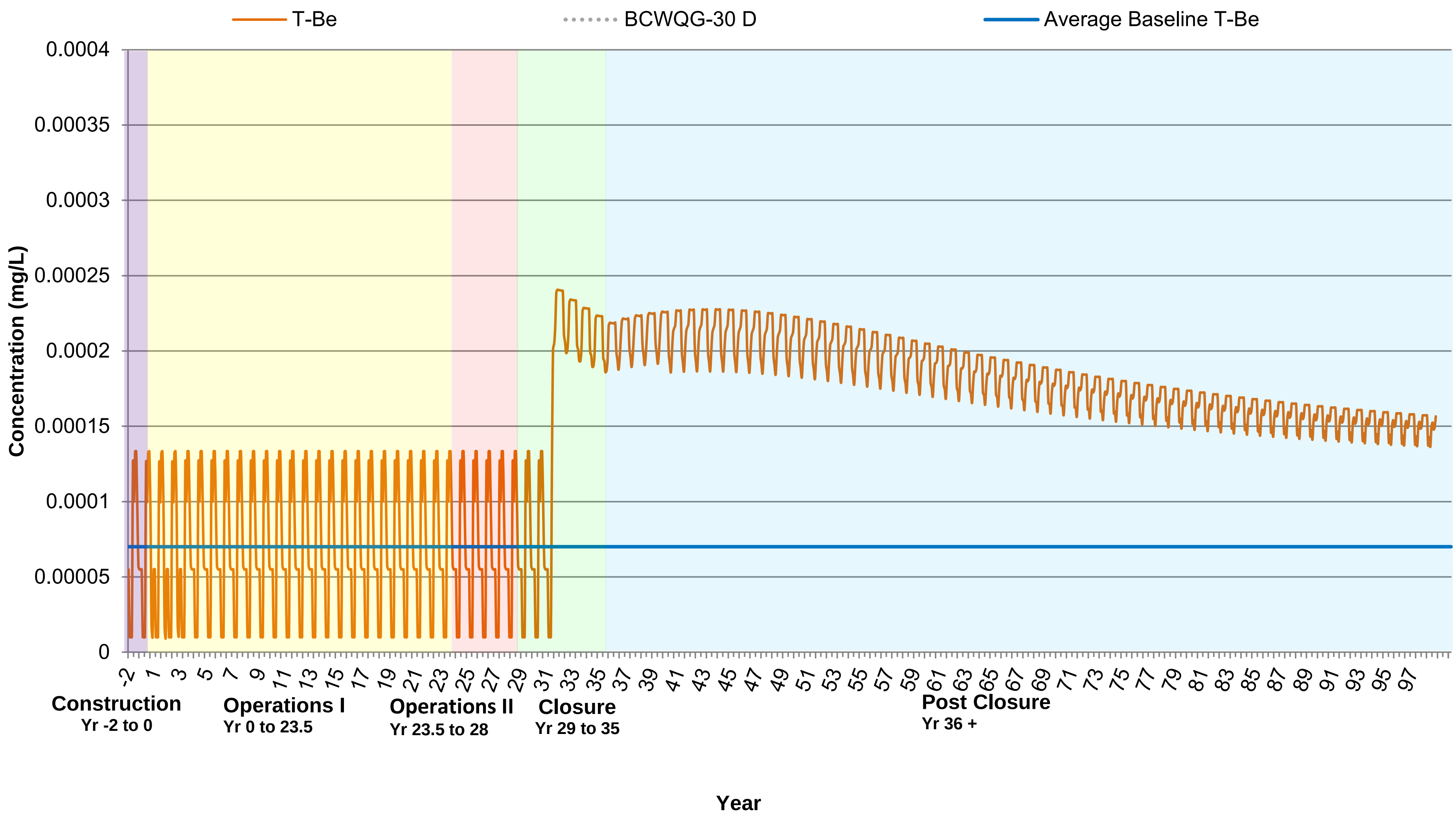
HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - T-CREEK

Knight Piésold CONSULTING

P/A NO. VA101-458/17 | REF. NO. va14-01825

FIGURE A4.B REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. THE BCWQG-30 D (0.0053 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BERYLLIUM CONCENTRATIONS - T-CREEK

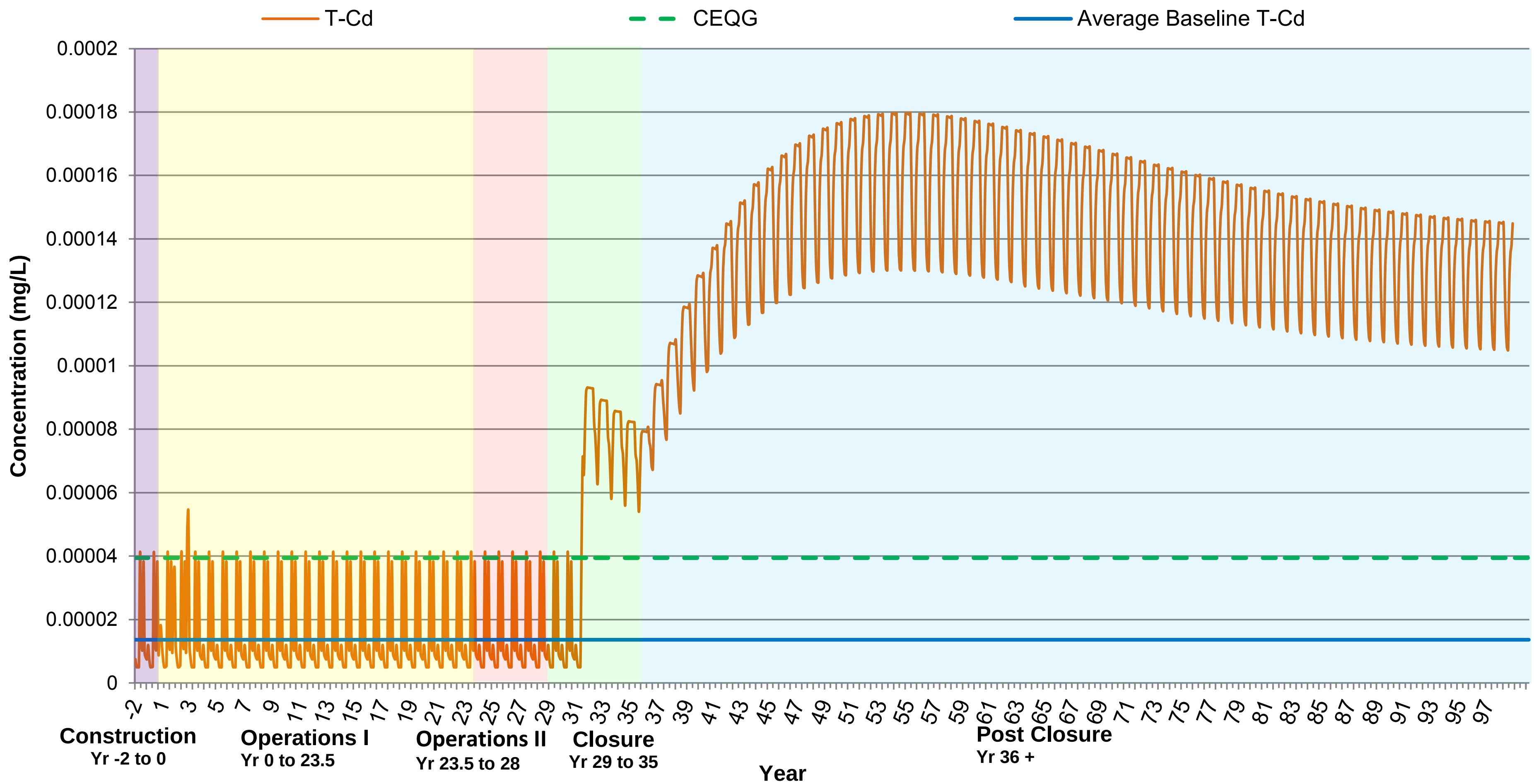
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Be

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. THE BCWQG ARE DRAFT GUIDELINES UNDER REVIEW (JUNE 2014).
3. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
4. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - T-CREEK

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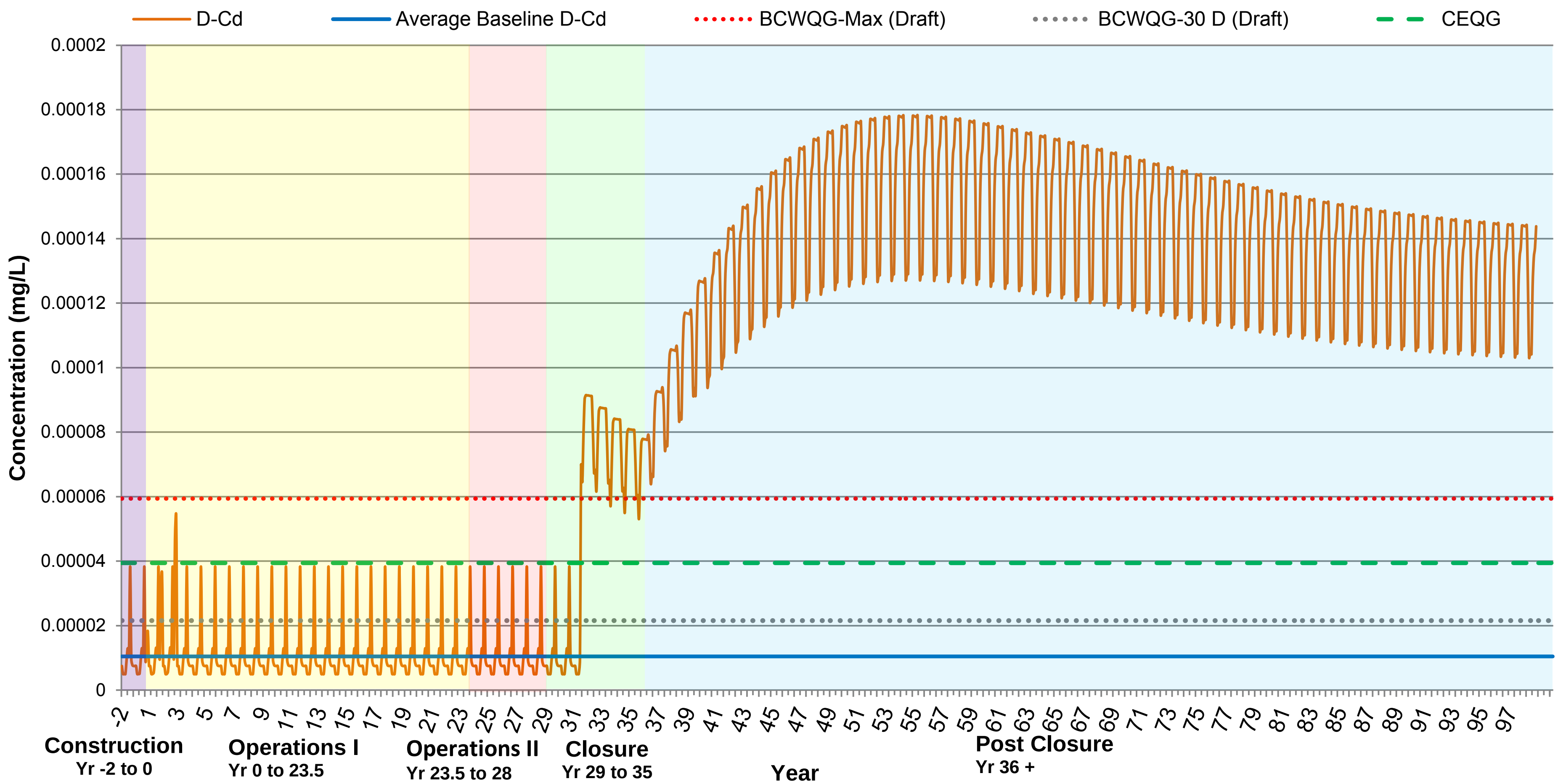
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Cd-T

REV 0



NOTES:

1. BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - T-CREEK

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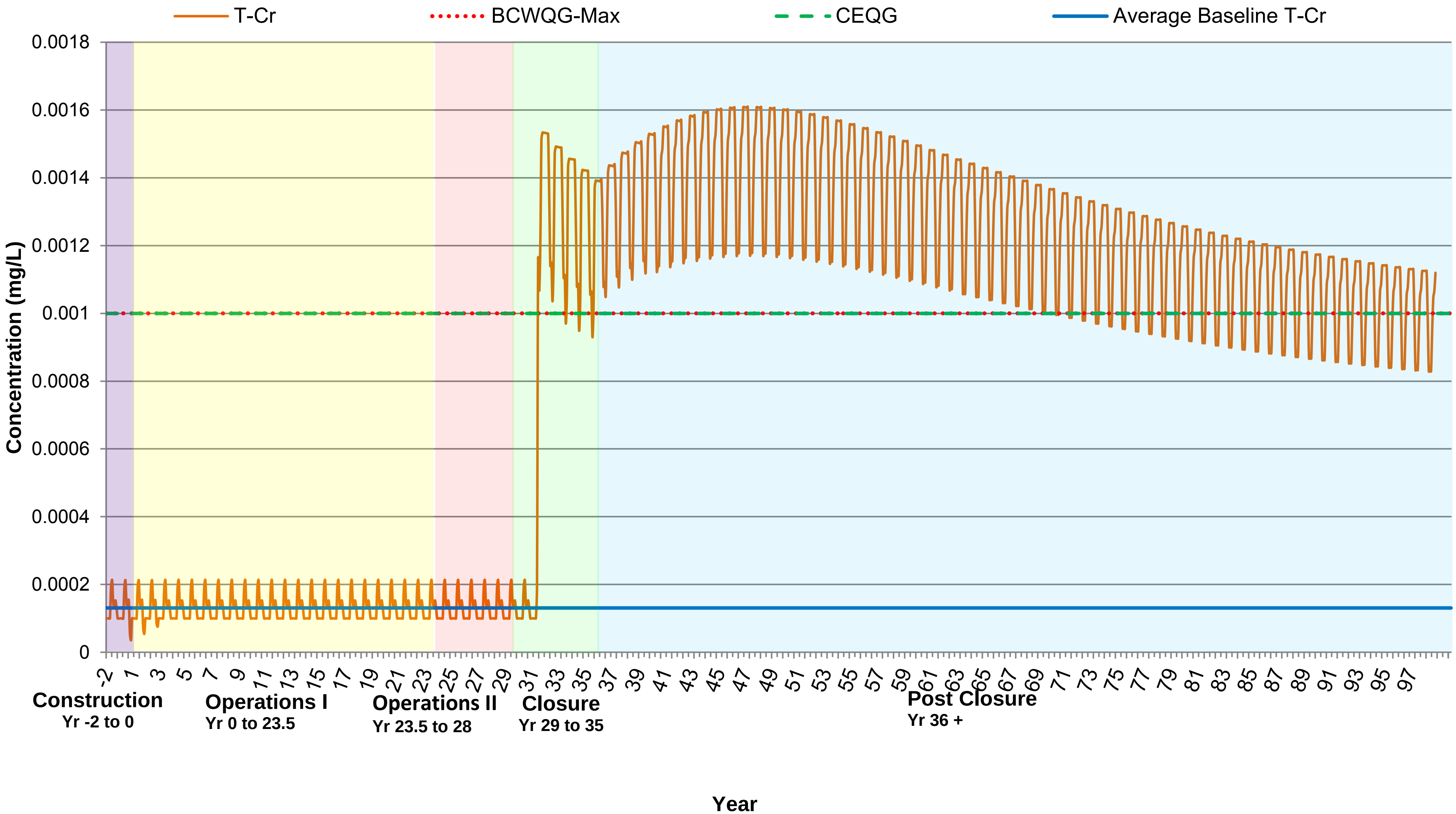
REF. NO. va14-01825

FIGURE A4.Cd-D

REV 0



NOTES:

1. GUIDELINES ARE FOR CHROMIUM (IV), THE SPECIES MOST COMMON IN WELL OXYGENATED SURFACE WATERS.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - T-CREEK

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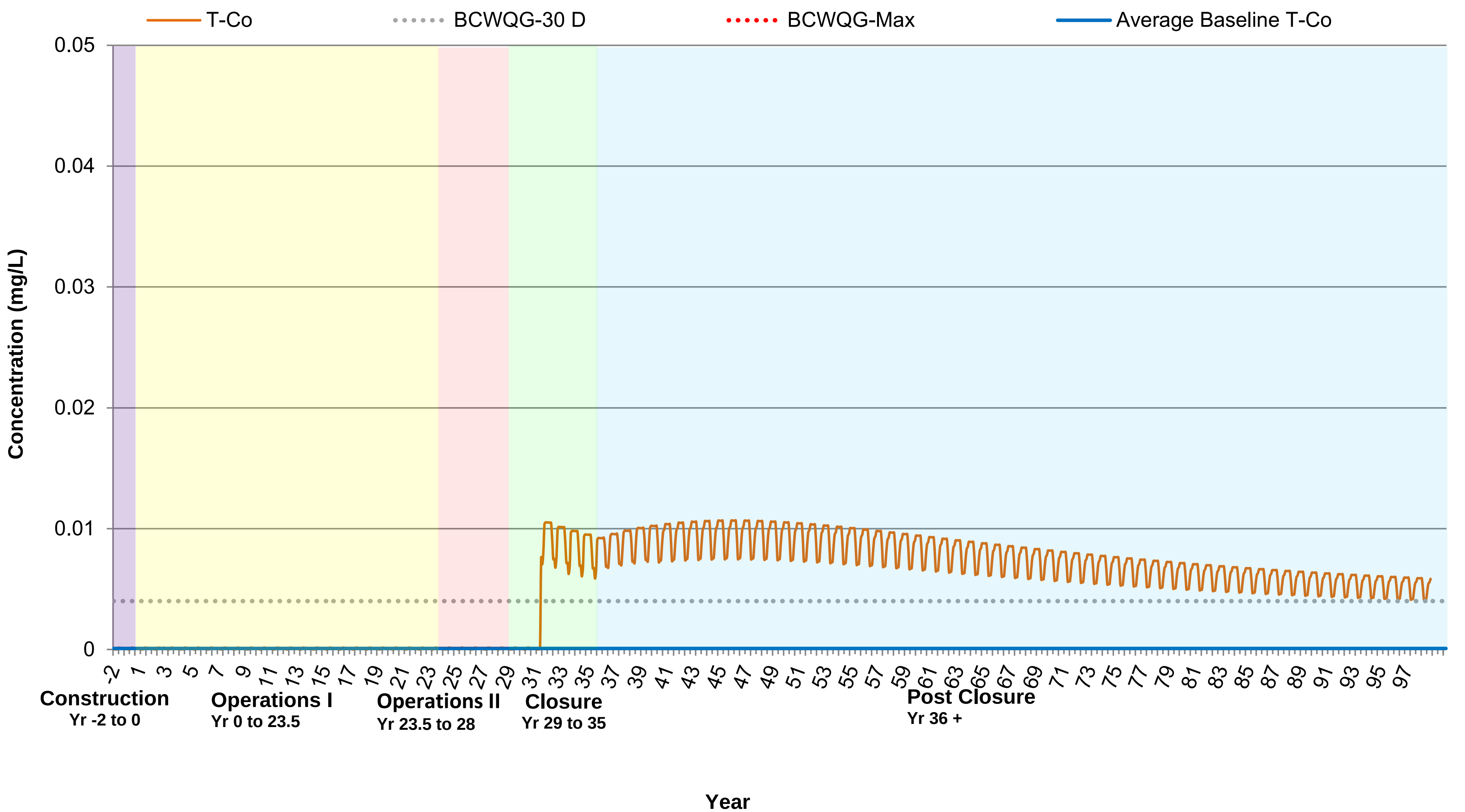
P/A NO. VA101-458/17	REF. NO. va14-01825	
FIGURE A4.Cr		REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. THE BCWQG-MAX GUIDELINE (0.11 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - T-CREEK

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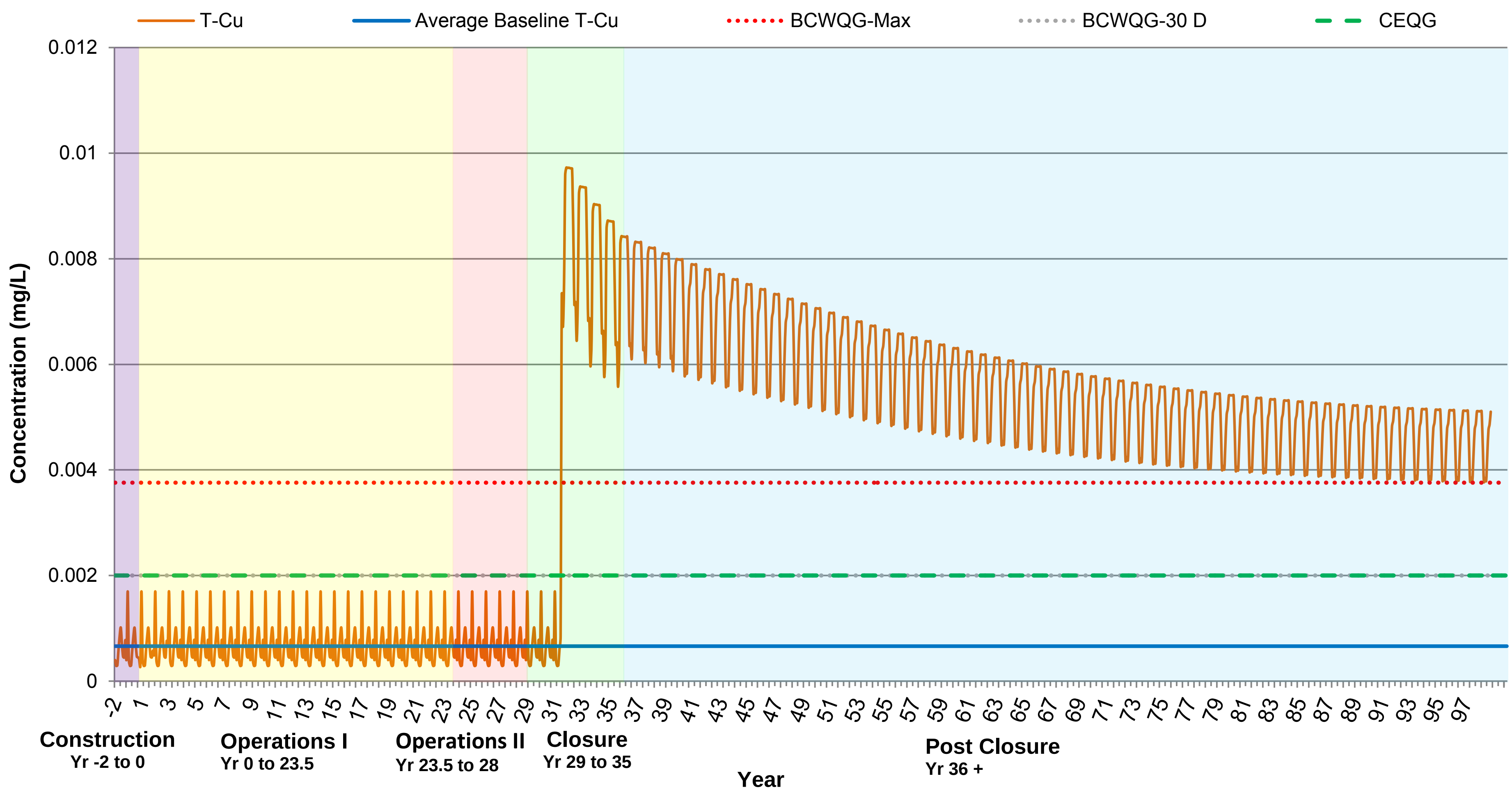
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Co

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - T-CREEK

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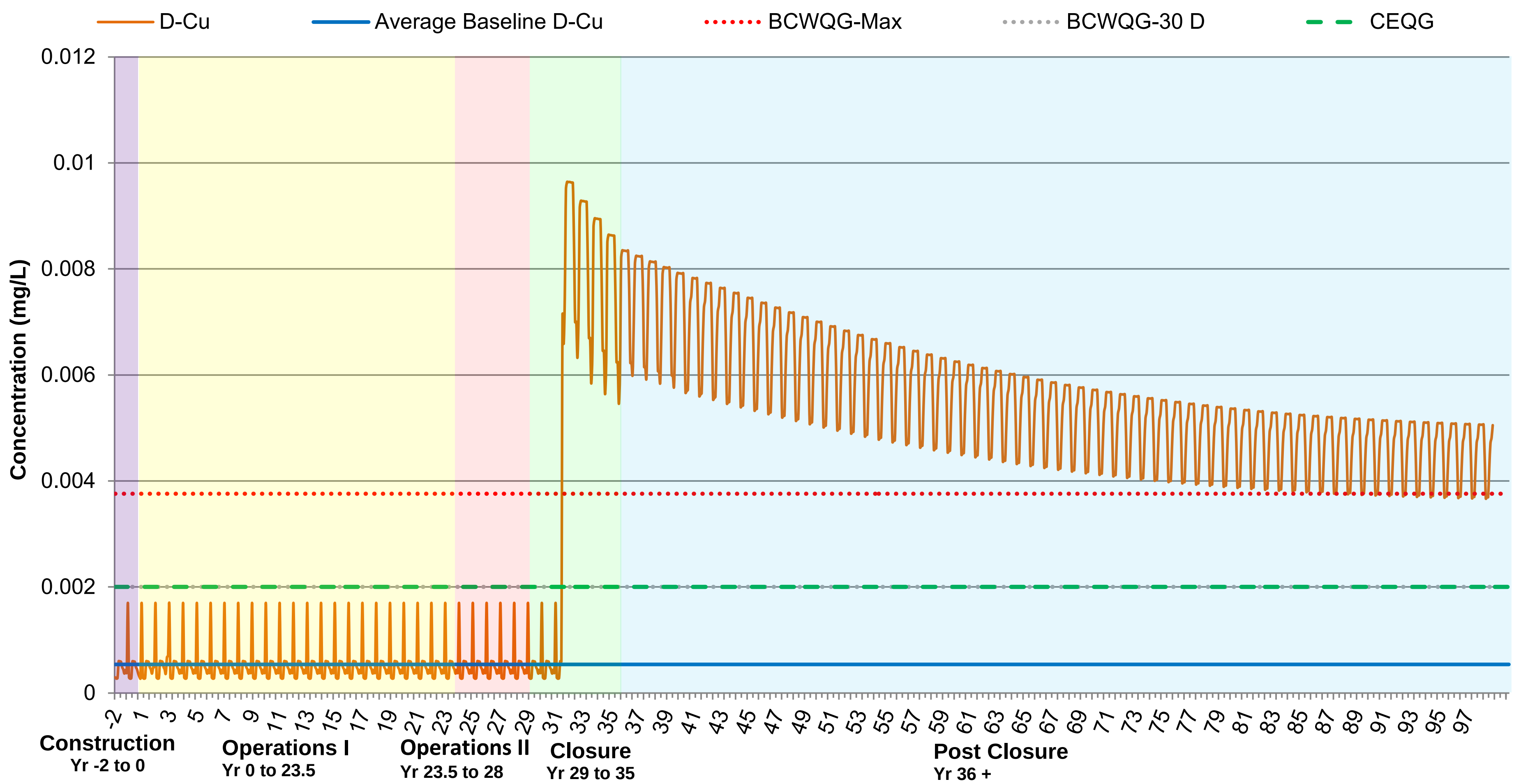
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Cu-T

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - T-CREEK

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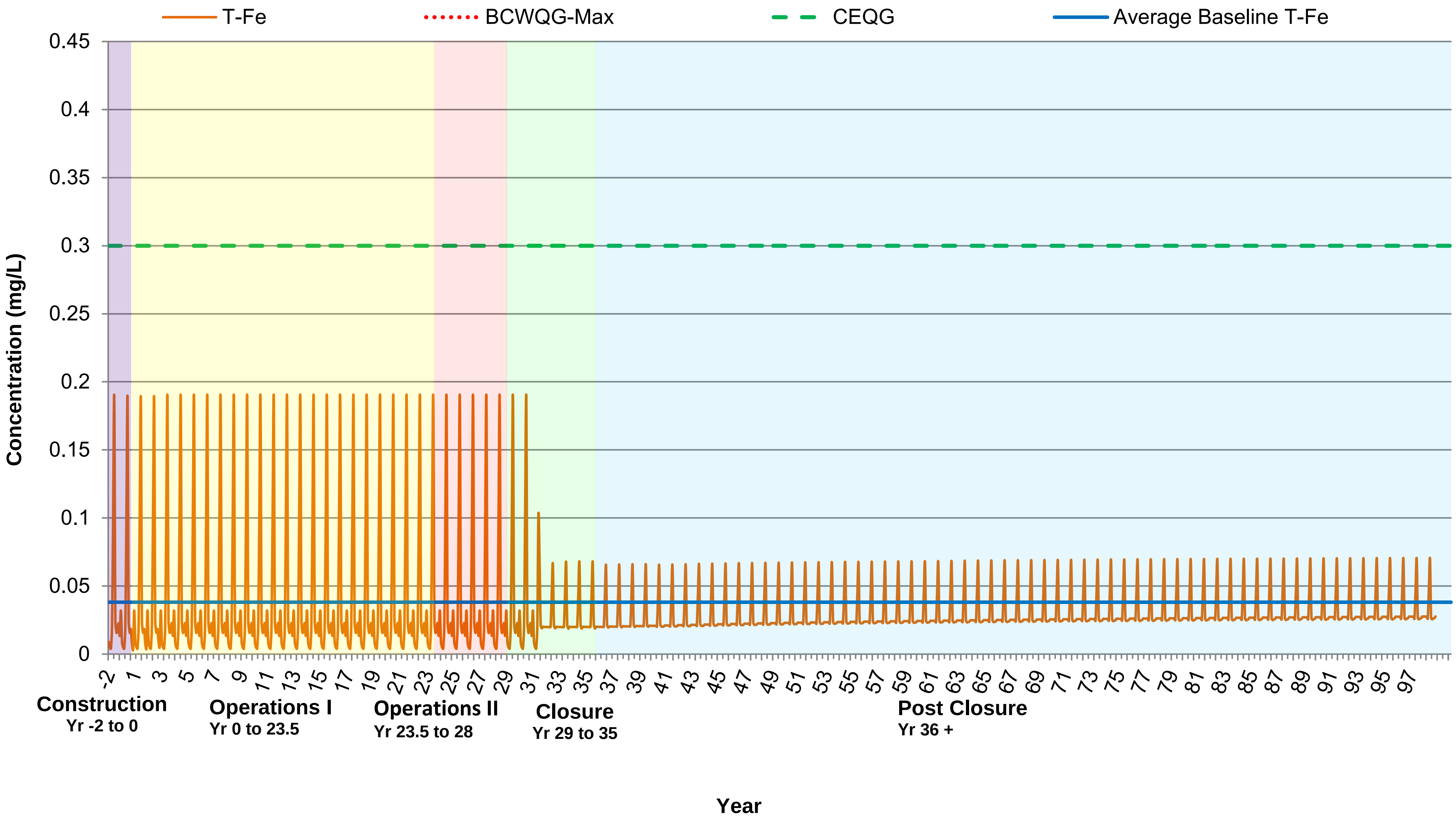
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Cu-D

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. BCWQG-MAX 1.0 mg/L IS NOT SHOWN ON GRAPH.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT TOTAL IRON CONCENTRATIONS - T-CREEK

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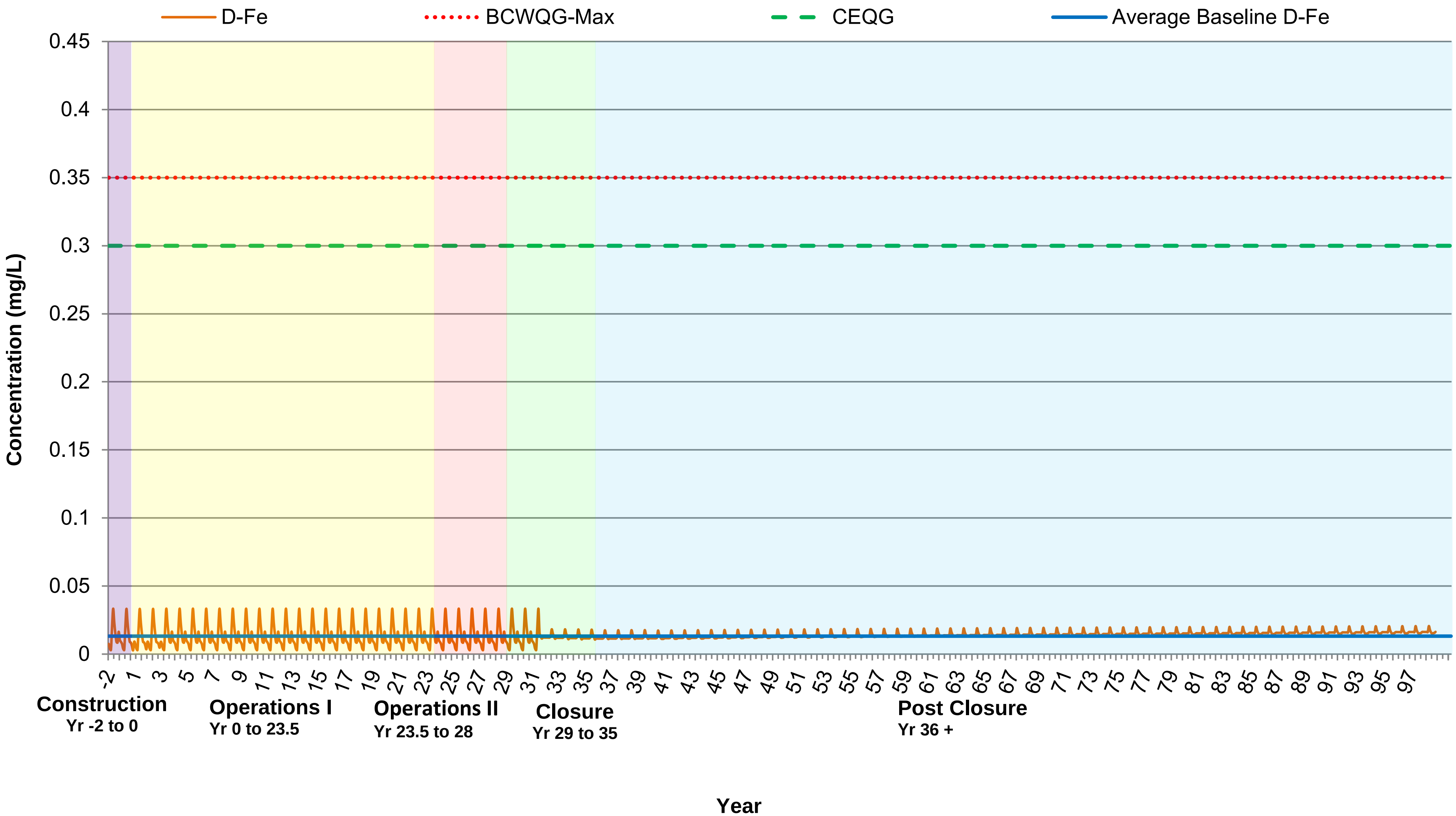
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Fe-T

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED IRON CONCENTRATIONS - T-CREEK

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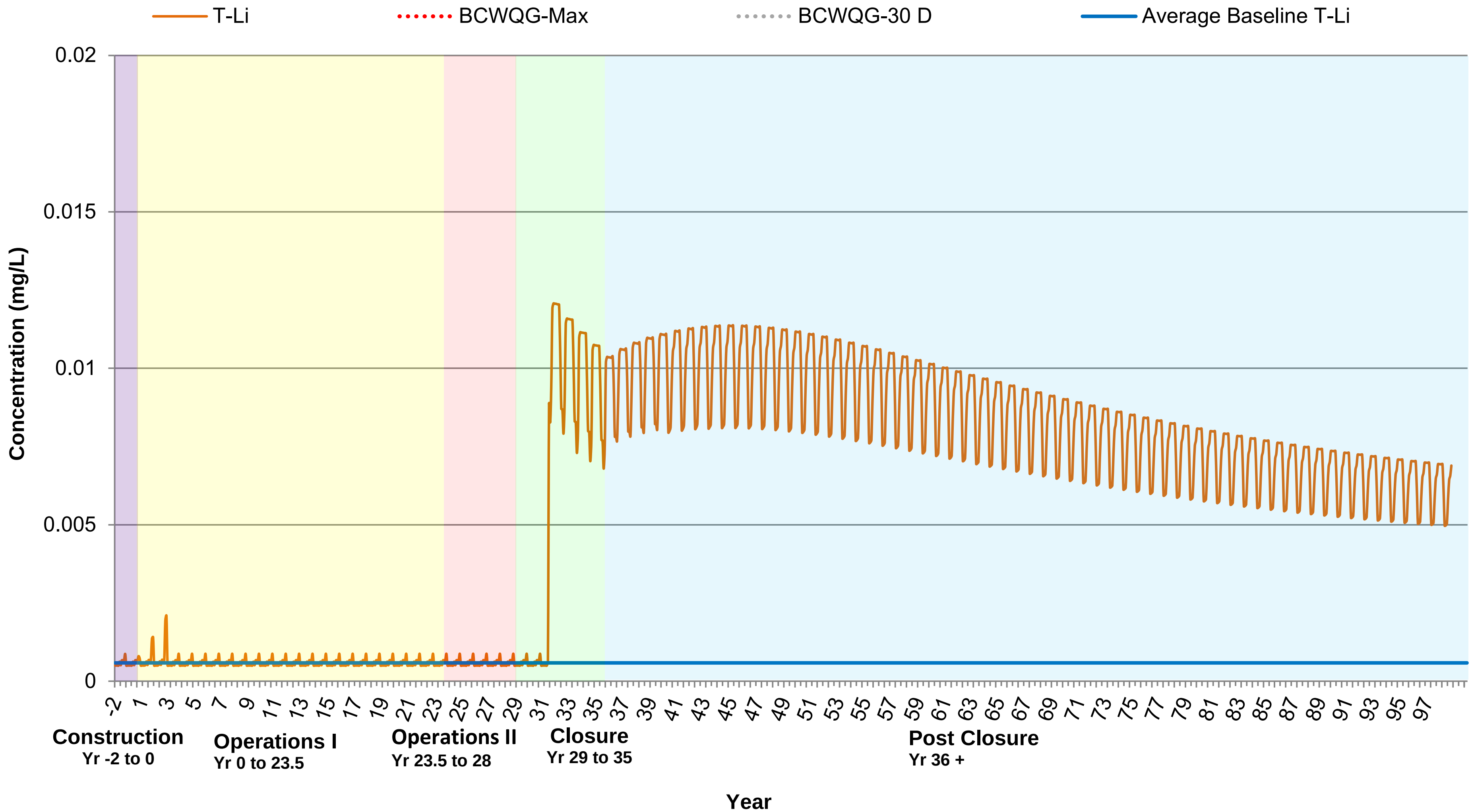
P/A NO.	REF. NO.
VA101-458/17	va14-01825

FIGURE A4.Fe-D REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. THE BCWQG-30 D (0.096 mg/L) AND BCWQG-MAX (0.87 mg/L) ARE INTERIM (WORKING) AND ARE NOT SHOWN ON GRAPH.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LITHIUM CONCENTRATIONS - T-CREEK

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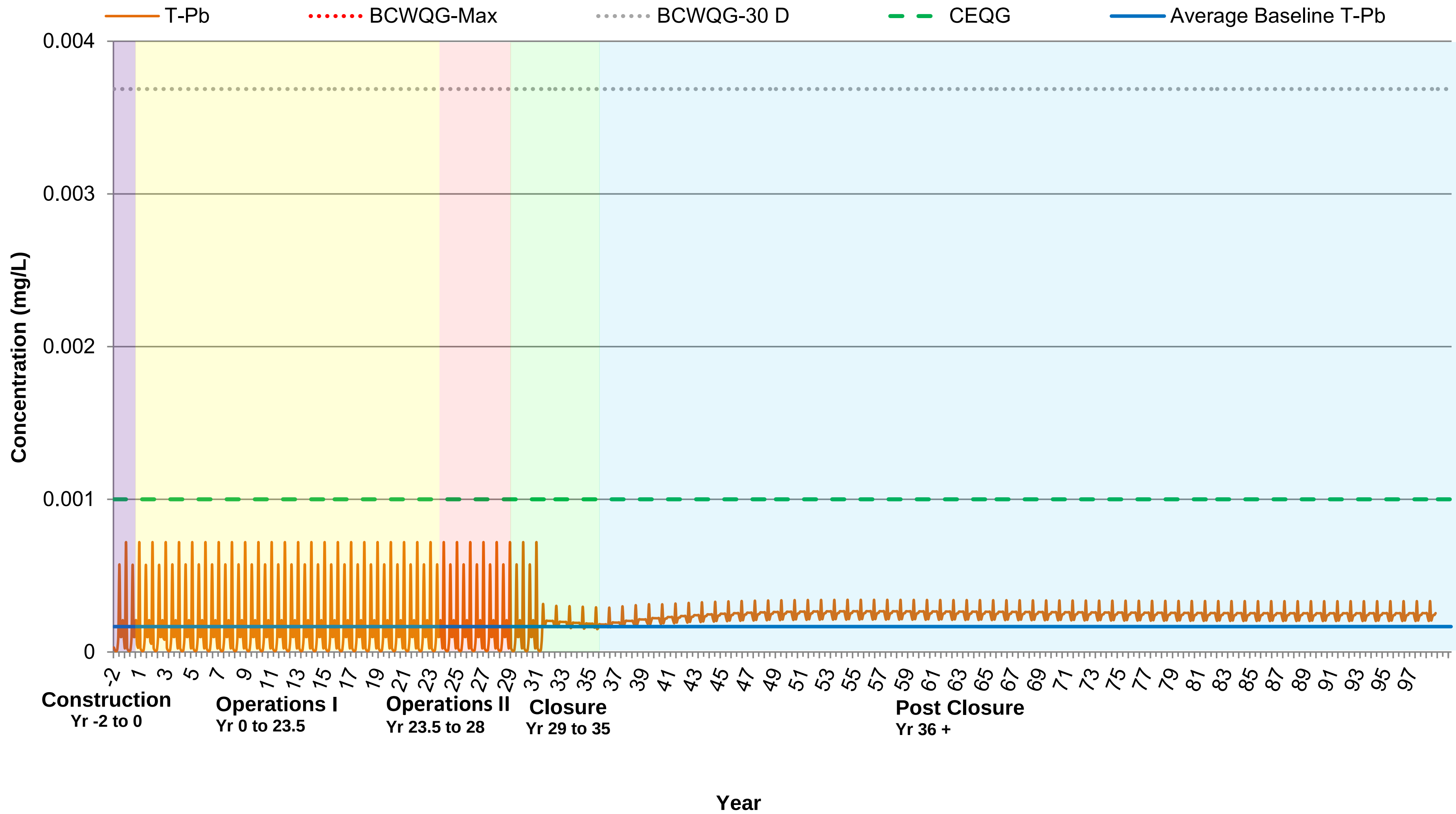
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Li

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
4. THE BCWQG-MAX (CALCULATED AT 0.011 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - T-CREEK

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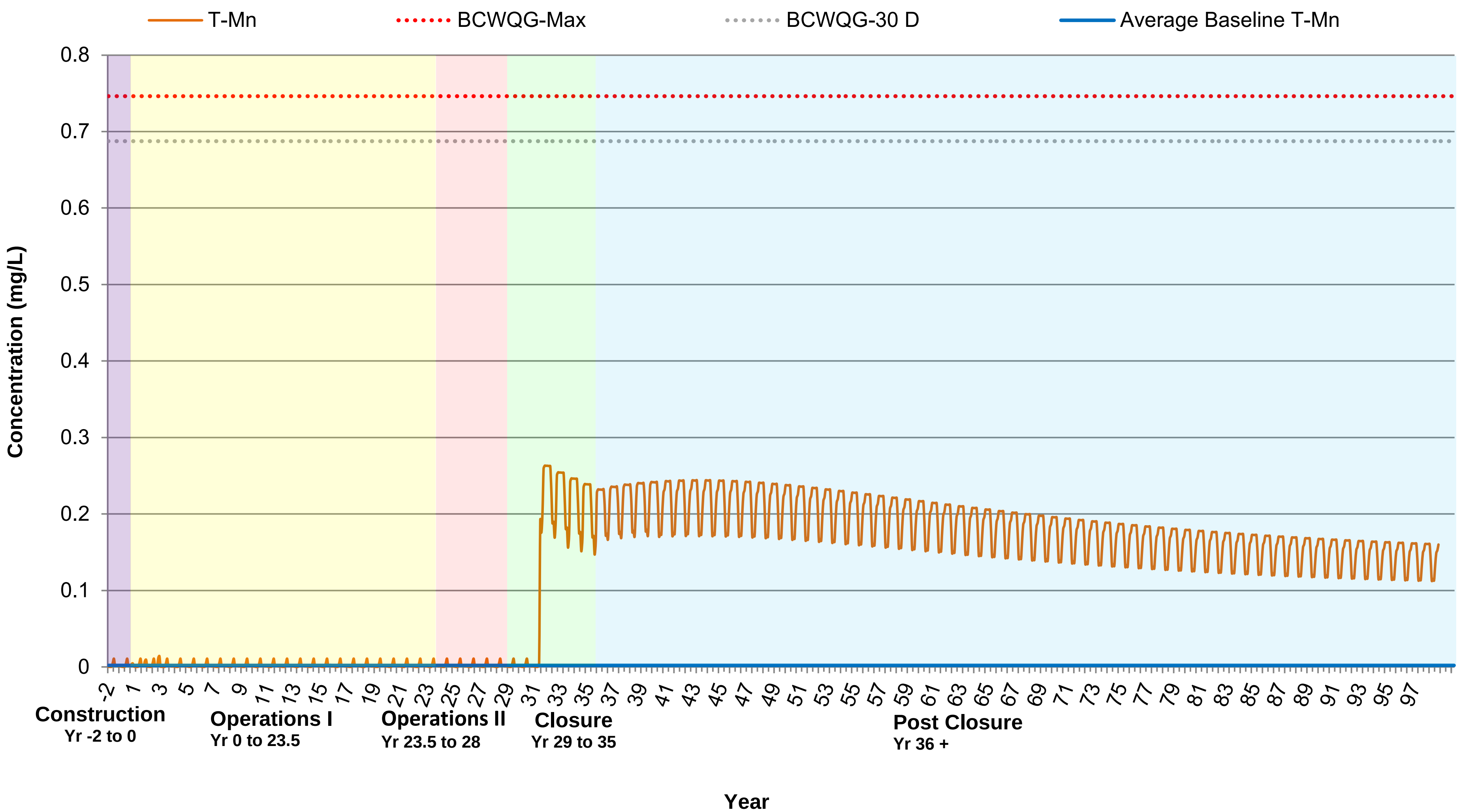
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Pb

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - T-CREEK

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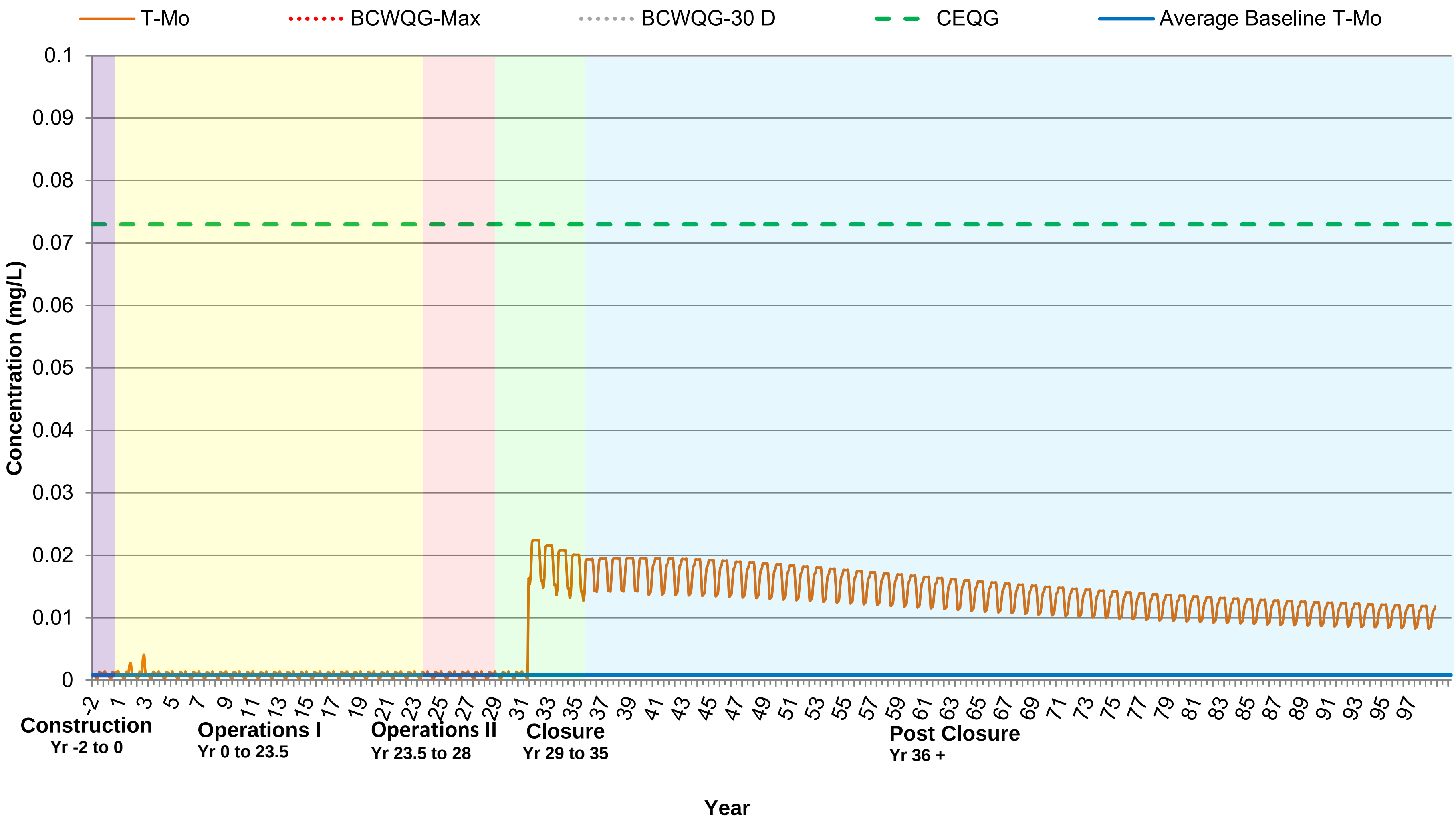
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Mn

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. THE BCWQG-MAX (2 mg/L) AND BCWQG-30 D (1 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYBDENUM CONCENTRATIONS - T-CREEK

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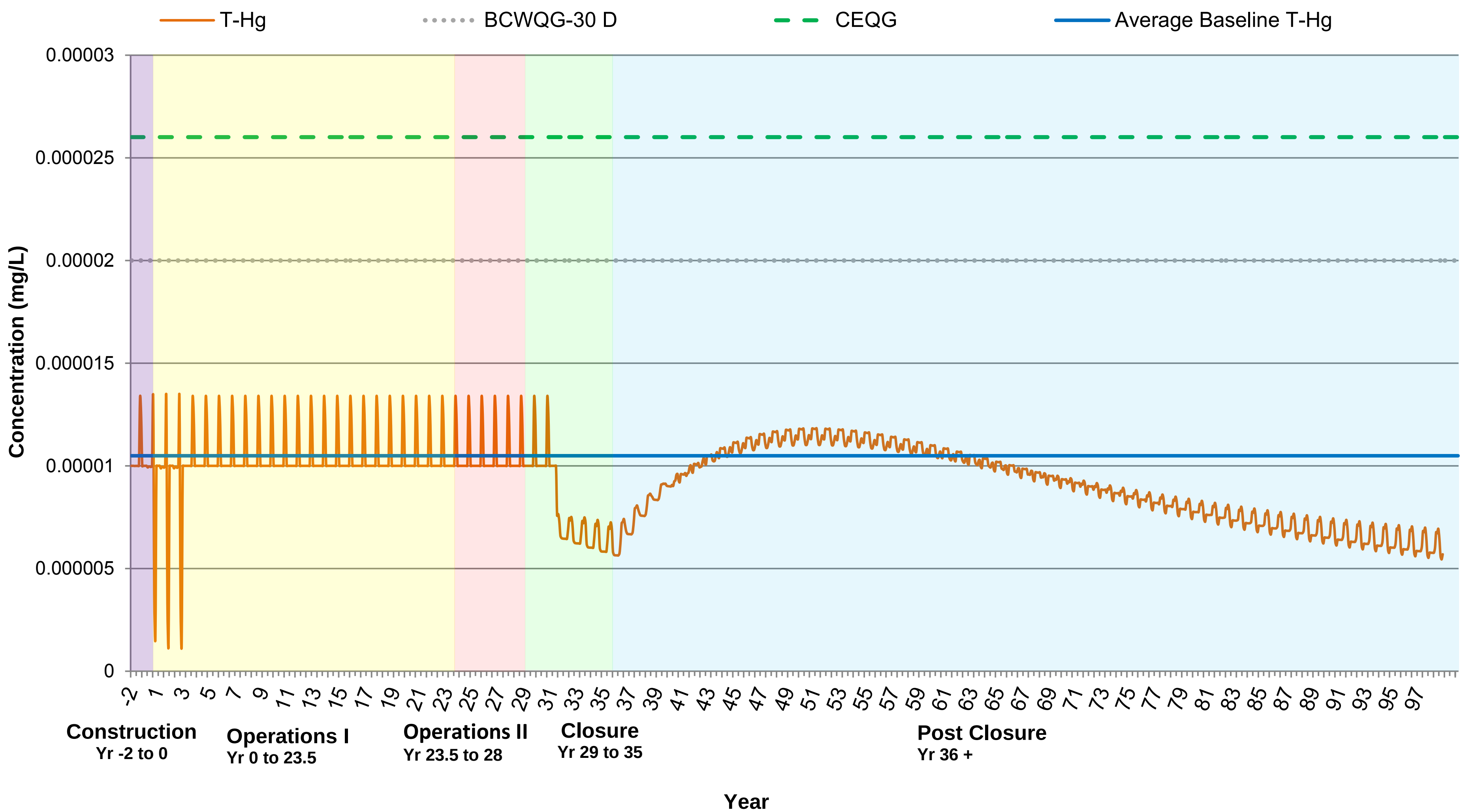
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Mo

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. BCWQG-30 D VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-Hg.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - T-CREEK

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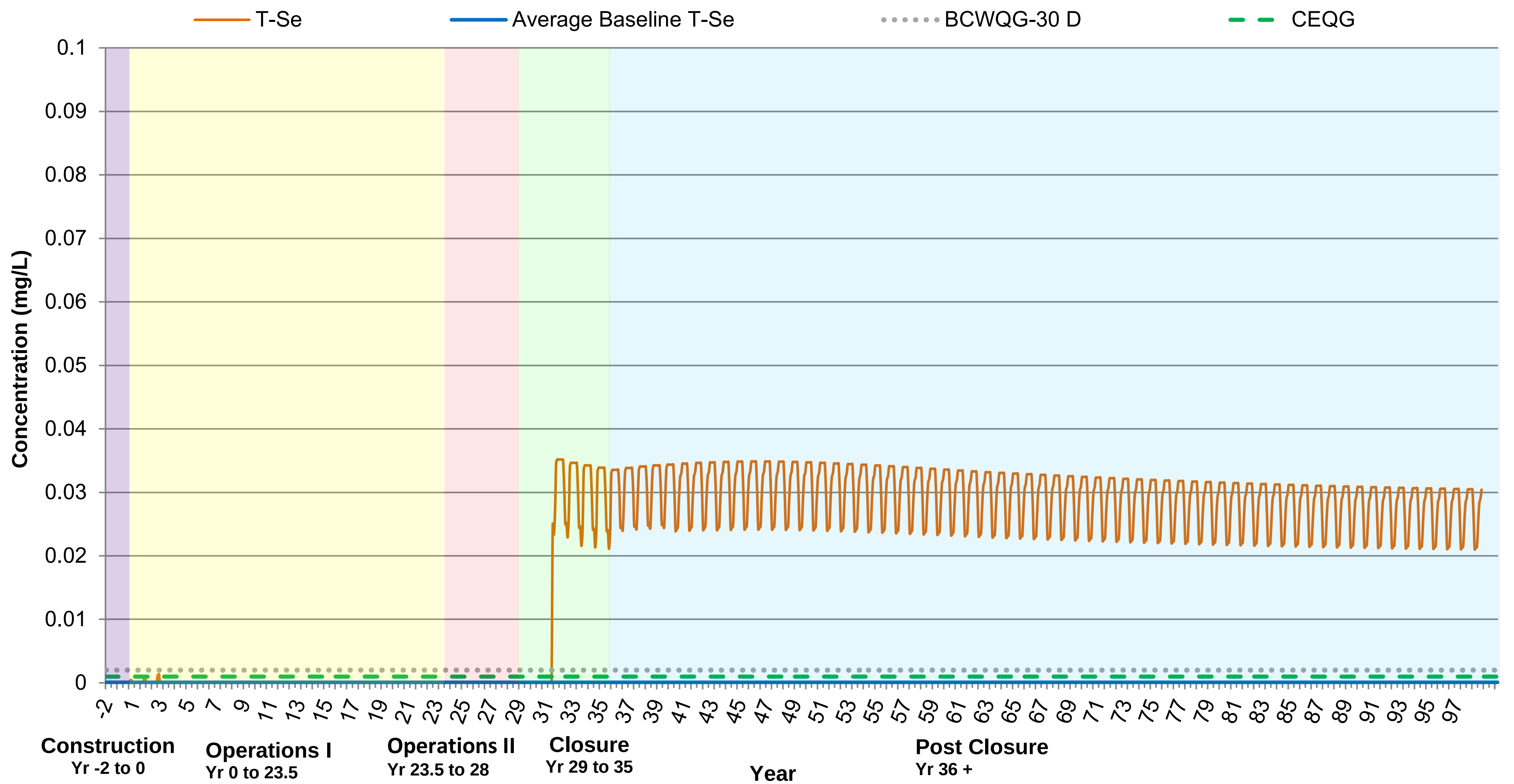
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Hg

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - T-CREEK

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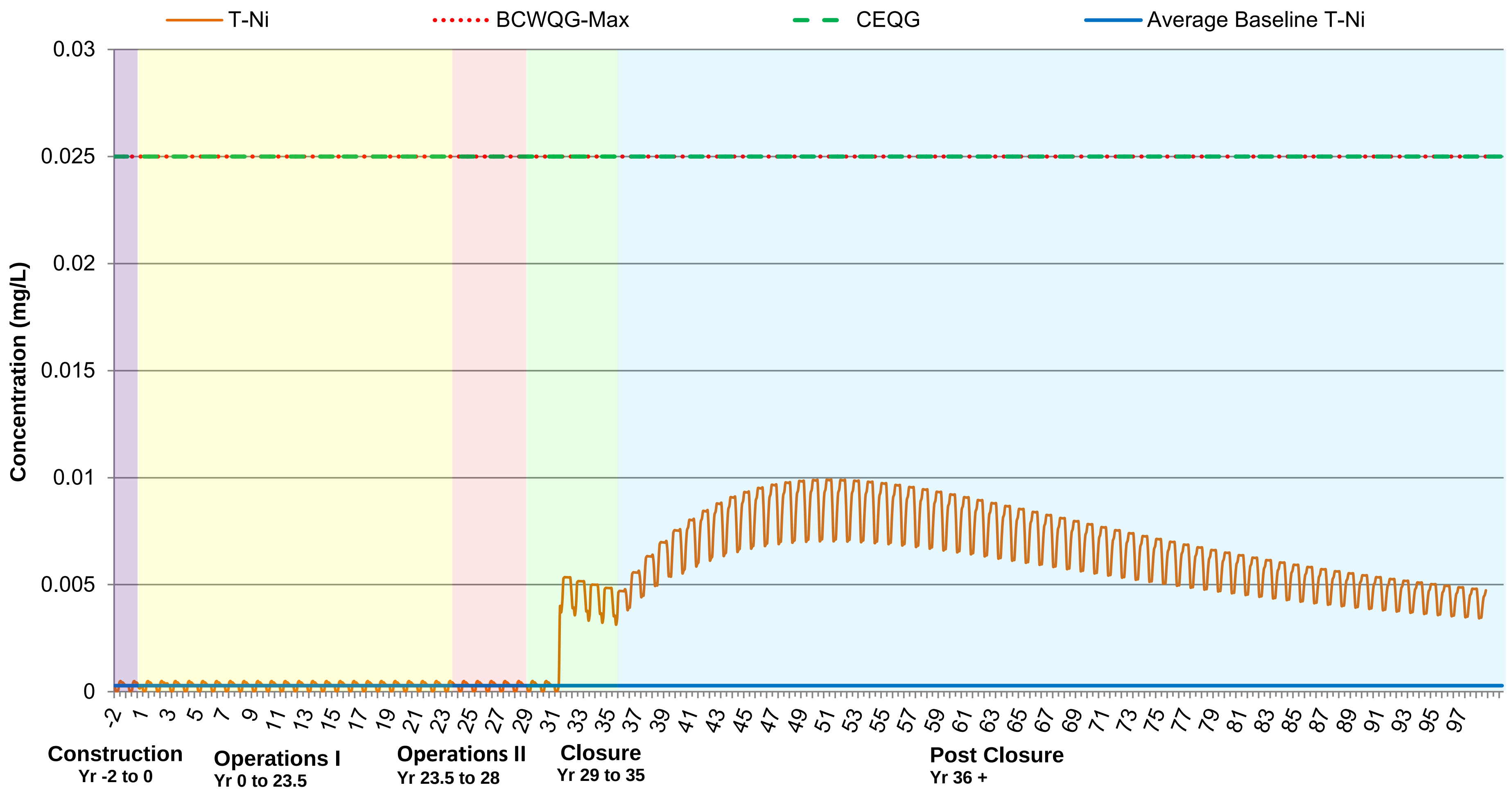
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Se

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - T-CREEK

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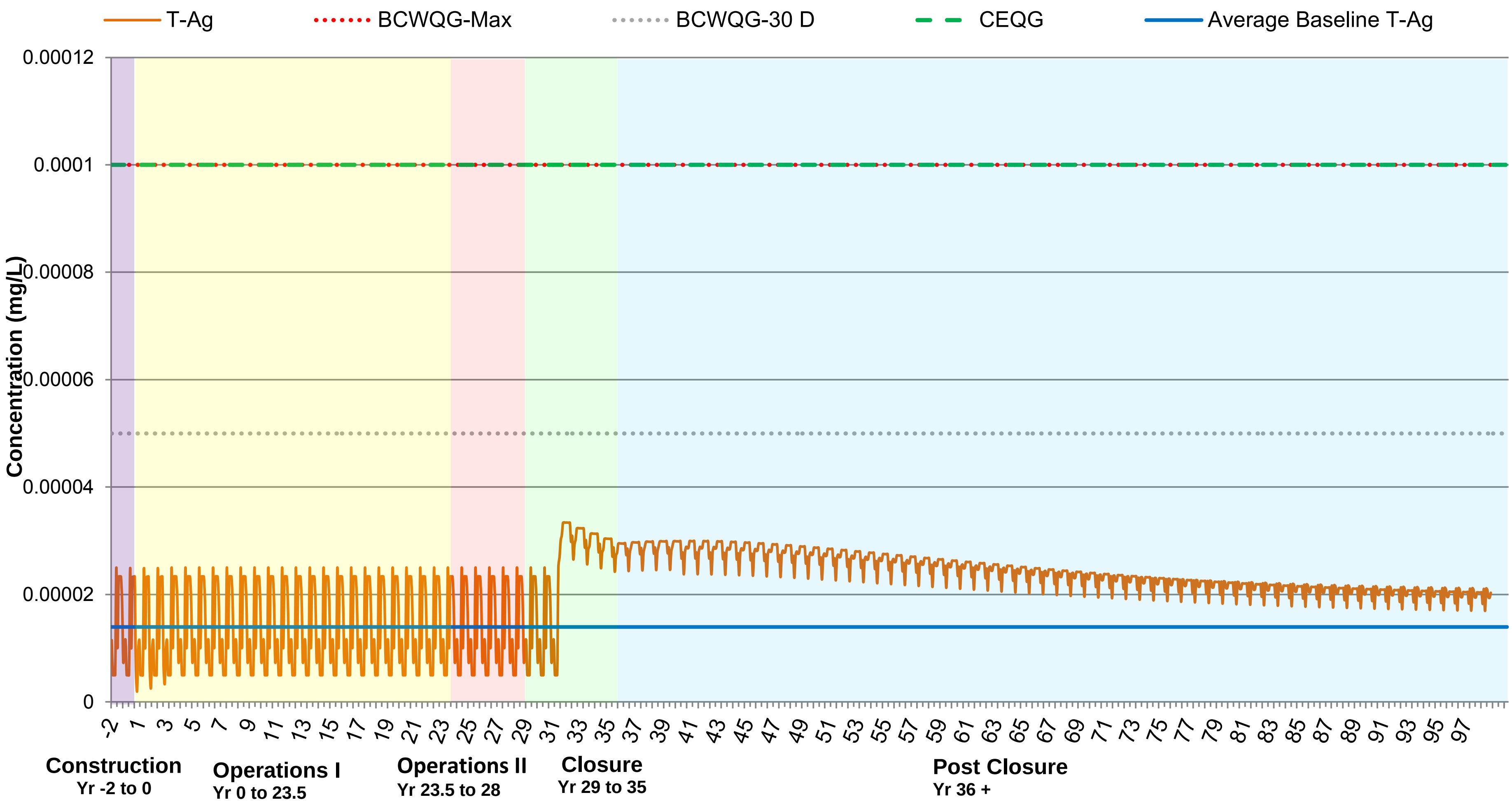
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Ni

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - T-CREEK

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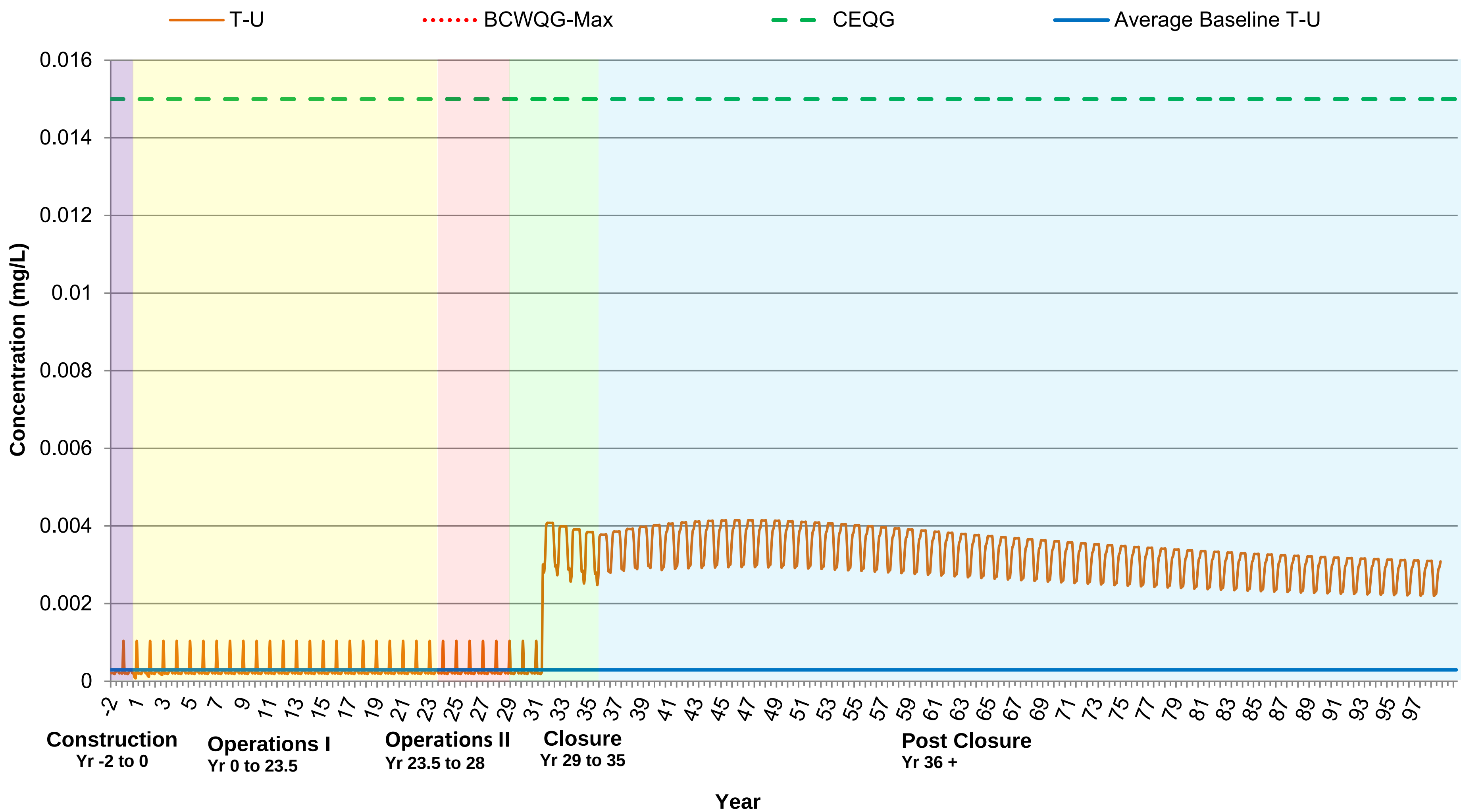
REF. NO. va14-01825

FIGURE A4.Ag

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. THE BCWQG-MAX (0.3 mg/L) IS NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - T-CREEK

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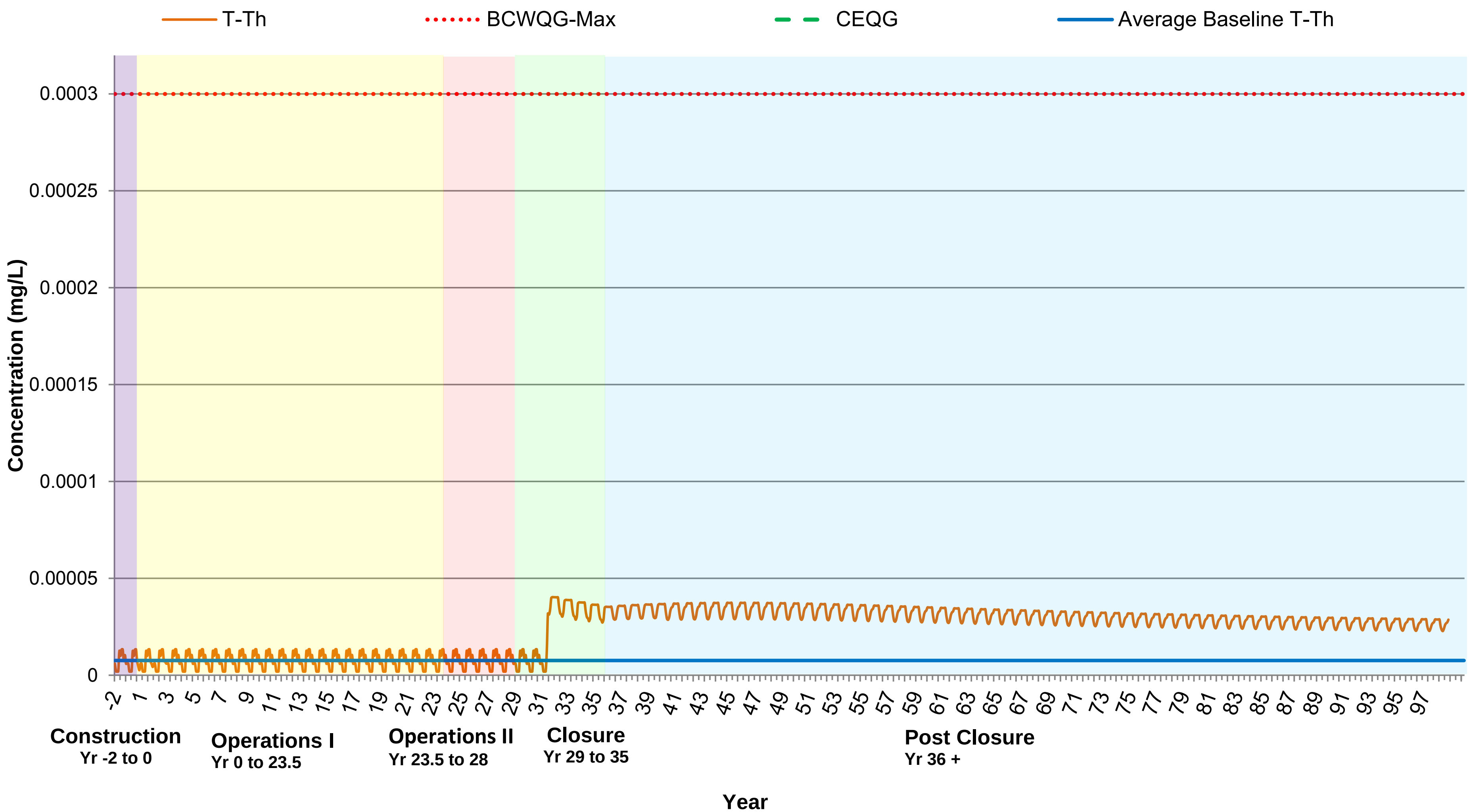
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.U

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. THE CEQG (0.0008 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - T-CREEK

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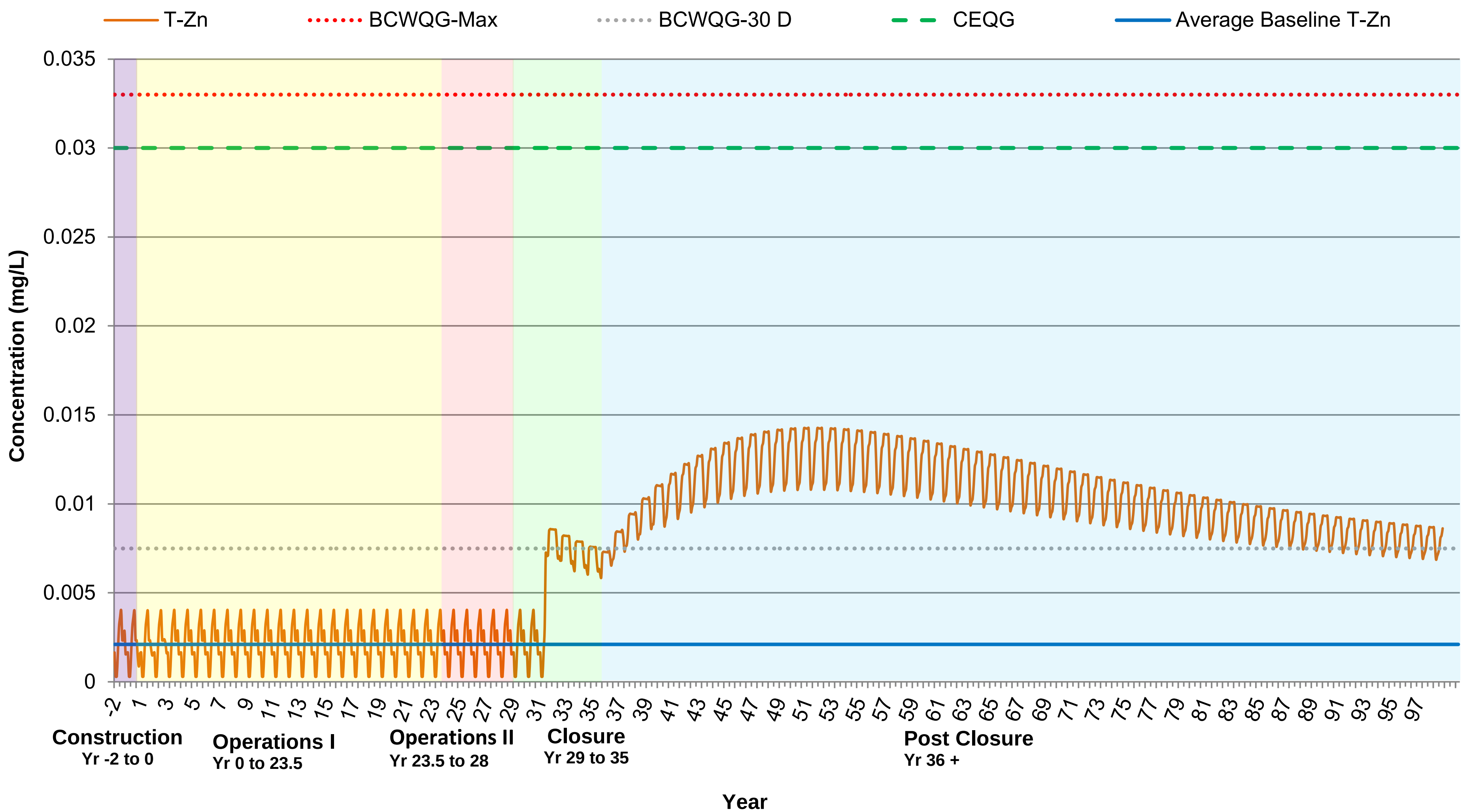
P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Th

REV 0



NOTES:

1. BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H3T (AVERAGE HARDNESS OF 19 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - T-CREEK

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P/A NO. VA101-458/17

REF. NO. va14-01825

FIGURE A4.Zn

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

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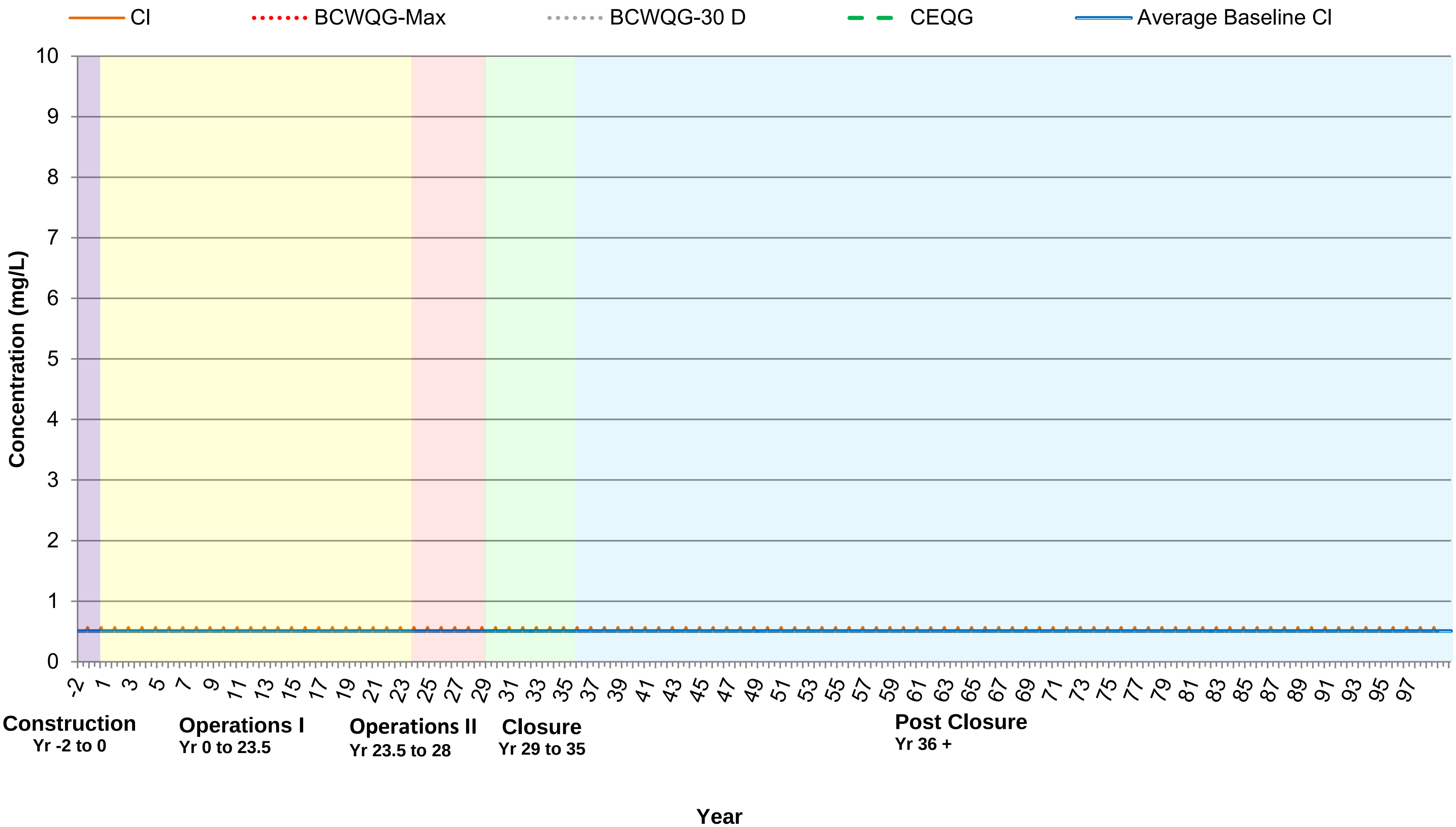
APPENDIX A5

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – HARPER CREEK BELOW P-CREEK

(Pages A5-1 to A5-30)



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. ALL GUIDELINES ARE NOT SHOWN: BCWQG-30 D (150 mg/L); BCWQG-MAX (600 mg/L); CEQG (120 mg/L AND 640 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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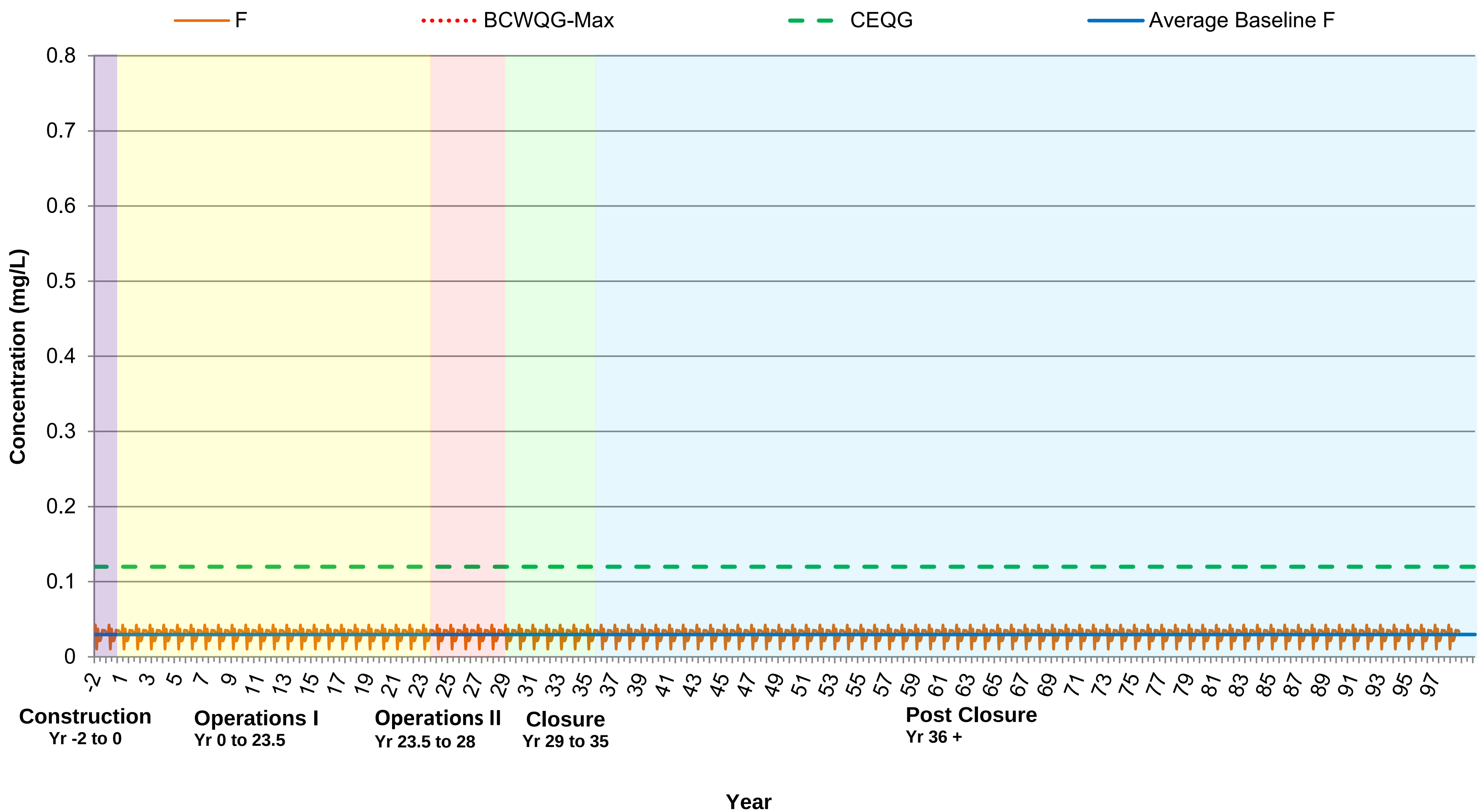
P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.CI

REV 0



NOTES:

1. THE BCWQG-MAX IS HARNDESS DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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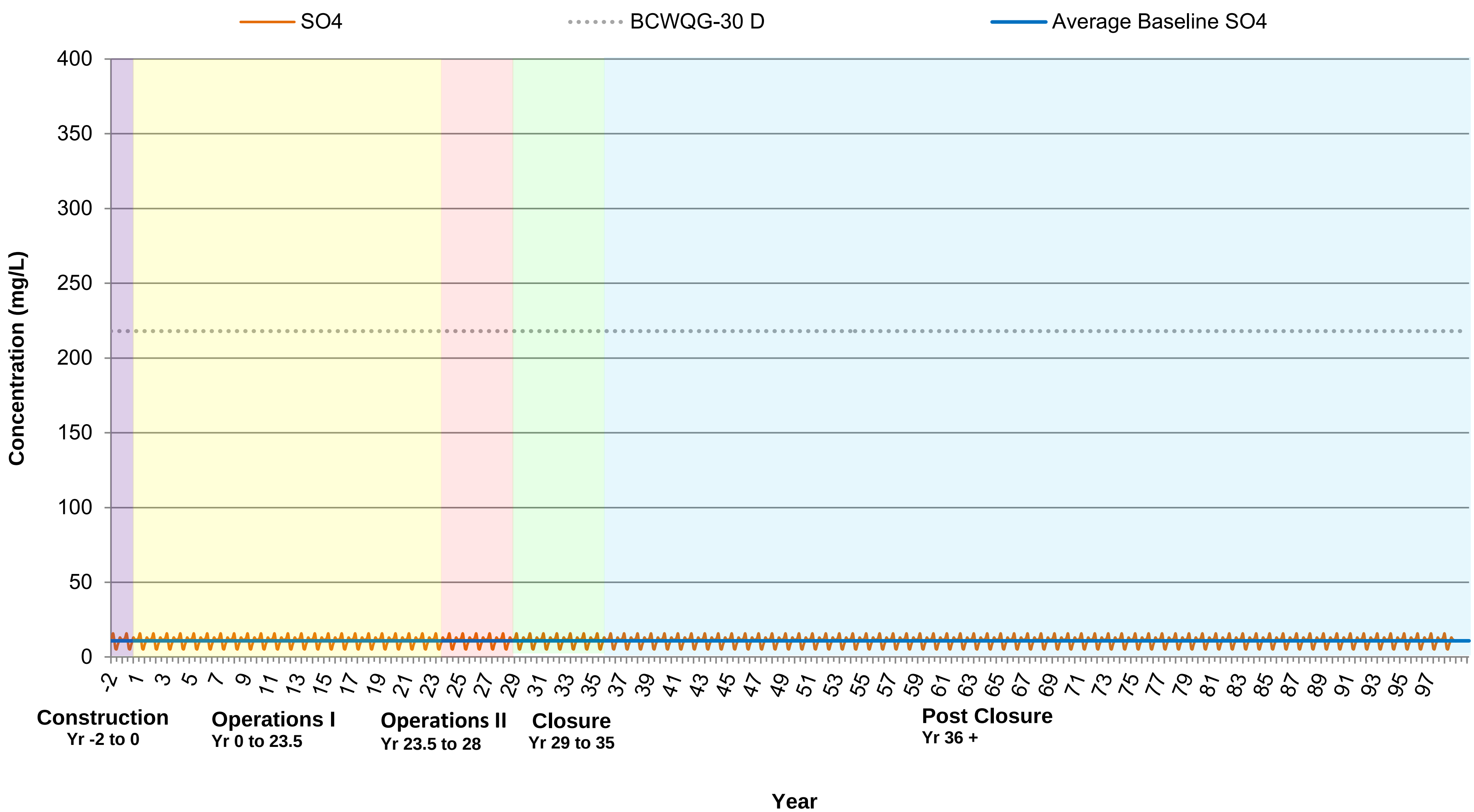
P/A NO. VA101-458/14 | REF. NO. VA14-01825

FIGURE A5.F REV 0



NOTES:

1. BCWQG-30 D IS HARDNESS DEPEDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

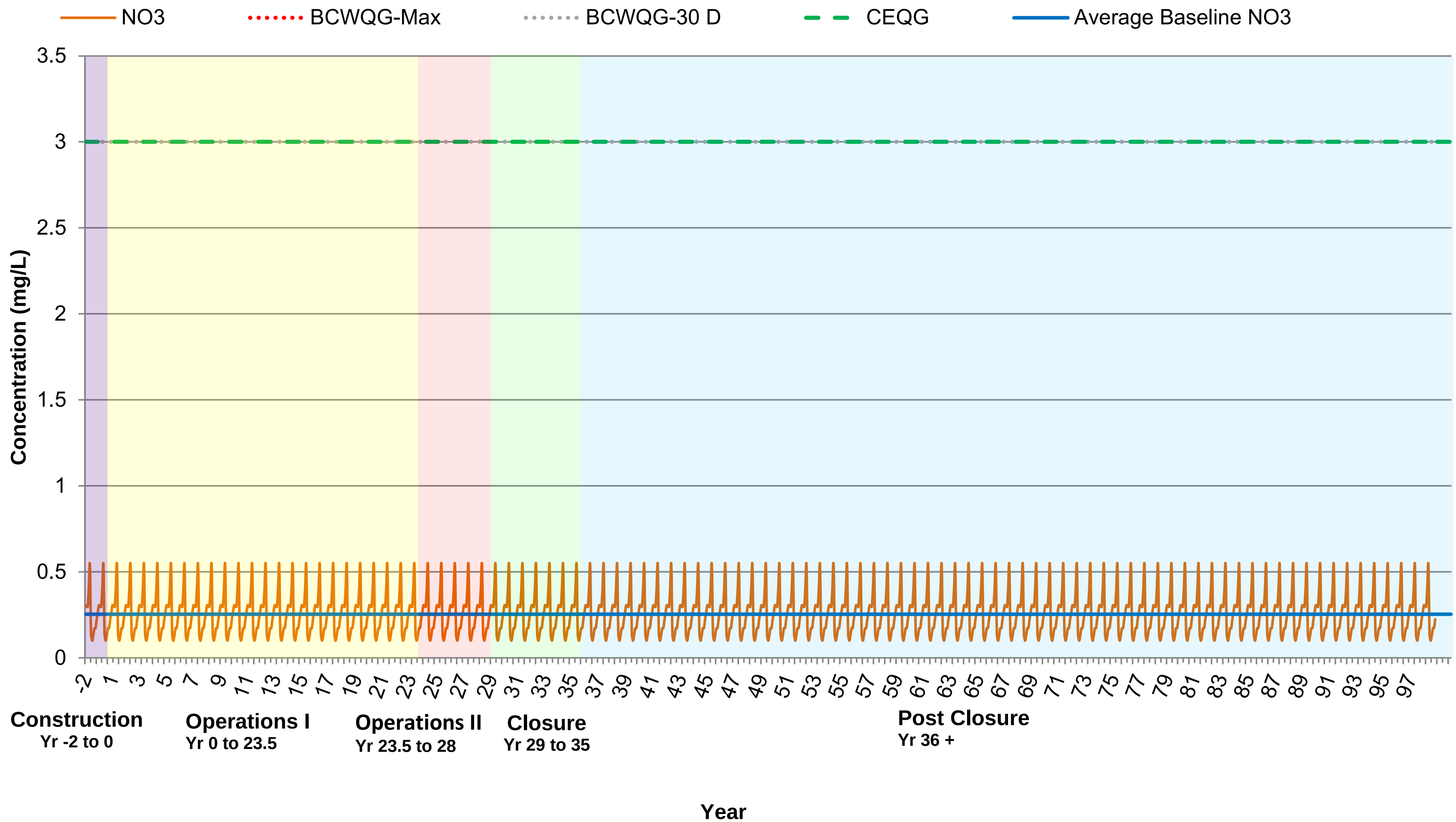
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.S04

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-MAX (32.8 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

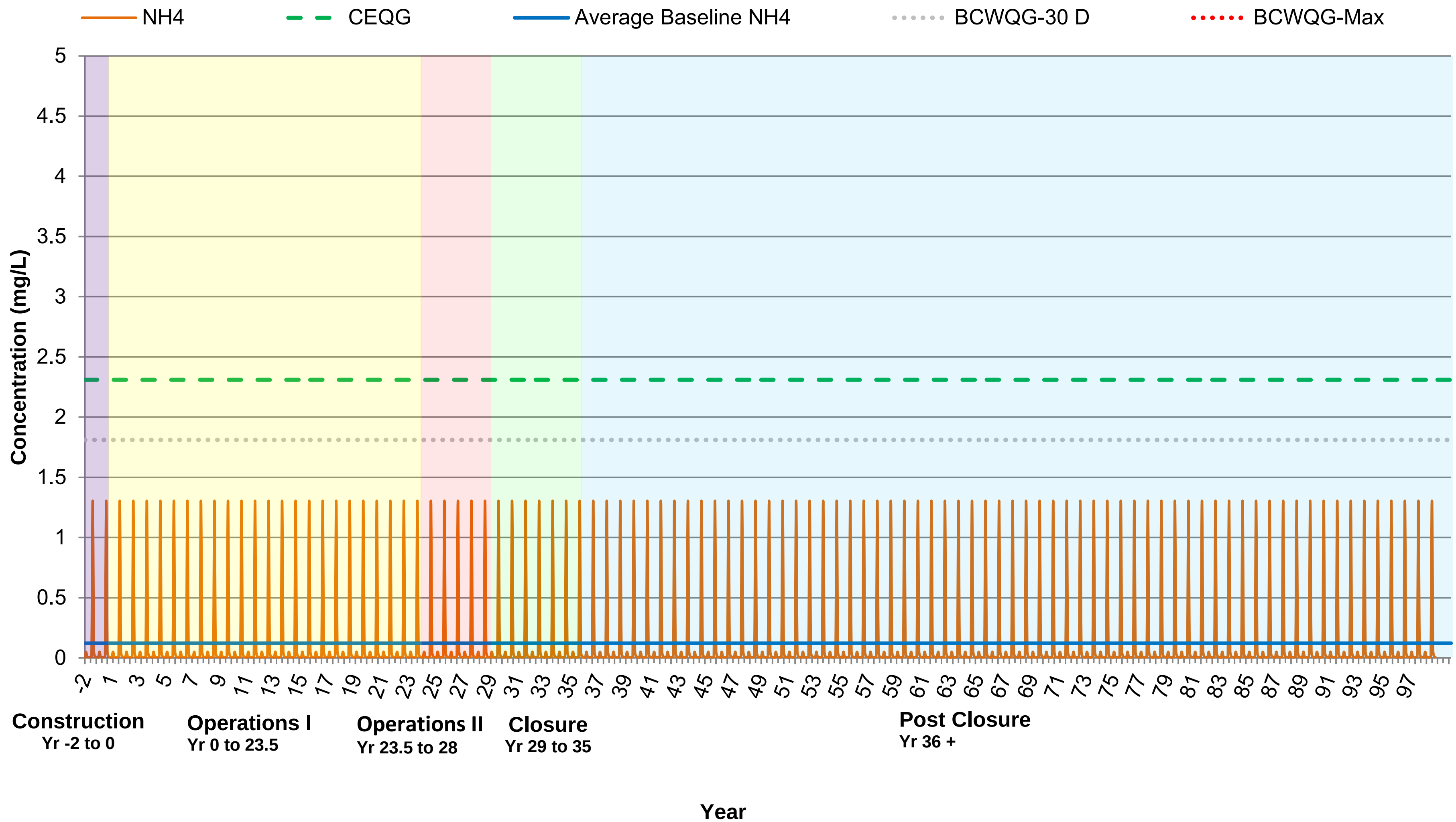
HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

Knight Piésold CONSULTING

P/A NO. VA101-458/14	REF. NO. VA14-01825
FIGURE A5.NO3	REV 0



NOTES:

1. THE BCWQG-30 D IS VALID FOR ONLY 6.5≤pH<9 AND 0°C≤T≤20°C.
2. THE BCWQG-MAX (20.15 mg/L) VALID FOR 6.5≤pH<9 IS NOT SHOWN.
3. THE CEQG IS TO BE USED WITH CAUTION FOR WATER WITH T<5°C AND pH>9.
4. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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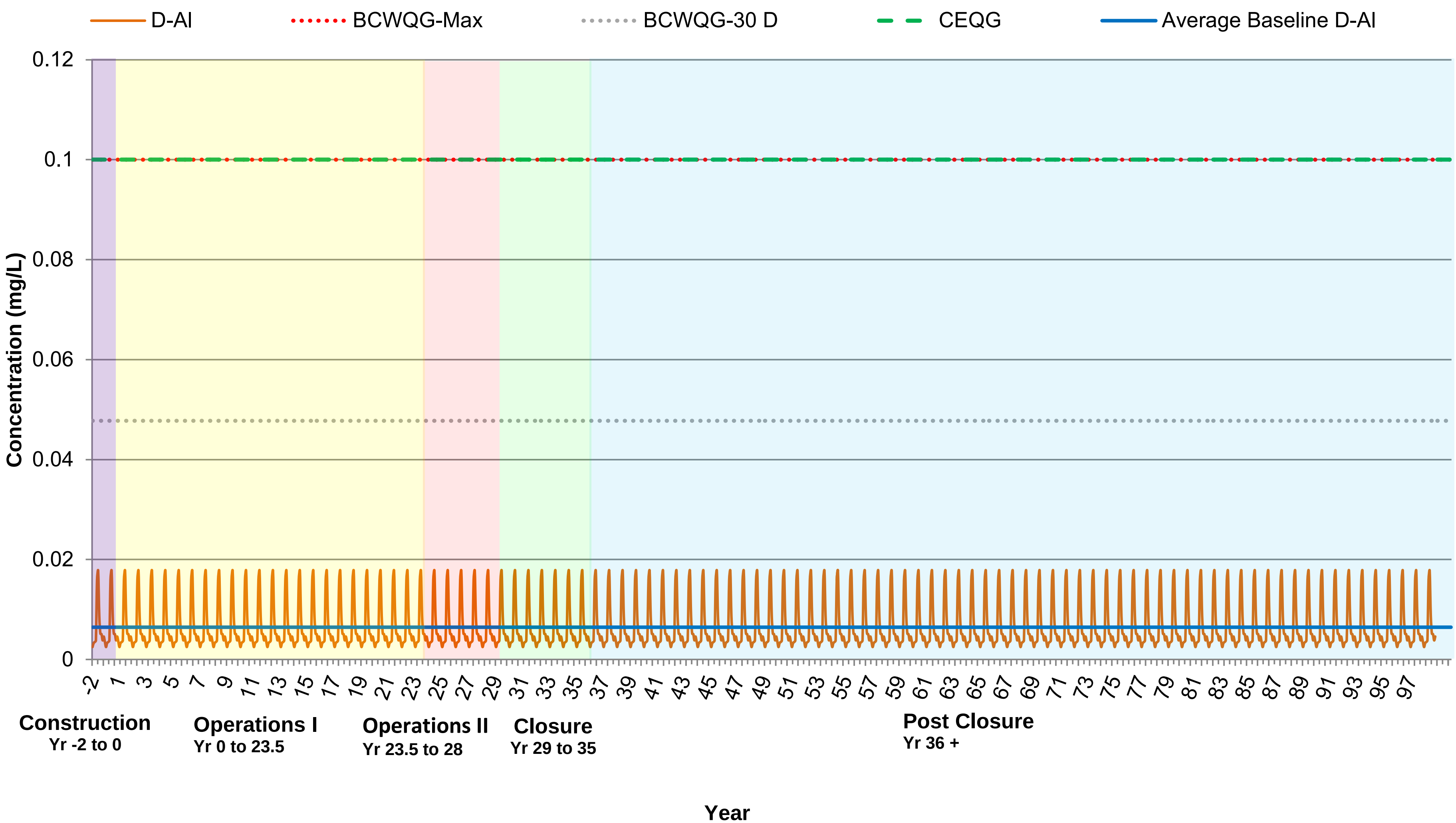
P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.NH4

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE pH-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE pH USED TO CALCULATE GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED ALUMINUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

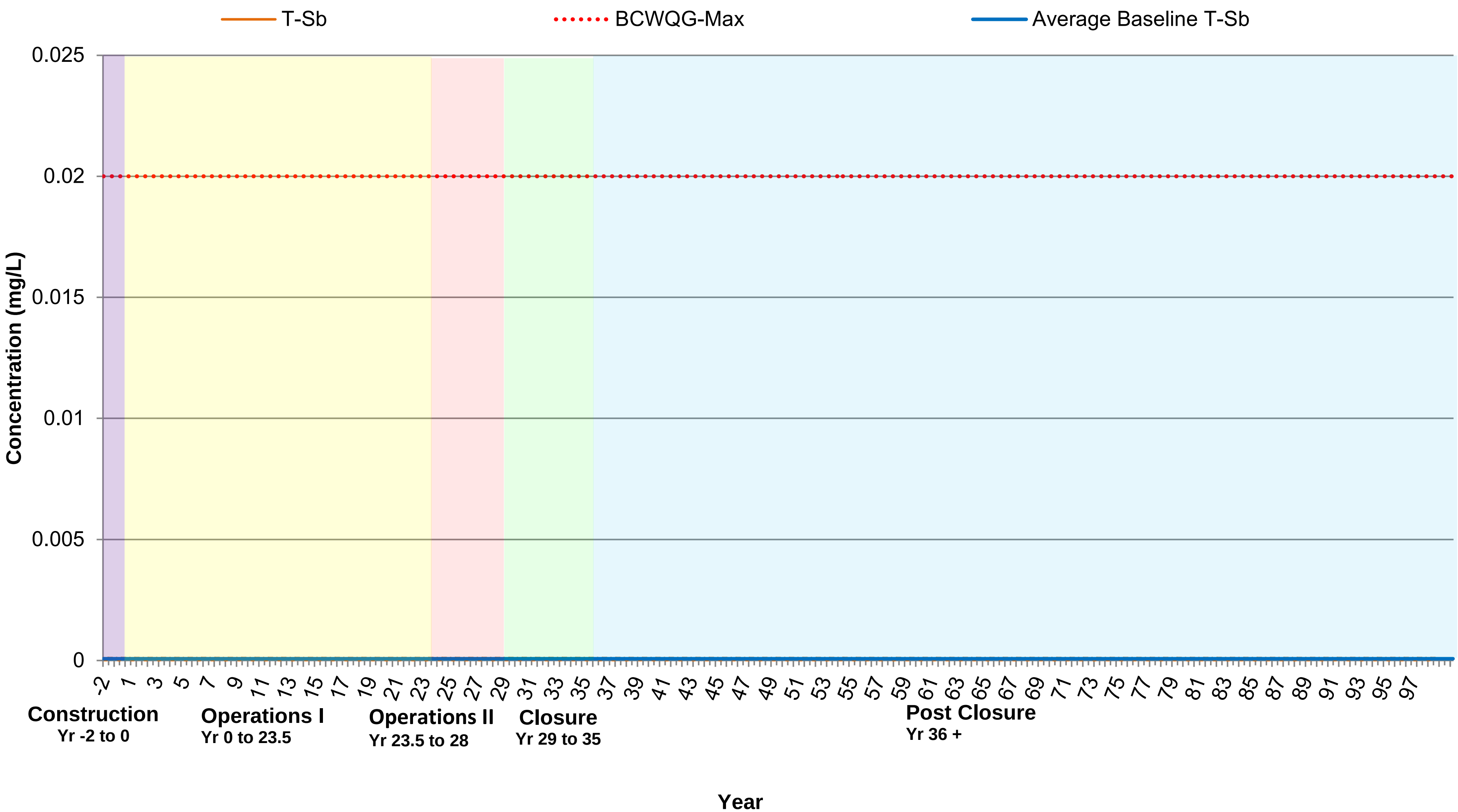
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Al

REV 0



NOTES:

1. THE BCWQG IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

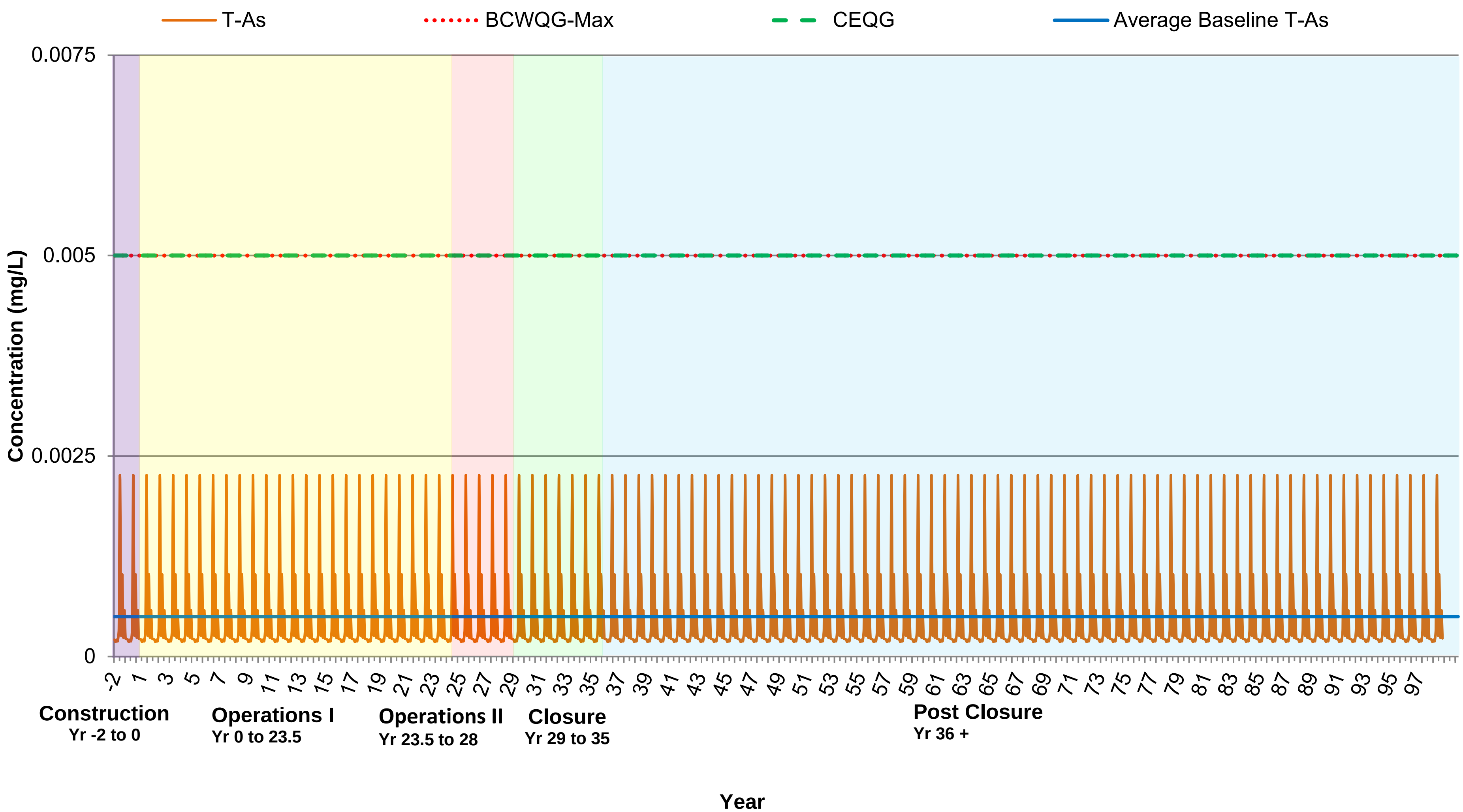
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Sb

REV 0



NOTES:

1. THE BCWQG AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

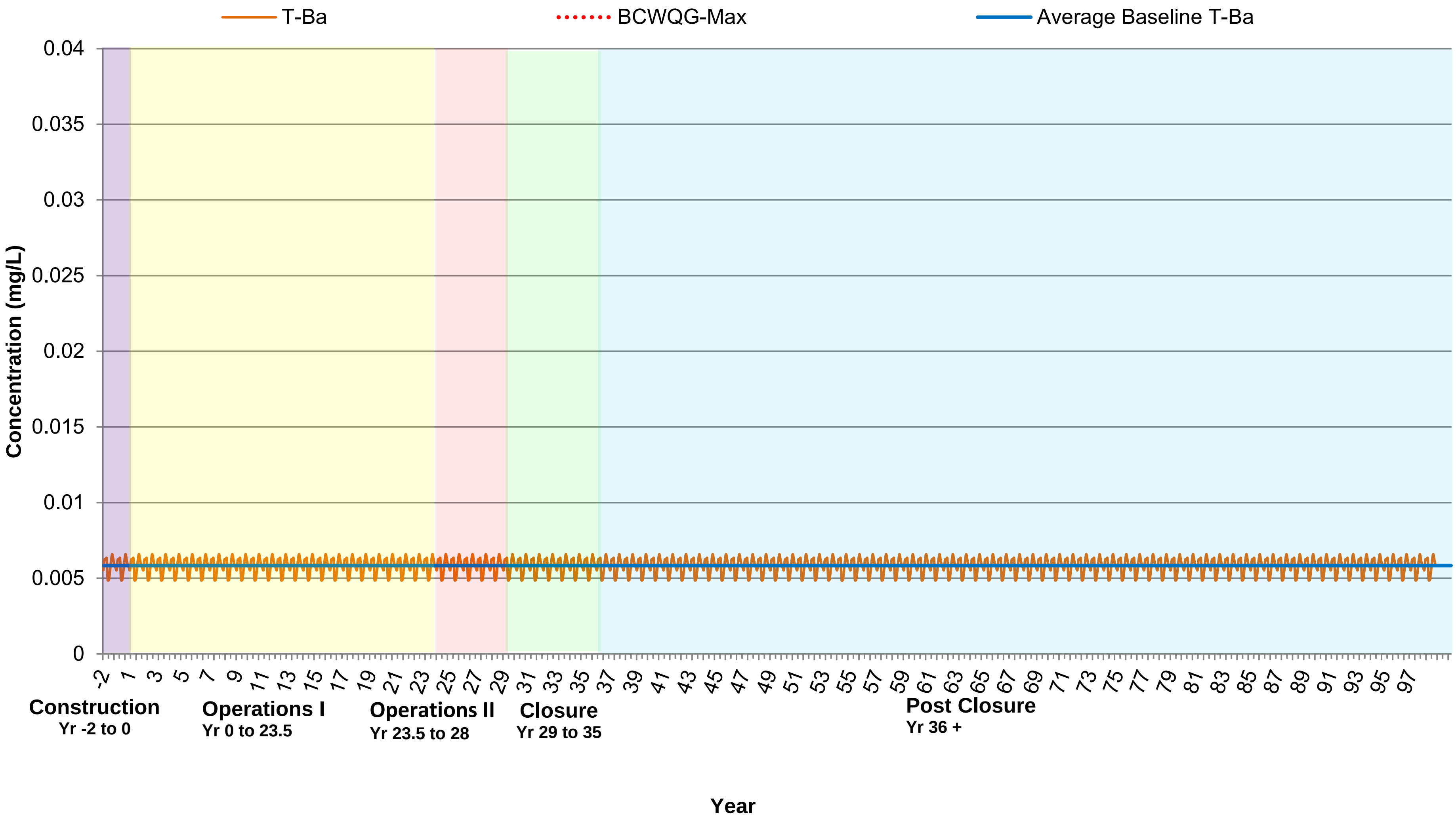
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.As

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-30 D (1 mg/L) AND BCWQG-MAX (5 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

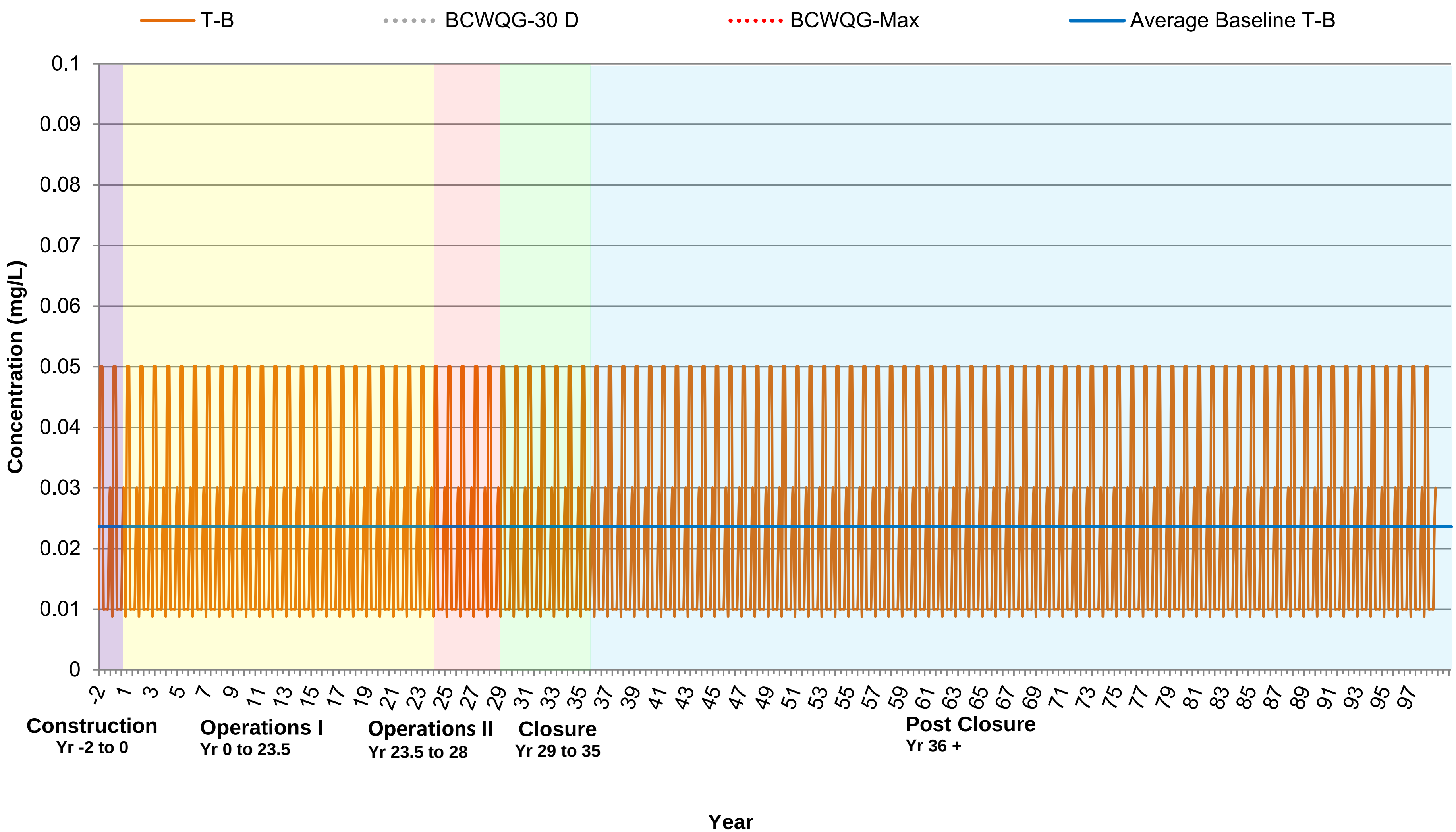
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Ba

REV 0



NOTES:

1. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
3. THE BCWQG-MAX (1.2 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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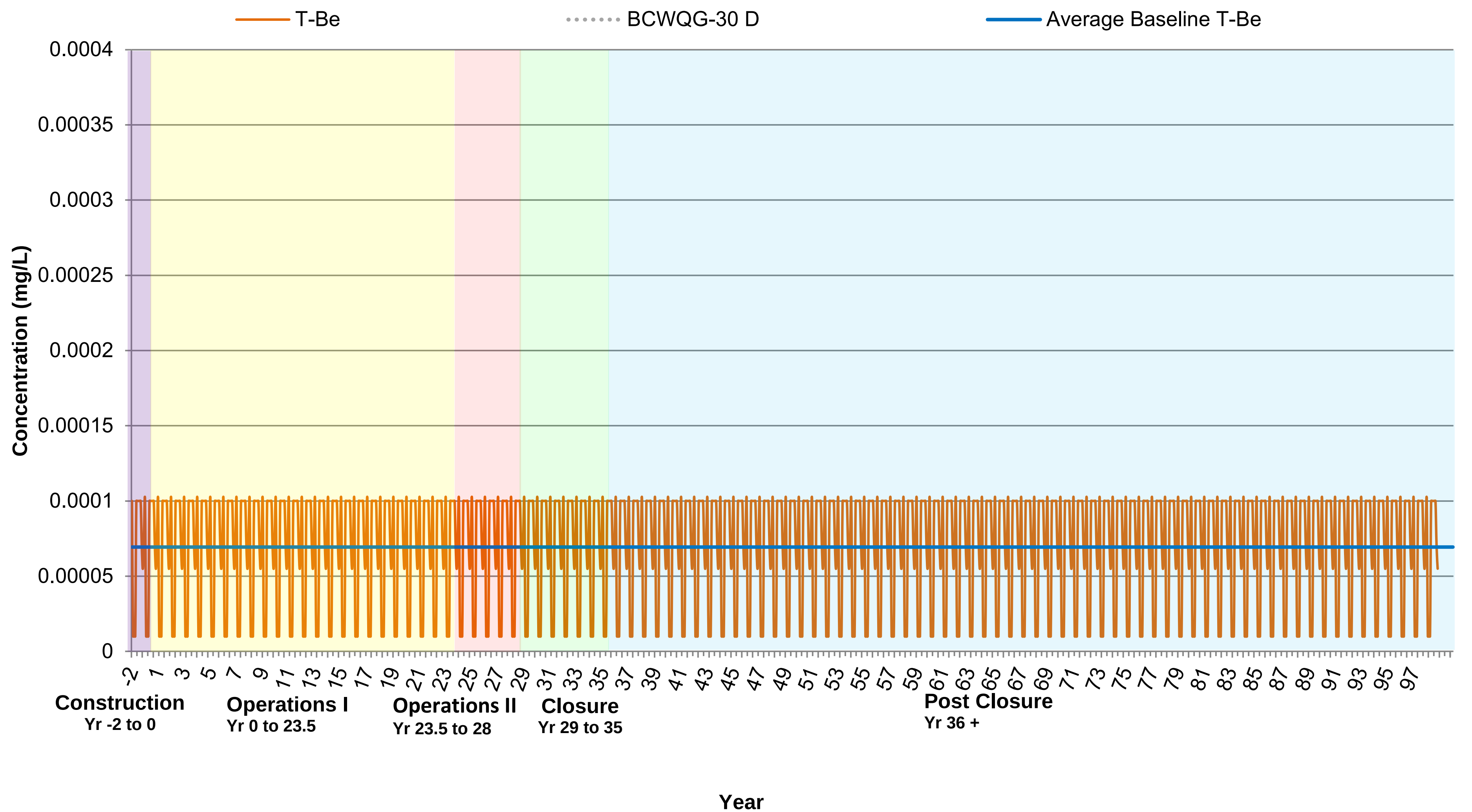
P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.B

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-30 D (0.0053 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BERYILLIUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

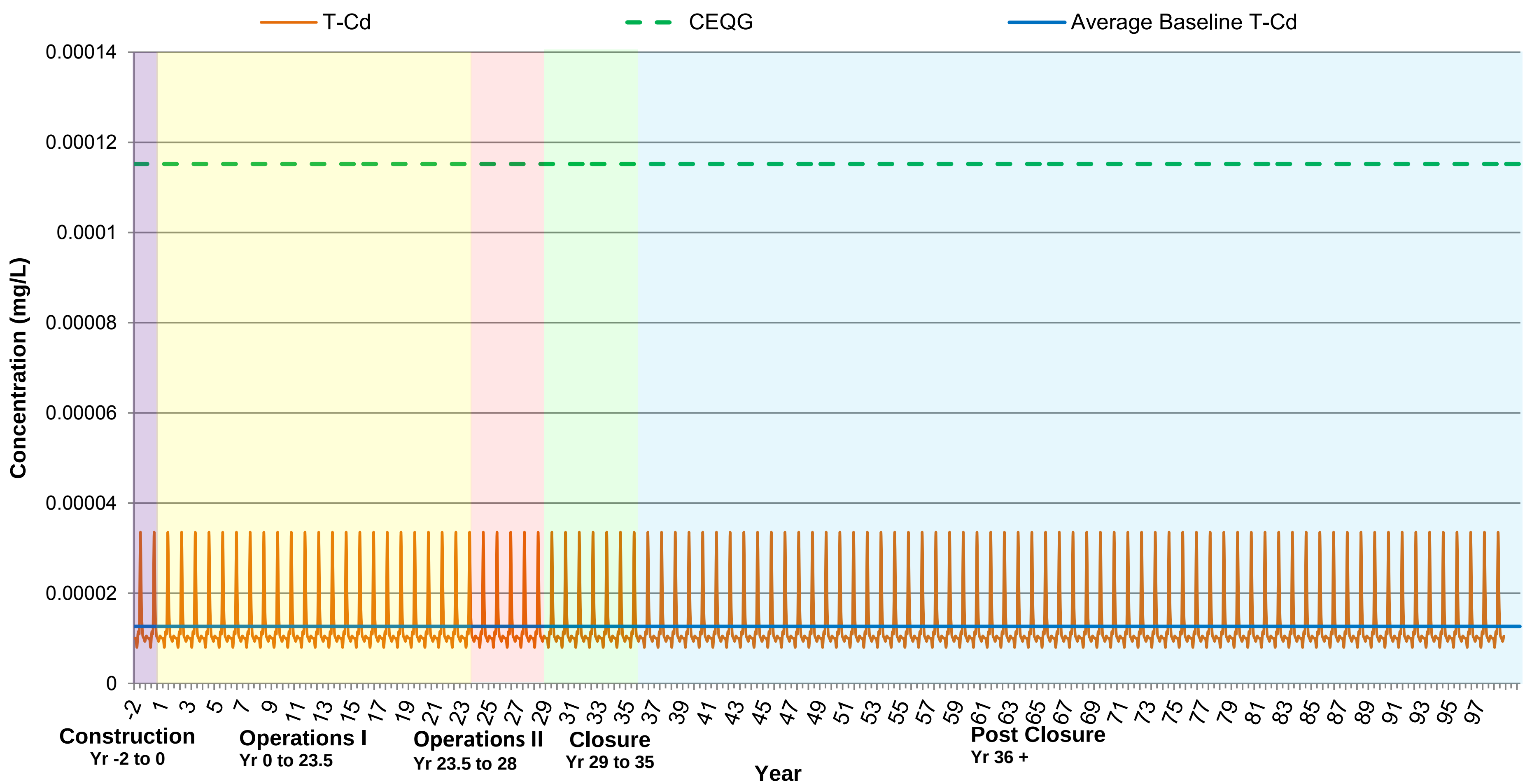
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Be

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. THE BCWQG ARE DRAFT GUIDELINES UNDER REVIEW (JUNE 2014).
3. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
4. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

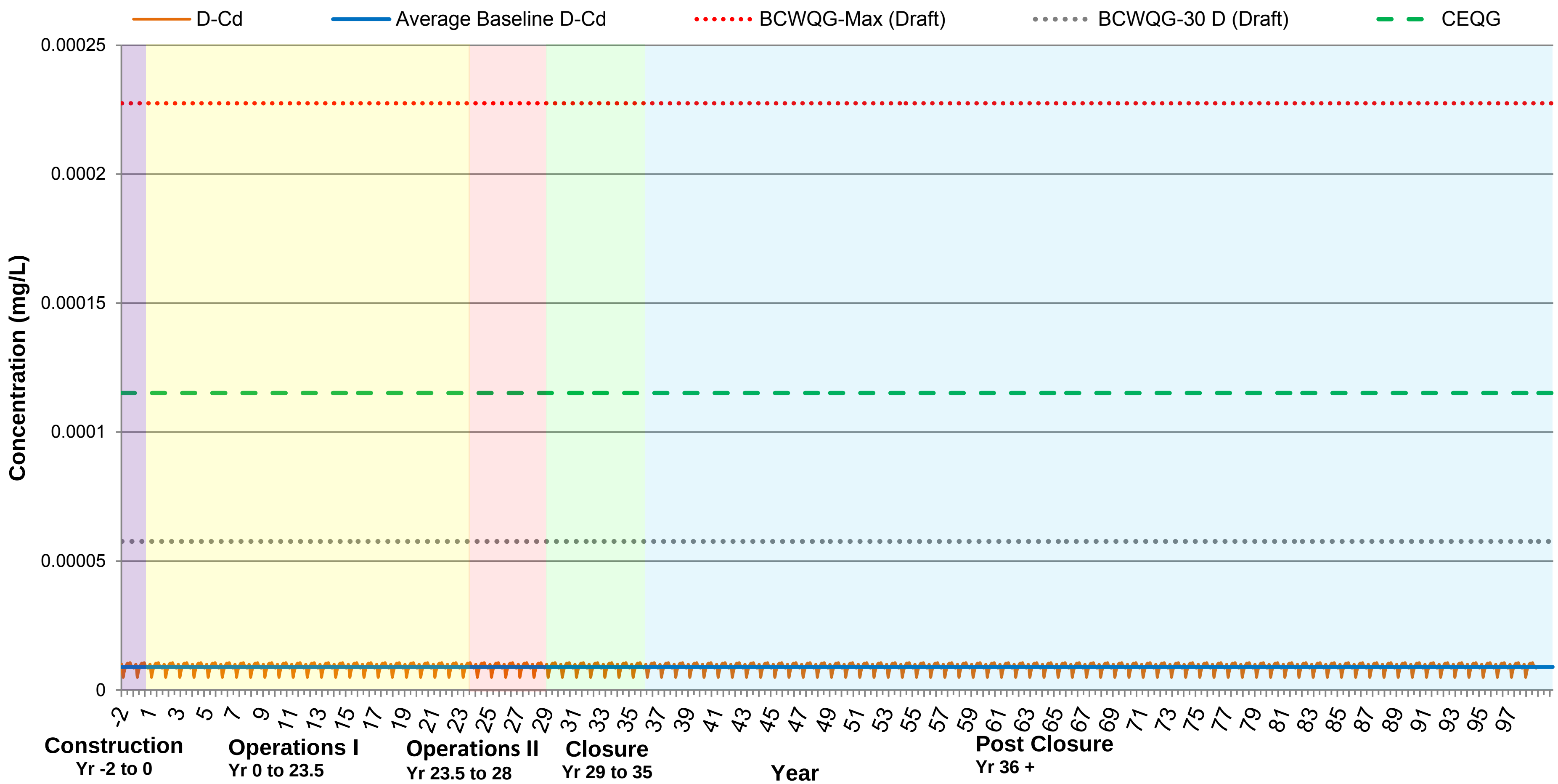
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Cd-T

REV 0



NOTES:

1. BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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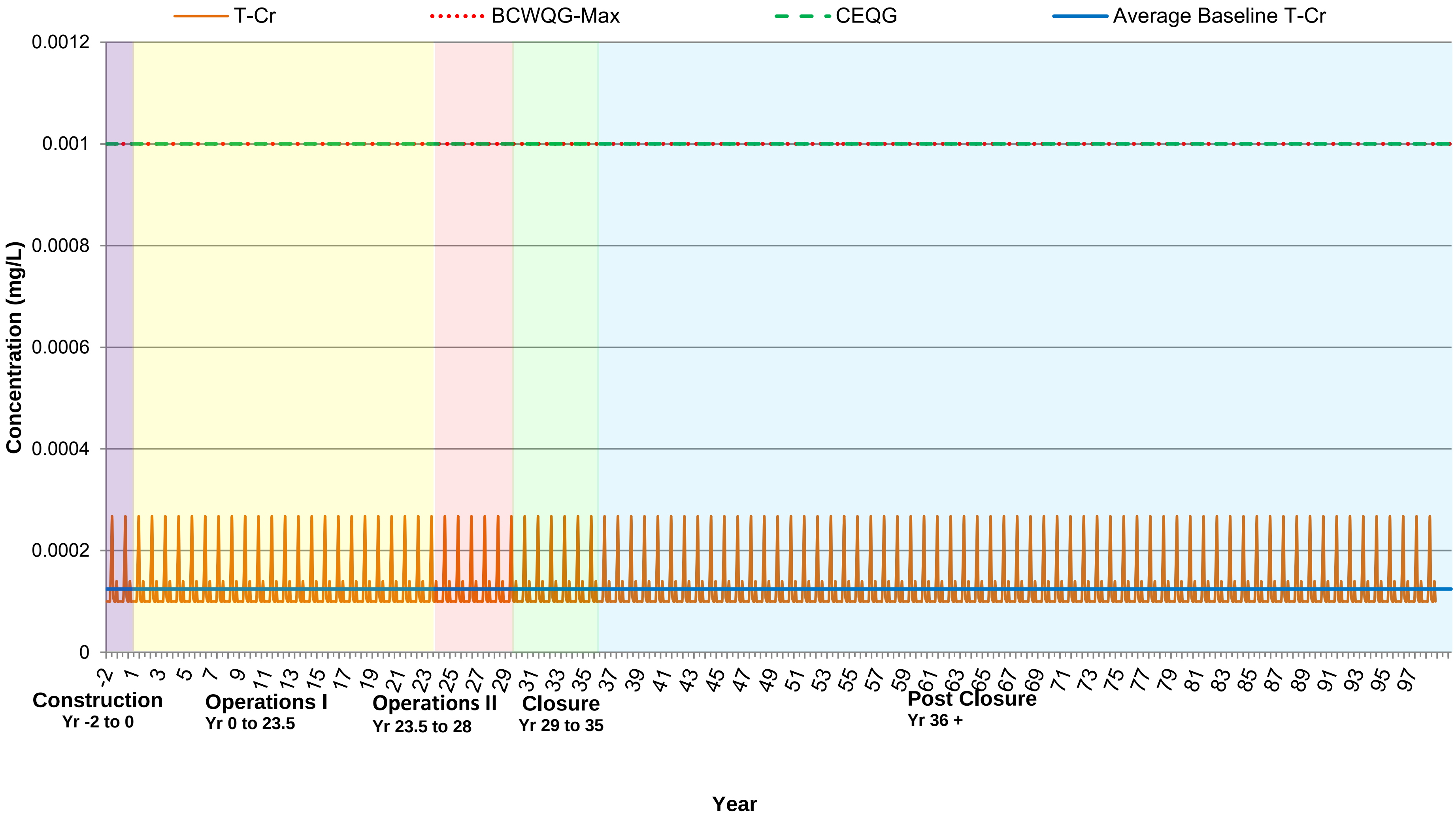
P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Cd-D

REV 0



NOTES:

1. GUIDELINES ARE FOR CHROMIUM (IV), THE SPECIES MOST COMMON IN WELL OXYGENATED SURFACE WATERS.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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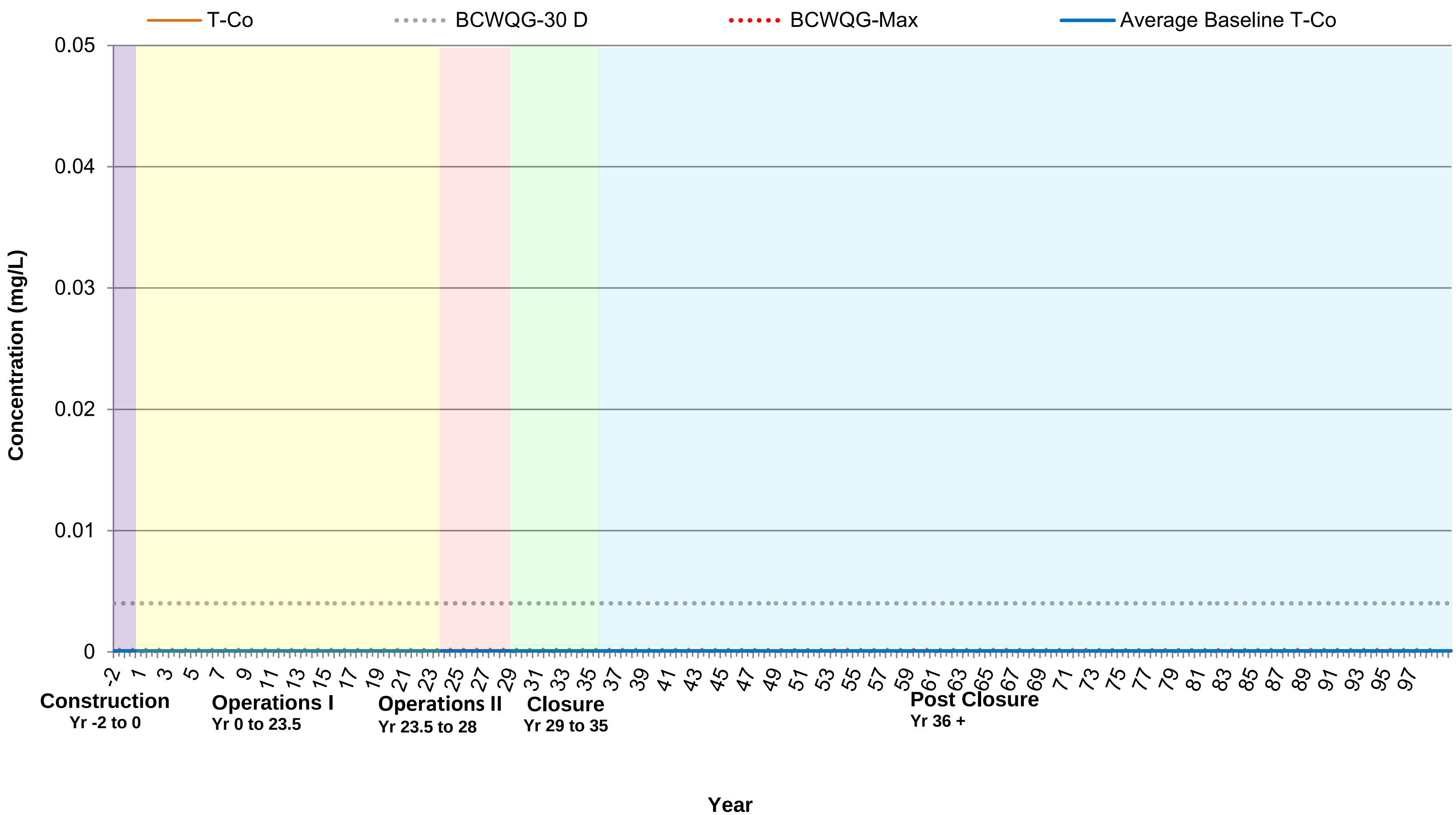
P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Cr

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-MAX GUIDELINE (0.11 mg/L) IS NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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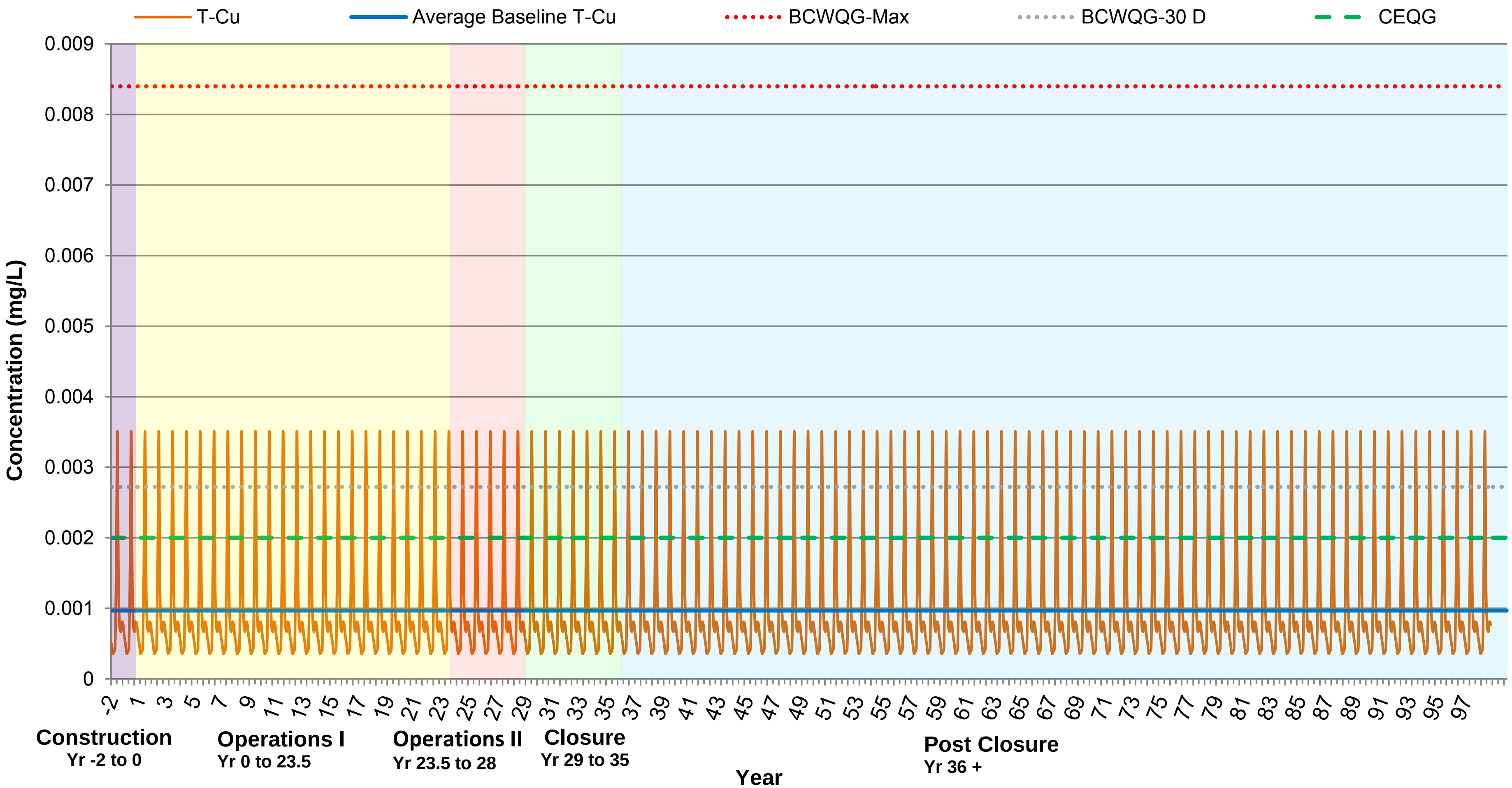
P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Co

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

Knight Piésold CONSULTING

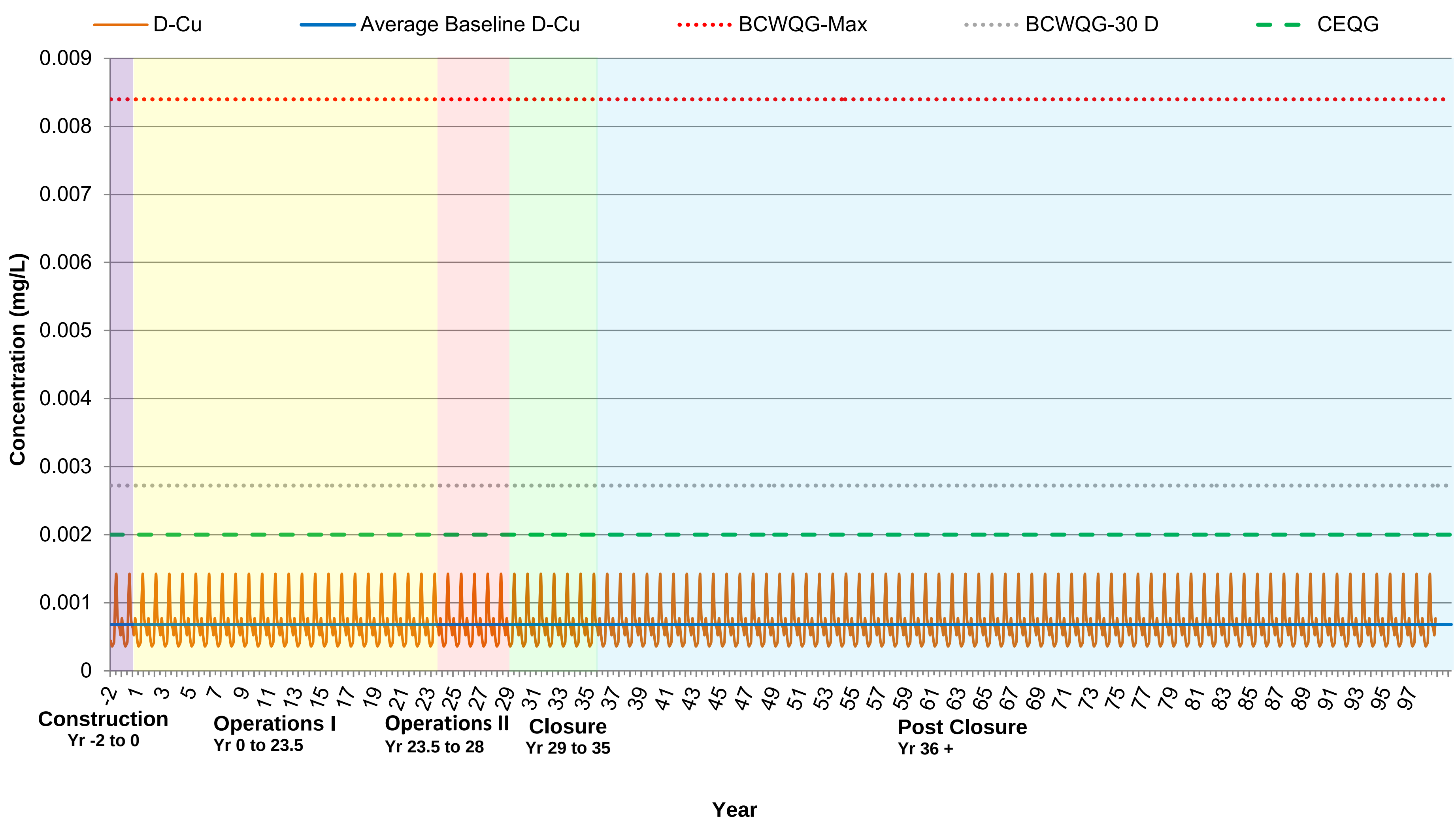
P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Cu-T

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

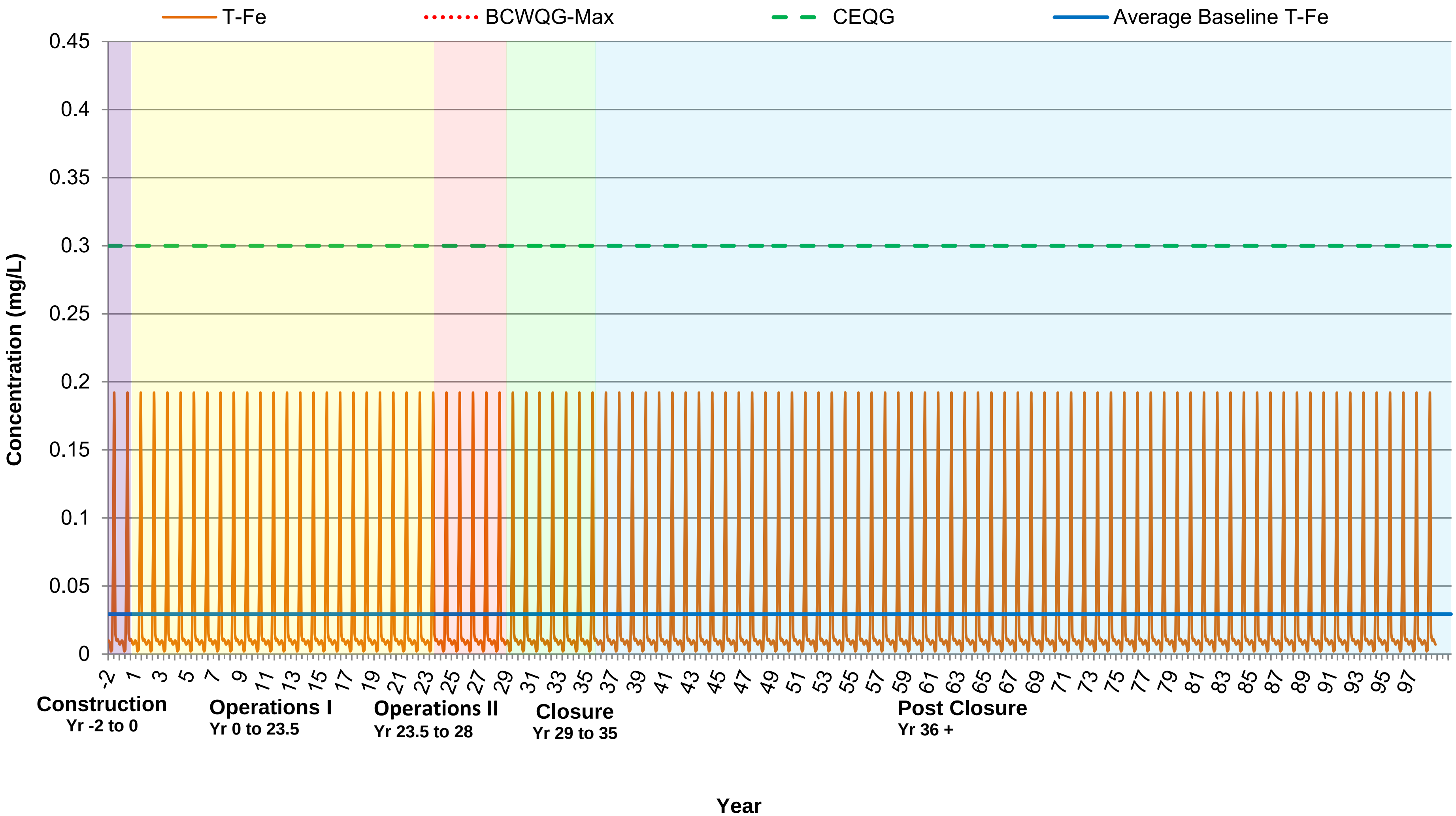
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Cu-D

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. BCWQG-MAX 1.0 mg/L IS NOT SHOWN ON GRAPH.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT TOTAL IRON CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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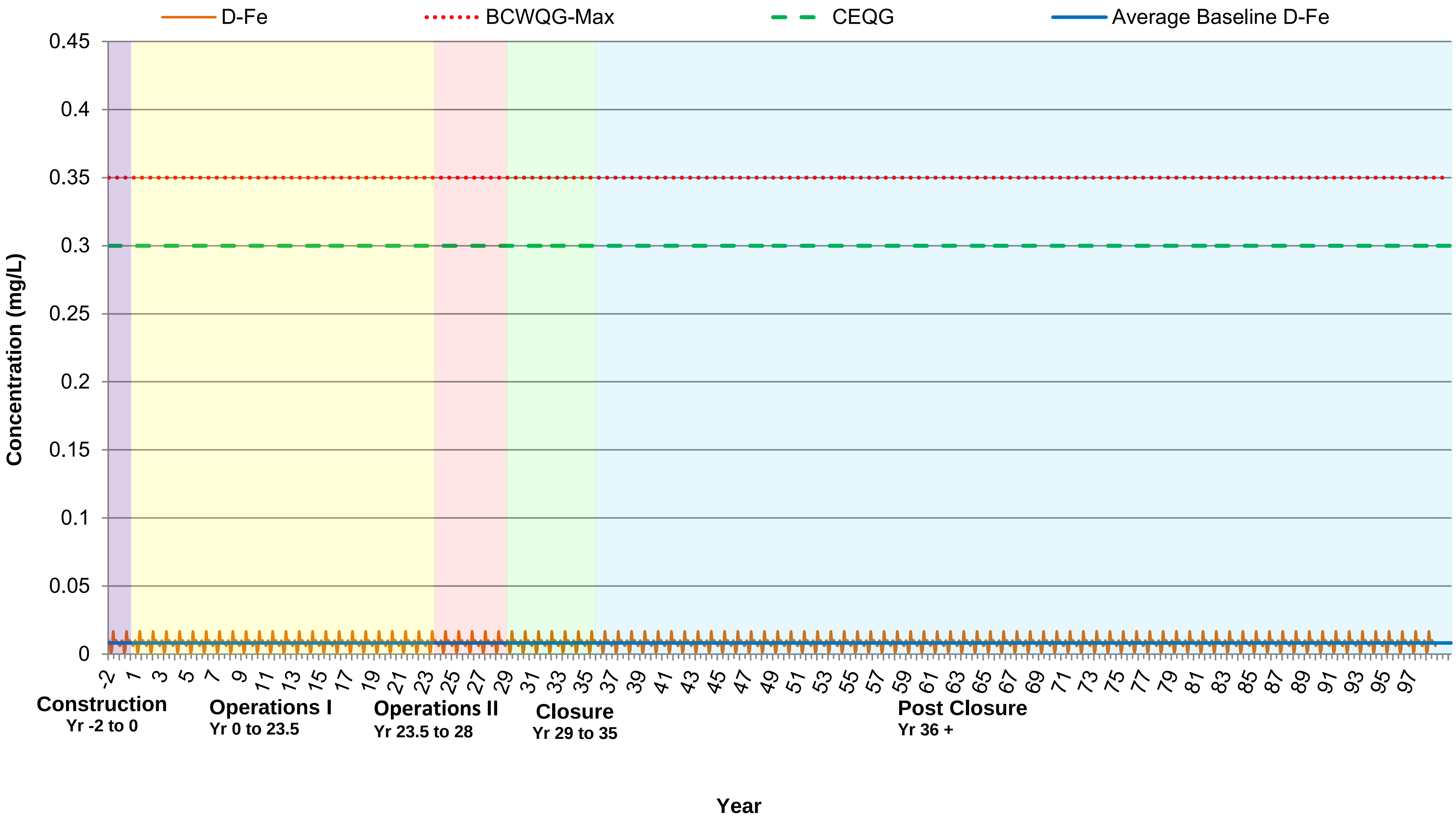
P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Fe-T

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED IRON CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

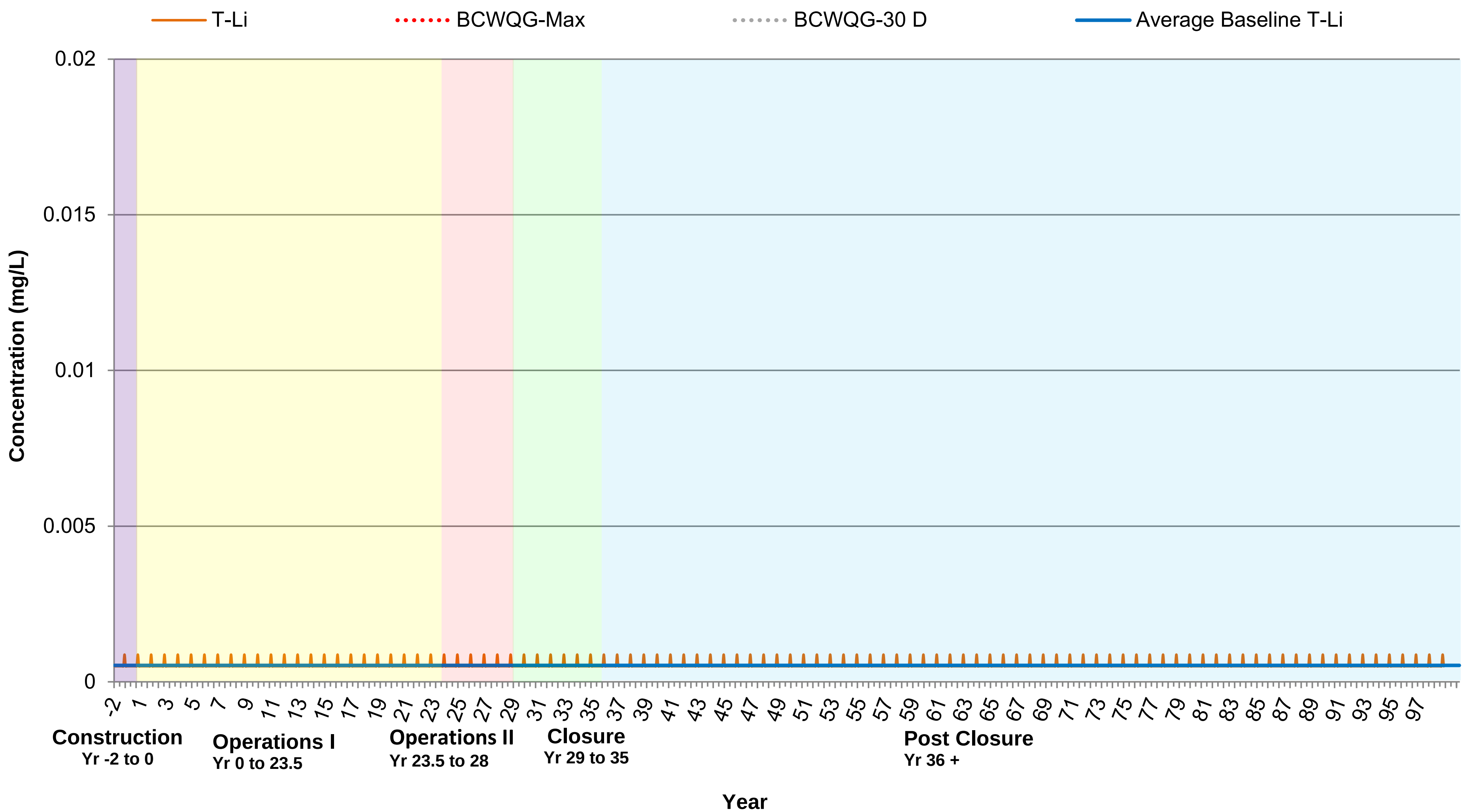
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Fe-D

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-30 D (0.096 mg/L) AND BCWQG-MAX (0.87 mg/L) ARE INTERIM (WORKING) AND ARE NOT SHOWN ON GRAPH.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LITHIUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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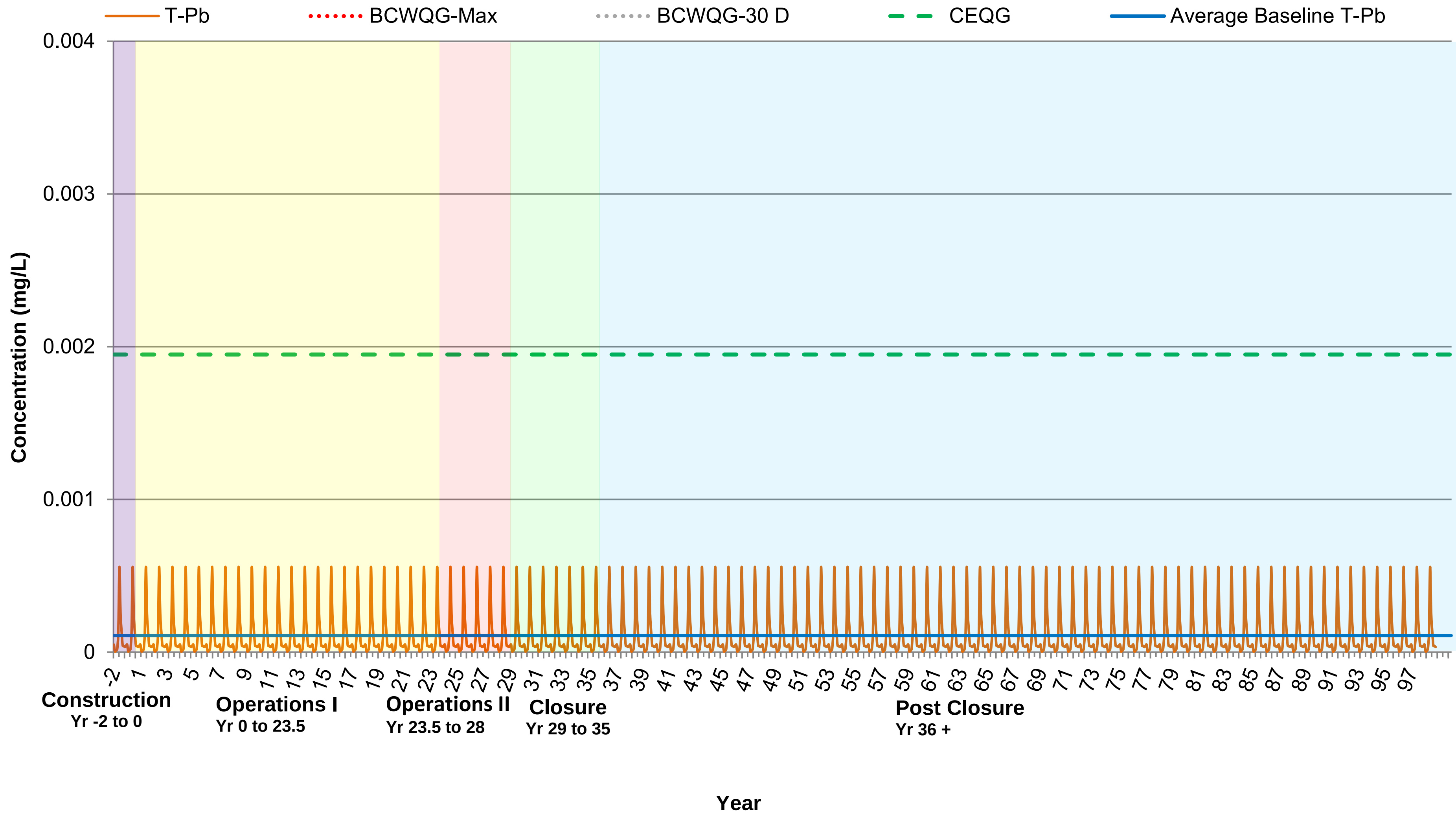
P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Li

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
4. THE BCWQG-MAX (CALCULATED AT 0.011 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

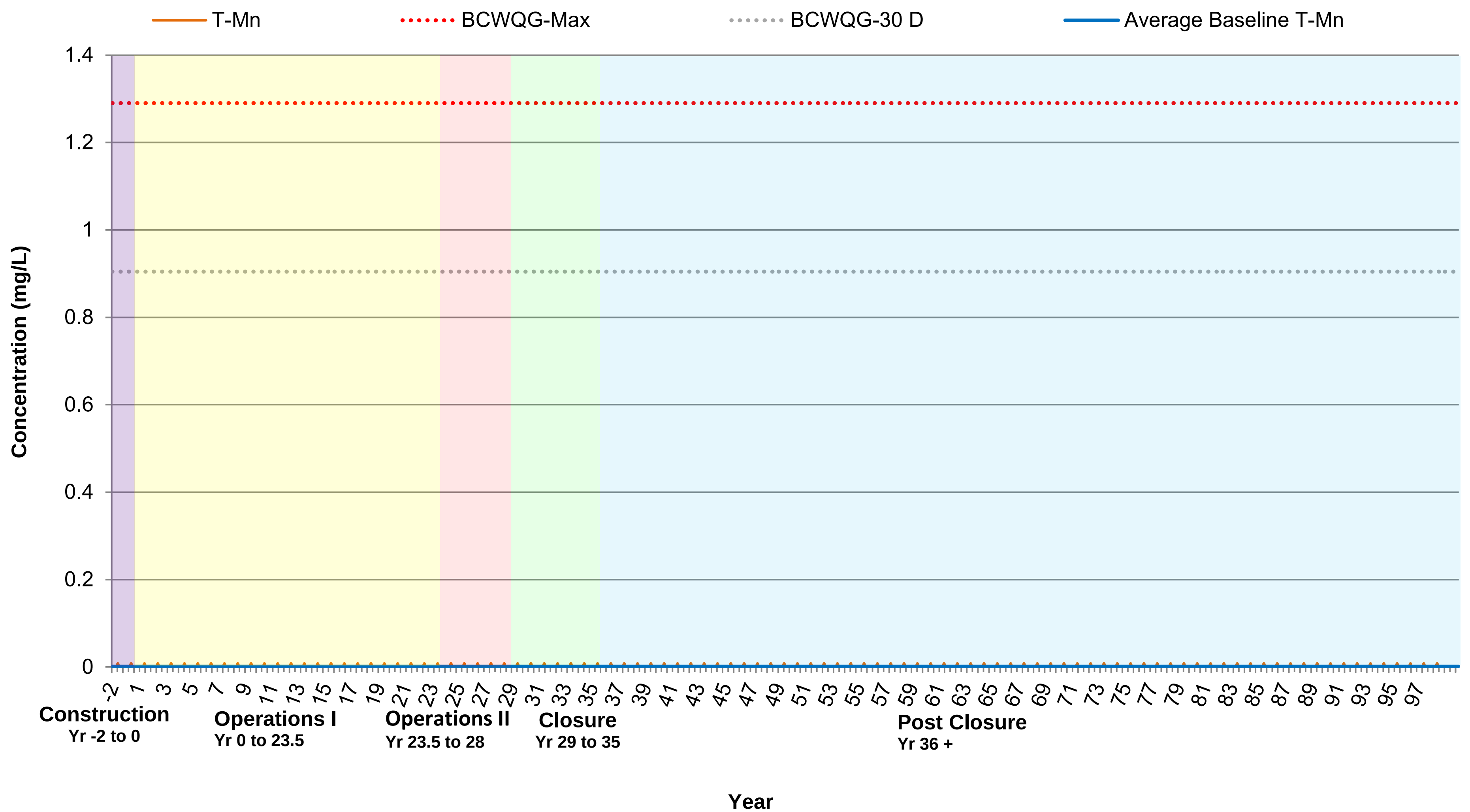
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Pb

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

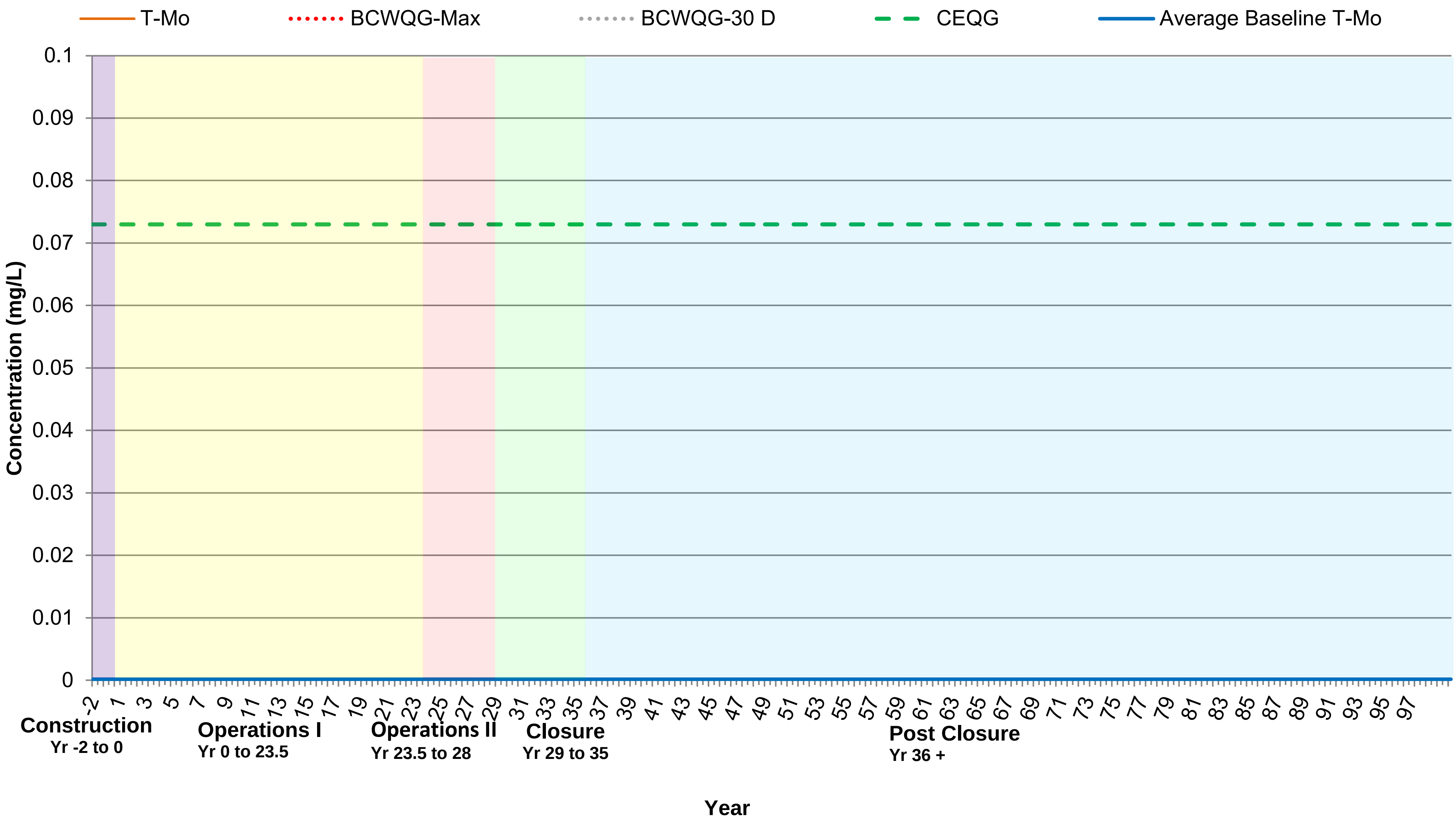
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Mn

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-MAX (2 mg/L) AND BCWQG-30 D (1 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYBDENUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

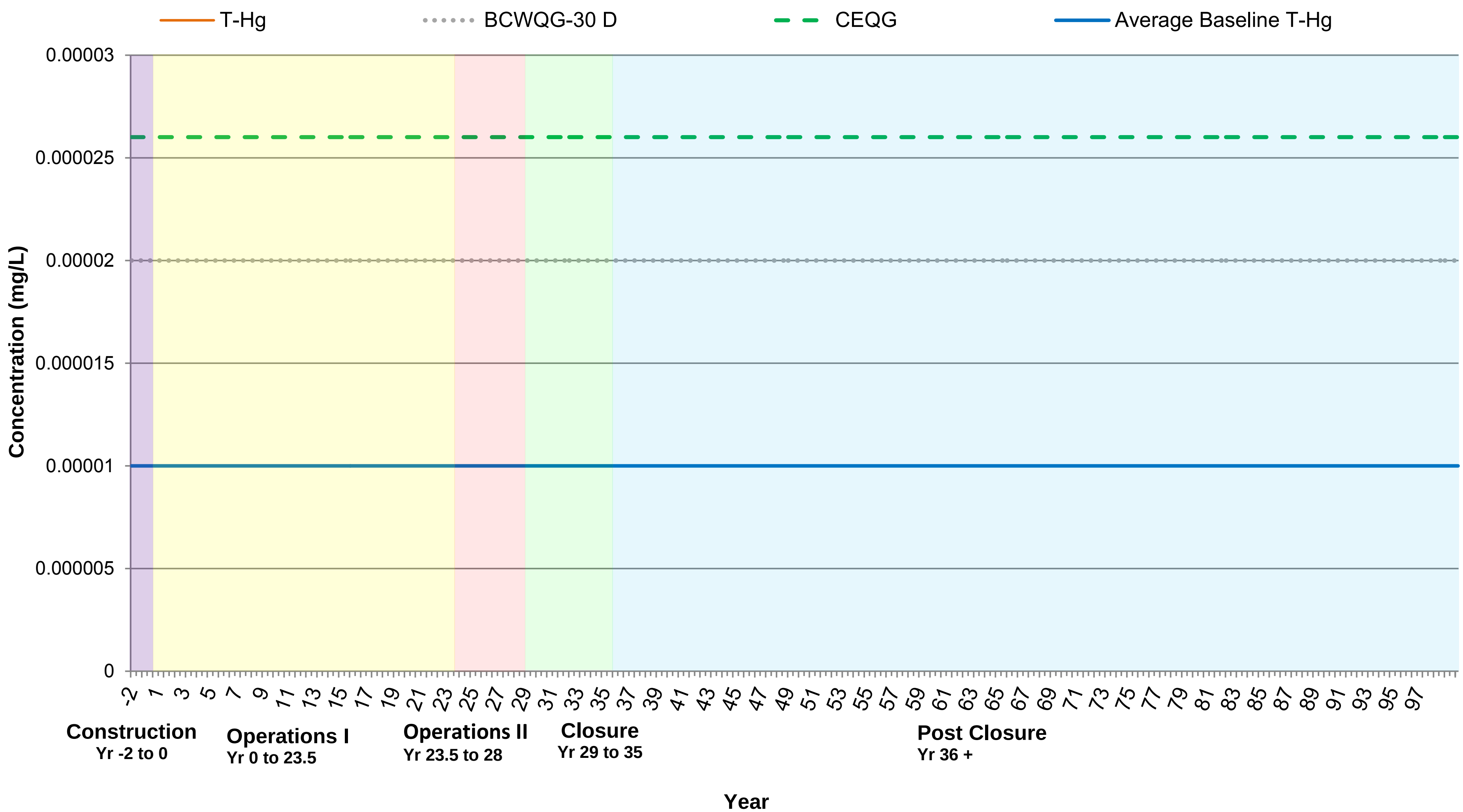
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Mo

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. BCWQG-30 D VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-Hg.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

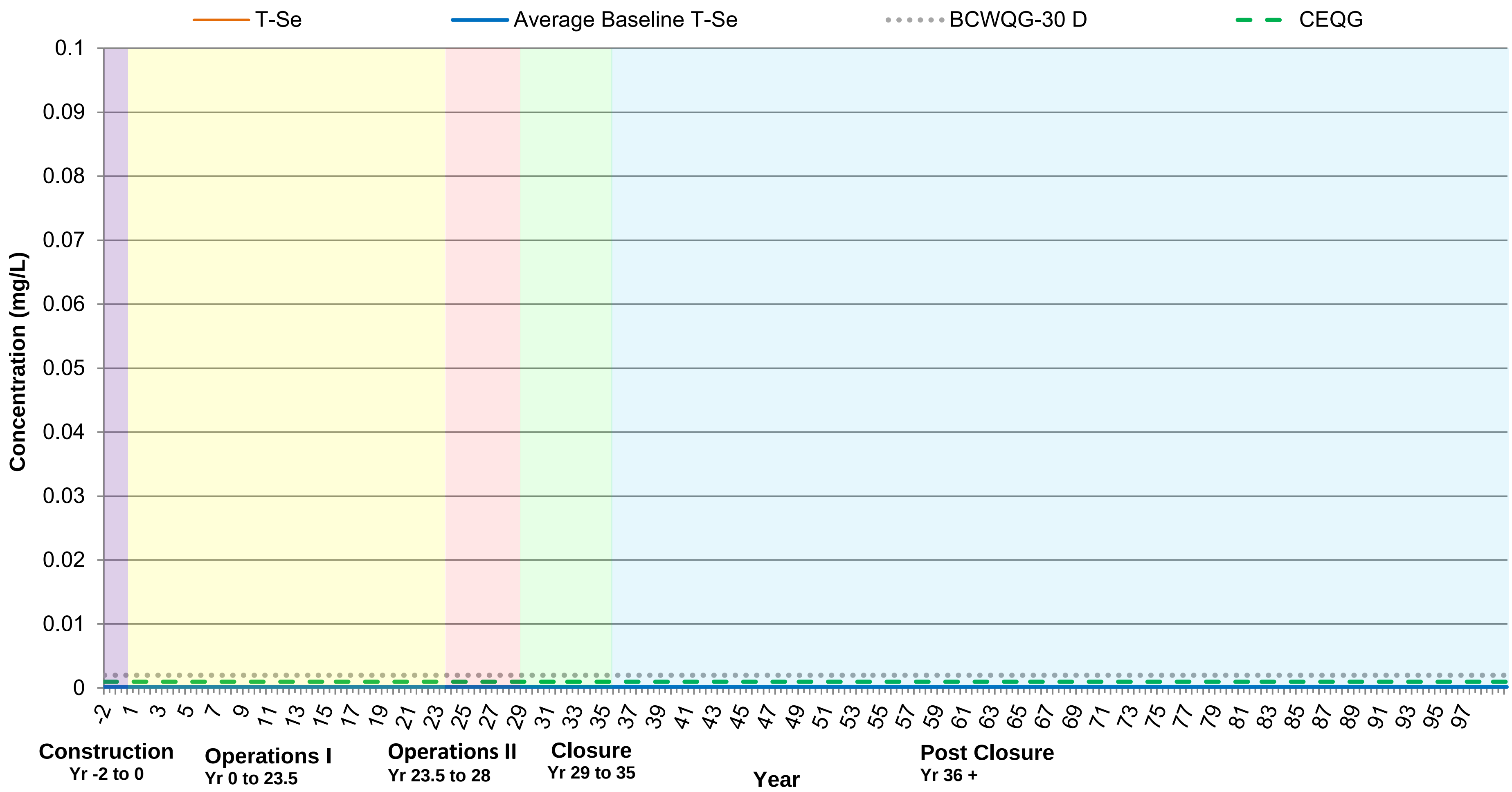
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Hg

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

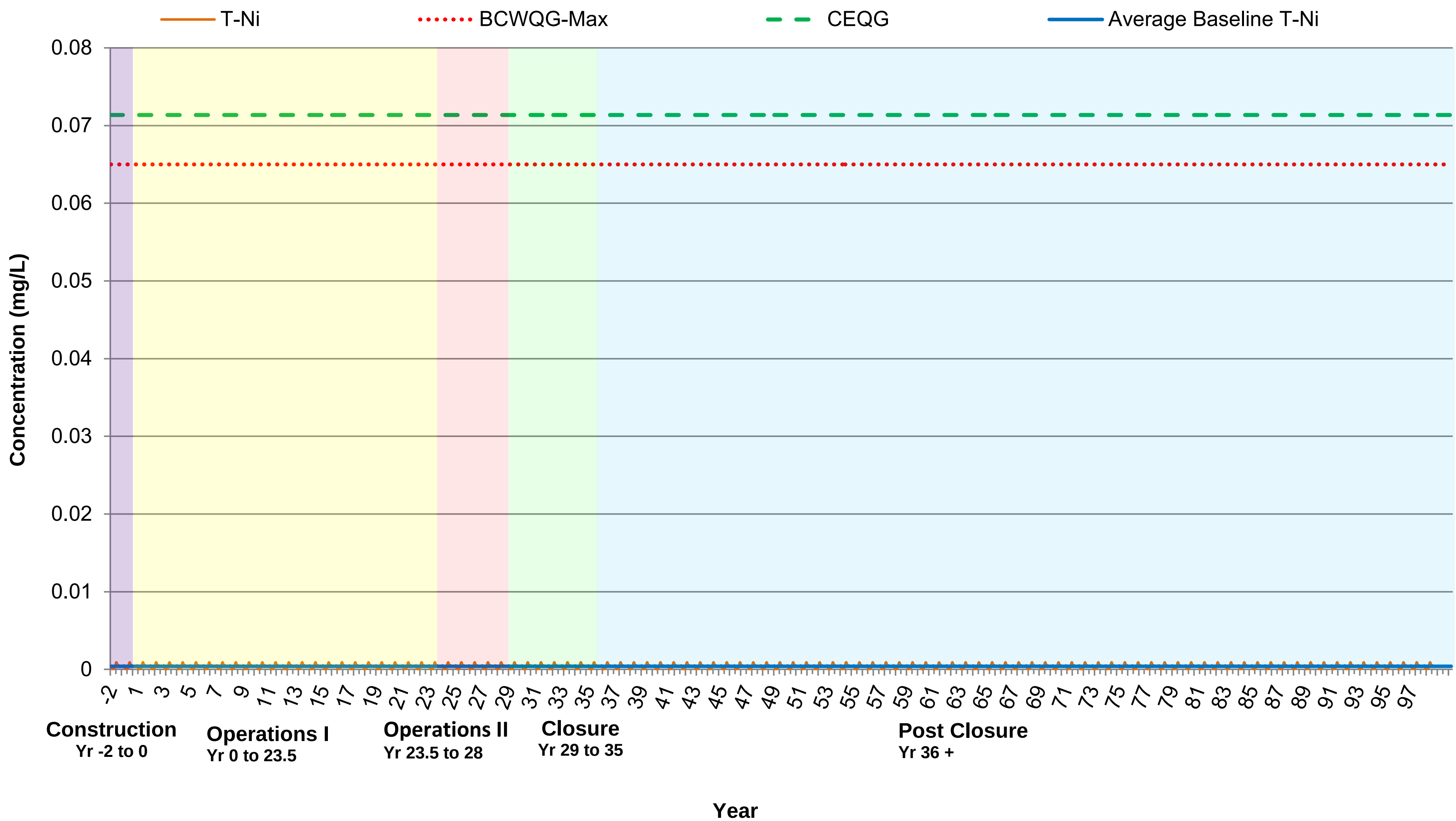
HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-458/14	VA14-01825	
FIGURE A5.Se		REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

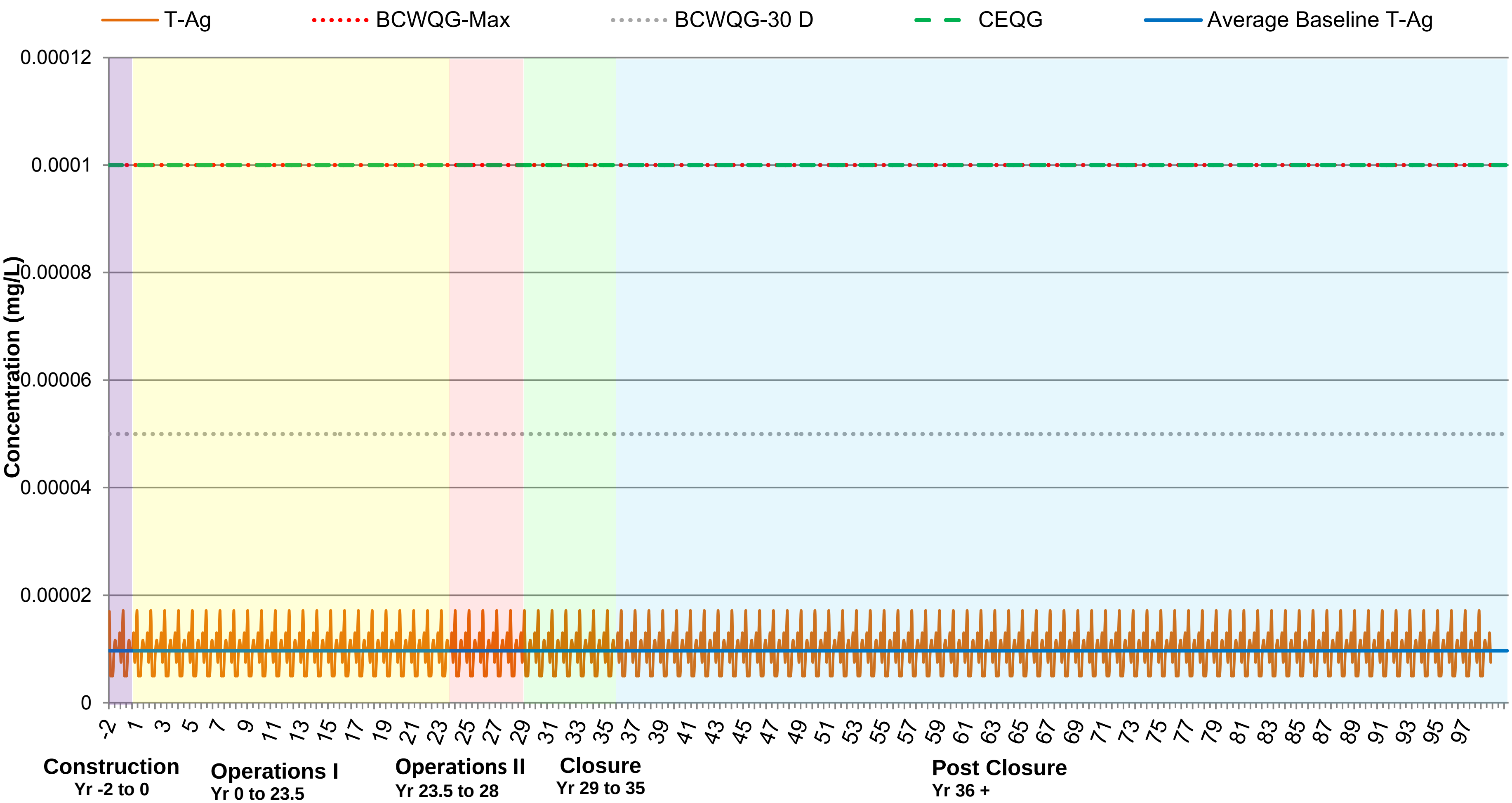
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Ni

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

Knight Piésold CONSULTING

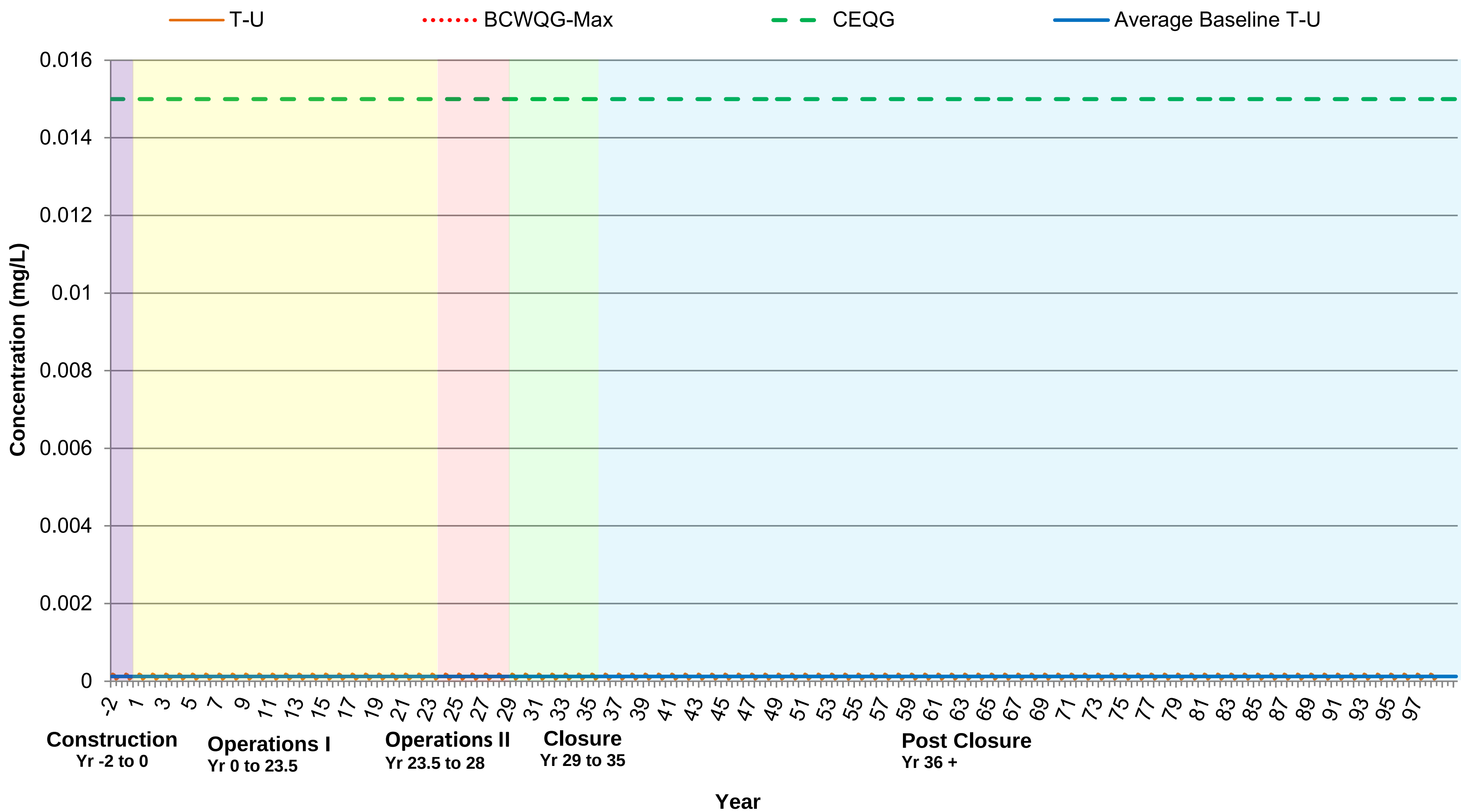
P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.Ag

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE BCWQG-MAX (0.3 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

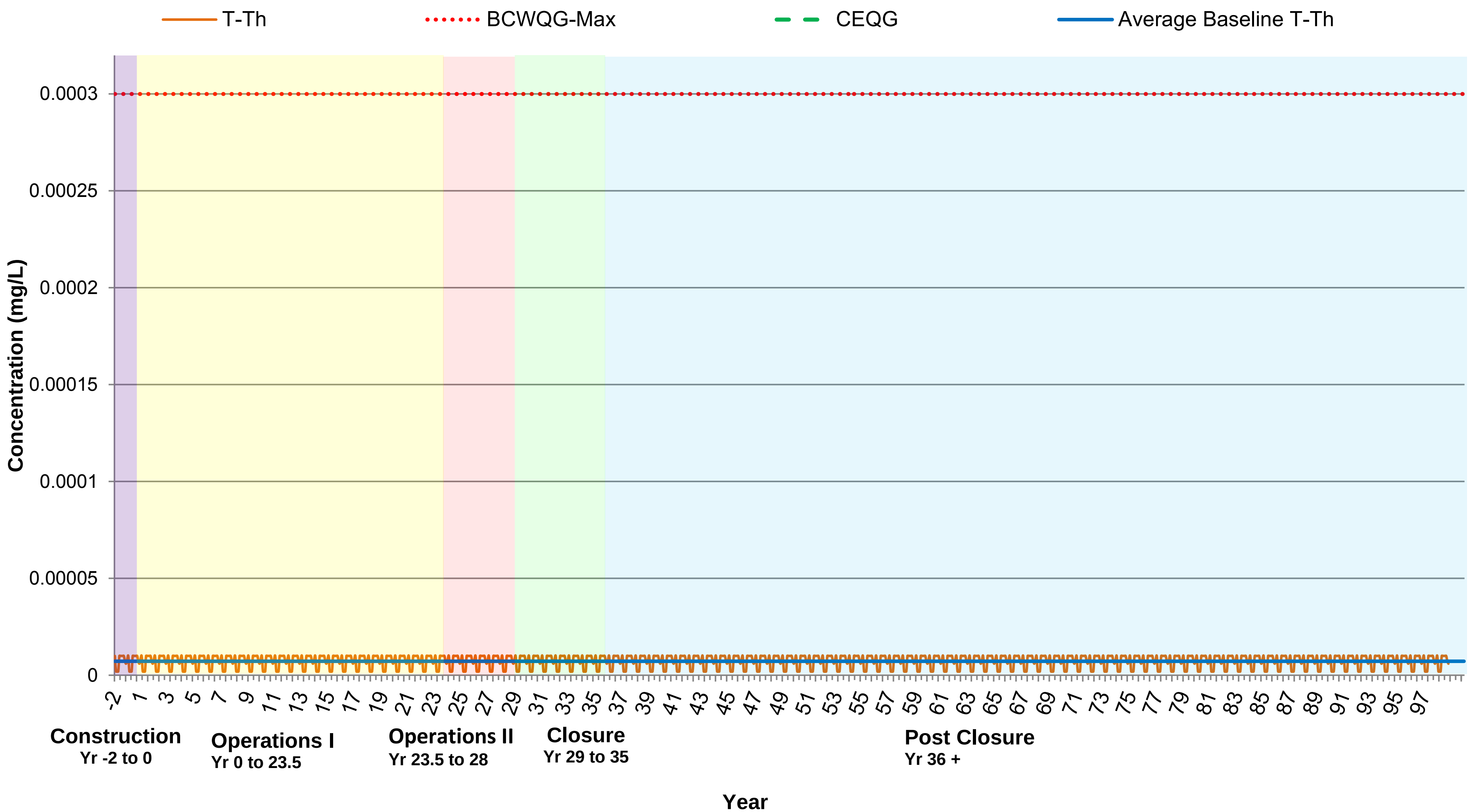
Knight Piésold CONSULTING

P/A NO. VA101-458/14

REF. NO. VA14-01825

FIGURE A5.U

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. THE CEQG (0.0008 mg/L) IS NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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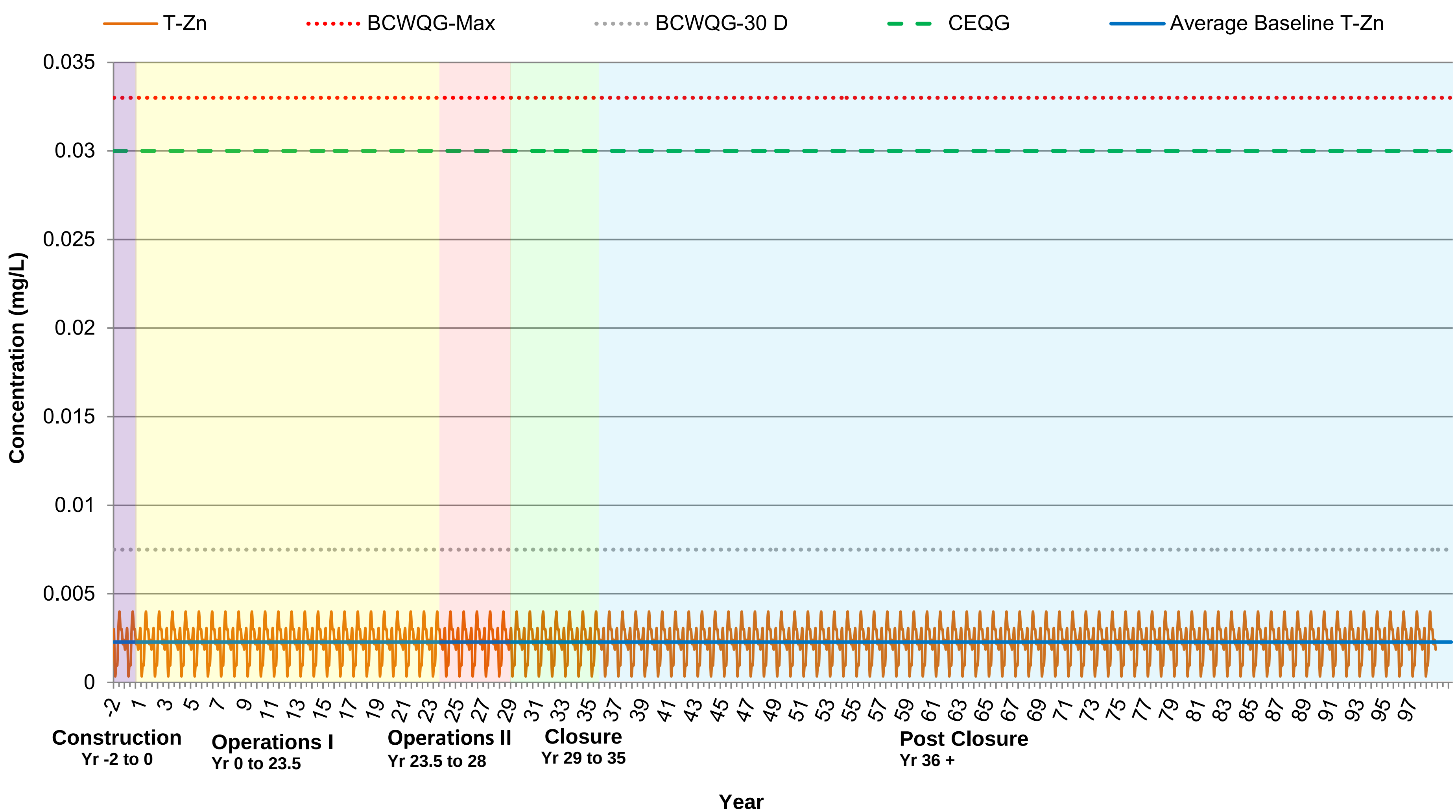
P/A NO.	REF. NO.
VA101-458/14	VA14-01825

FIGURE A5.Th REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H4P (AVERAGE HARDNESS OF 68 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - HARPER CREEK BELOW P-CREEK

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FIGURE A5.Zn

REV 0

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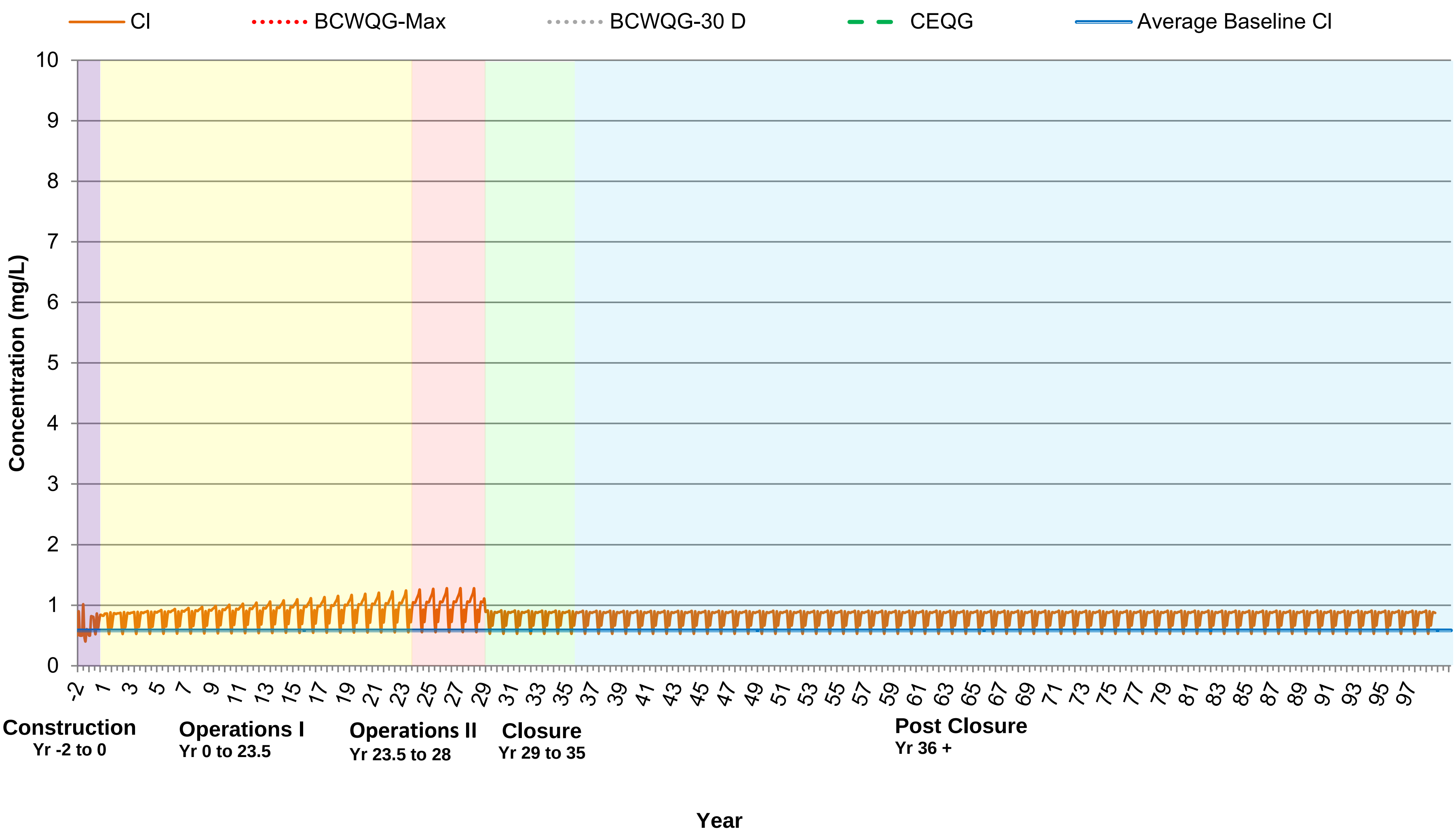
APPENDIX A6

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – MID HARPER CREEK

(Pages A6-1 to A6-30)



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. ALL GUIDELINES ARE NOT SHOWN: BCWQG-30 D (150 mg/L); BCWQG-MAX (600 mg/L); CEQG (120 mg/L AND 640 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - MID HARPER CREEK

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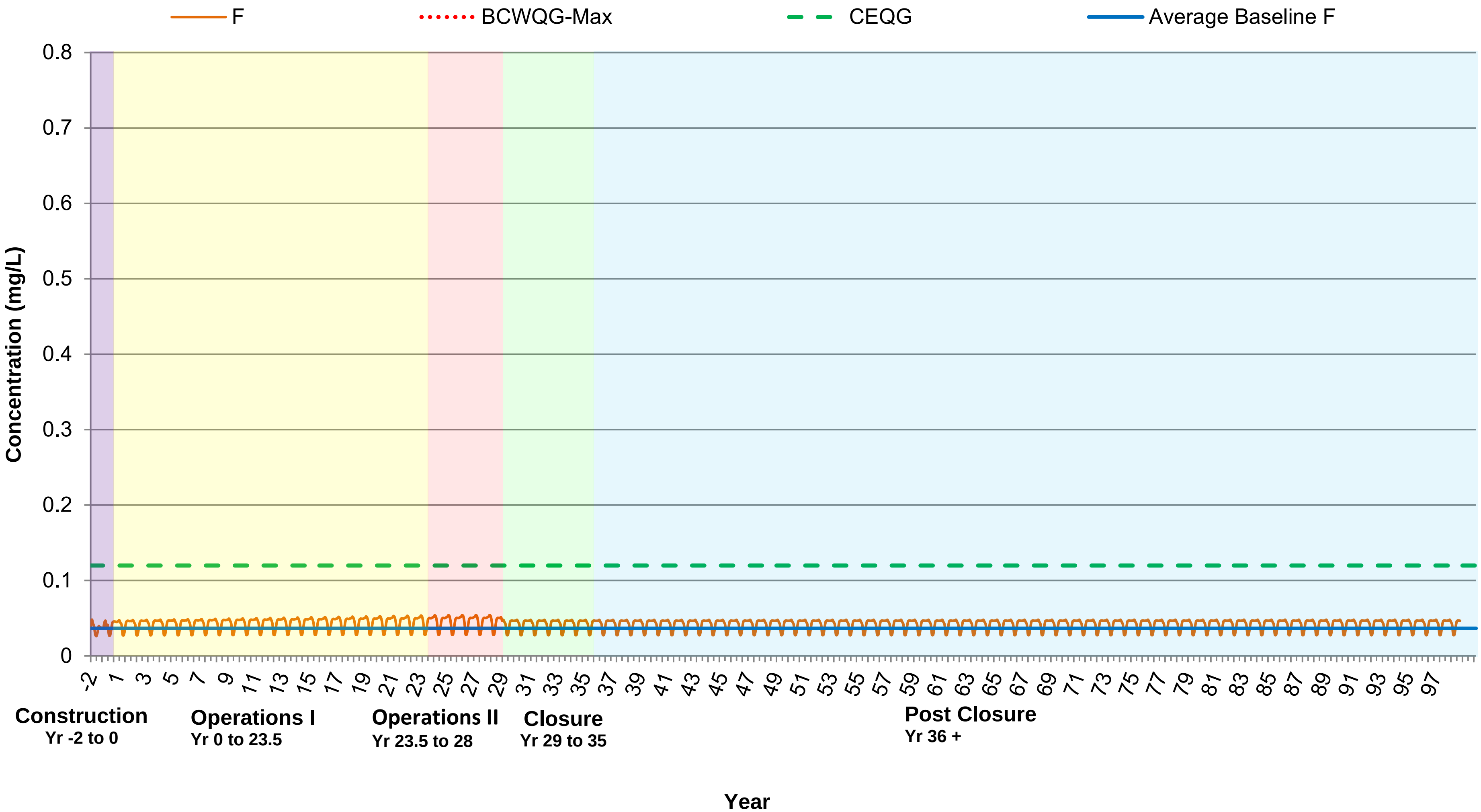
REF. NO. VA14-01825

FIGURE A6.Cl

REV 0



NOTES:

1. THE BCWQG-MAX IS HARNDESS DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - MID HARPER CREEK

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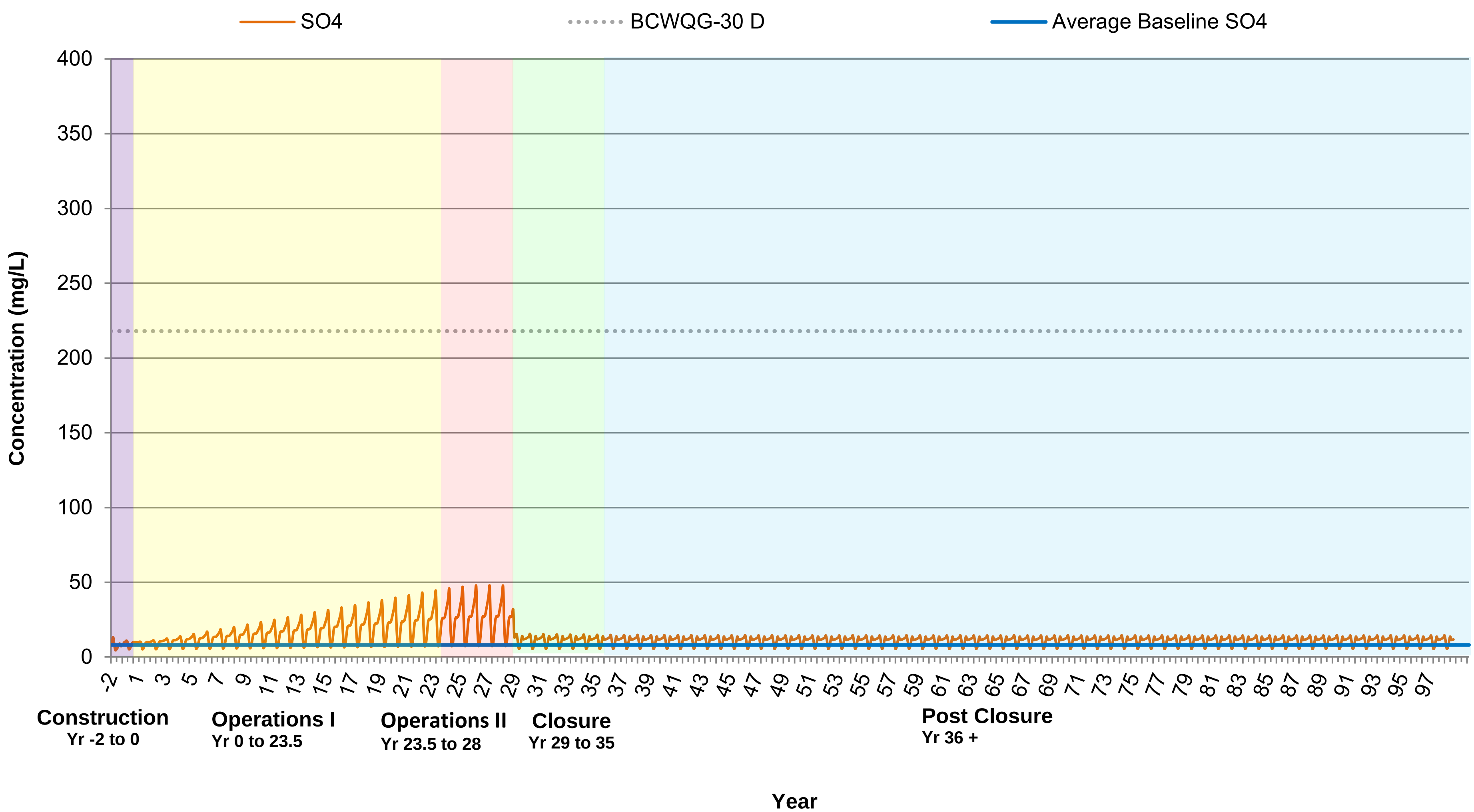
P/A NO. VA101-458/17 | REF. NO. VA14-01825

FIGURE A6.F REV 0



NOTES:

1. BCWQG-30 D IS HARDNESS DEPEDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - MID HARPER CREEK

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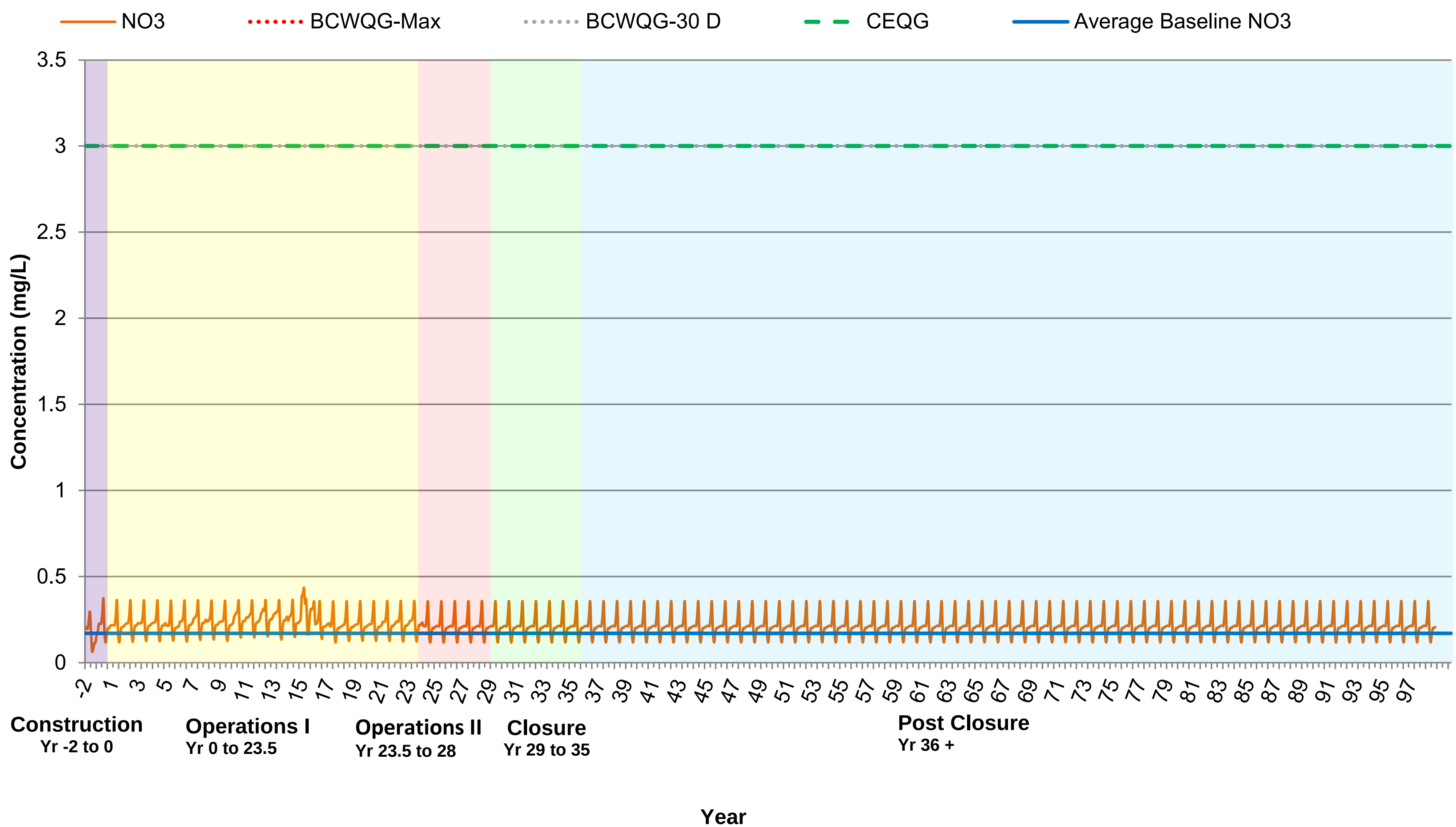
FIGURE A6.since | REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. THE BCWQG-MAX (32.8 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - MID HARPER CREEK

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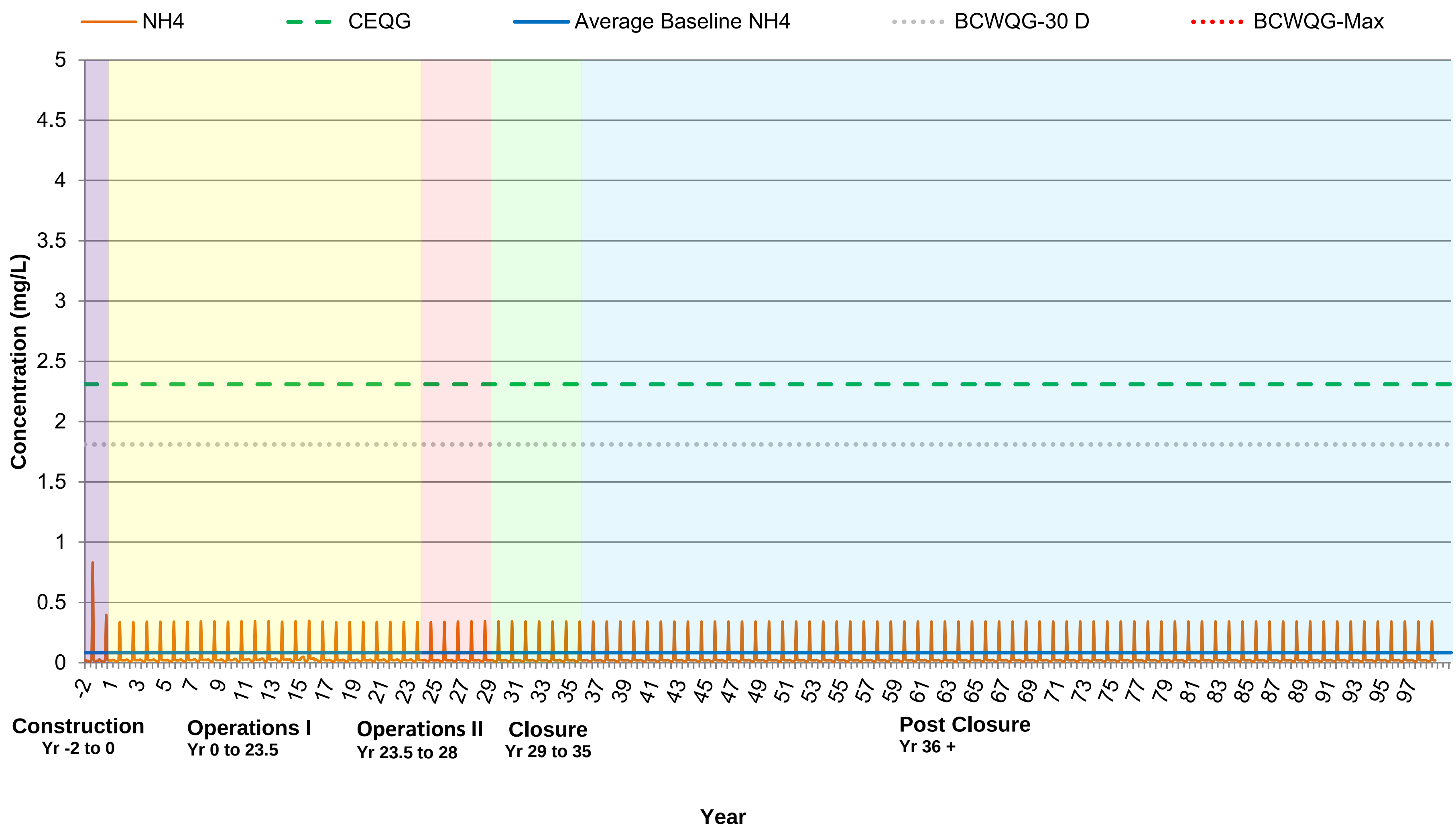
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.NO3

REV 0



NOTES:

1. THE BCWQG-30 D IS VALID FOR ONLY 6.5≤pH<9 AND 0°C≤T≤20°C.
2. THE BCWQG-MAX (20.15 mg/L) VALID FOR 6.5≤pH<9 IS NOT SHOWN.
3. THE CEQG IS TO BE USED WITH CAUTION FOR WATER WITH T<5°C AND pH>9.
4. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - MID HARPER CREEK

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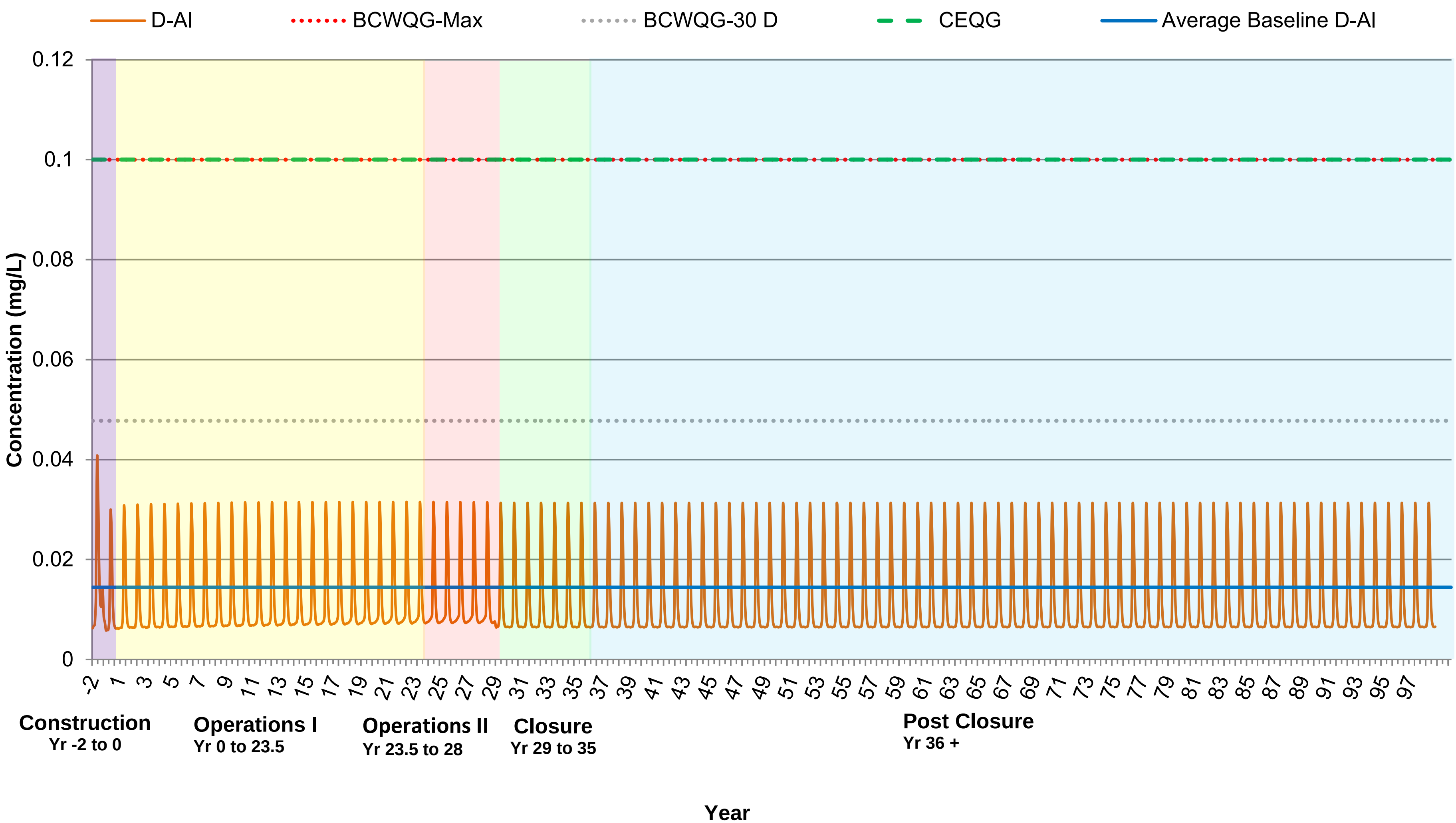
P/A NO. VA101-458/17	REF. NO. VA14-01825	
FIGURE A6.NH4		REV 0



NOTES:

1. ALL GUIDELINES ARE pH-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. AVERAGE BASELINE pH USED TO CALCULATE GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED ALUMINUM CONCENTRATIONS - MID HARPER CREEK

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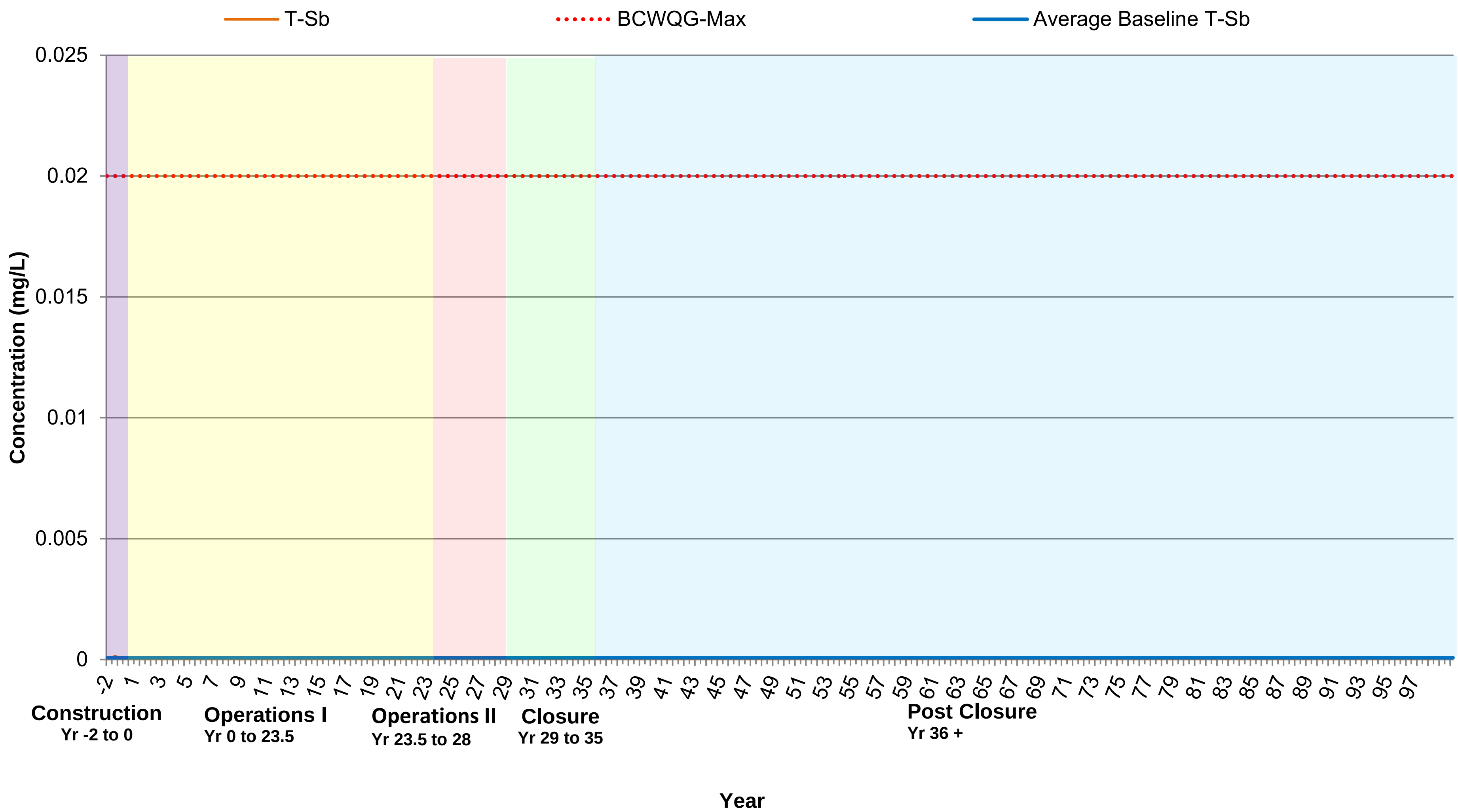
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Al

REV 0



NOTES:

1. THE BCWQG IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - MID HARPER CREEK

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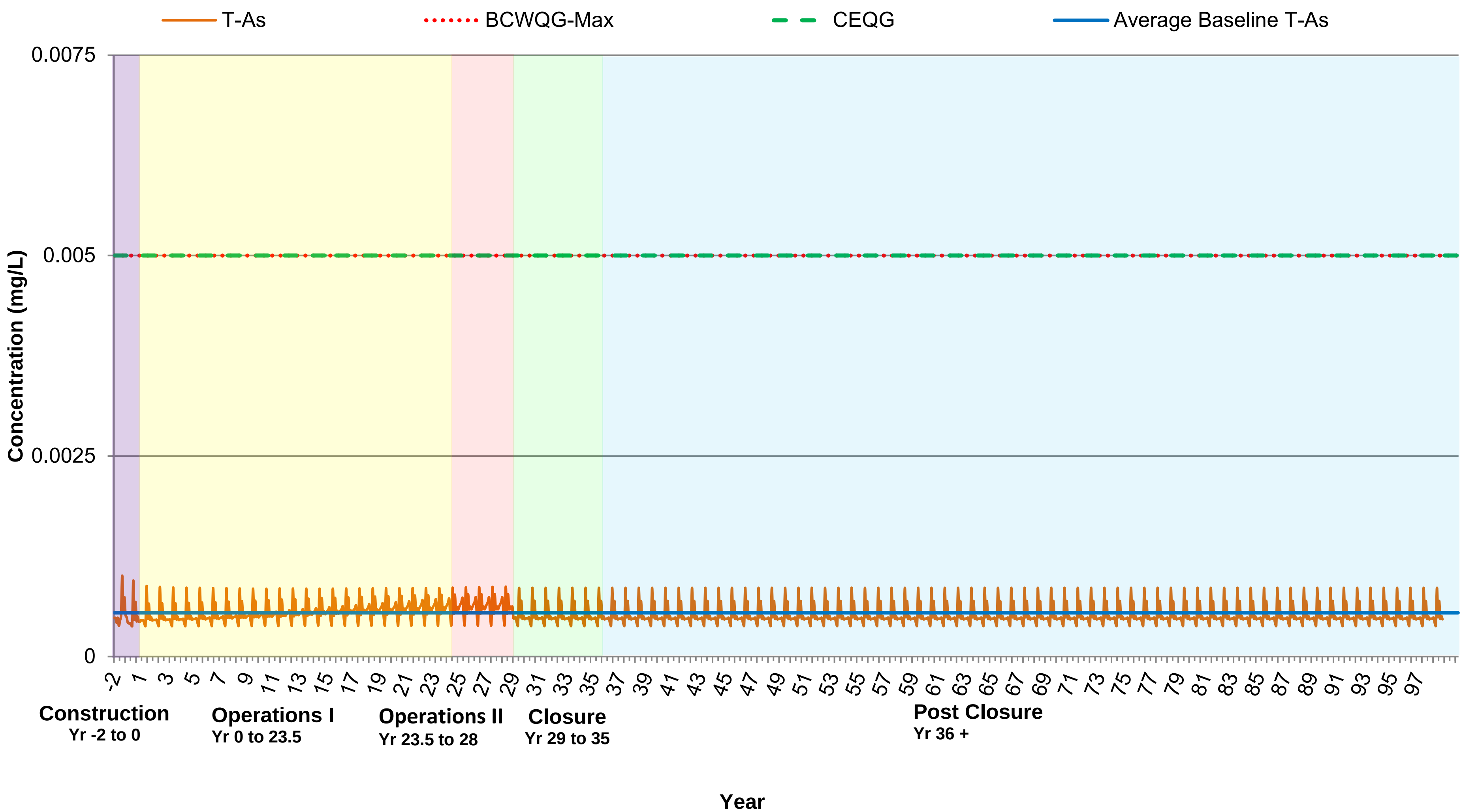
REF. NO. VA14-01825

FIGURE A6.Sb

REV 0



NOTES:

1. THE BCWQG AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - MID HARPER CREEK

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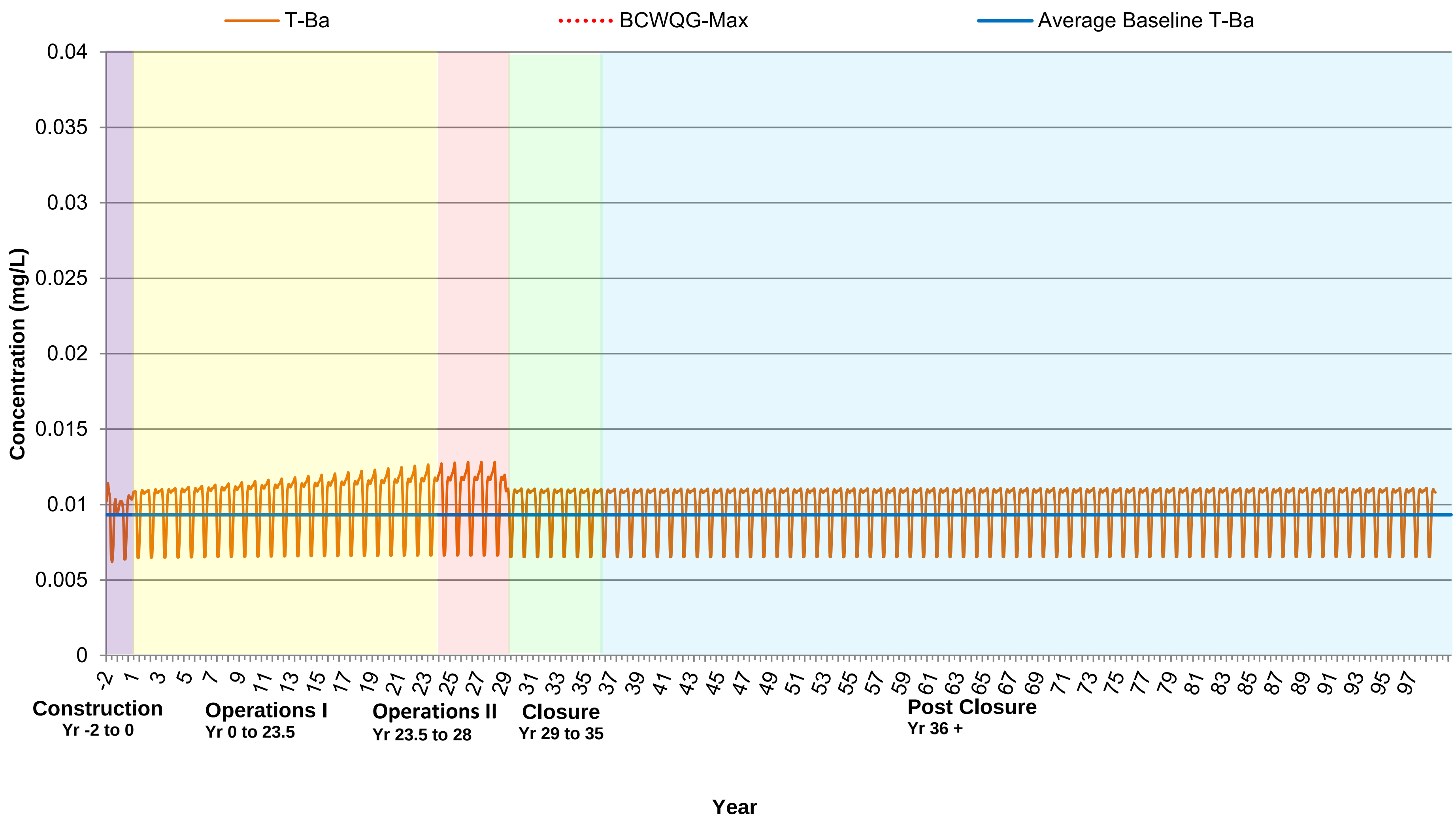
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.As

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. THE BCWQG-30 D (1 mg/L) AND BCWQG-MAX (5 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

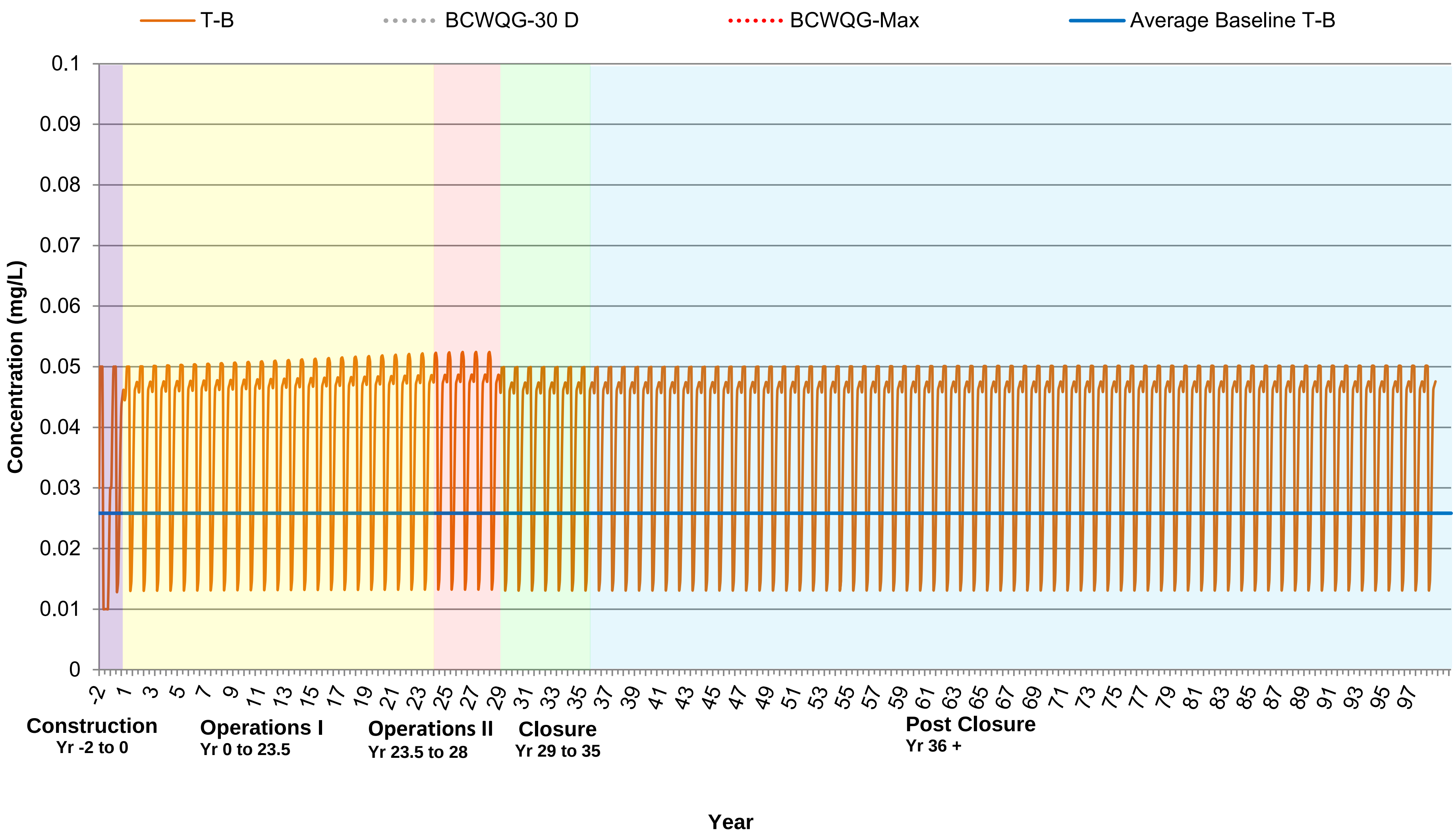
HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - MID HARPER CREEK

Knight Piésold CONSULTING

P/A NO. VA101-458/17 | REF. NO. VA14-01825

FIGURE A6.Ba REV 0



NOTES:

1. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
3. THE BCWQG-MAX (1.2 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - MID HARPER CREEK

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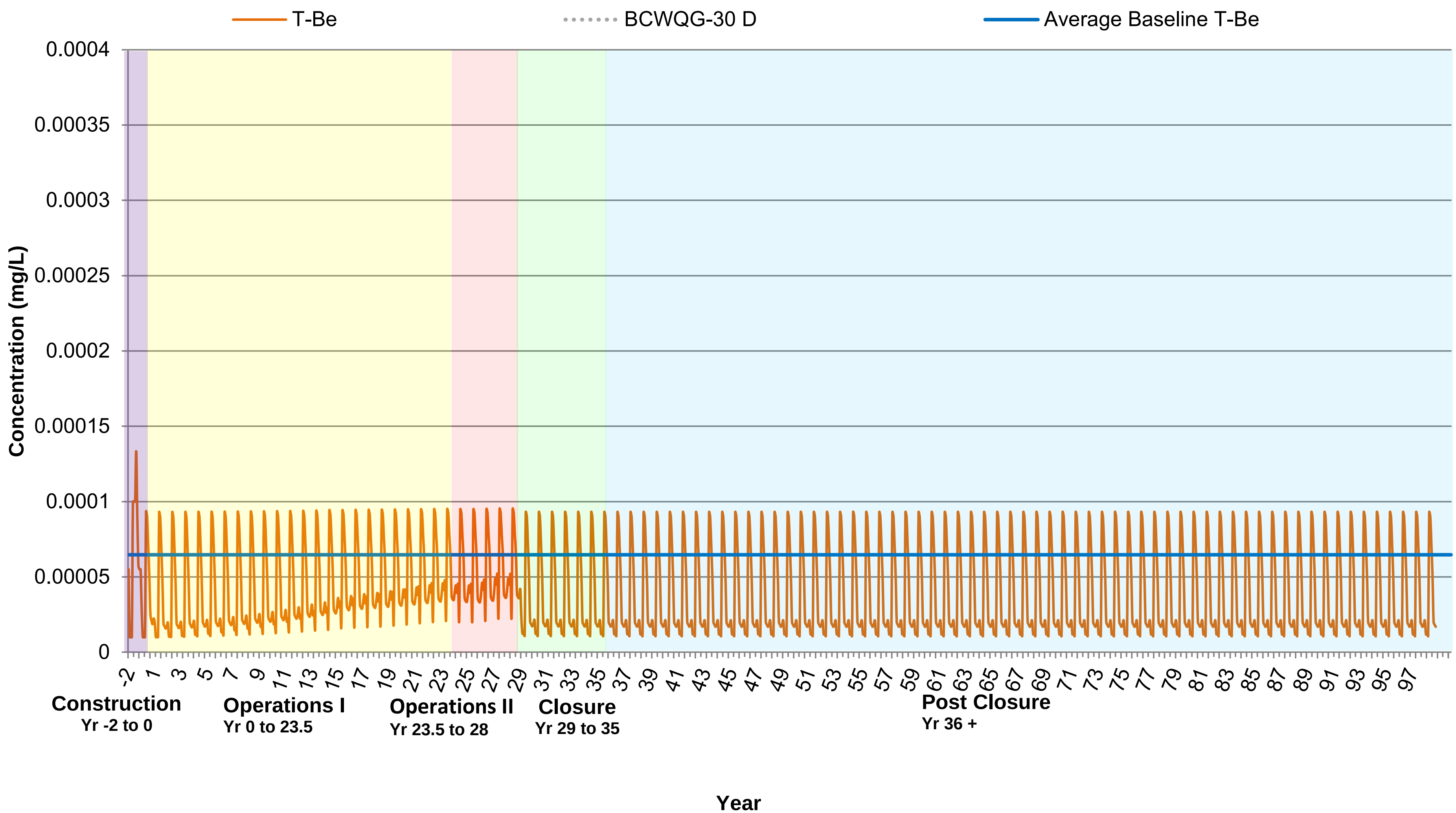
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.B

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. THE BCWQG-30 D (0.0053 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BERYLLIUM CONCENTRATIONS - MID HARPER CREEK

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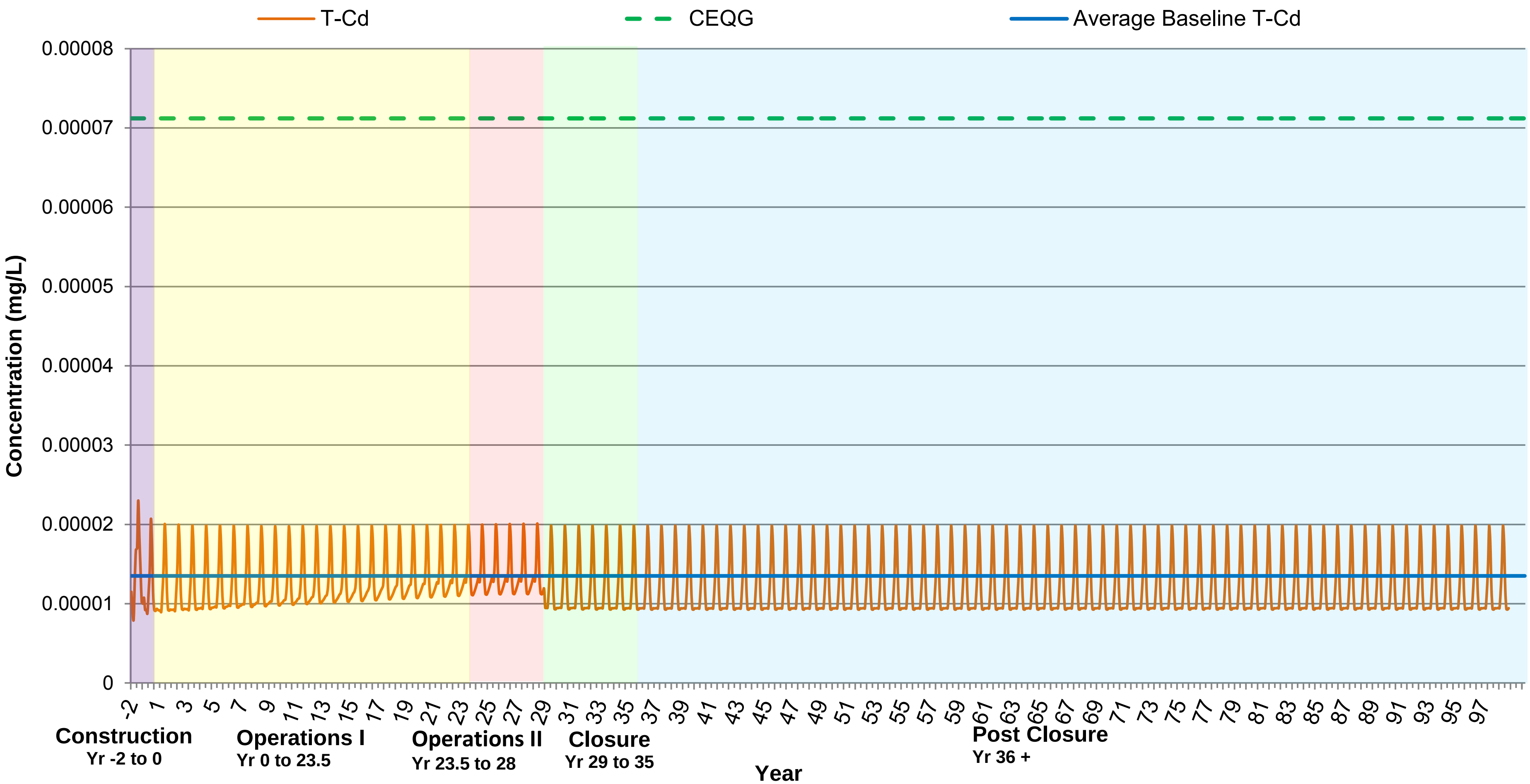
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Be

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. THE BCWQG ARE DRAFT GUIDELINES UNDER REVIEW (JUNE 2014).
3. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
4. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - MID HARPER CREEK

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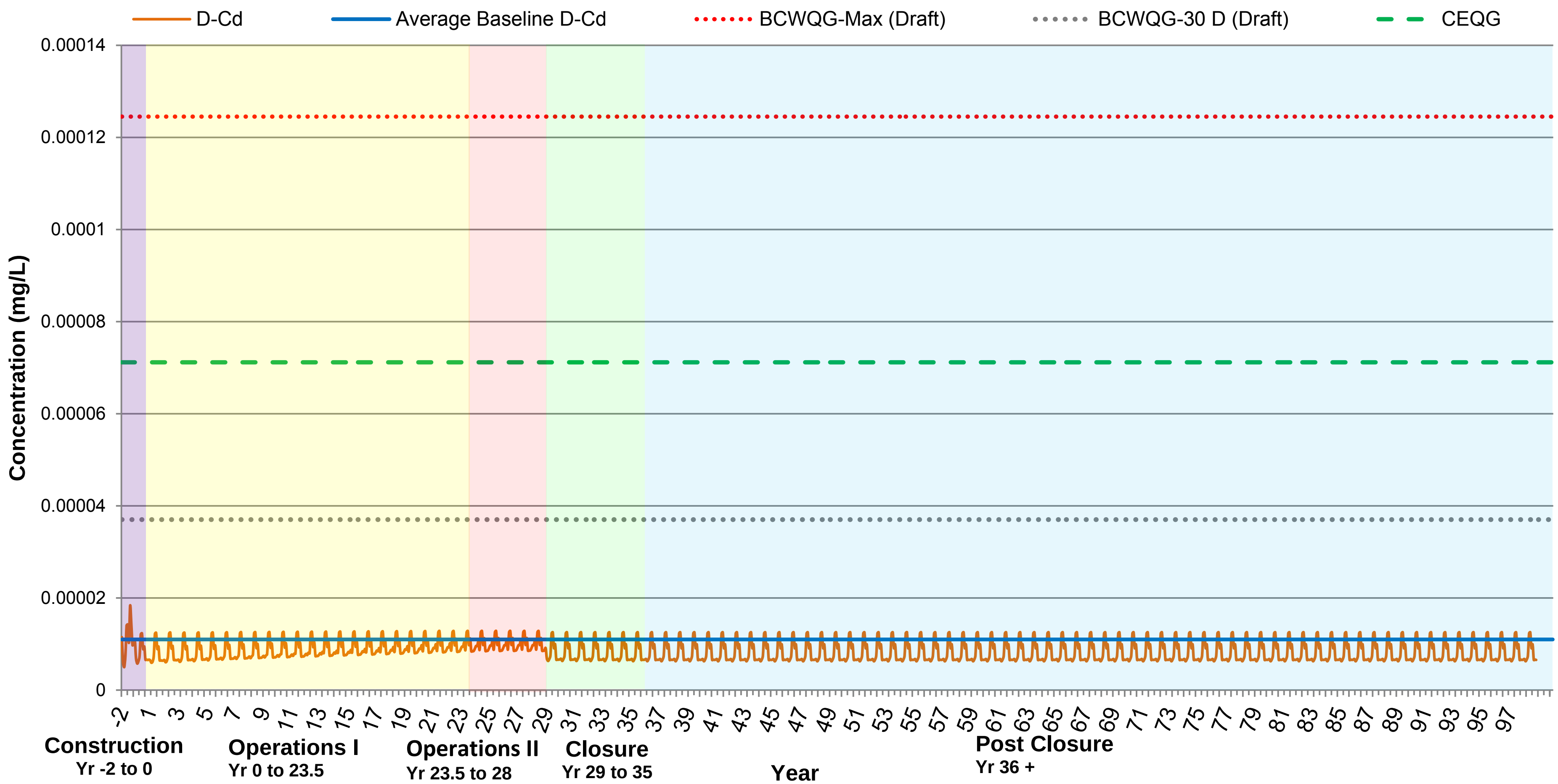
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Cd-T

REV 0



NOTES:

1. BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

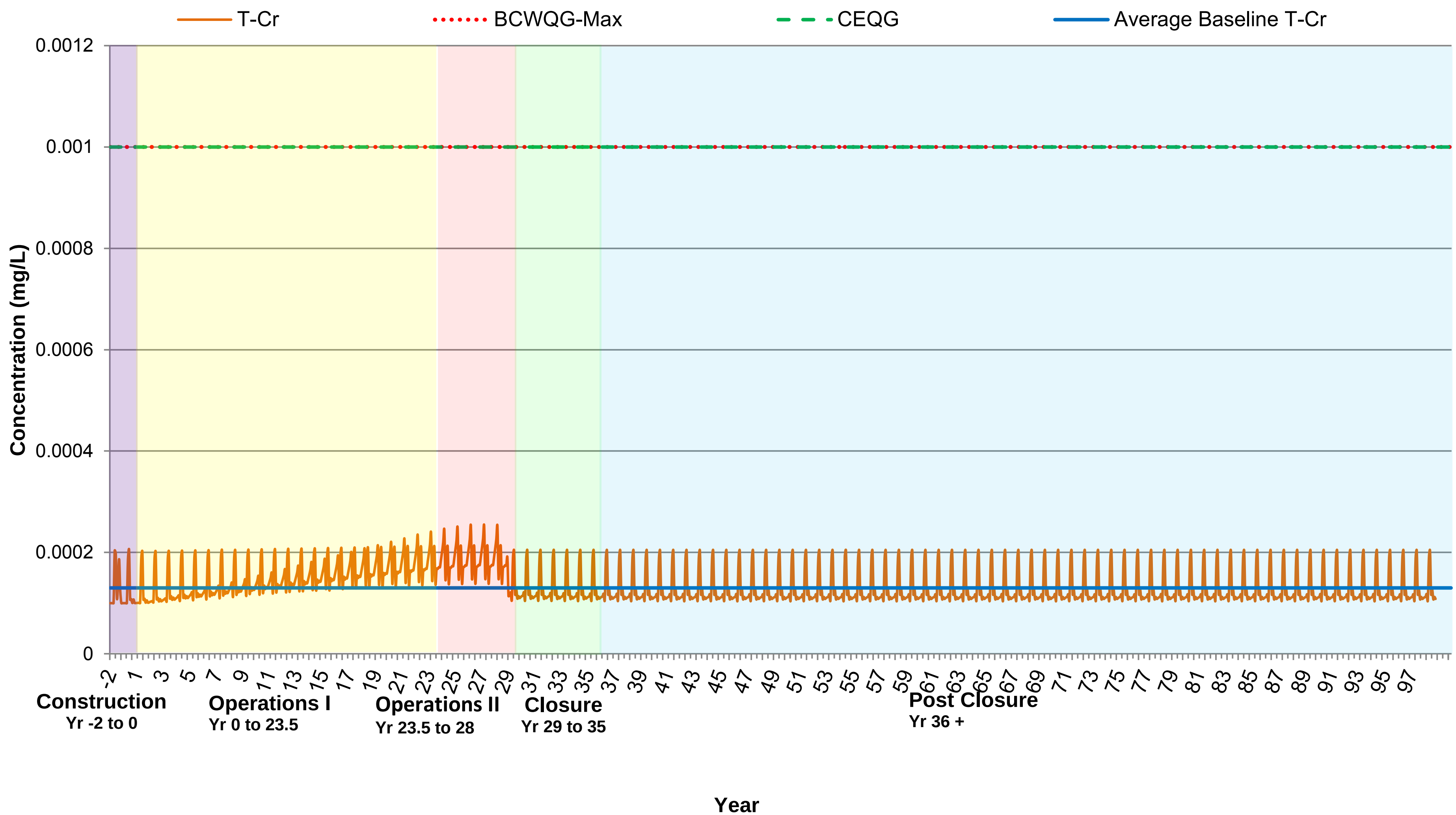
HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - MID HARPER CREEK

Knight Piésold CONSULTING

P/A NO. VA101-458/17	REF. NO. VA14-01825	
FIGURE A6.Cd-D		REV 0



NOTES:

1. GUIDELINES ARE FOR CHROMIUM (IV), THE SPECIES MOST COMMON IN WELL OXYGENATED SURFACE WATERS.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - MID HARPER CREEK

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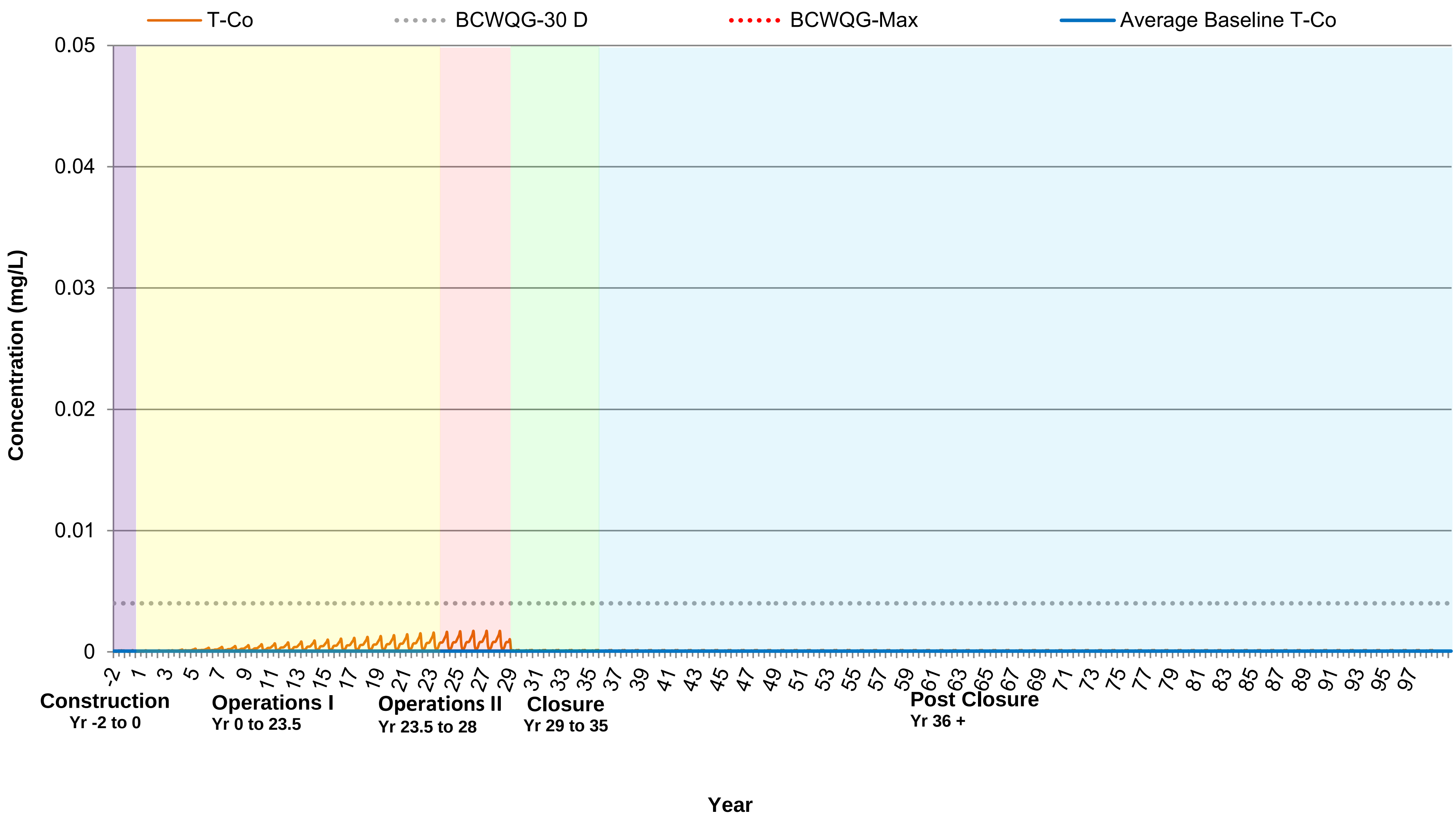
REF. NO. VA14-01825

FIGURE A6.Cr

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. THE BCWQG-MAX GUIDELINE (0.11 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - MID HARPER CREEK

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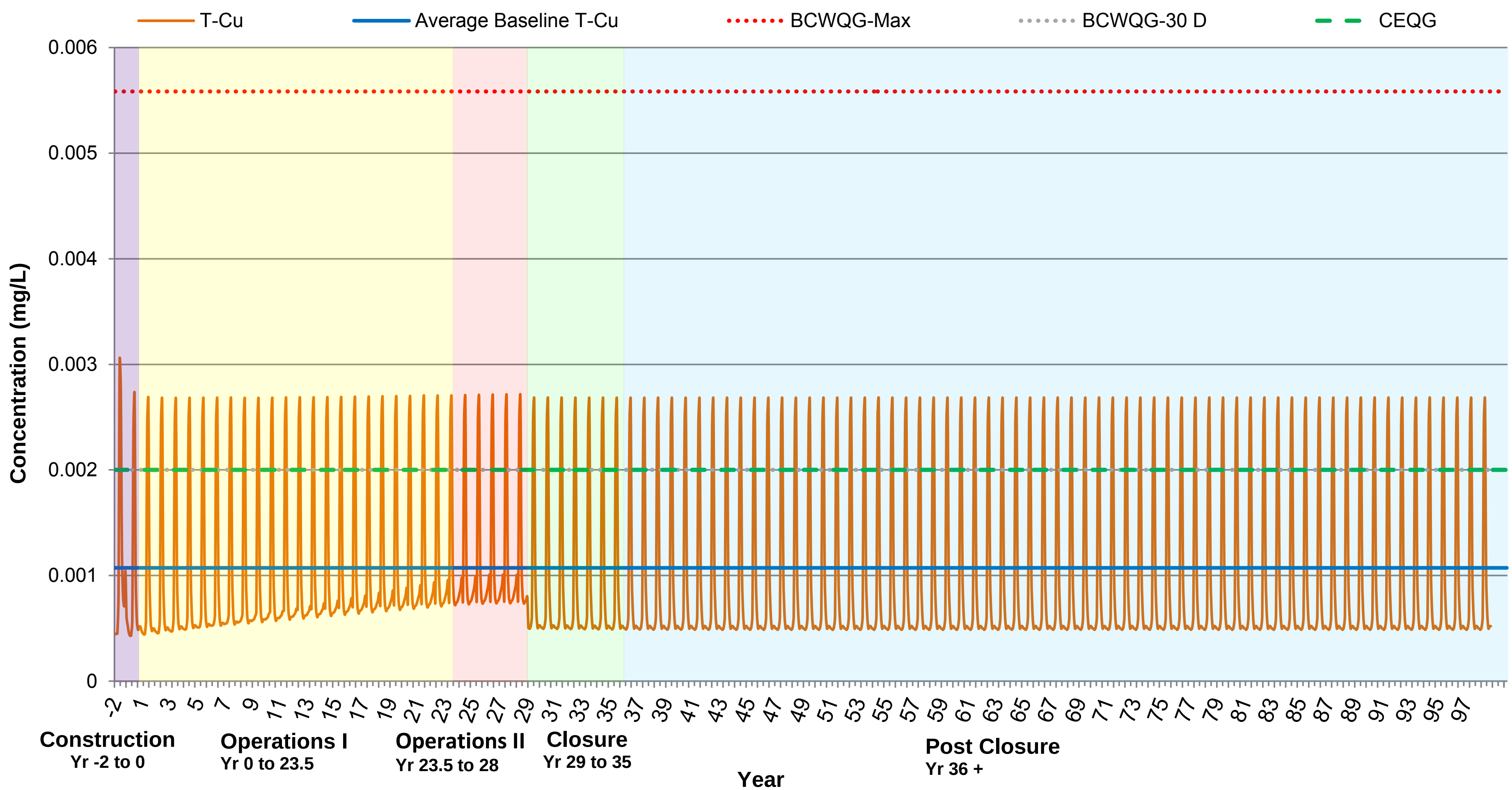
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Co

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - MID HARPER CREEK

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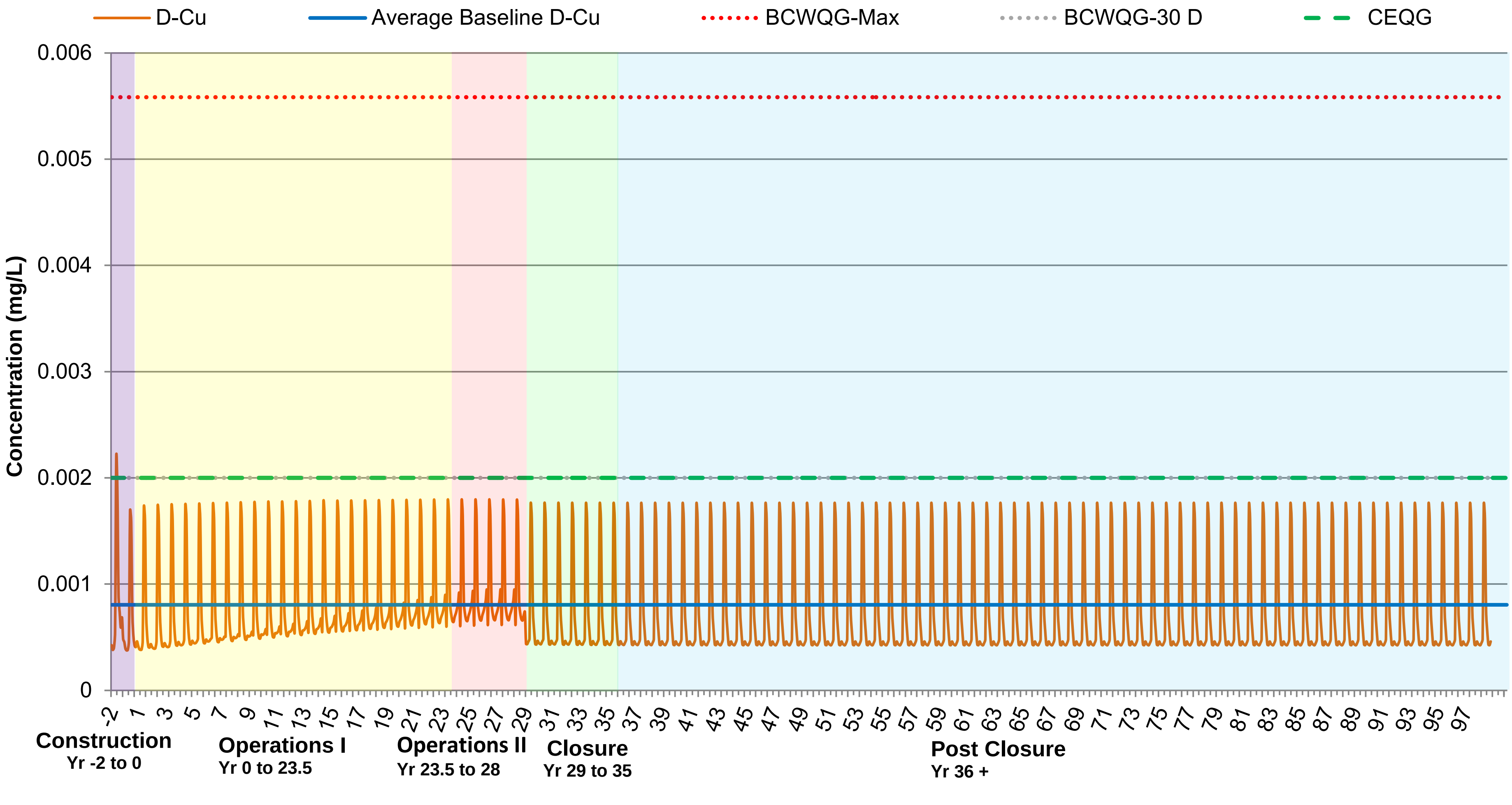
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Cu-T

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - MID HARPER CREEK

Knight Piésold CONSULTING

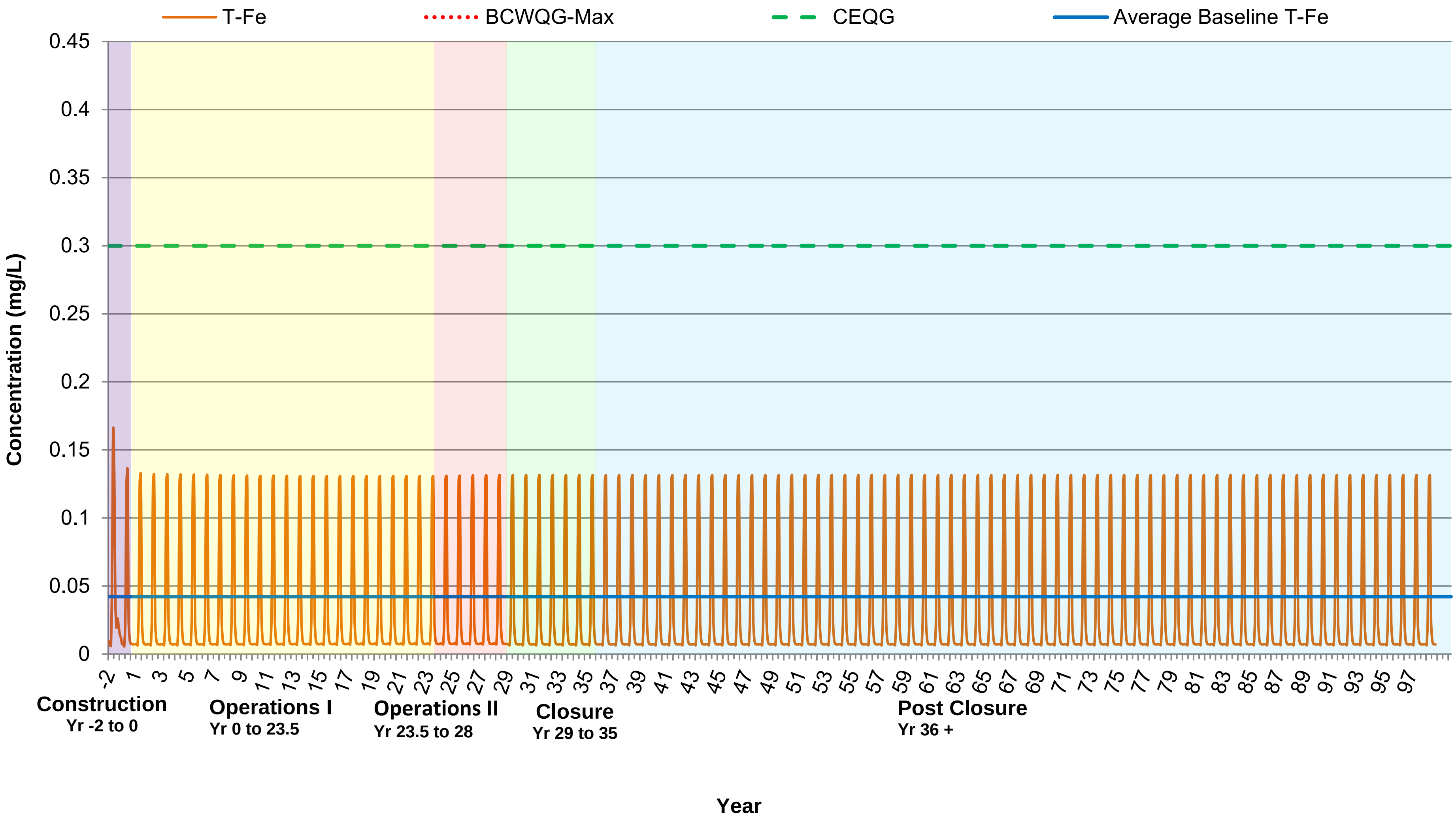
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Cu-D

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. BCWQG-MAX 1.0 mg/L IS NOT SHOWN ON GRAPH.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT TOTAL IRON CONCENTRATIONS - MID HARPER CREEK

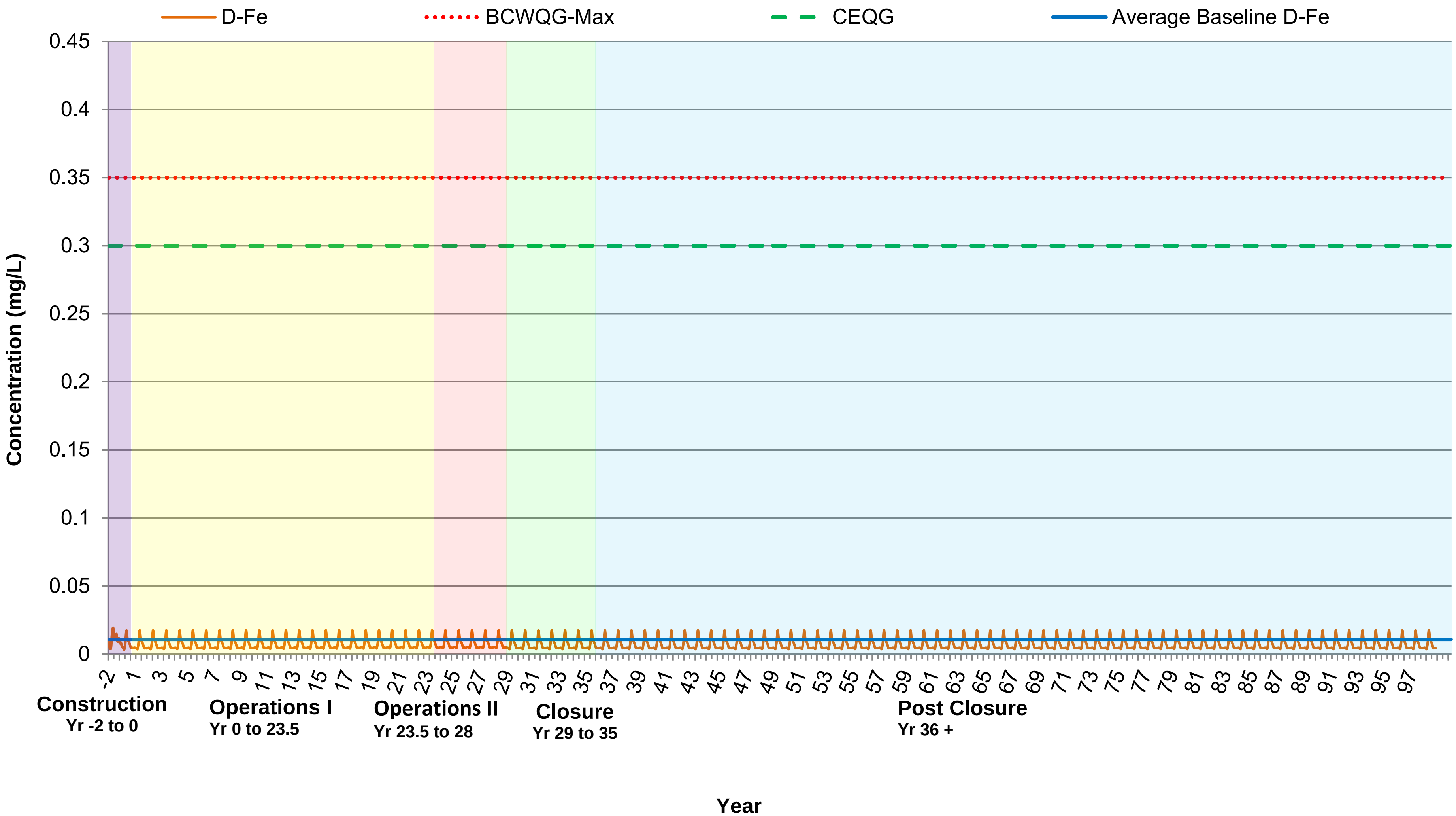
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Fe-T

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED IRON CONCENTRATIONS - MID HARPER CREEK

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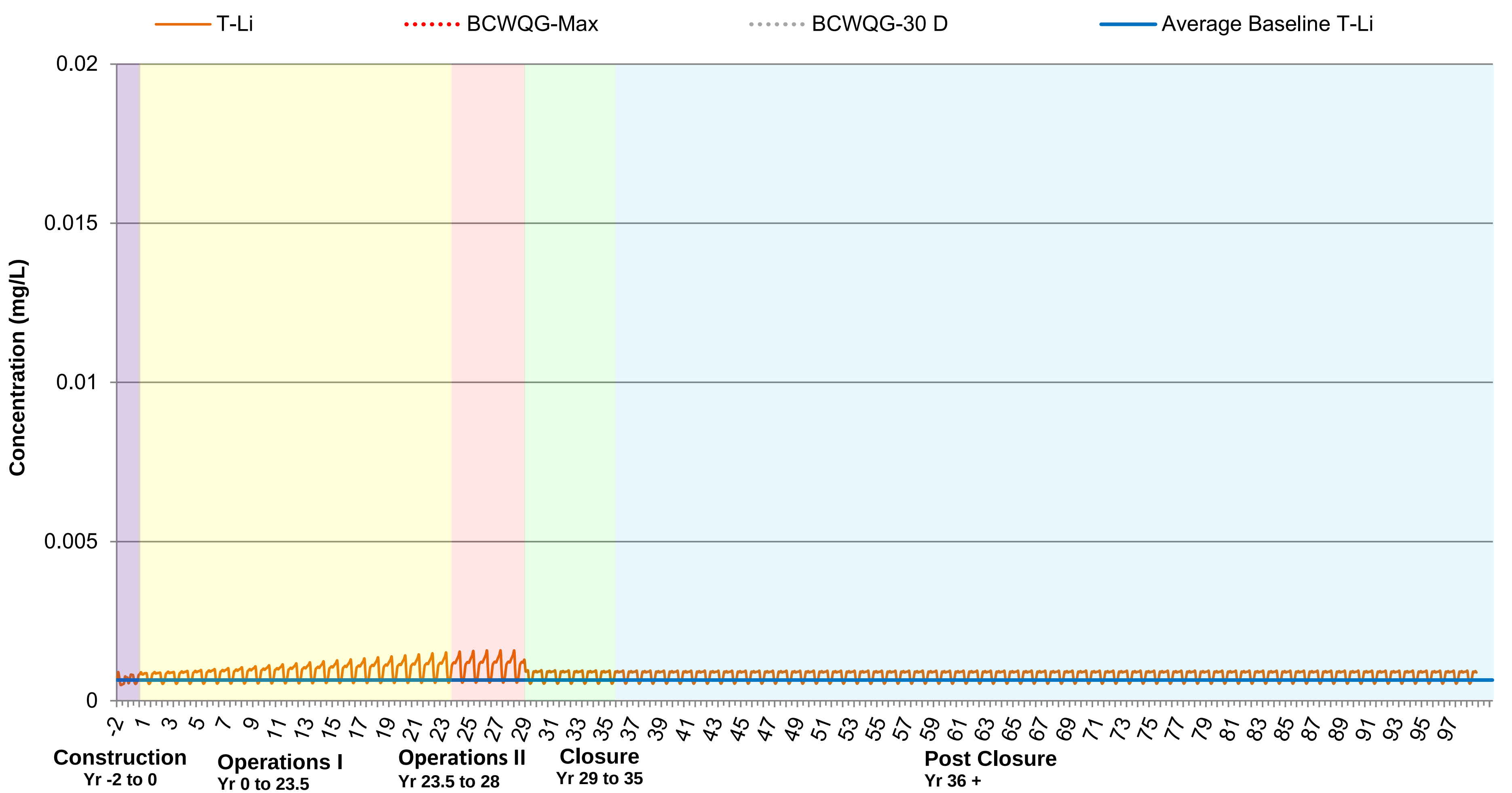
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Fe-D

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. THE BCWQG-30 D (0.096 mg/L) AND BCWQG-MAX (0.87 mg/L) ARE INTERIM (WORKING) AND ARE NOT SHOWN ON GRAPH.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LITHIUM CONCENTRATIONS - MID HARPER CREEK

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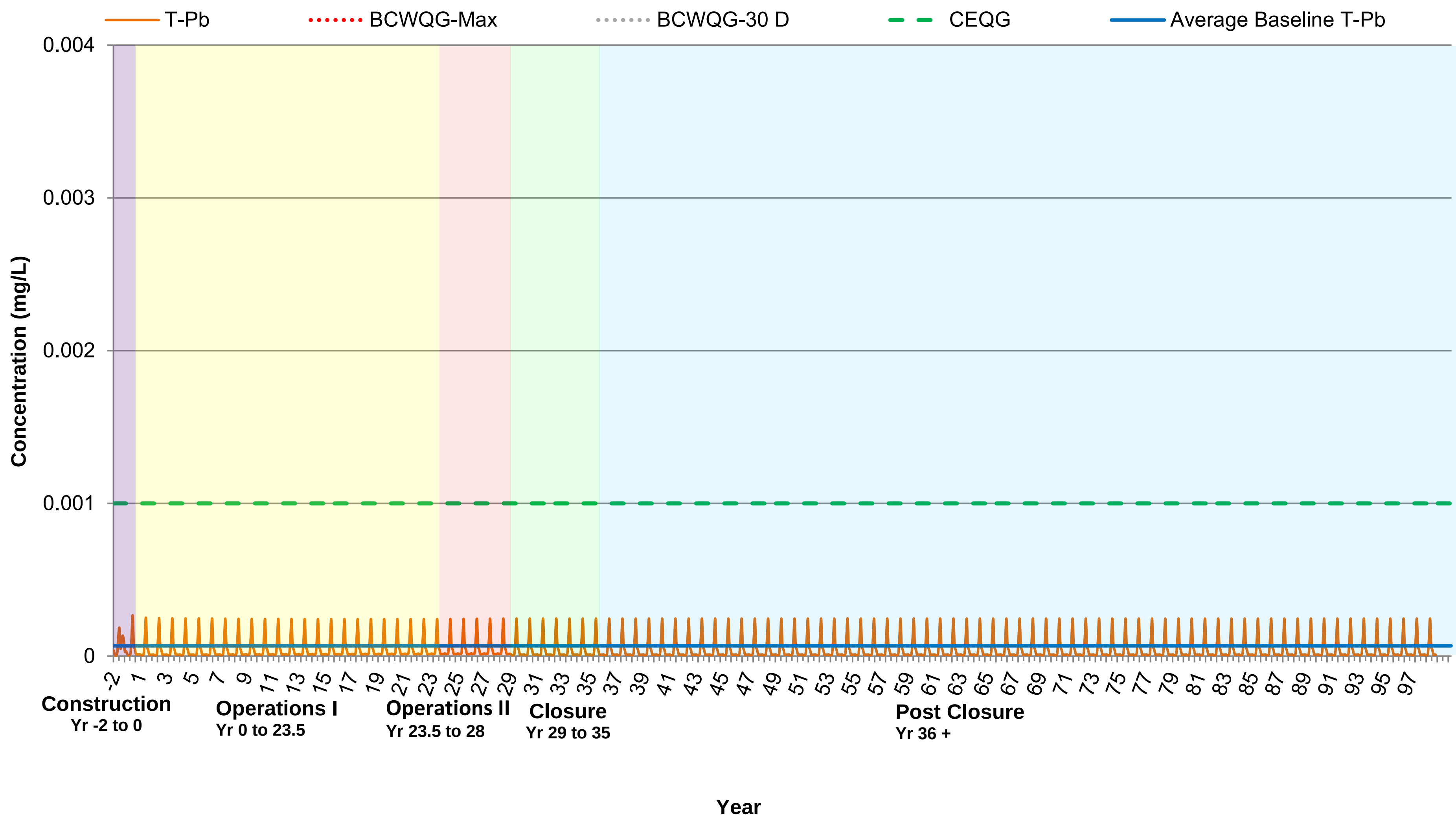
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Li

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
4. THE BCWQG-MAX (CALCULATED AT 0.011 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - MID HARPER CREEK

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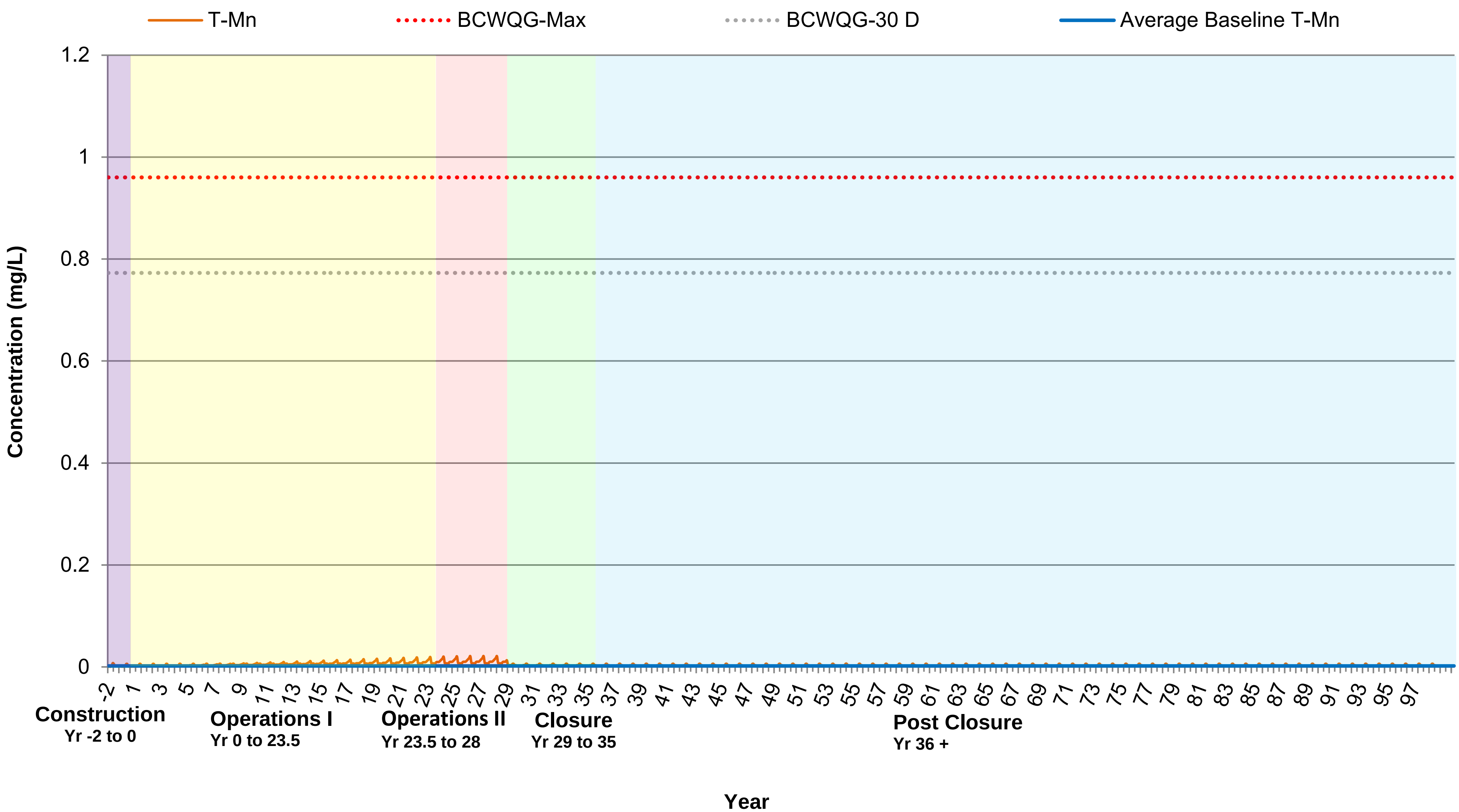
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Pb

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - MID HARPER CREEK

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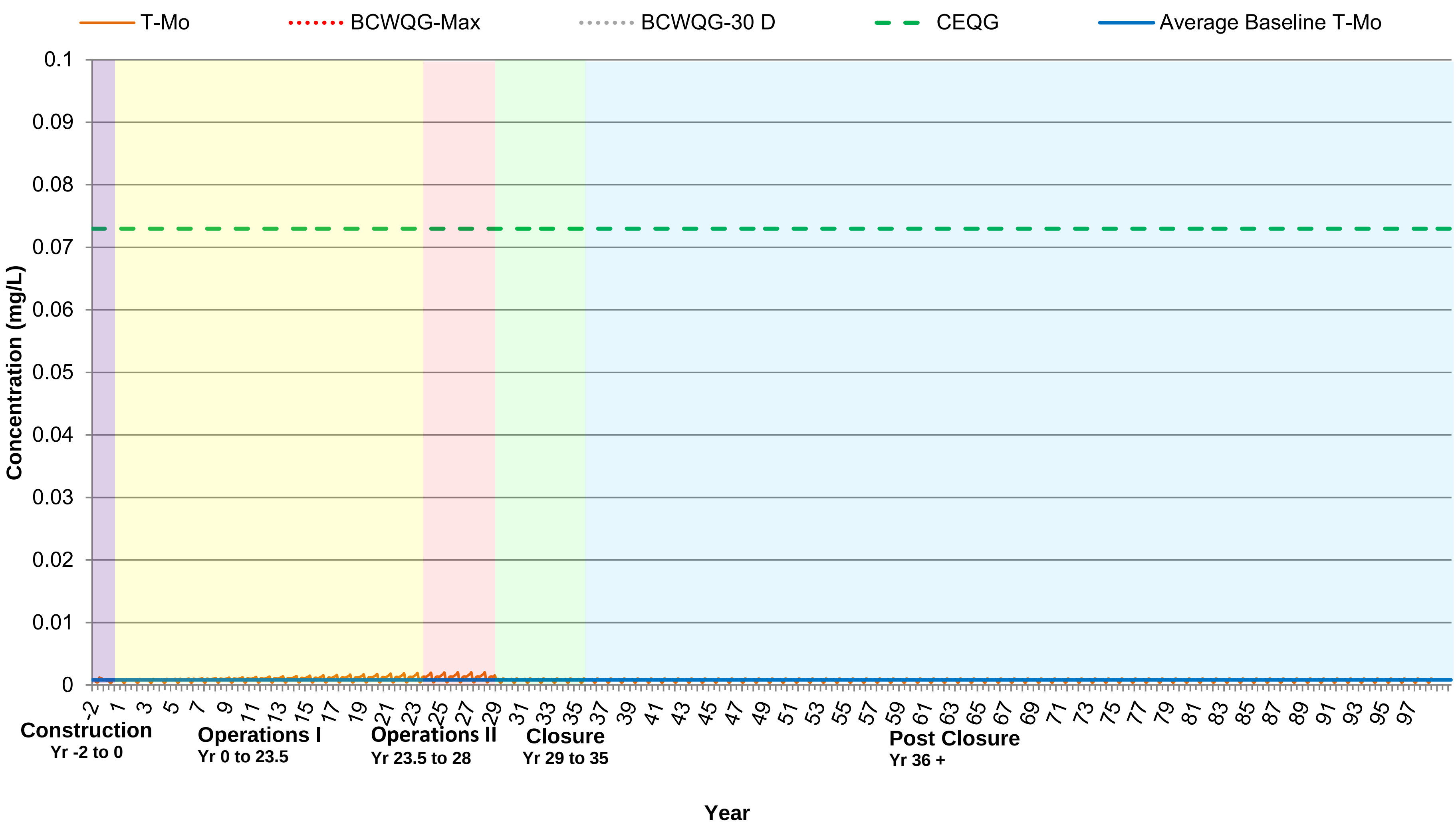
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Mn

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. THE BCWQG-MAX (2 mg/L) AND BCWQG-30 D (1 mg/L) ARE NOT SHOWN.

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REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

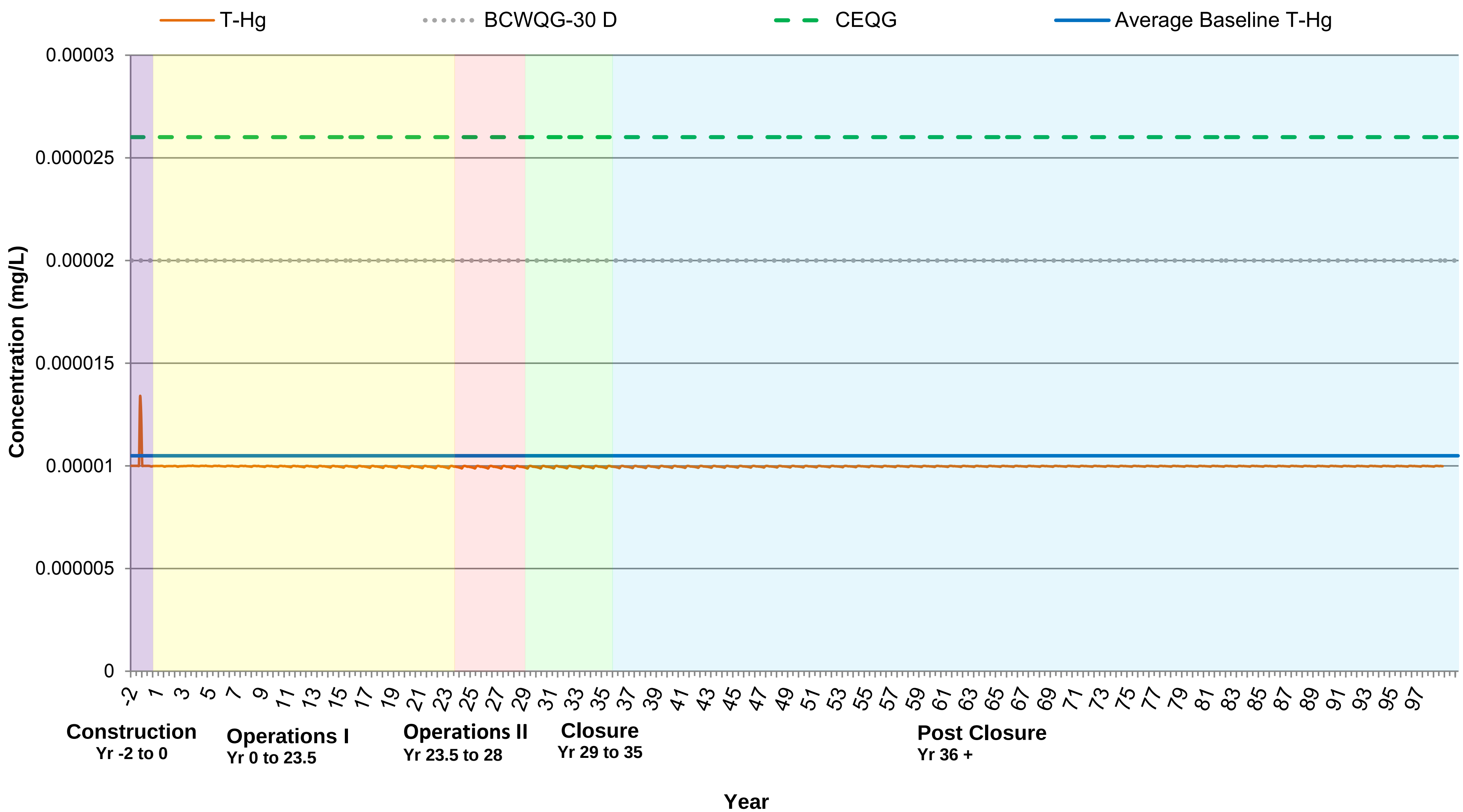
HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYBDENUM CONCENTRATIONS - MID HARPER CREEK

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-458/17	VA14-01825	
FIGURE A6.Mo		REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. BCWQG-30 D VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-Hg.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - MID HARPER CREEK

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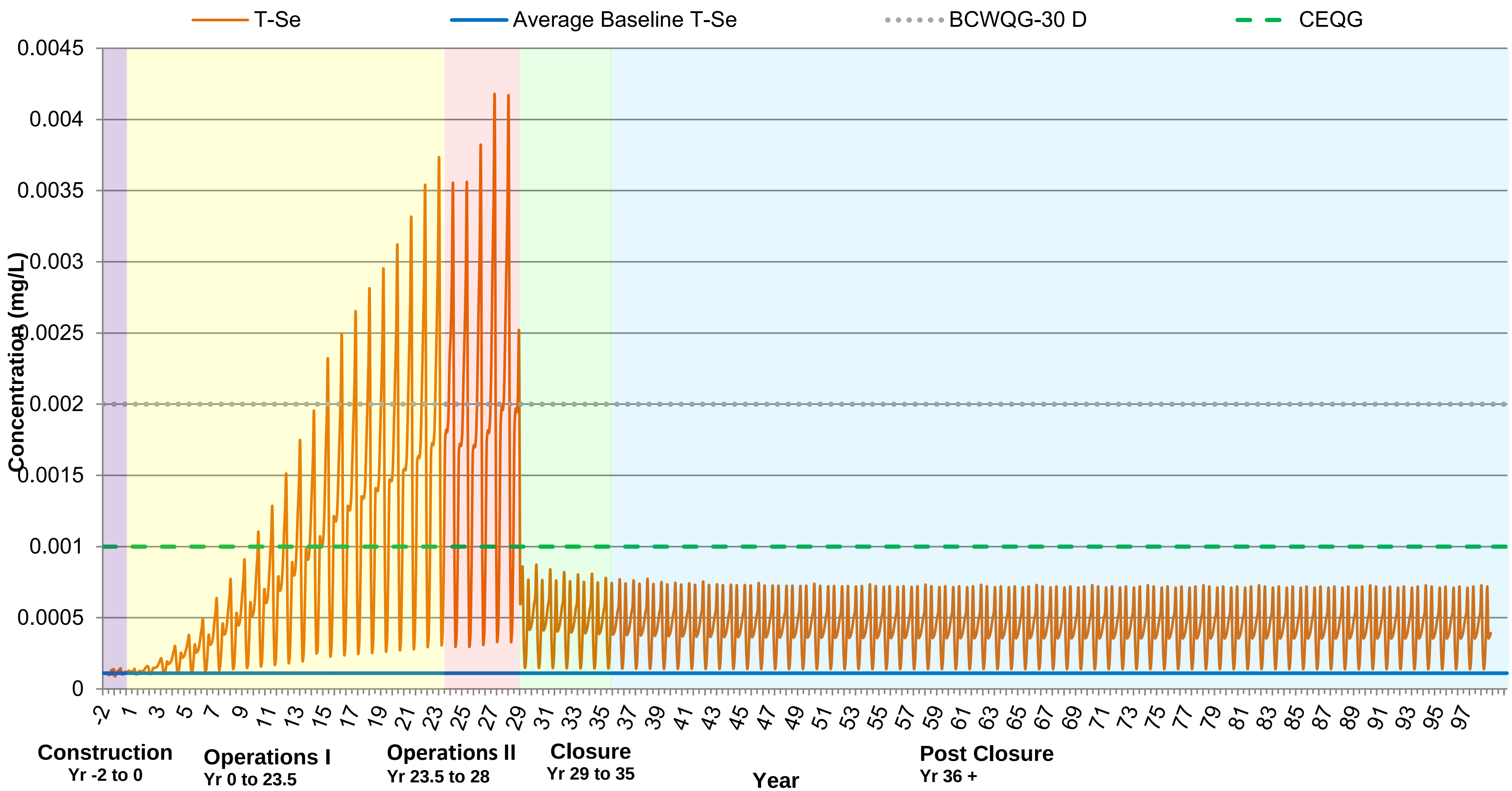
REF. NO. VA14-01825

FIGURE A6.Hg

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - MID HARPER CREEK

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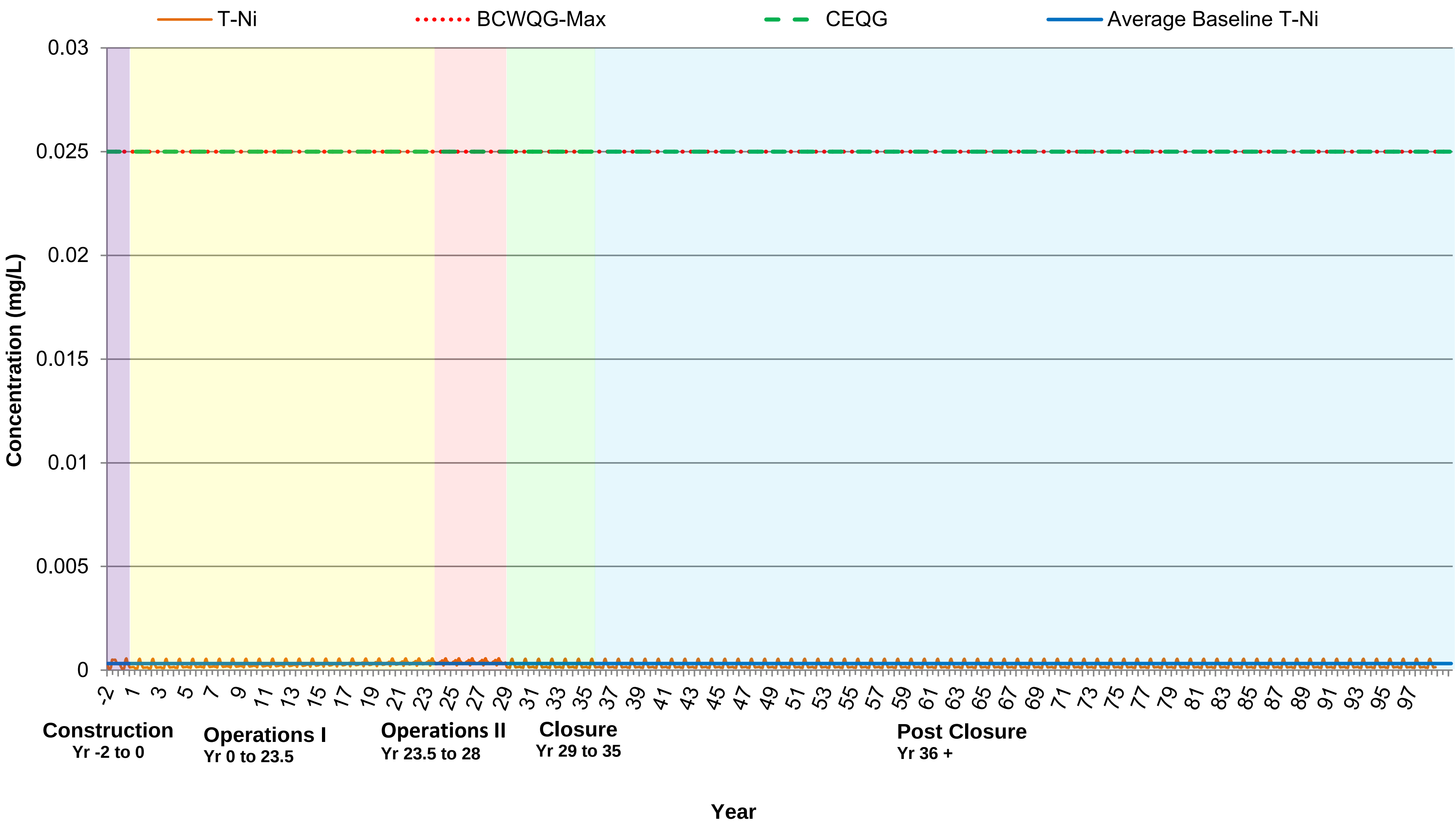
REF. NO. VA14-01825

FIGURE A6.Se

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - MID HARPER CREEK

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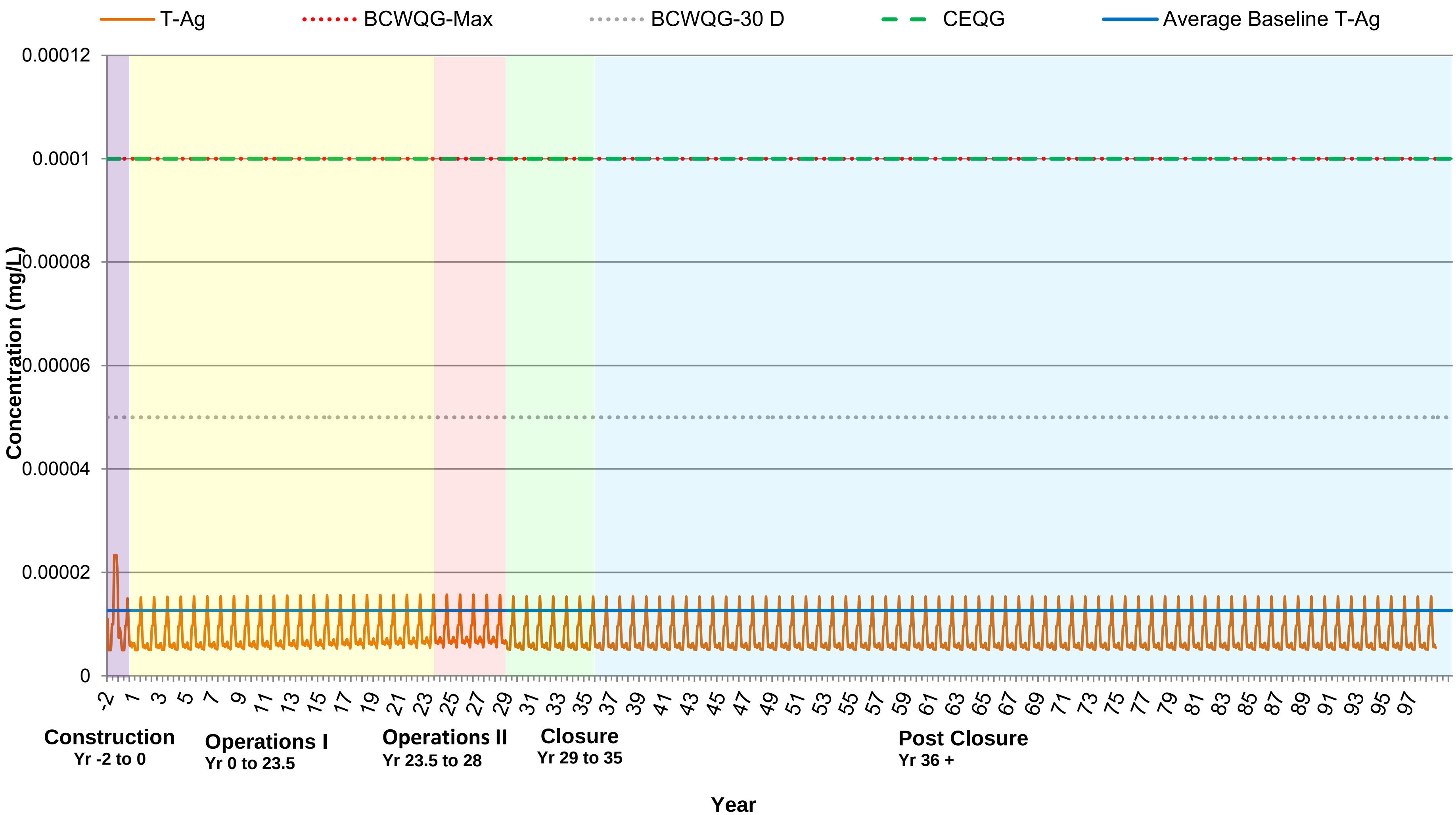
REF. NO. VA14-01825

FIGURE A6.Ni

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - MID HARPER CREEK

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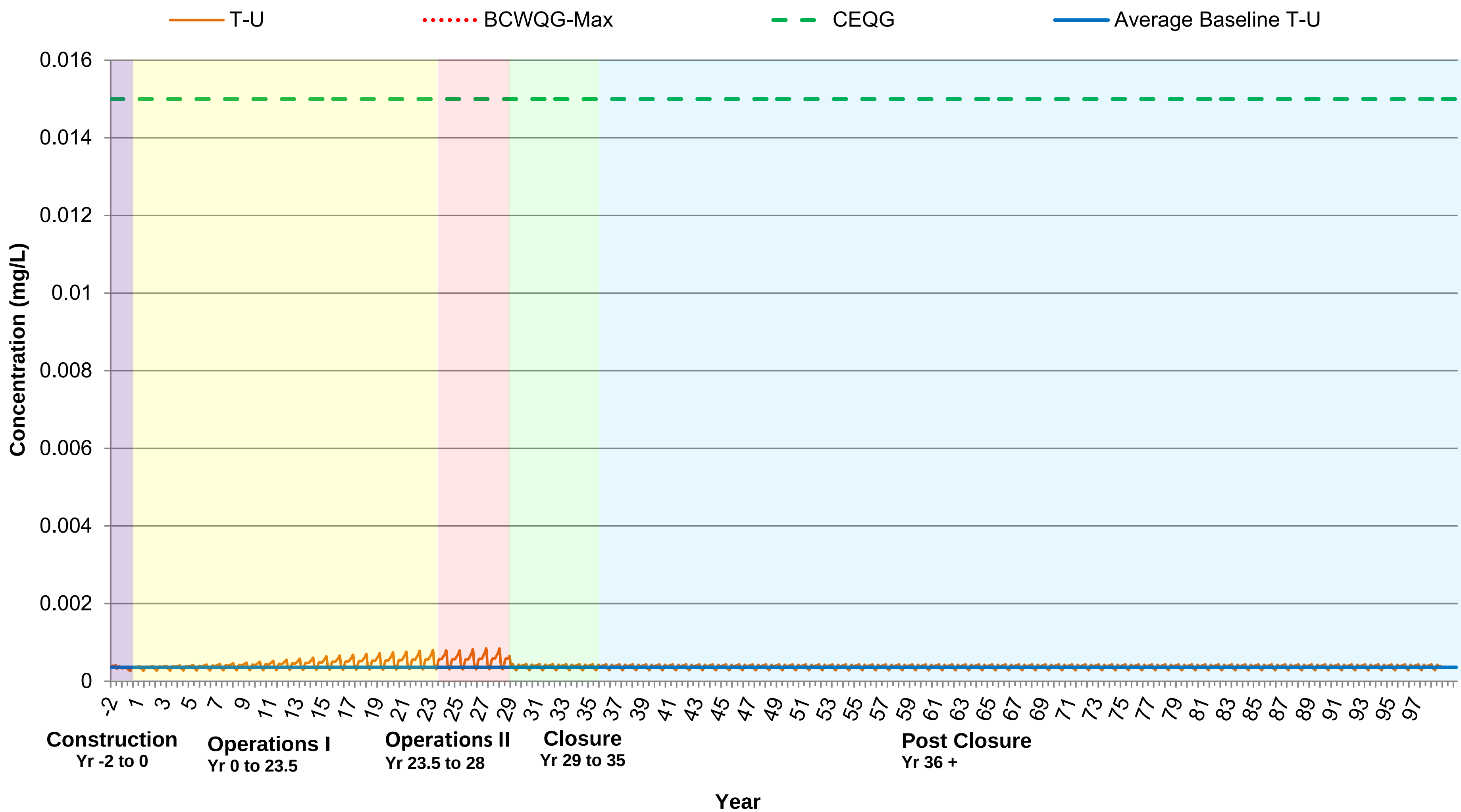
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Ag

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. THE BCWQG-MAX (0.3 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - MID HARPER CREEK

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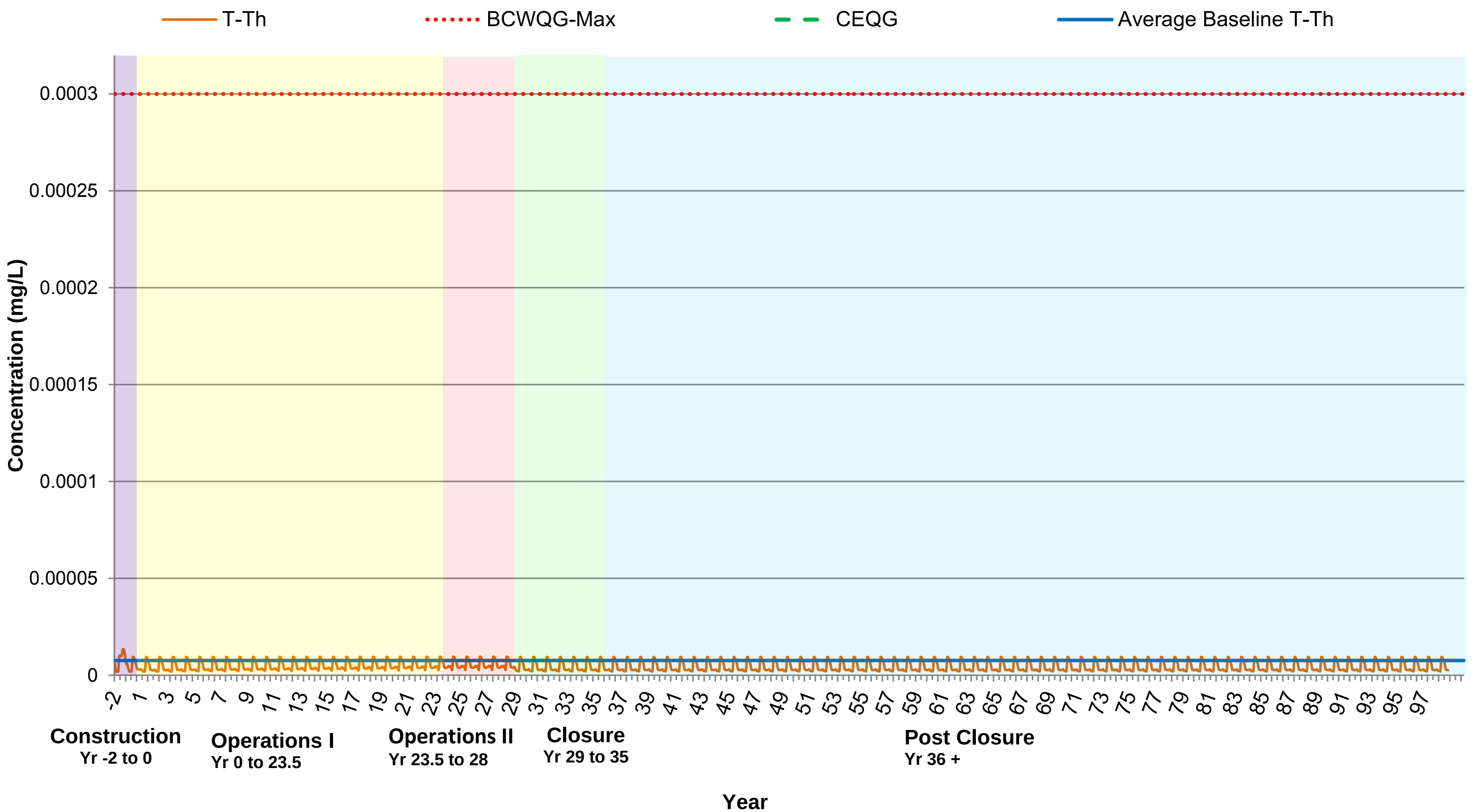
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.U

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. THE CEQG (0.0008 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - MID HARPER CREEK

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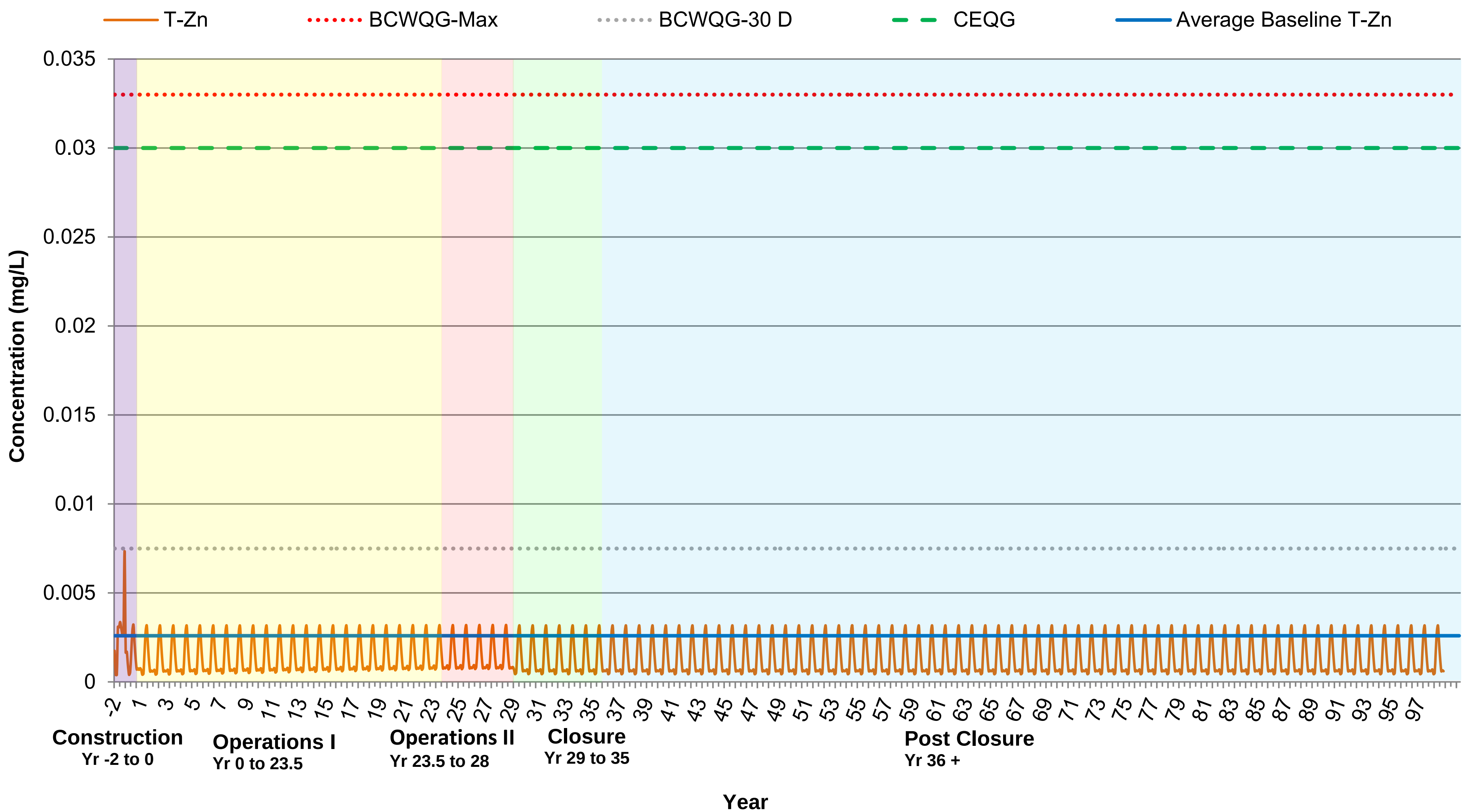
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A6.Th

REV 0



NOTES:

1. BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H2 (AVERAGE HARDNESS OF 38 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - MID HARPER CREEK

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REF. NO. VA14-01825

FIGURE A6.Zn

REV 0

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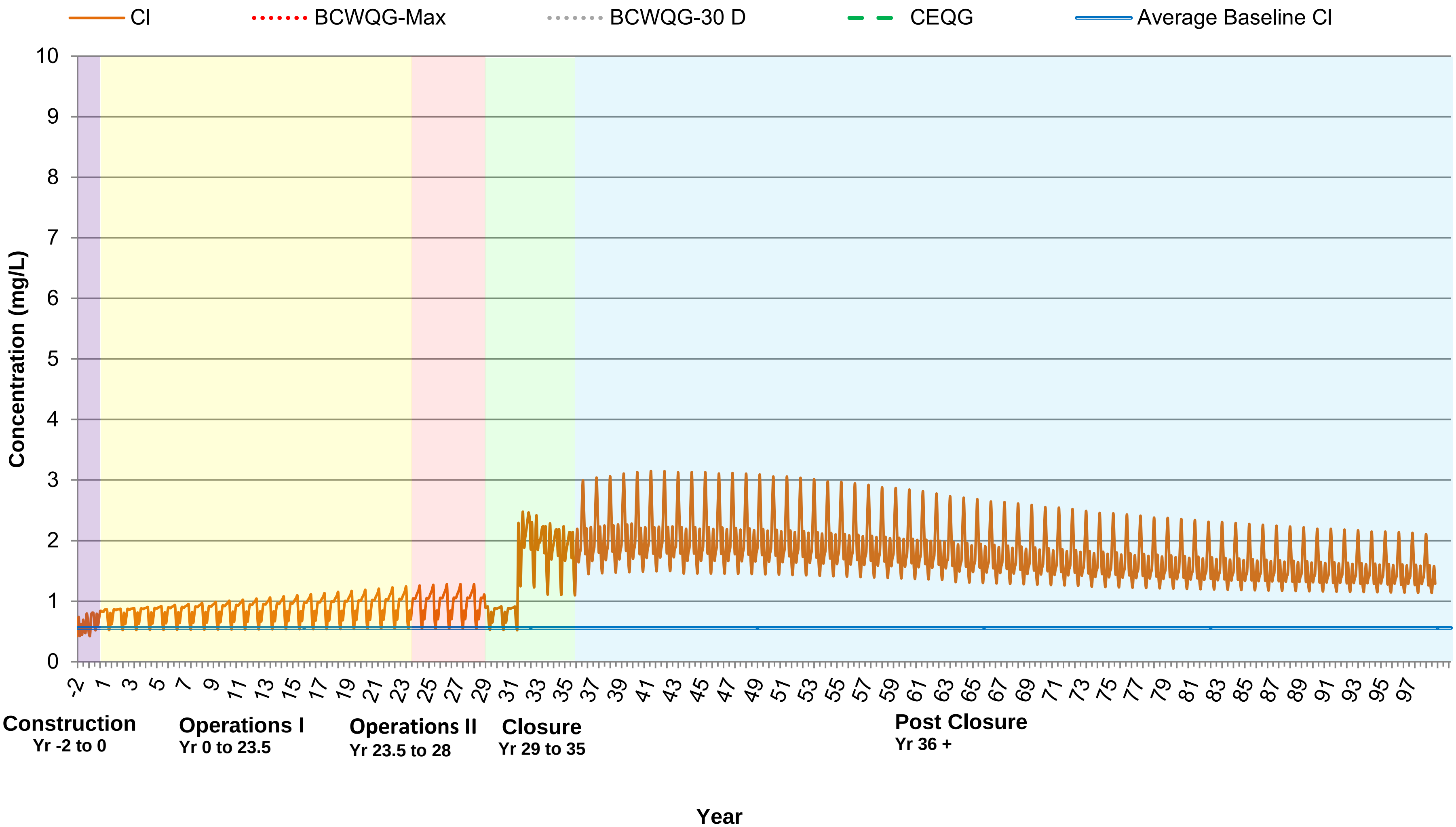
APPENDIX A7

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – HARPER CREEK BELOW T-CREEK

(Pages A7-1 to A7-30)



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. ALL GUIDELINES ARE NOT SHOWN: BCWQG-30 D (150 mg/L); BCWQG-MAX (600 mg/L); CEQG (120 mg/L AND 640 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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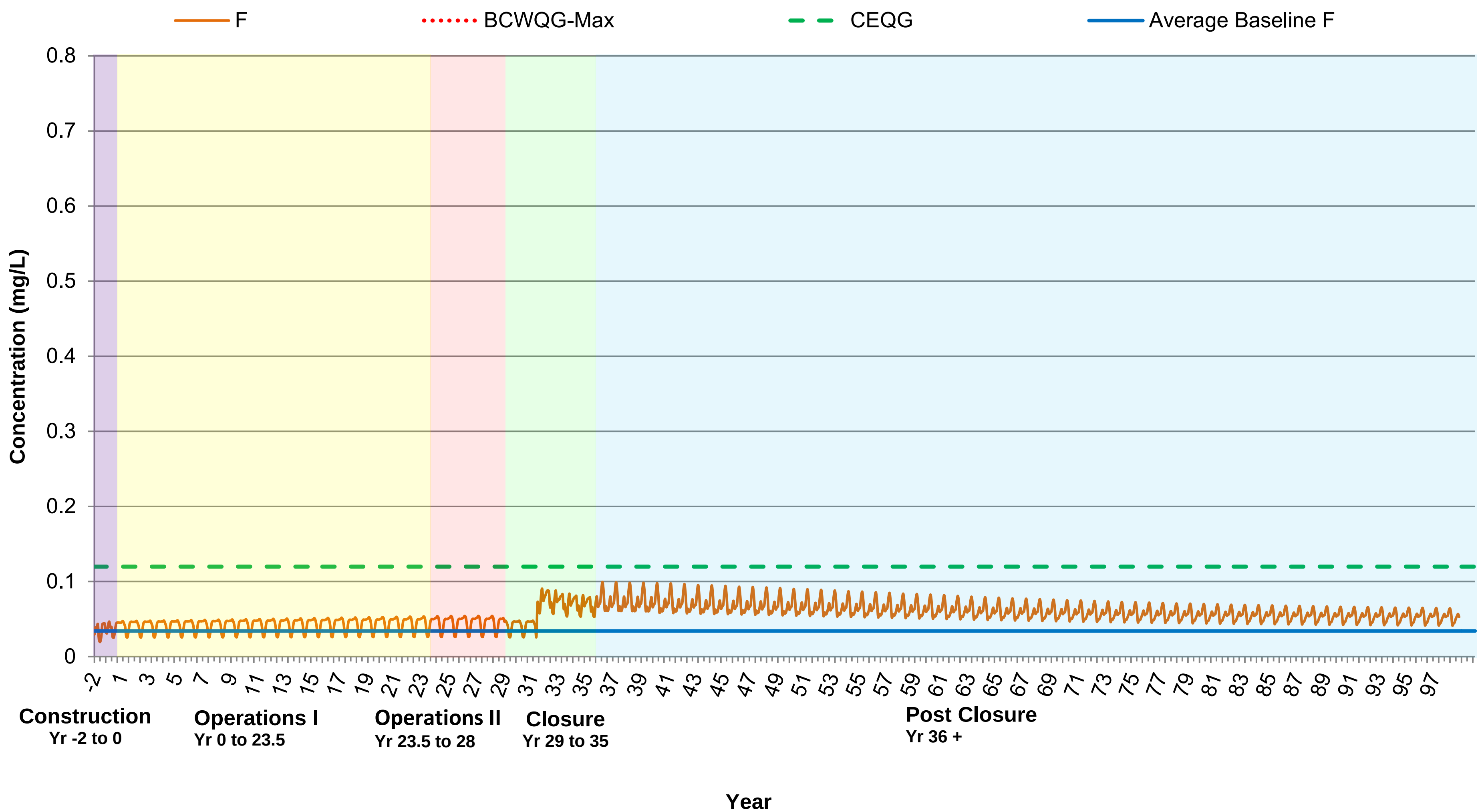
VA101-458/17	VA14-01825

FIGURE A7.CI REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB



NOTES:

1. THE BCWQG-MAX IS HARNDESS DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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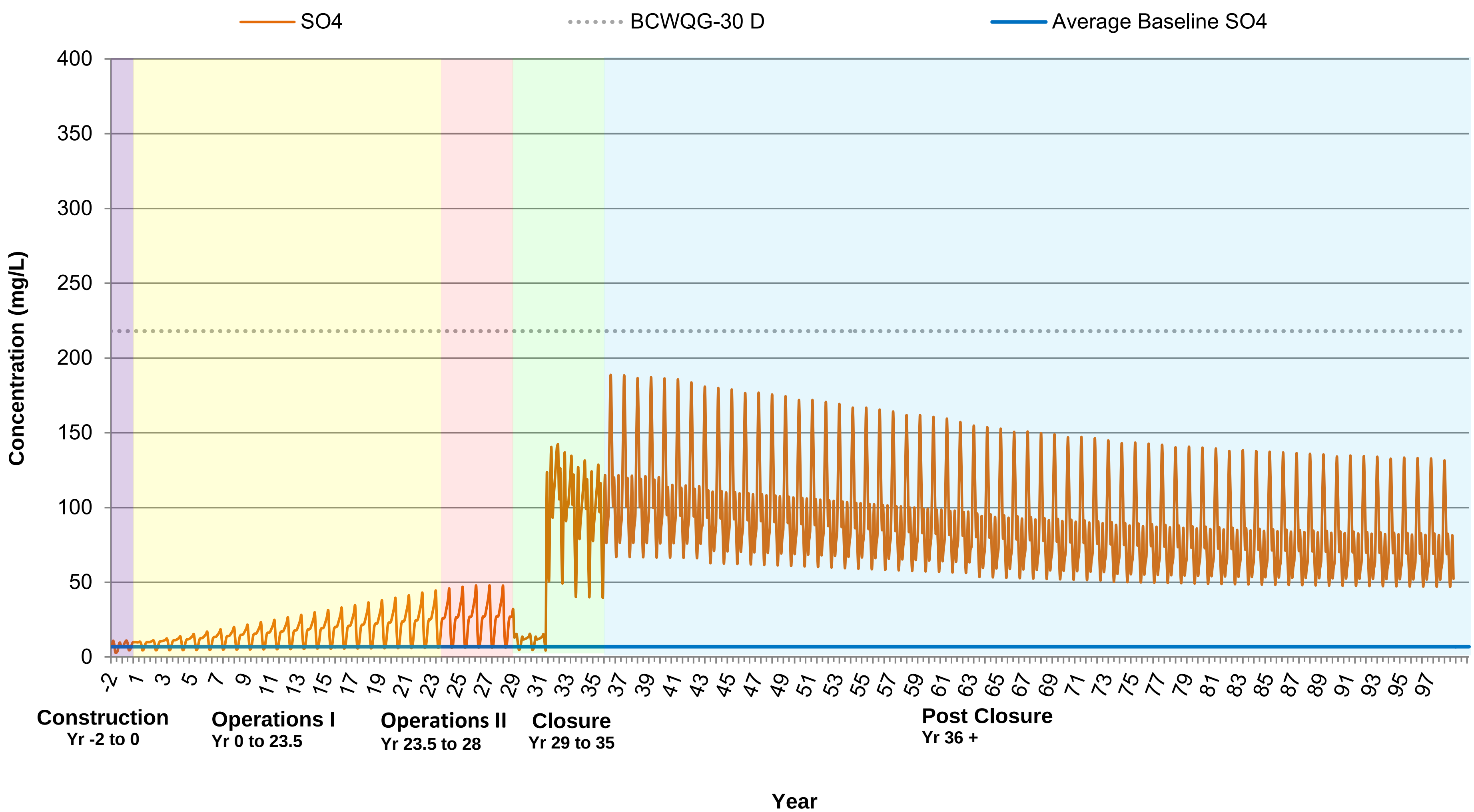
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.F

REV 0



NOTES:

1. BCWQG-30 D IS HARDNESS DEPEDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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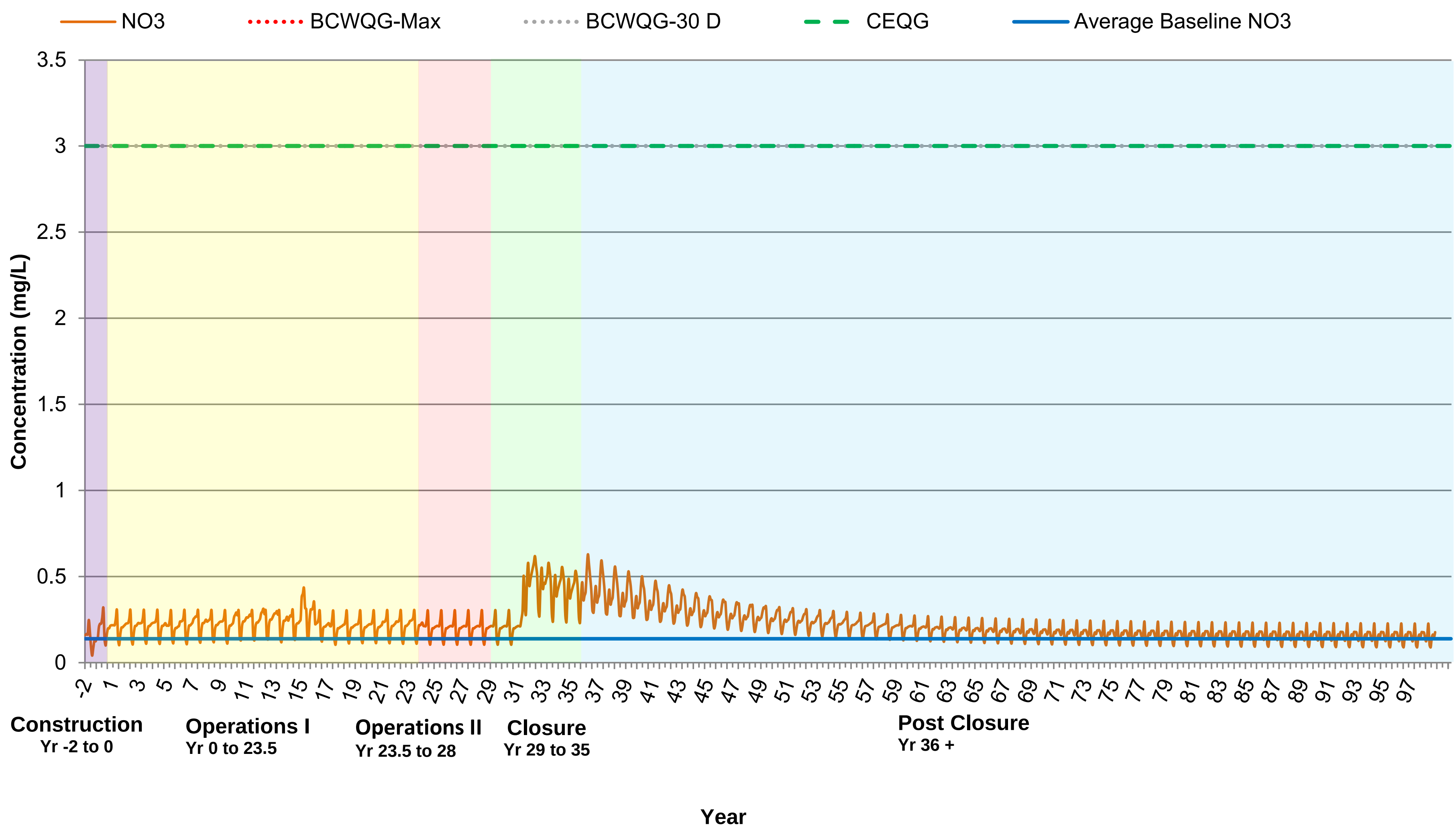
FIGURE A7.S04

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. THE BCWQG-MAX (32.8 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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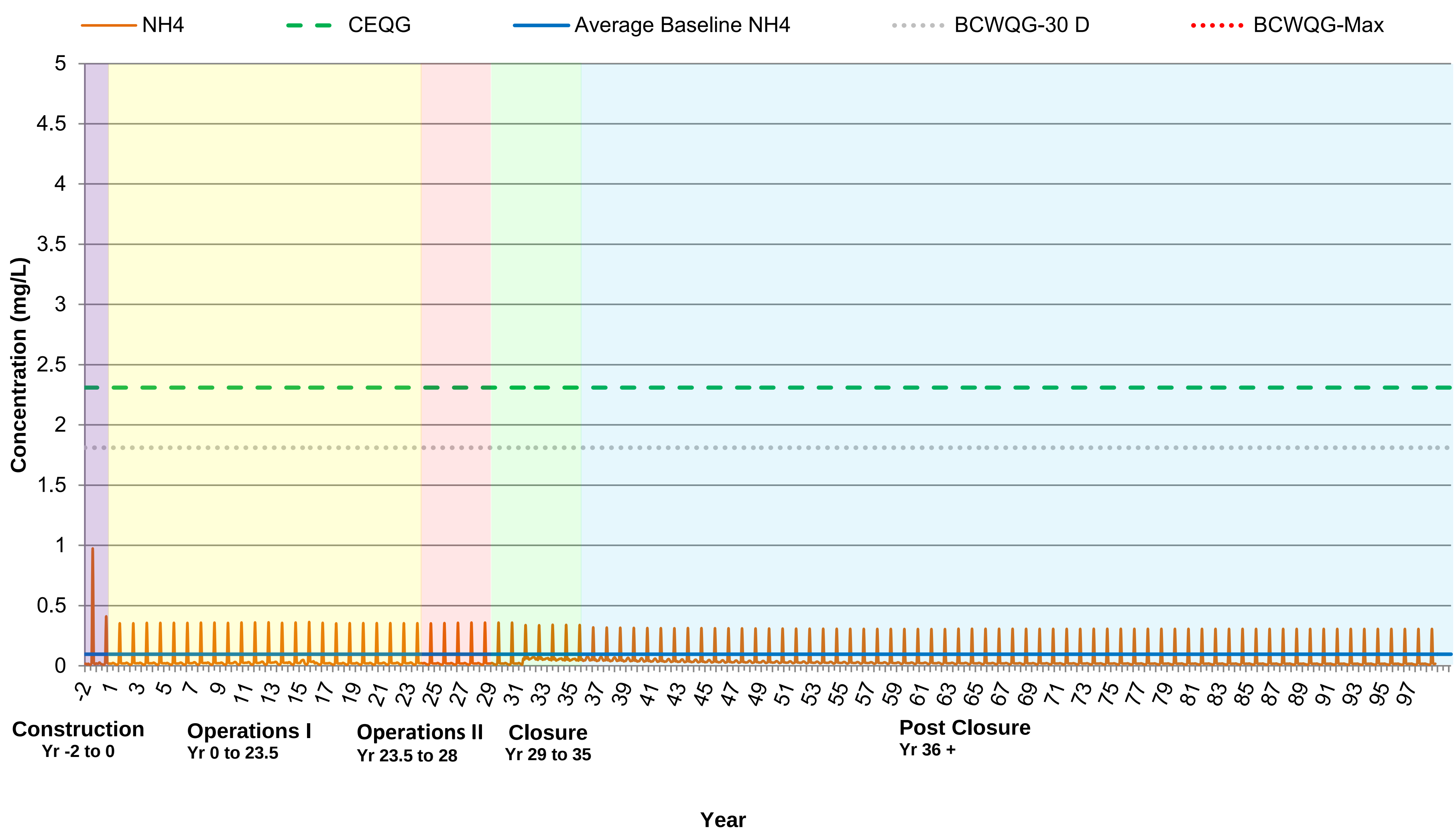
FIGURE A7.NO3

REV 0



NOTES:

1. THE BCWQG-30 D IS VALID FOR ONLY 6.5≤pH<9 AND 0°C≤T≤20°C.
2. THE BCWQG-MAX (20.15 mg/L) VALID FOR 6.5≤pH<9 IS NOT SHOWN.
3. THE CEQG IS TO BE USED WITH CAUTION FOR WATER WITH T<5°C AND pH>9.
4. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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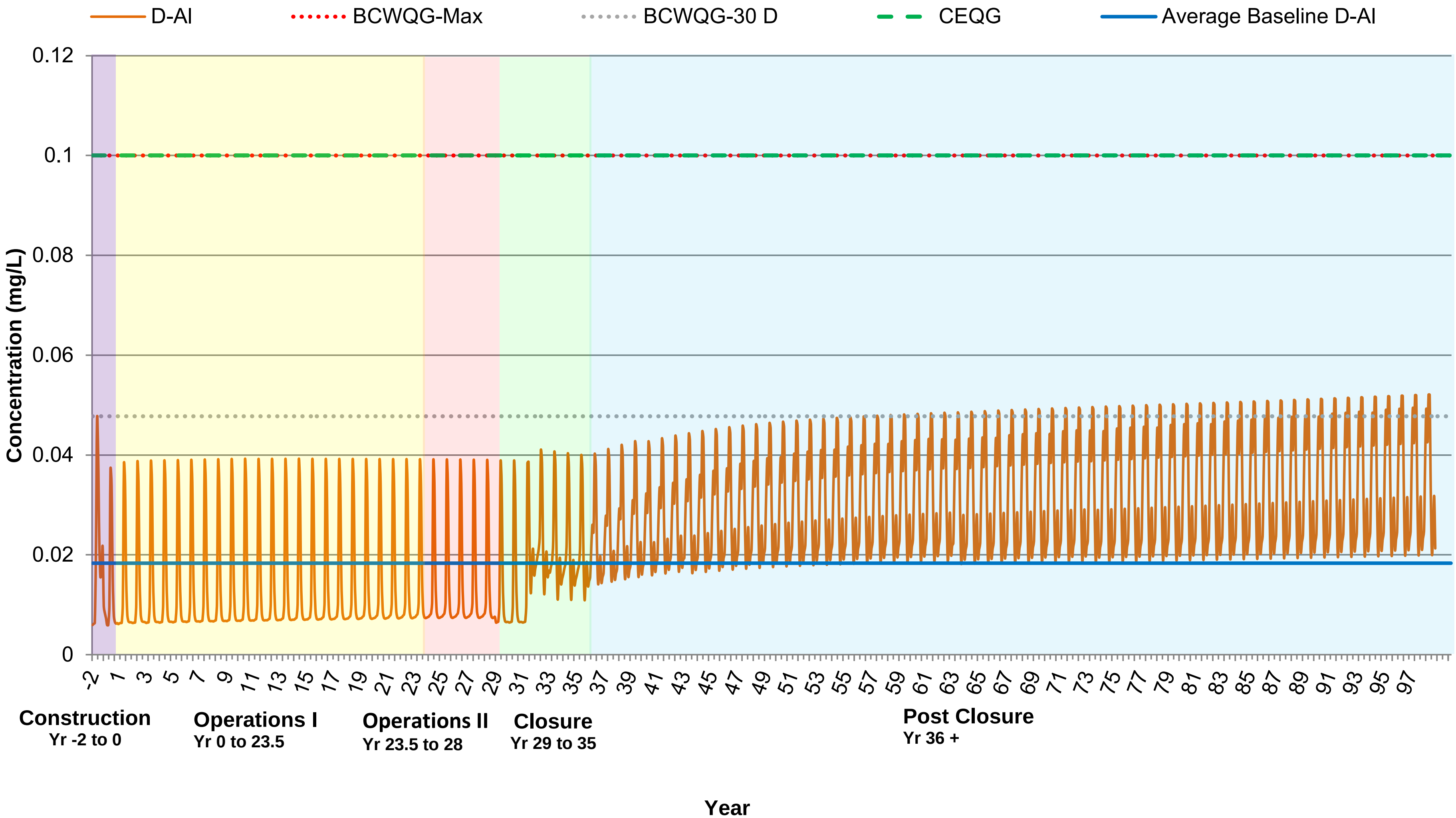
P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE A7.NH4 REV 0



NOTES:

1. ALL GUIDELINES ARE pH-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. AVERAGE BASELINE pH USED TO CALCULATE GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED ALUMINUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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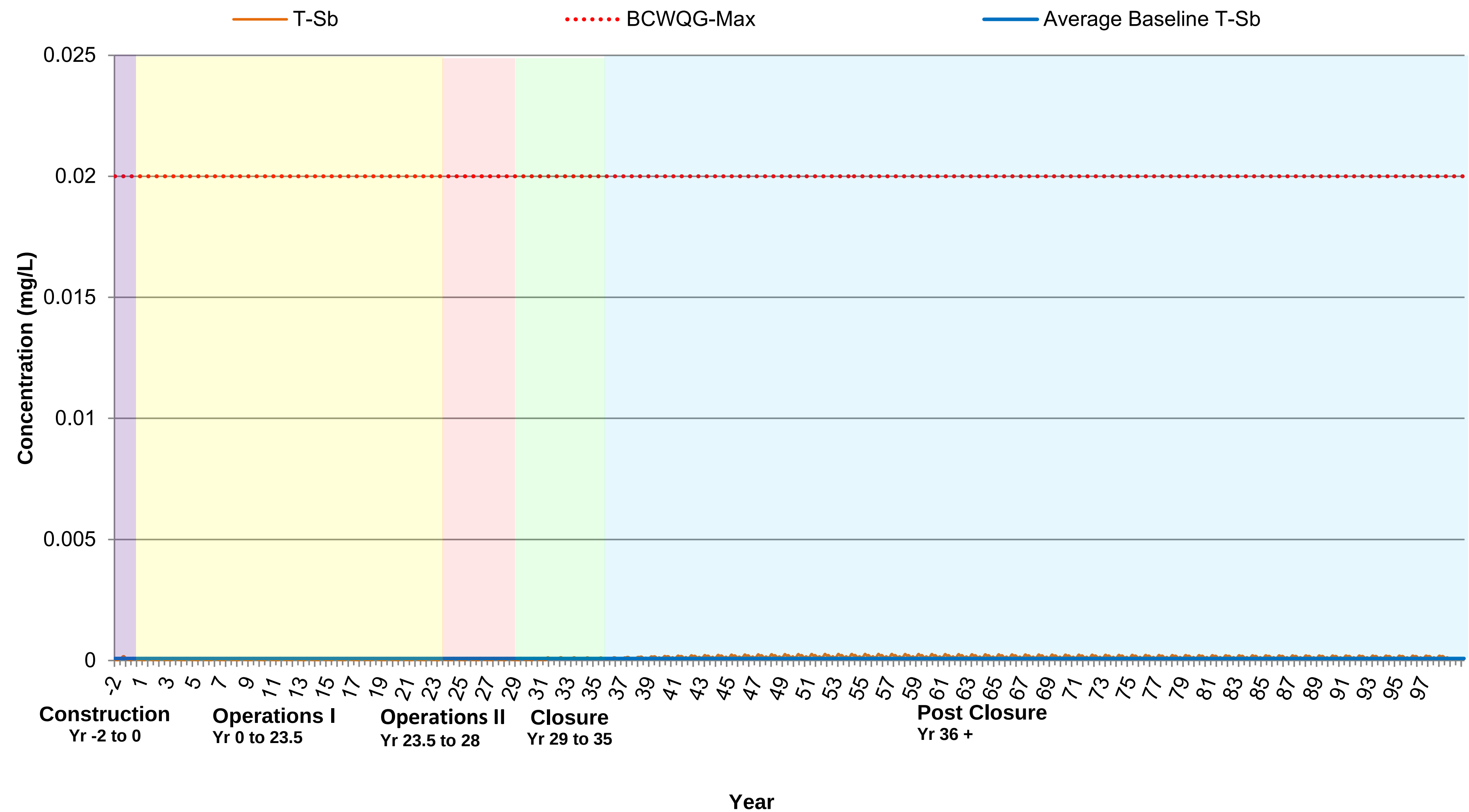
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Al

REV 0



NOTES:

1. THE BCWQG IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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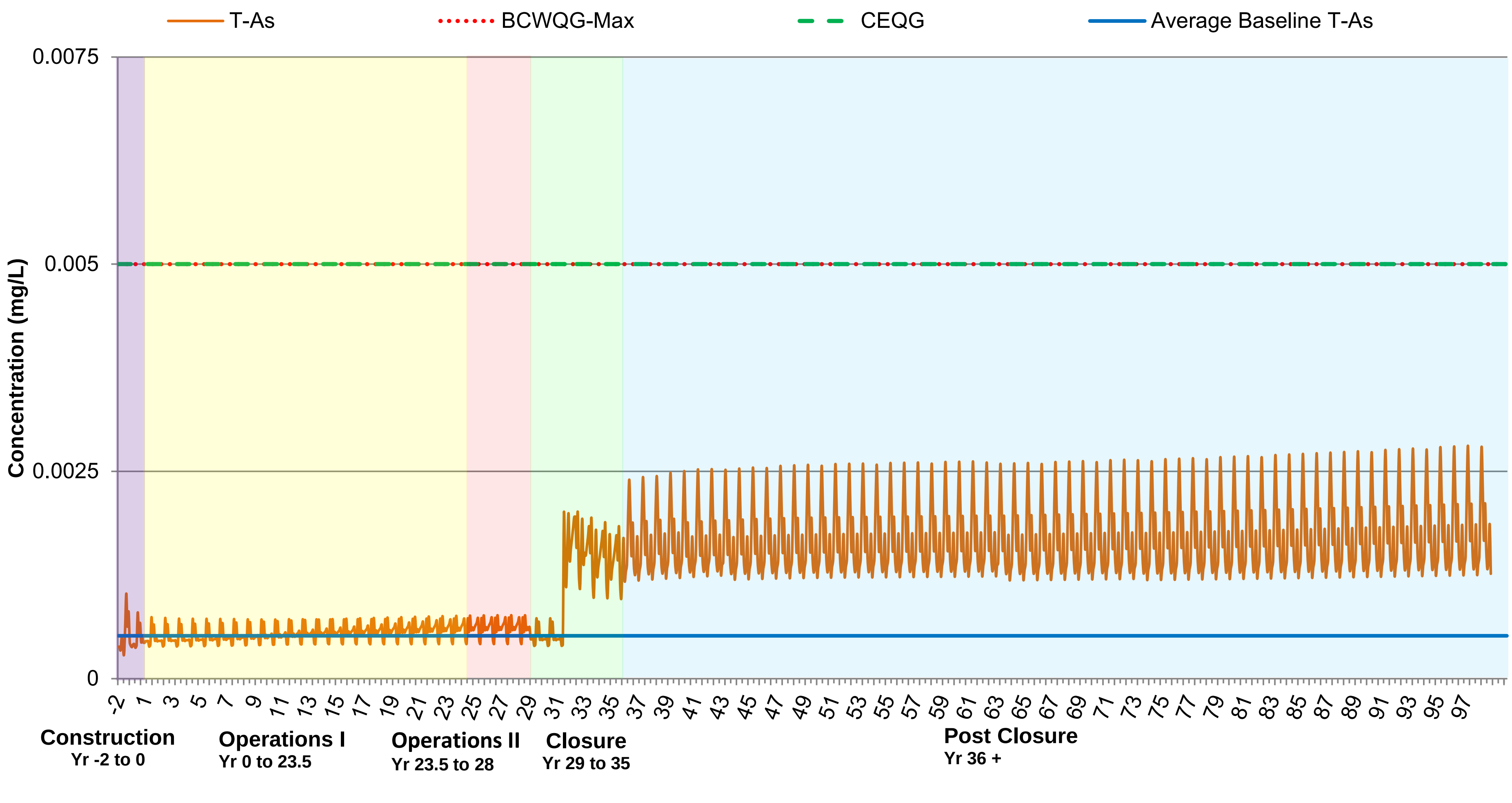
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Sb

REV 0



NOTES:

1. THE BCWQG AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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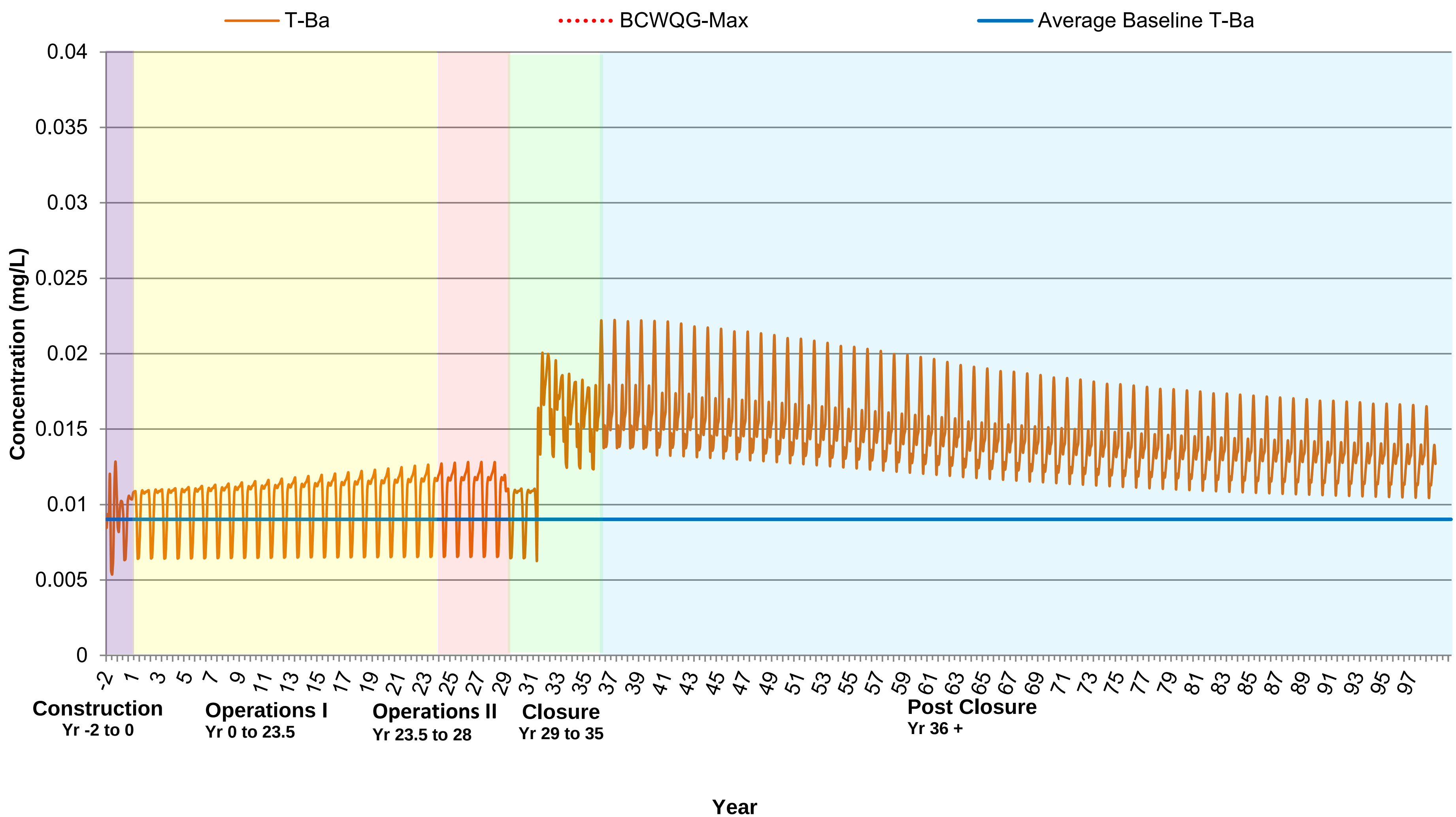
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.As

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. THE BCWQG-30 D (1 mg/L) AND BCWQG-MAX (5 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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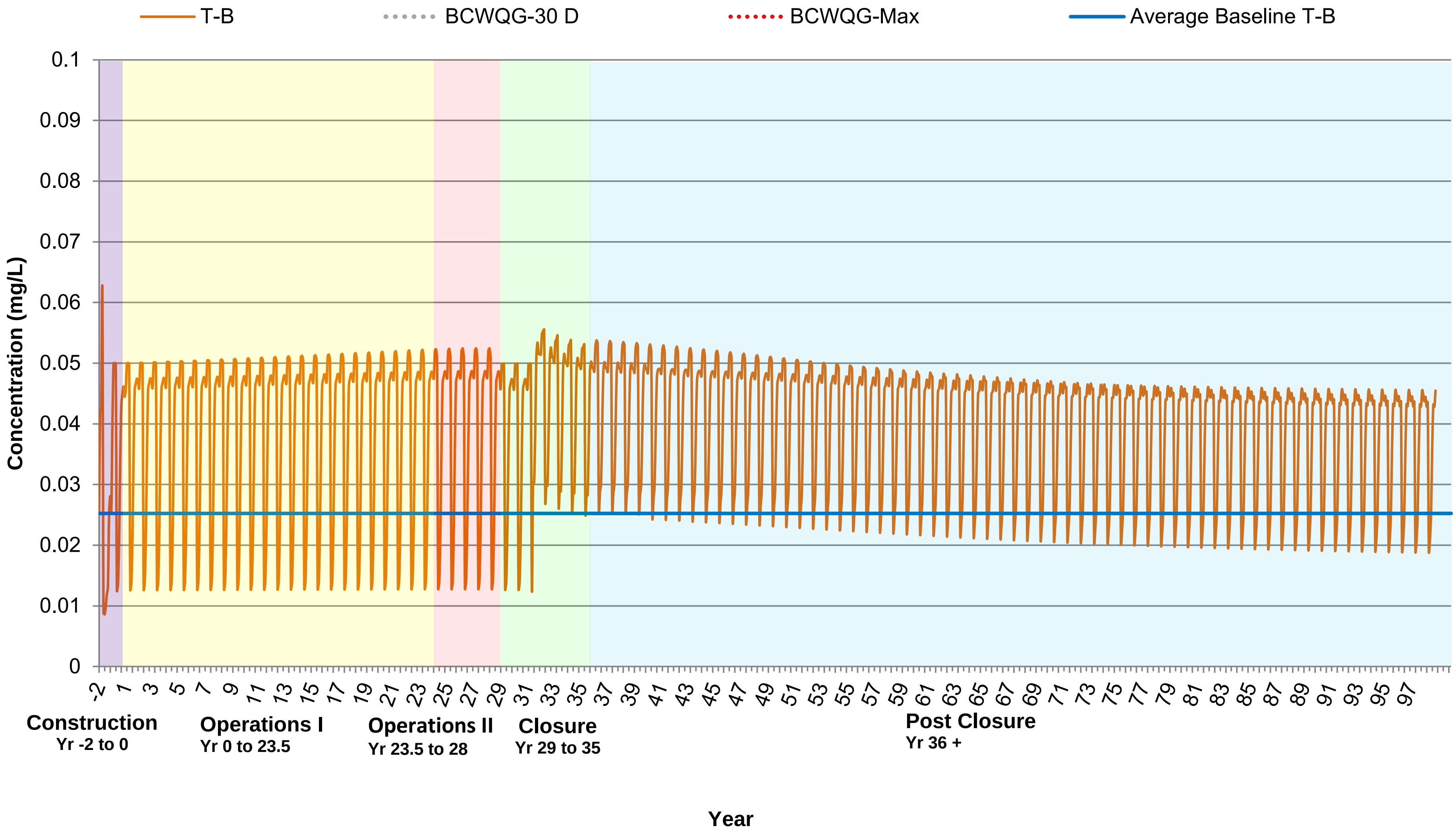
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Ba

REV 0



NOTES:

1. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
3. THE BCWQG-MAX (1.2 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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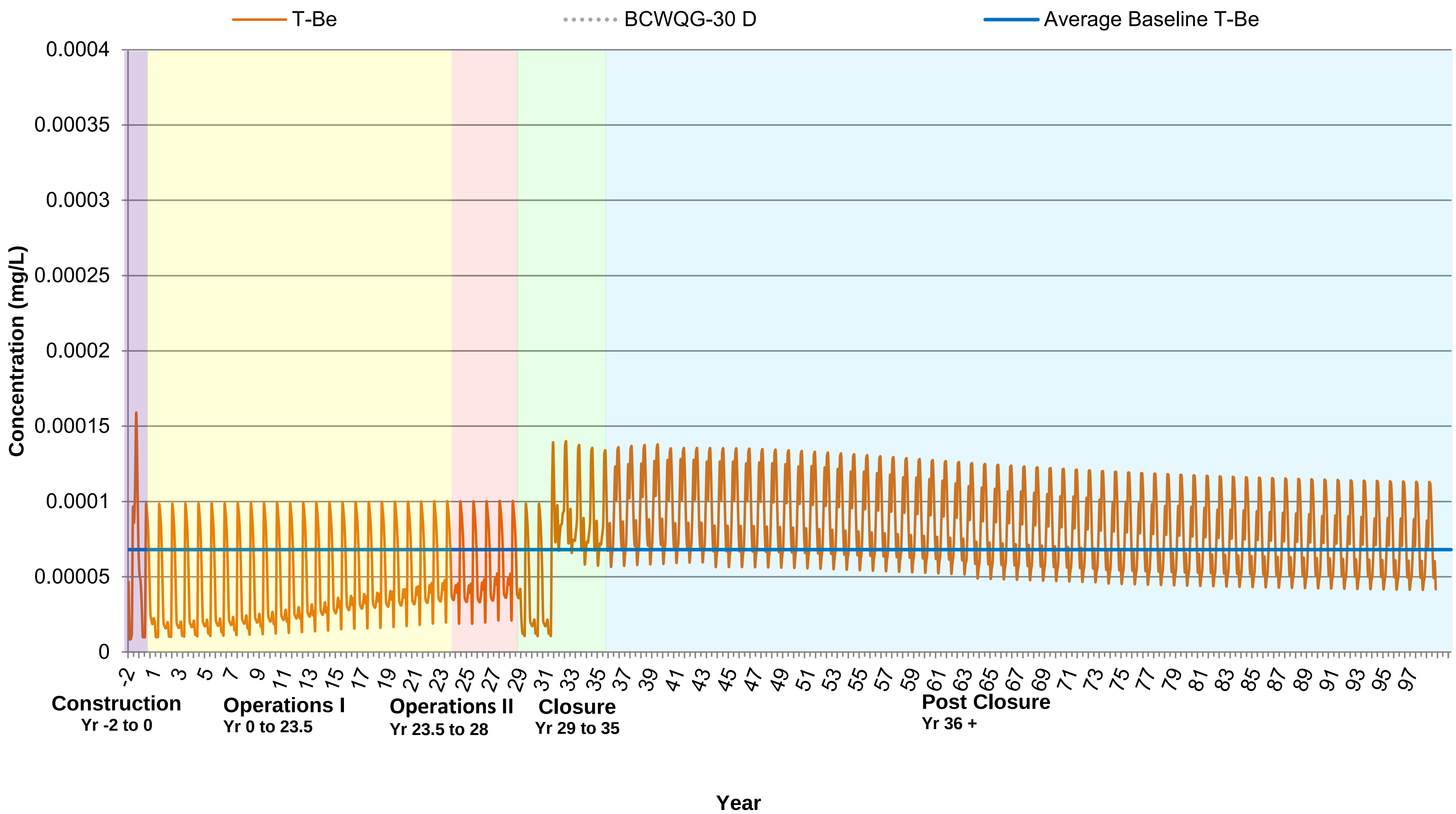
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.B

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. THE BCWQG-30 D (0.0053 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BERYLLIUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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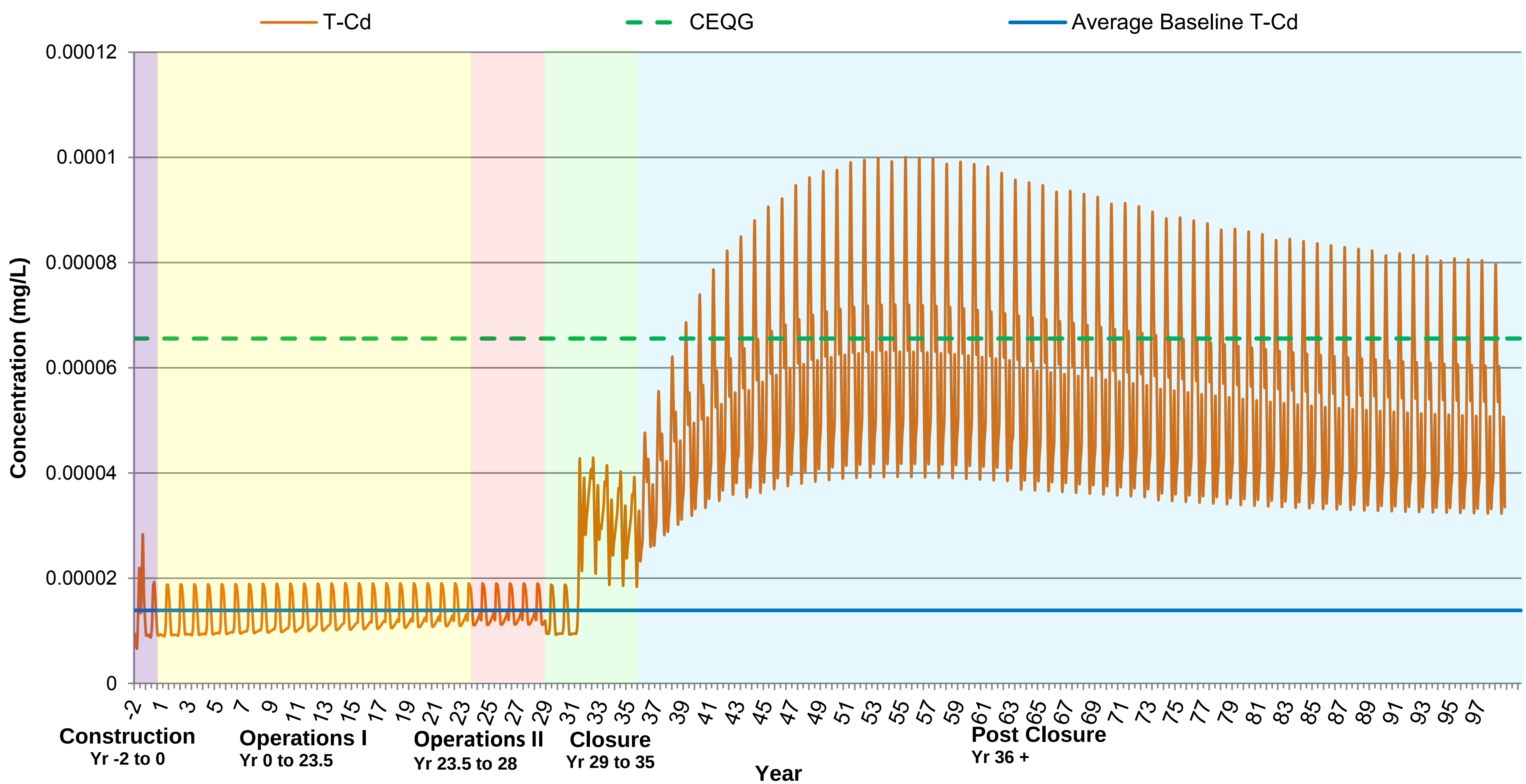
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Be

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. THE BCWQG ARE DRAFT GUIDELINES UNDER REVIEW (JUNE 2014).
3. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
4. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

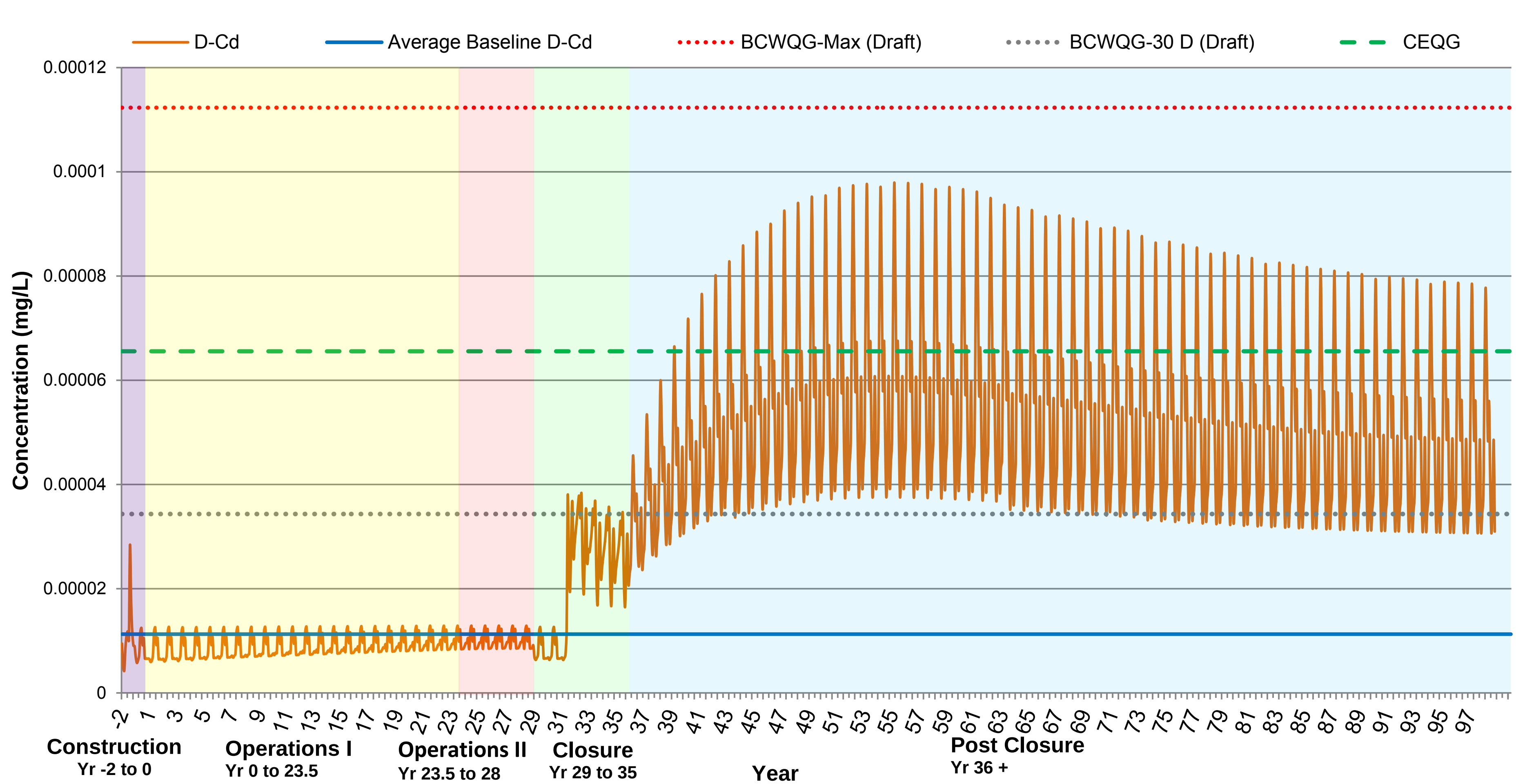
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Cd-T

REV 0



NOTES:

1. BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

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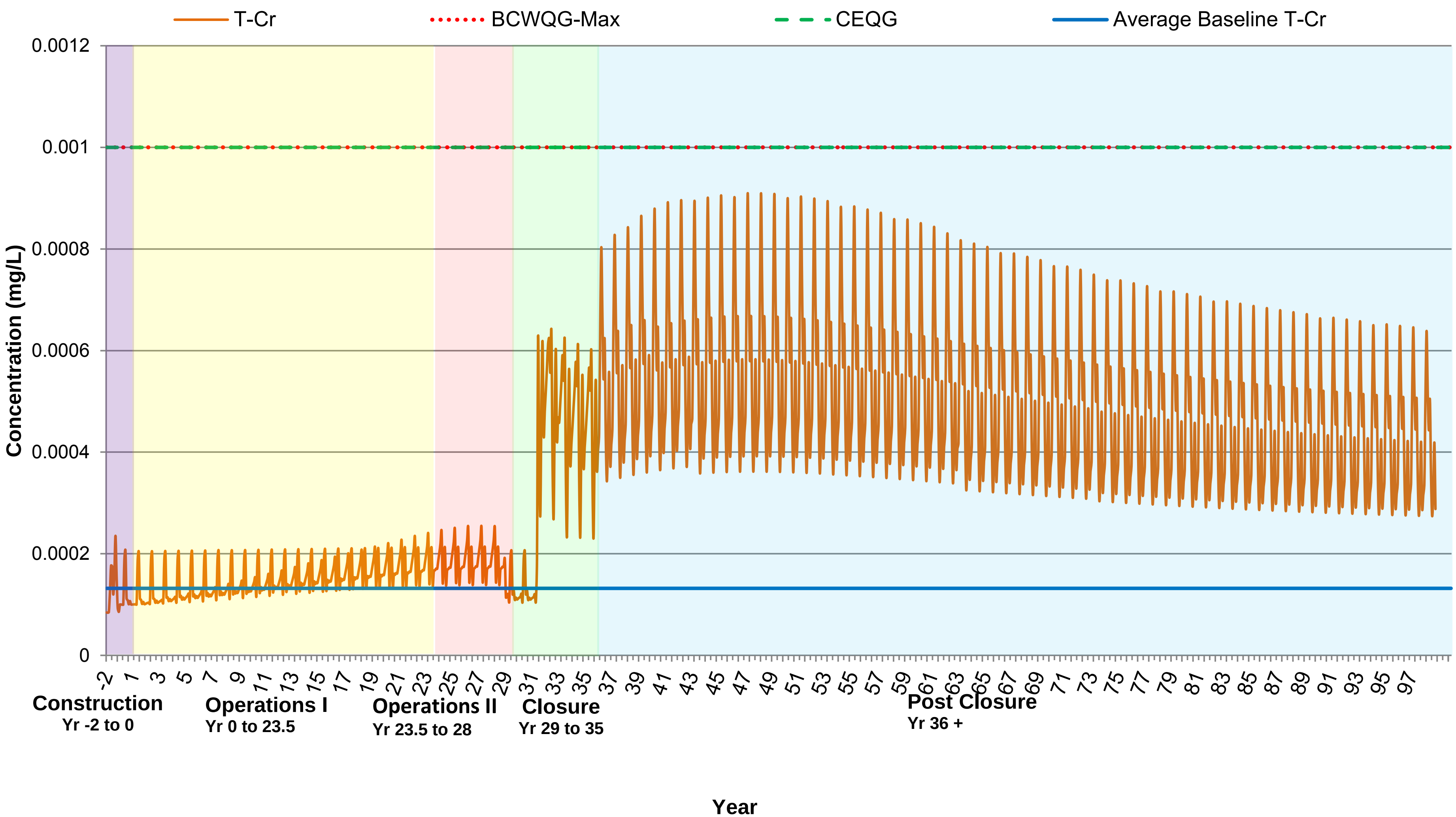
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Cd-D

REV 0



NOTES:

1. GUIDELINES ARE FOR CHROMIUM (IV), THE SPECIES MOST COMMON IN WELL OXYGENATED SURFACE WATERS.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

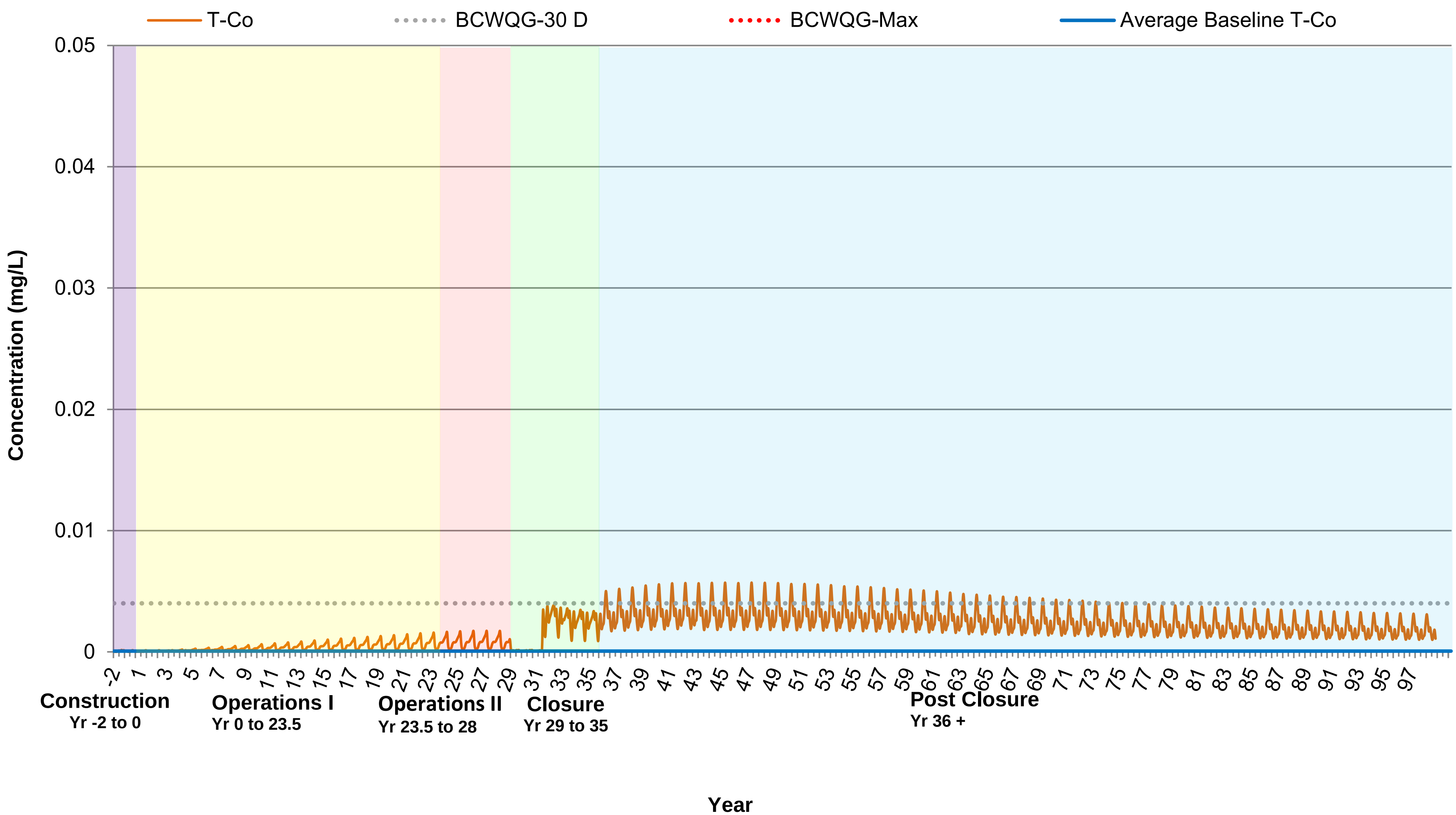
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Cr

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. THE BCWQG-MAX GUIDELINE (0.11 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

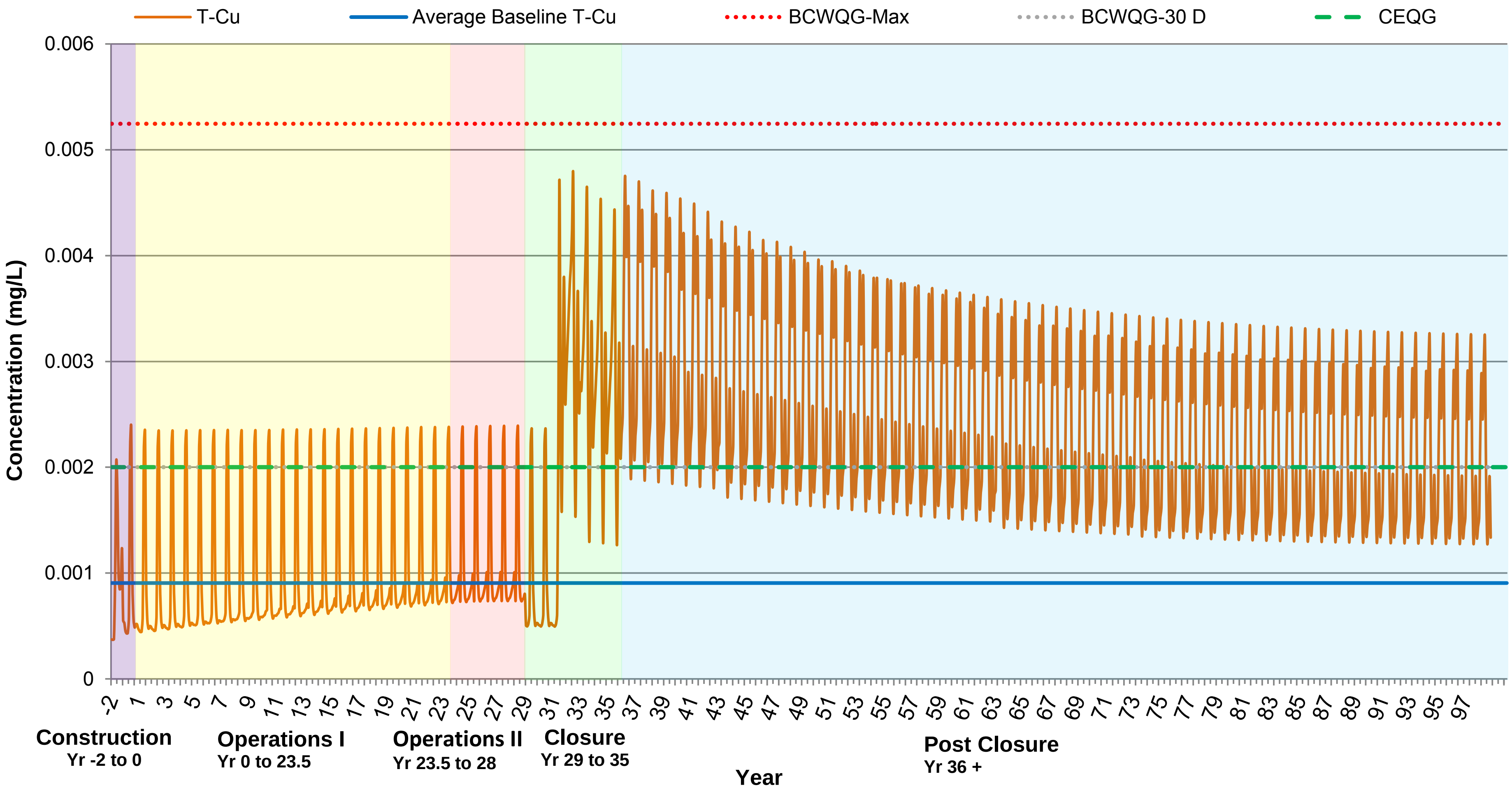
HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

Knight Piésold CONSULTING

P/A NO. VA101-458/17	REF. NO. VA14-01825	
FIGURE A7.Co		REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

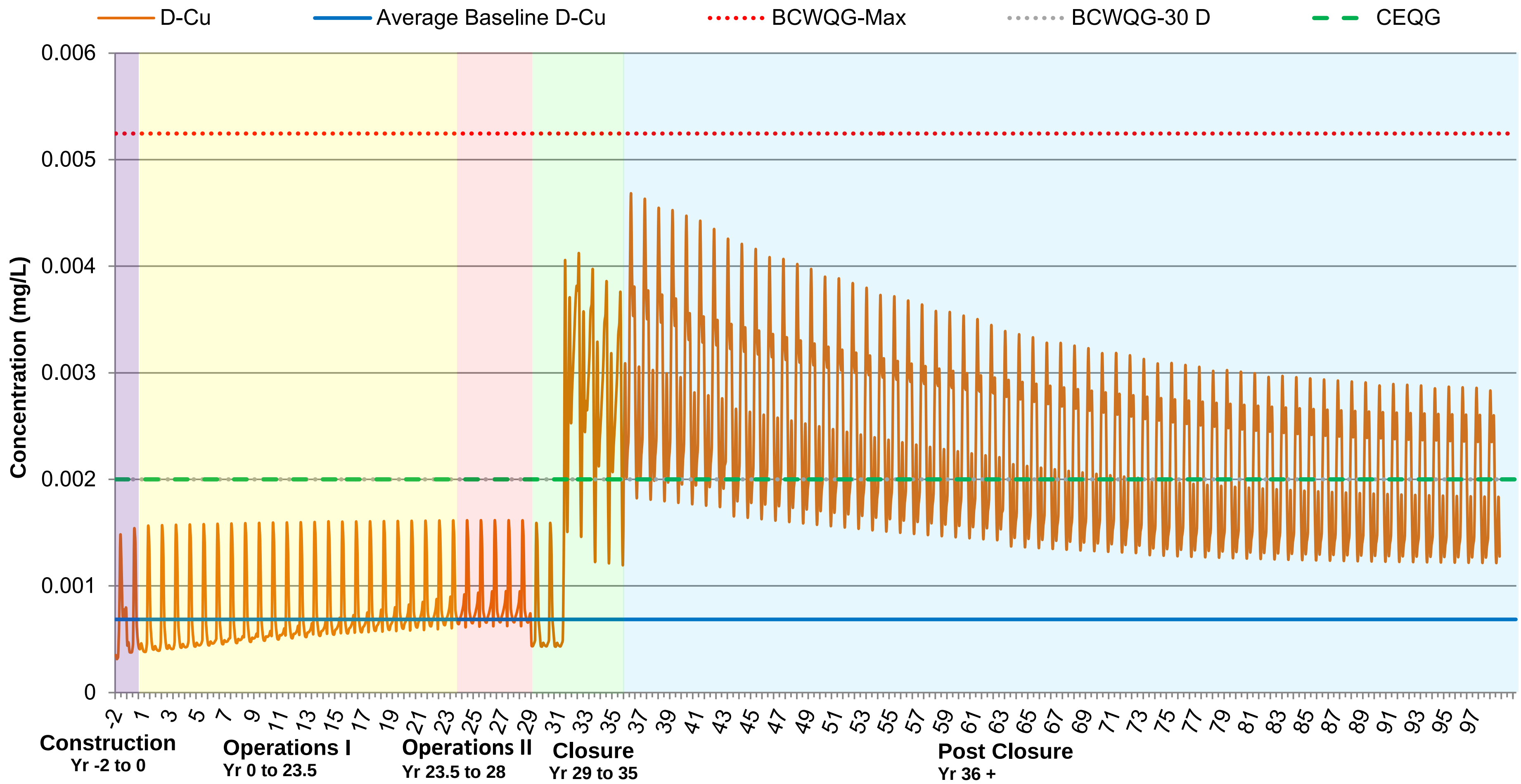
HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE A7.Cu-T REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

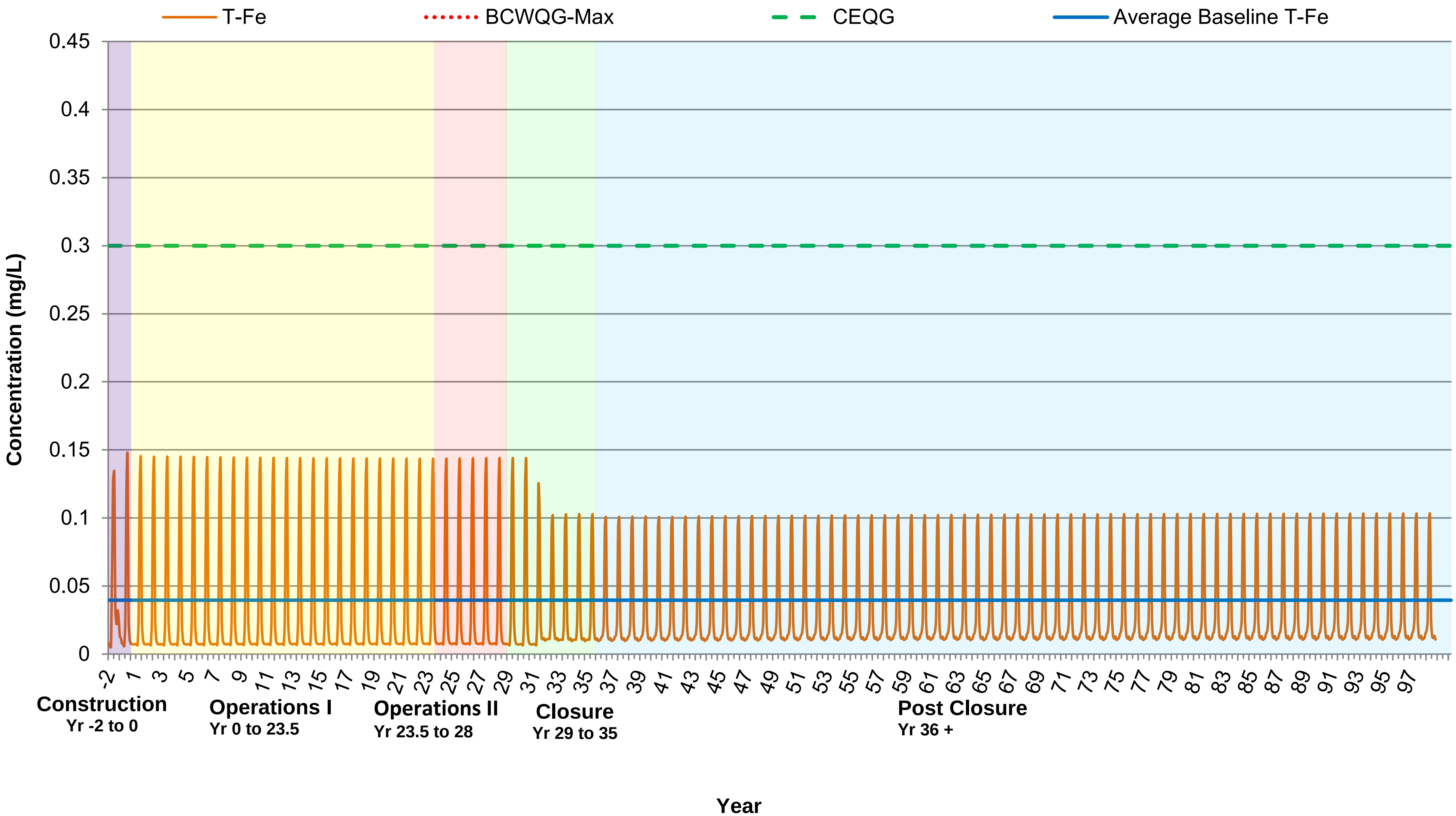
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Cu-D

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. BCWQG-MAX 1.0 mg/L IS NOT SHOWN ON GRAPH.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT TOTAL IRON CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

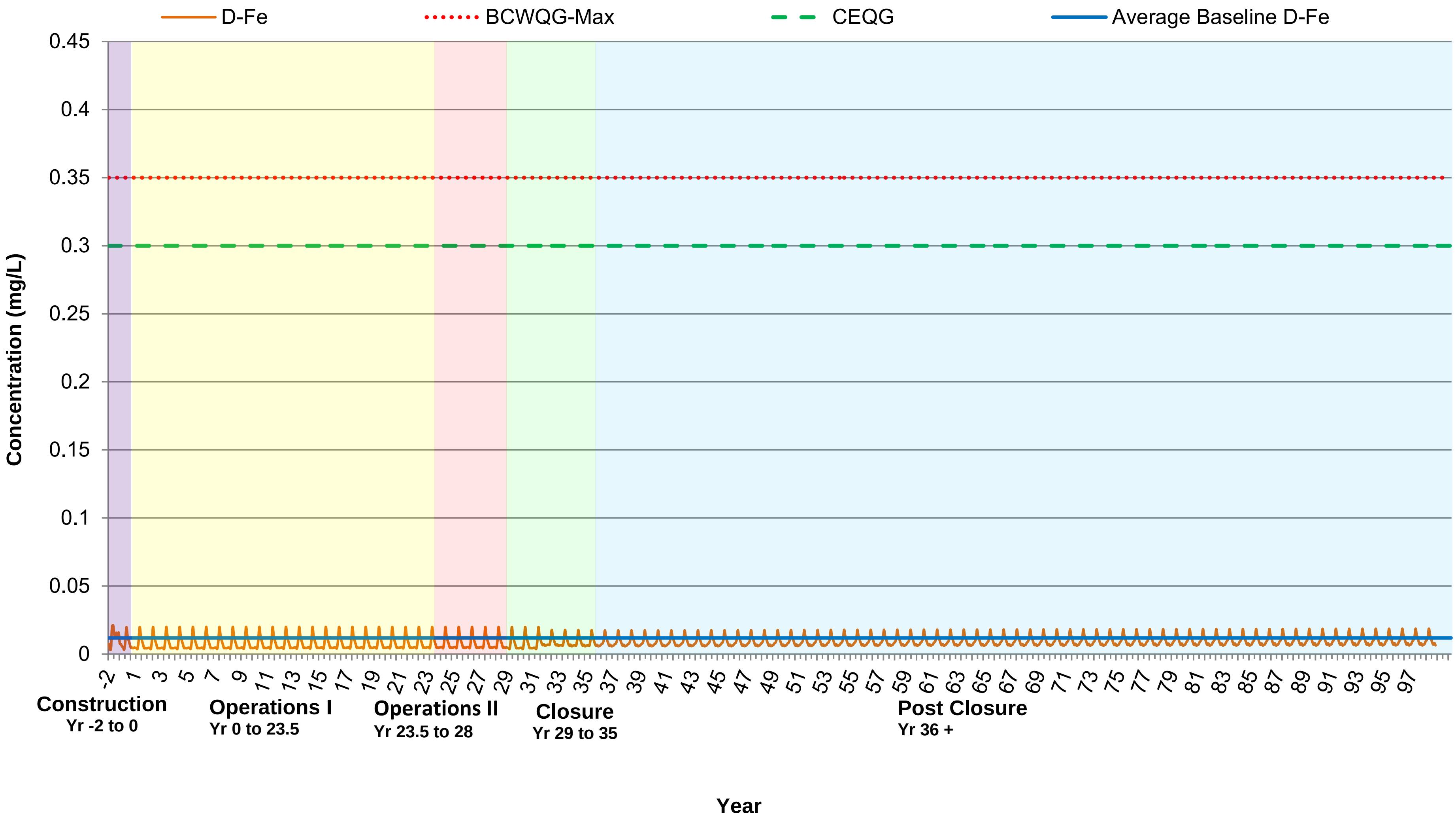
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Fe-T

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED IRON CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

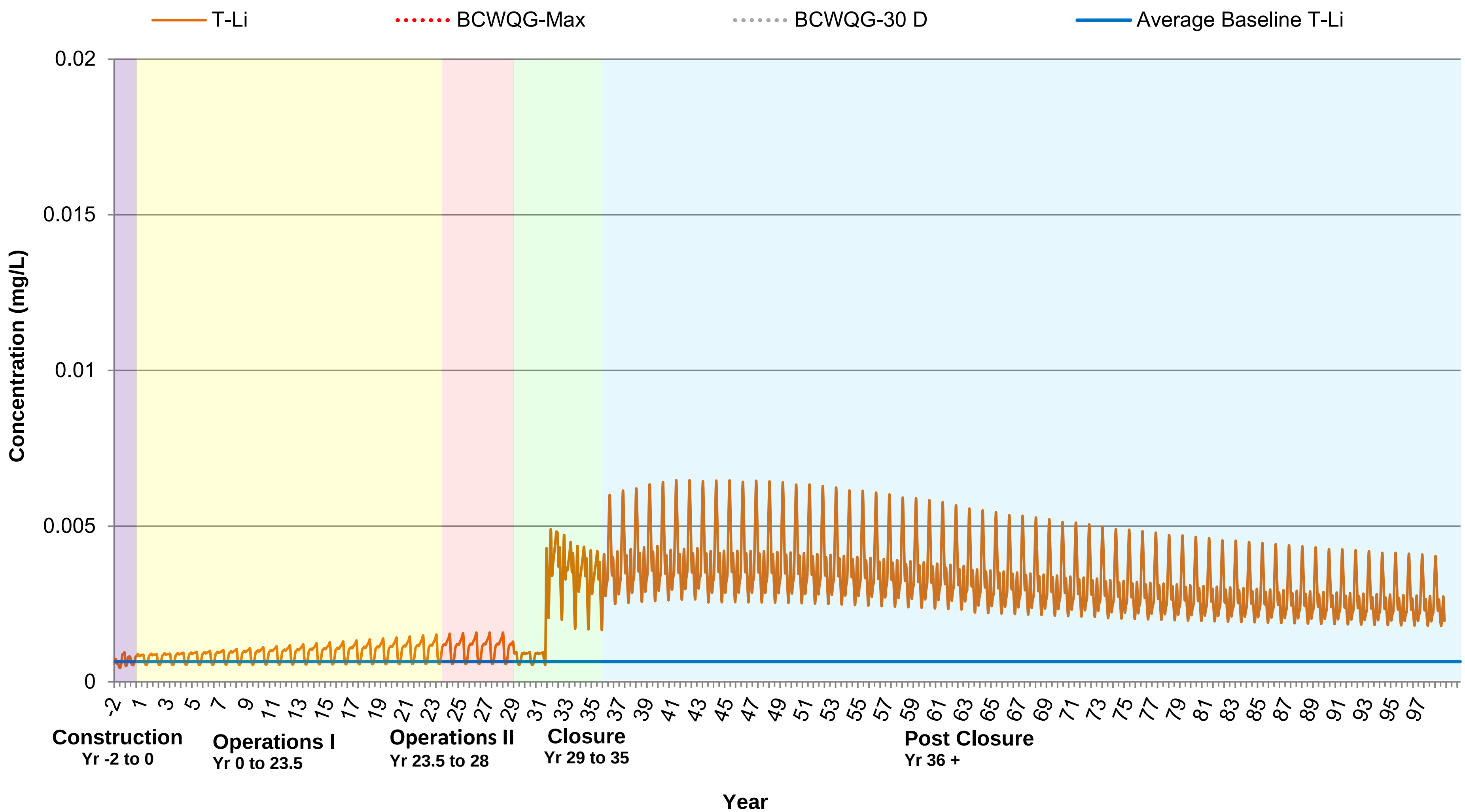
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Fe-D

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. THE BCWQG-30 D (0.096 mg/L) AND BCWQG-MAX (0.87 mg/L) ARE INTERIM (WORKING) AND ARE NOT SHOWN ON GRAPH.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LITHIUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

Knight Piésold CONSULTING

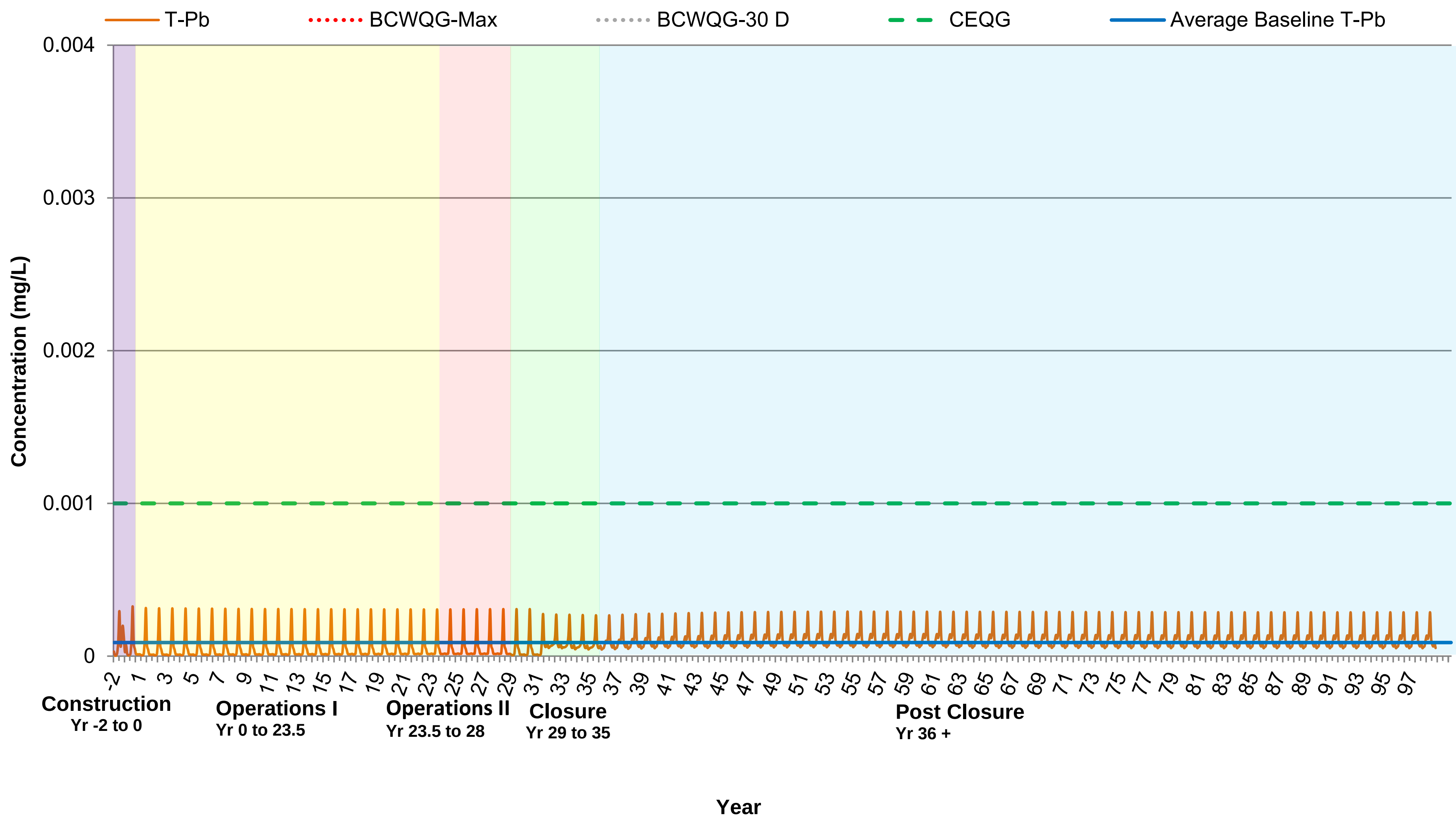
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Li

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
4. THE BCWQG-MAX (CALCULATED AT 0.011 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

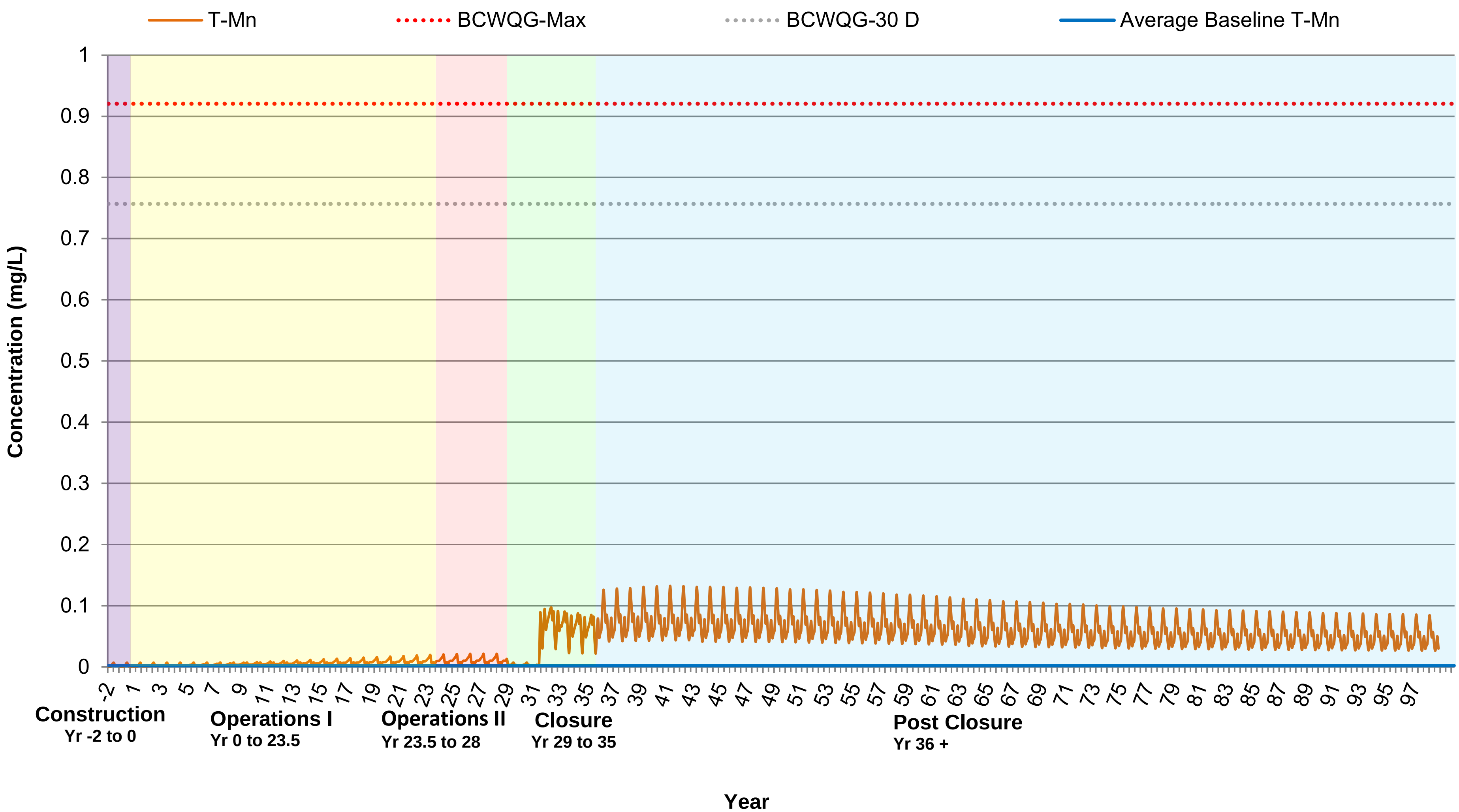
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Pb

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

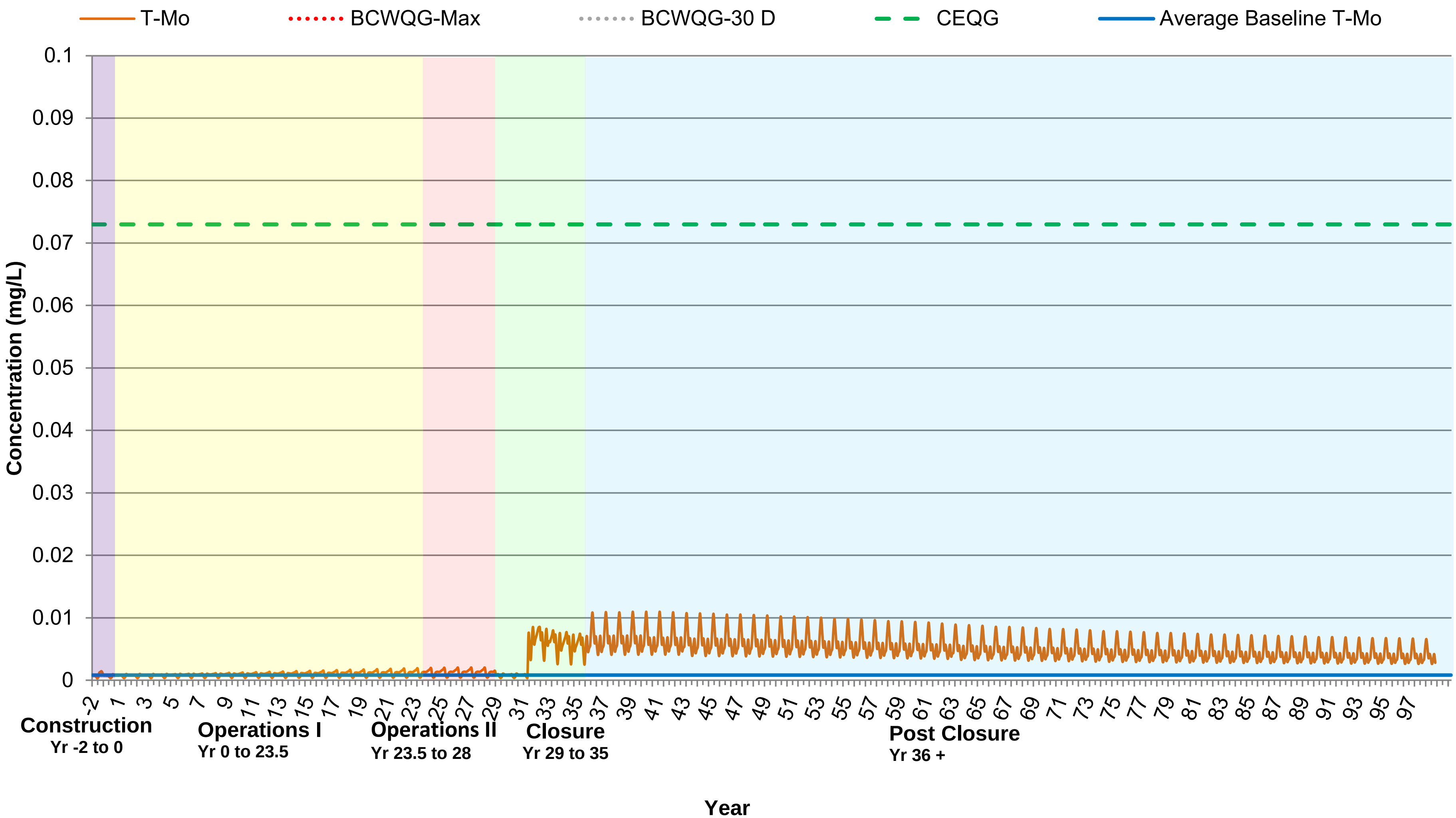
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Mn

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. THE BCWQG-MAX (2 mg/L) AND BCWQG-30 D (1 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYBDENUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

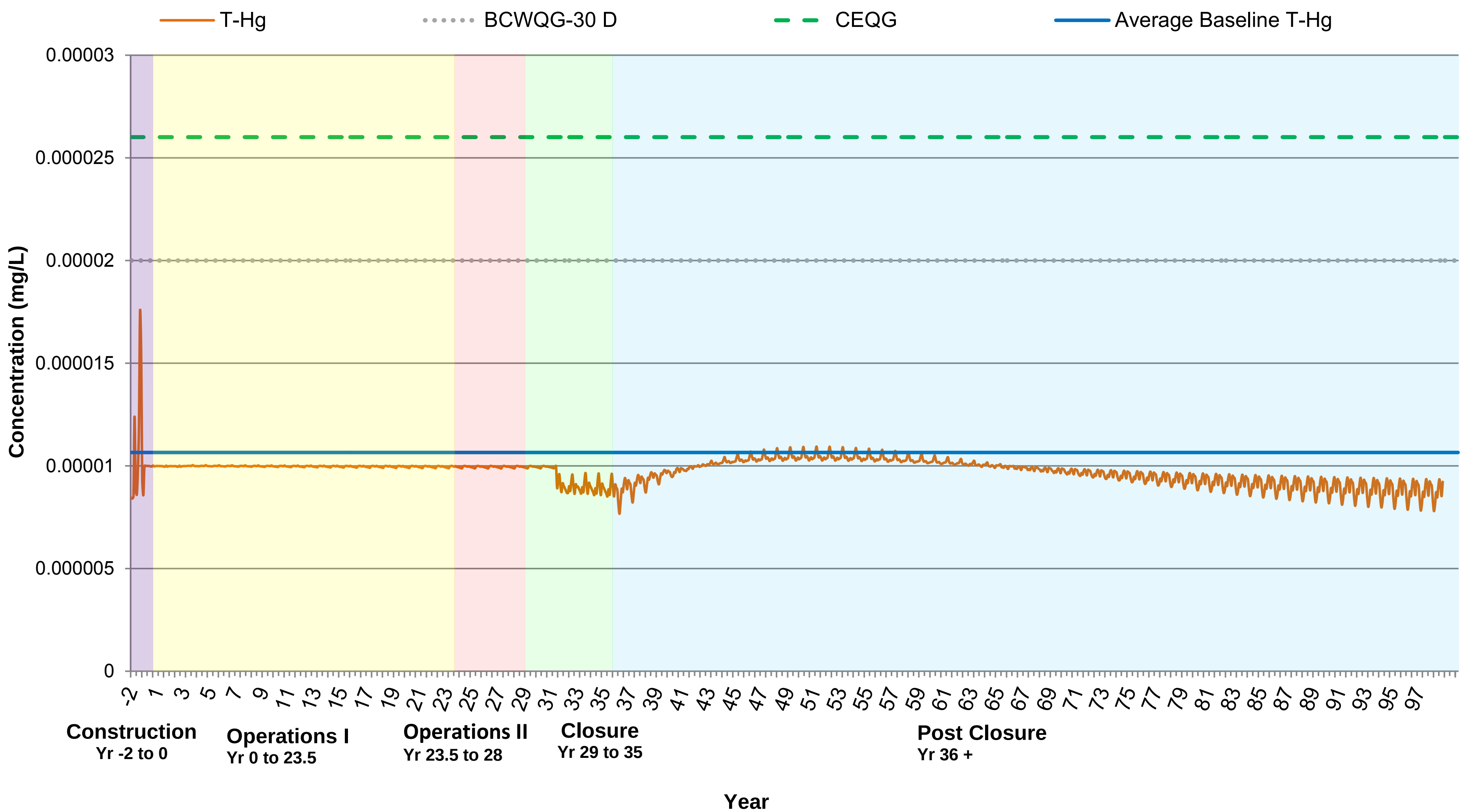
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Mo

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. BCWQG-30 D VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-Hg.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

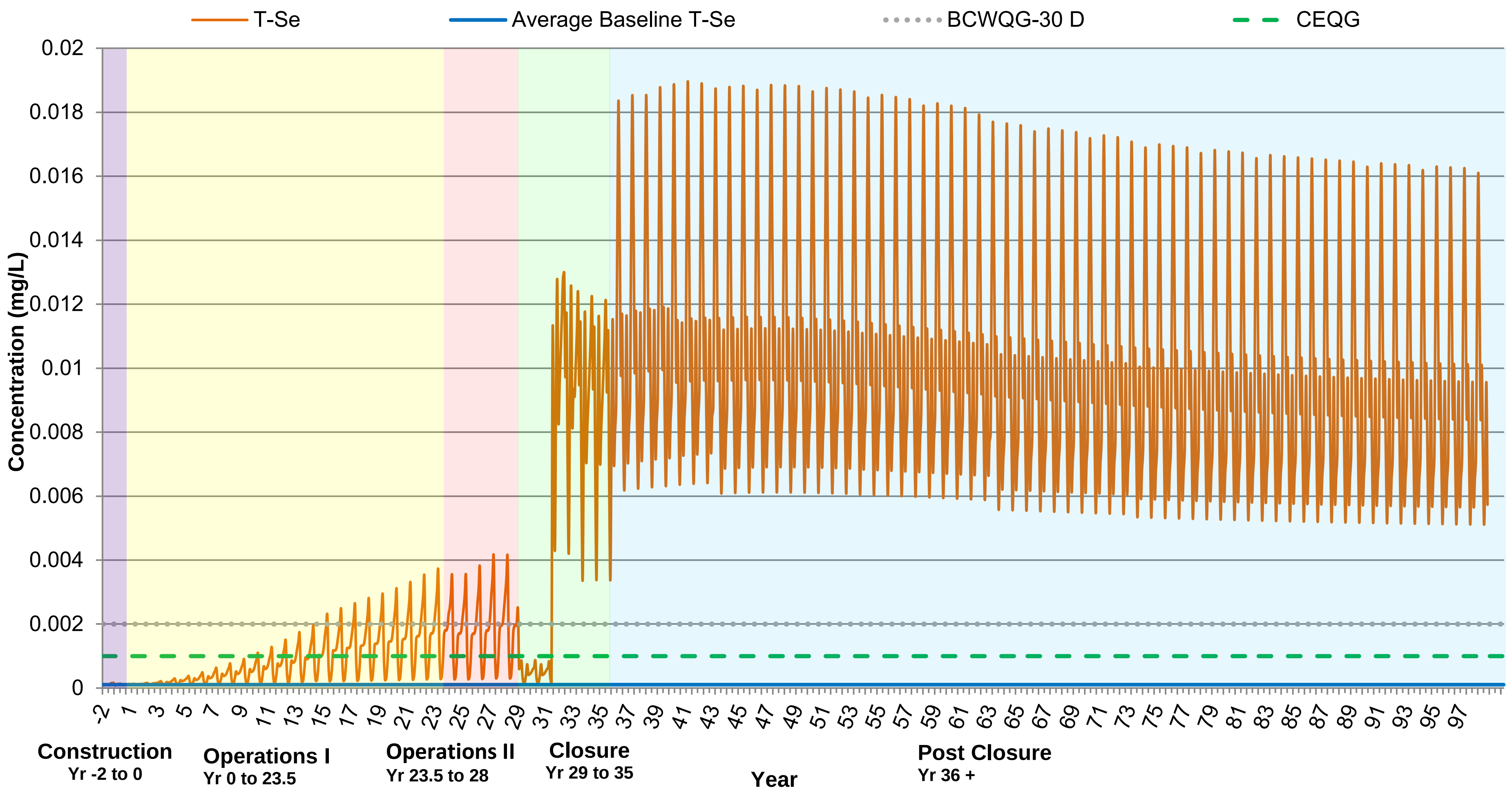
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Hg

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

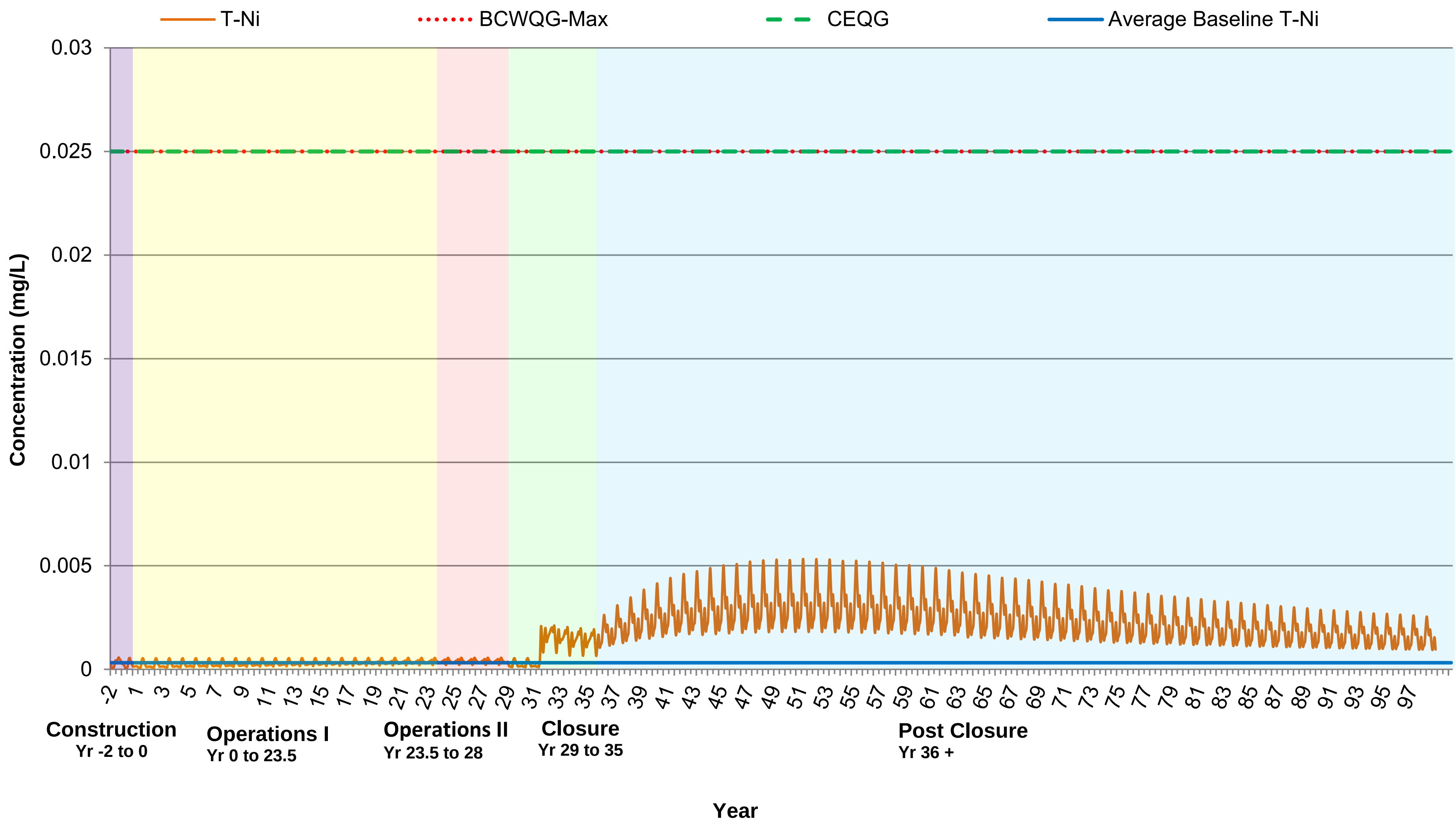
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Se

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

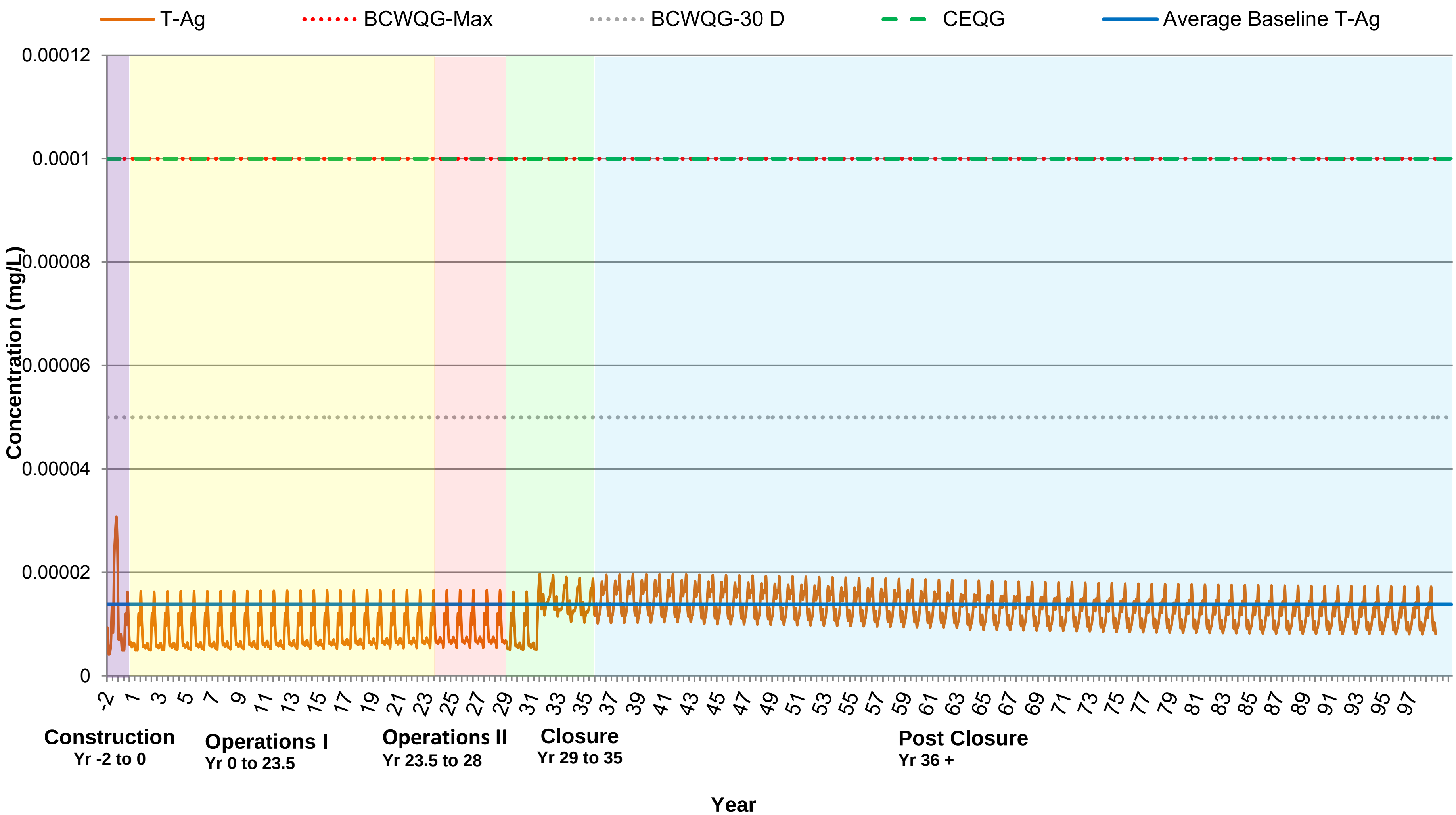
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Ni

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

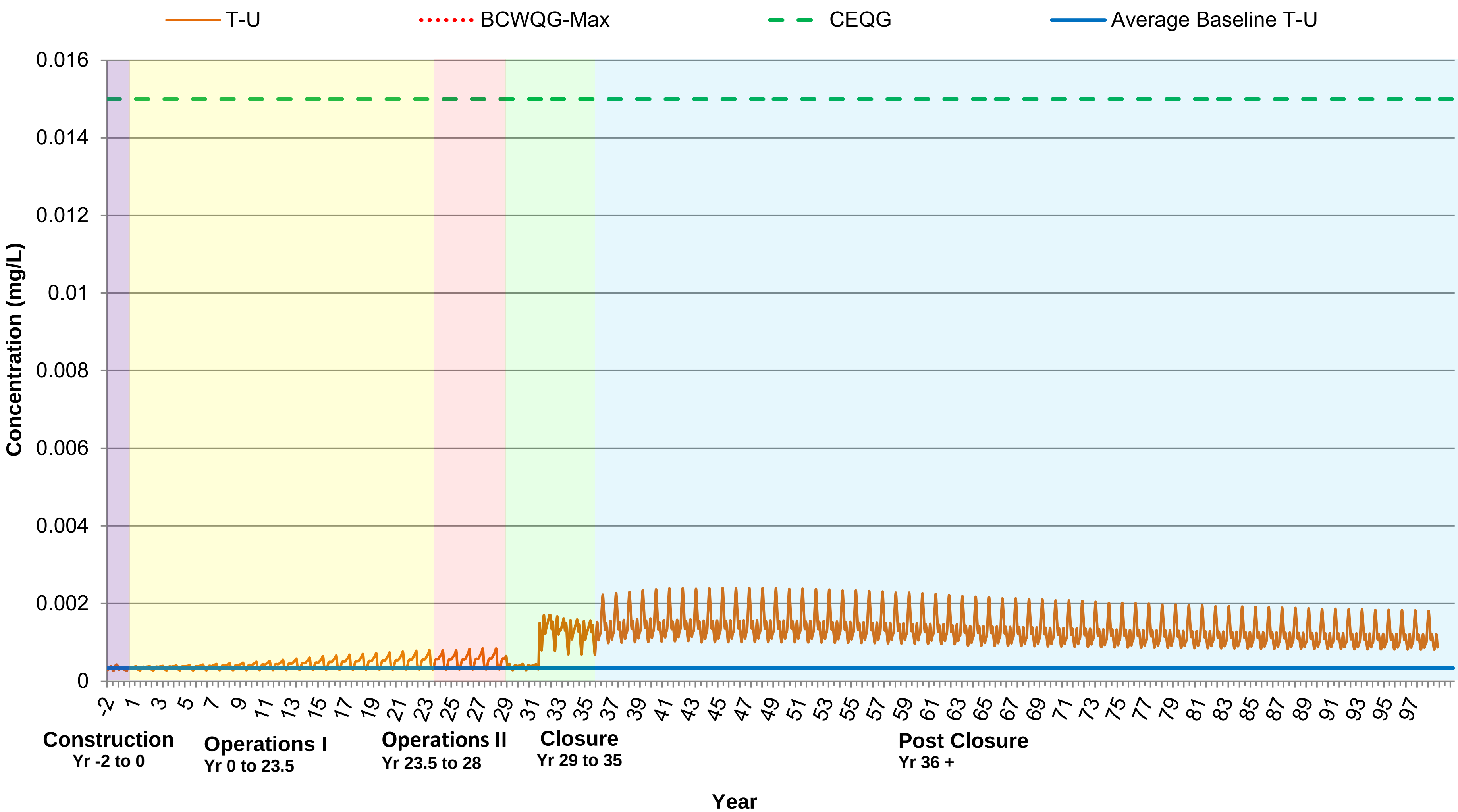
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Ag

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. THE BCWQG-MAX (0.3 mg/L) IS NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

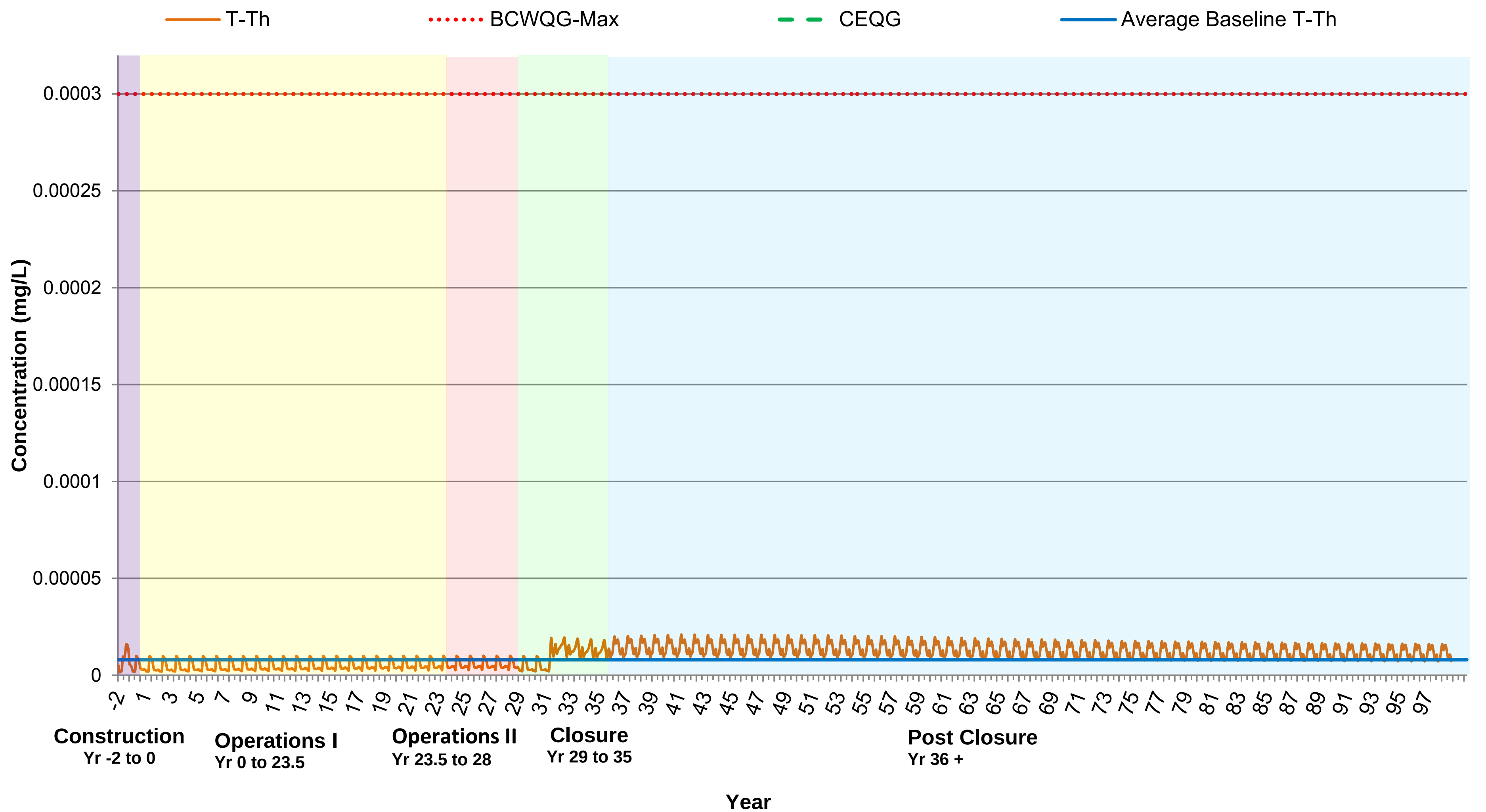
PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE A7.U REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. THE CEQG (0.0008 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

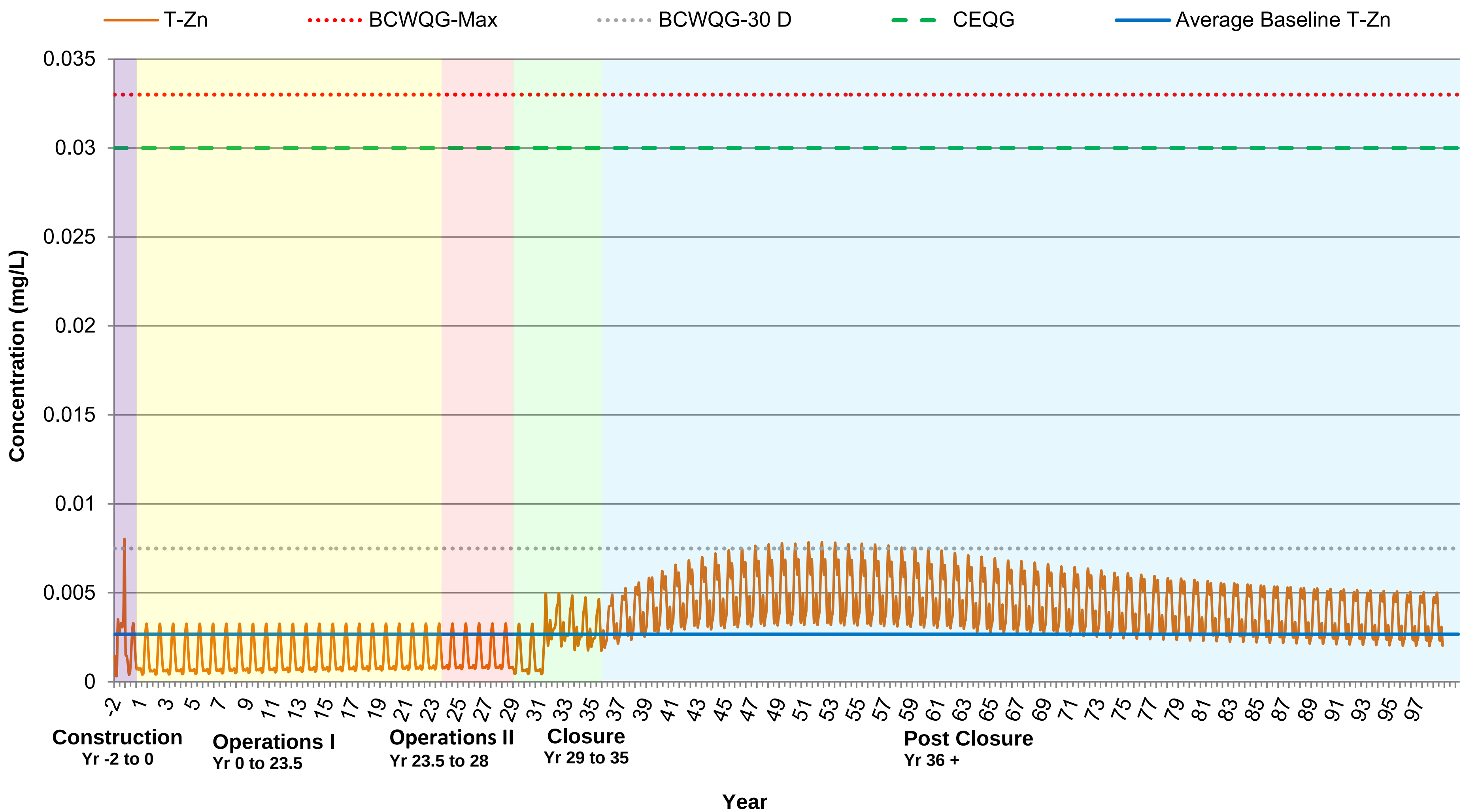
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A7.Th

REV 0



NOTES:

1. BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS HT MODELLED BASELINE (AVERAGE HARDNESS OF 21 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - HARPER CREEK BELOW T-CREEK

Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

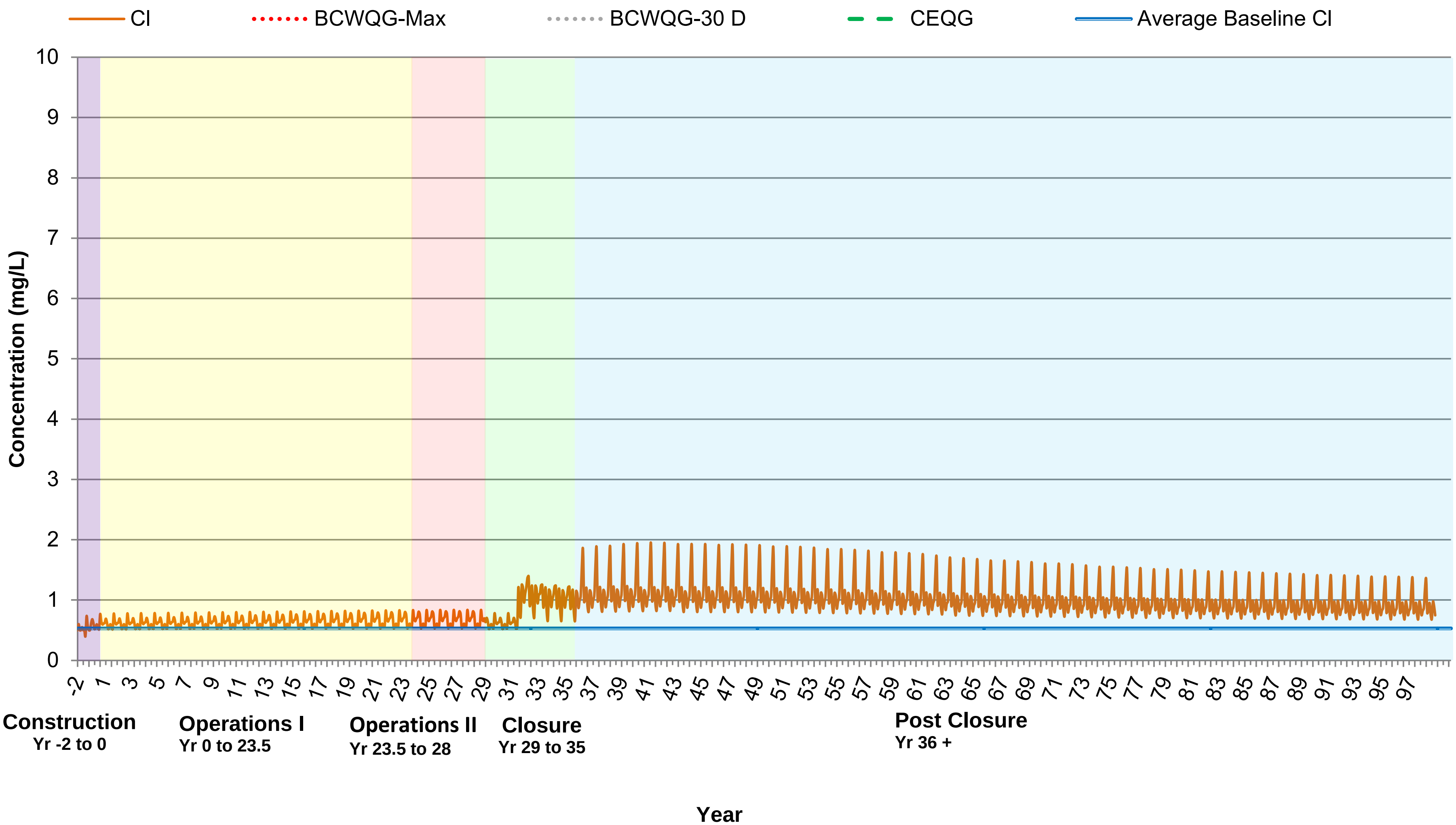
FIGURE A7.Zn

REV 0

APPENDIX A8

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – BASE OF HARPER CREEK

(Pages A8-1 to A8-30)



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. ALL GUIDELINES ARE NOT SHOWN: BCWQG-30 D (150 mg/L); BCWQG-MAX (600 mg/L); CEQG (120 mg/L AND 640 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

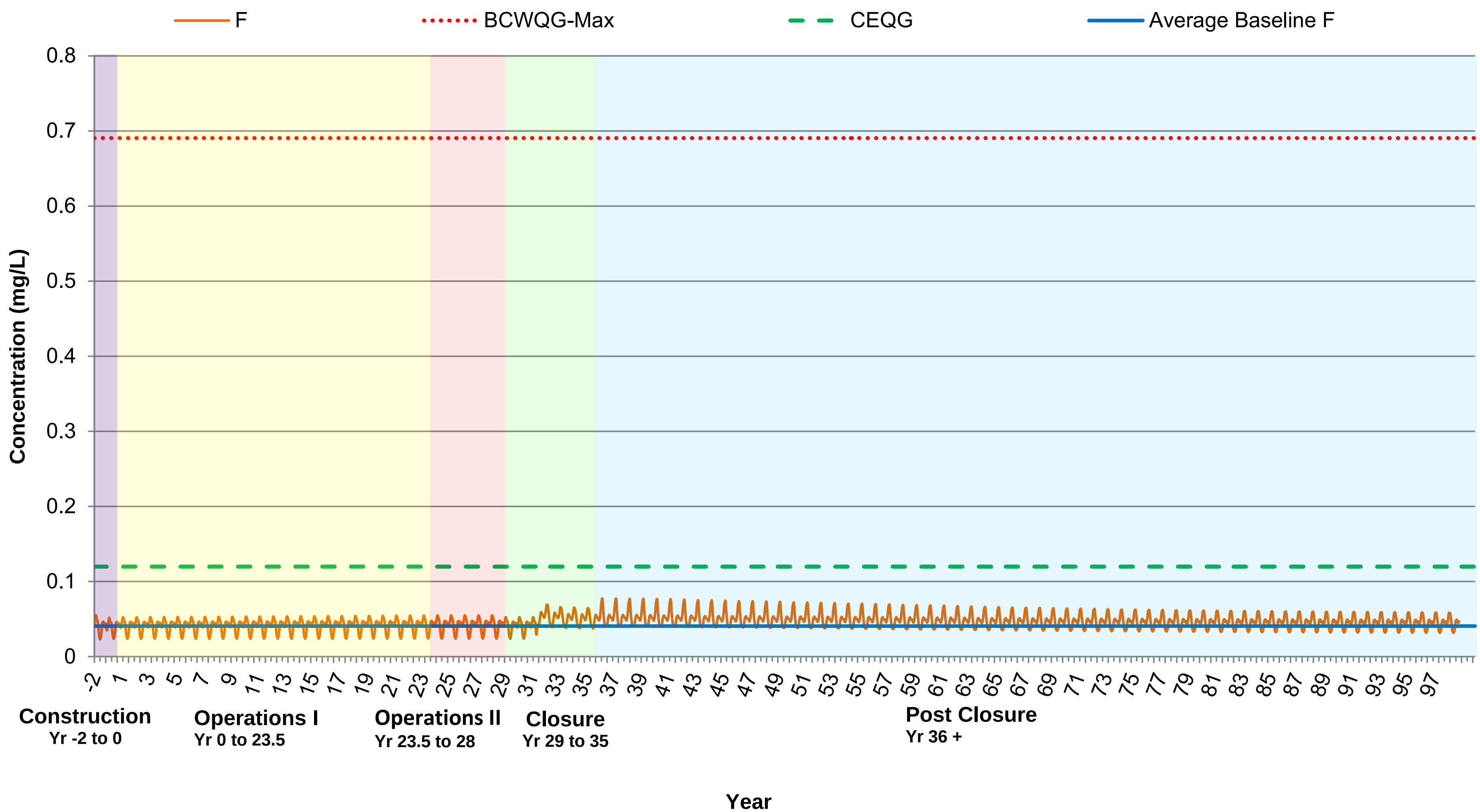
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Cl

REV 0



NOTES:

1. THE BCWQG-MAX IS HARNDESS DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

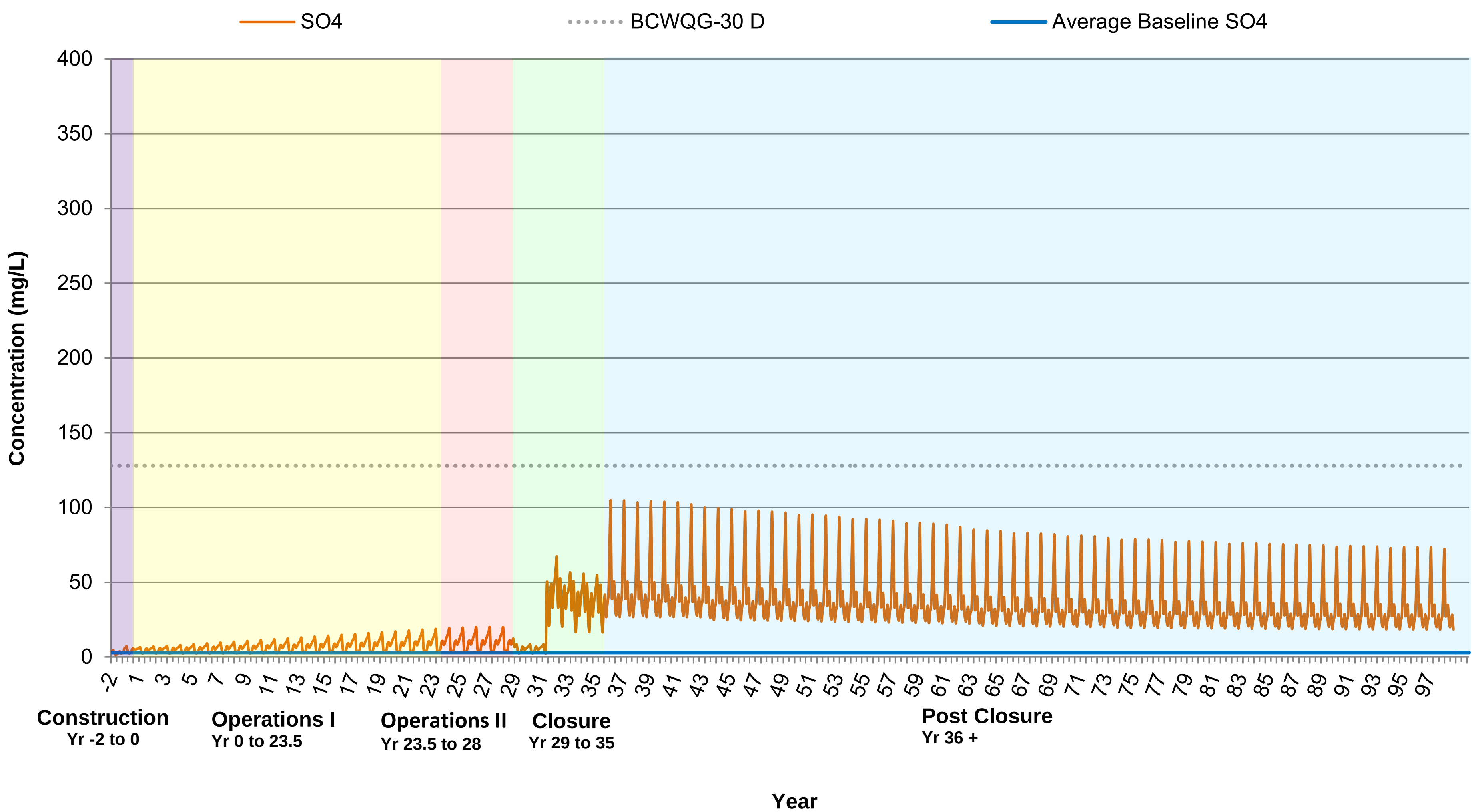
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.F

REV 0



NOTES:

1. BCWQG-30 D IS HARDNESS DEPEDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

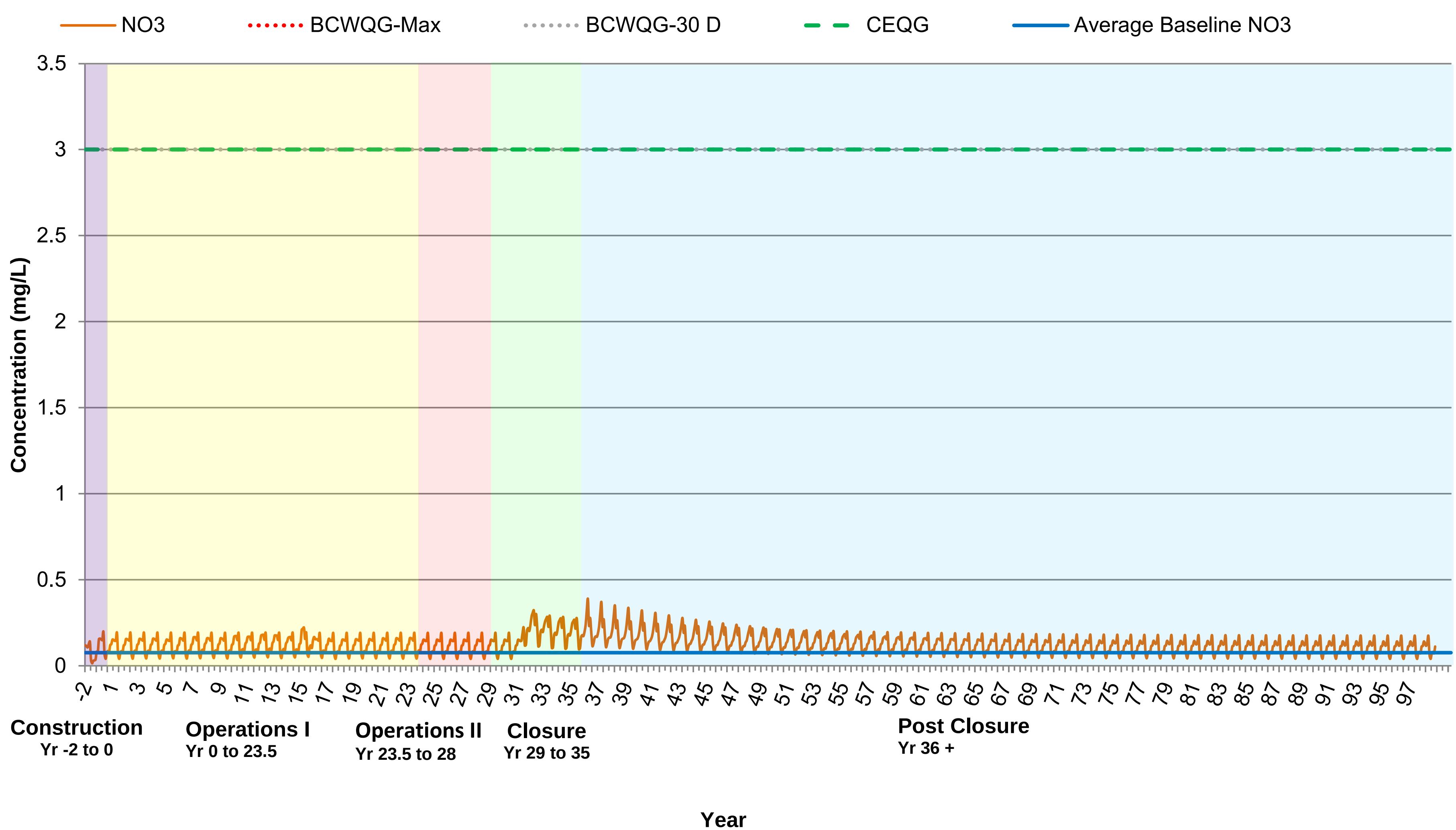
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.S04

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. THE BCWQG-MAX (32.8 mg/L) IS NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

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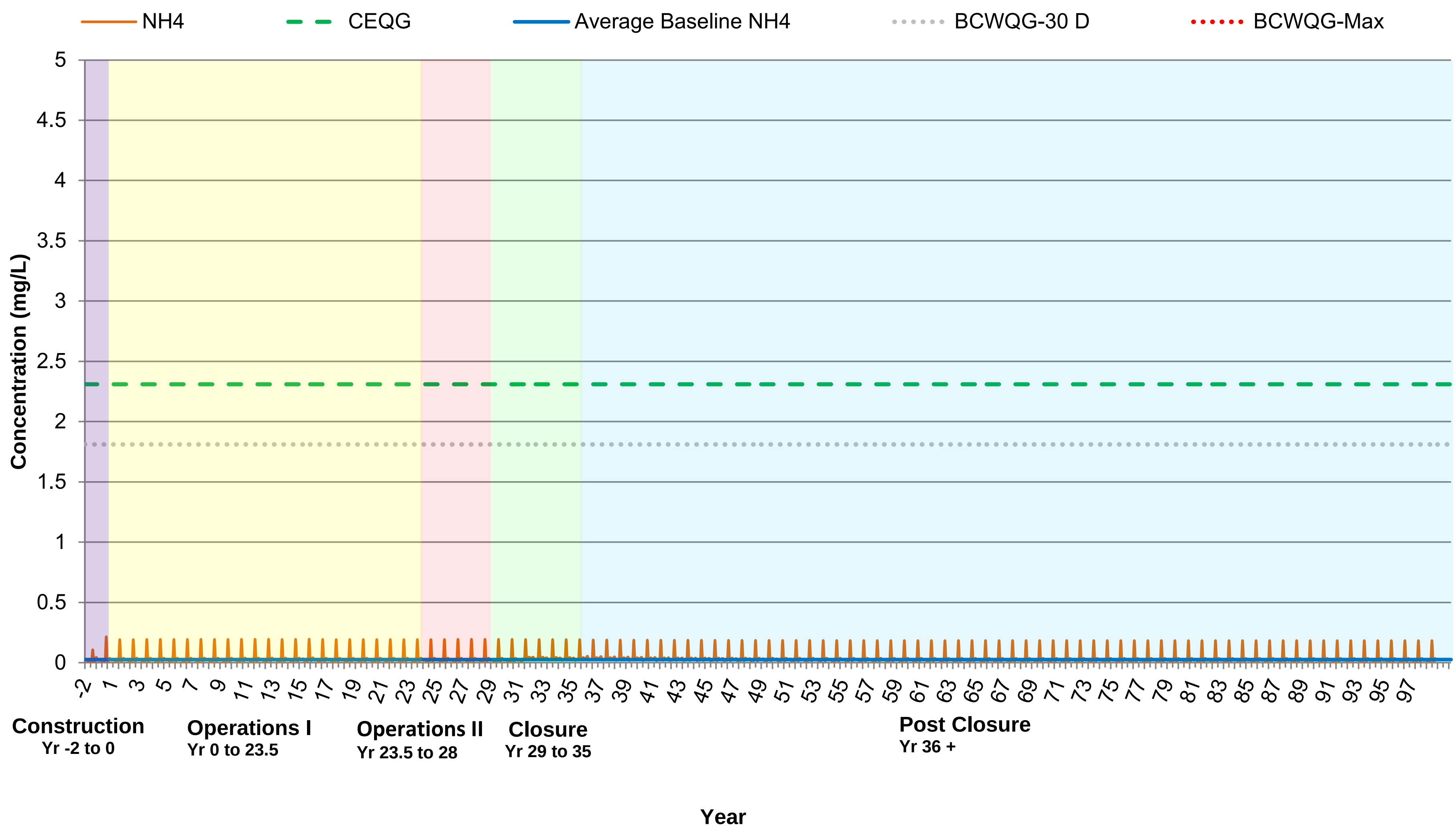
P/A NO. VA101-458/17 | REF. NO. VA14-01825

FIGURE A8.NO3 REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB



NOTES:

1. THE BCWQG-30 D IS VALID FOR ONLY 6.5≤pH<9 AND 0°C≤T≤20°C.
2. THE BCWQG-MAX (20.15 mg/L) VALID FOR 6.5≤pH<9 IS NOT SHOWN.
3. THE CEQG IS TO BE USED WITH CAUTION FOR WATER WITH T<5°C AND pH>9.
4. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

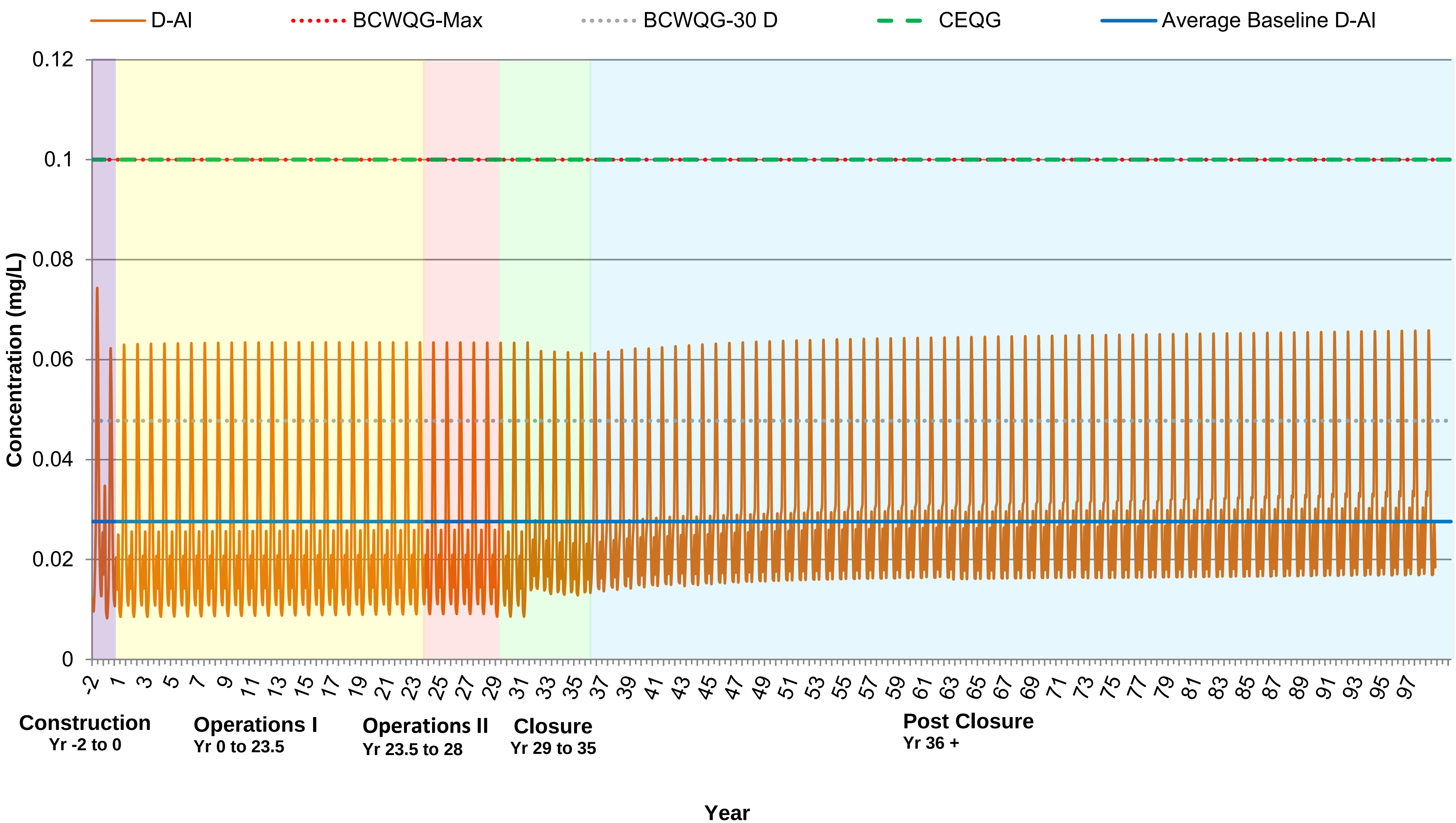
PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE A8.NH4 REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE pH-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. AVERAGE BASELINE pH USED TO CALCULATE GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED ALUMINUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

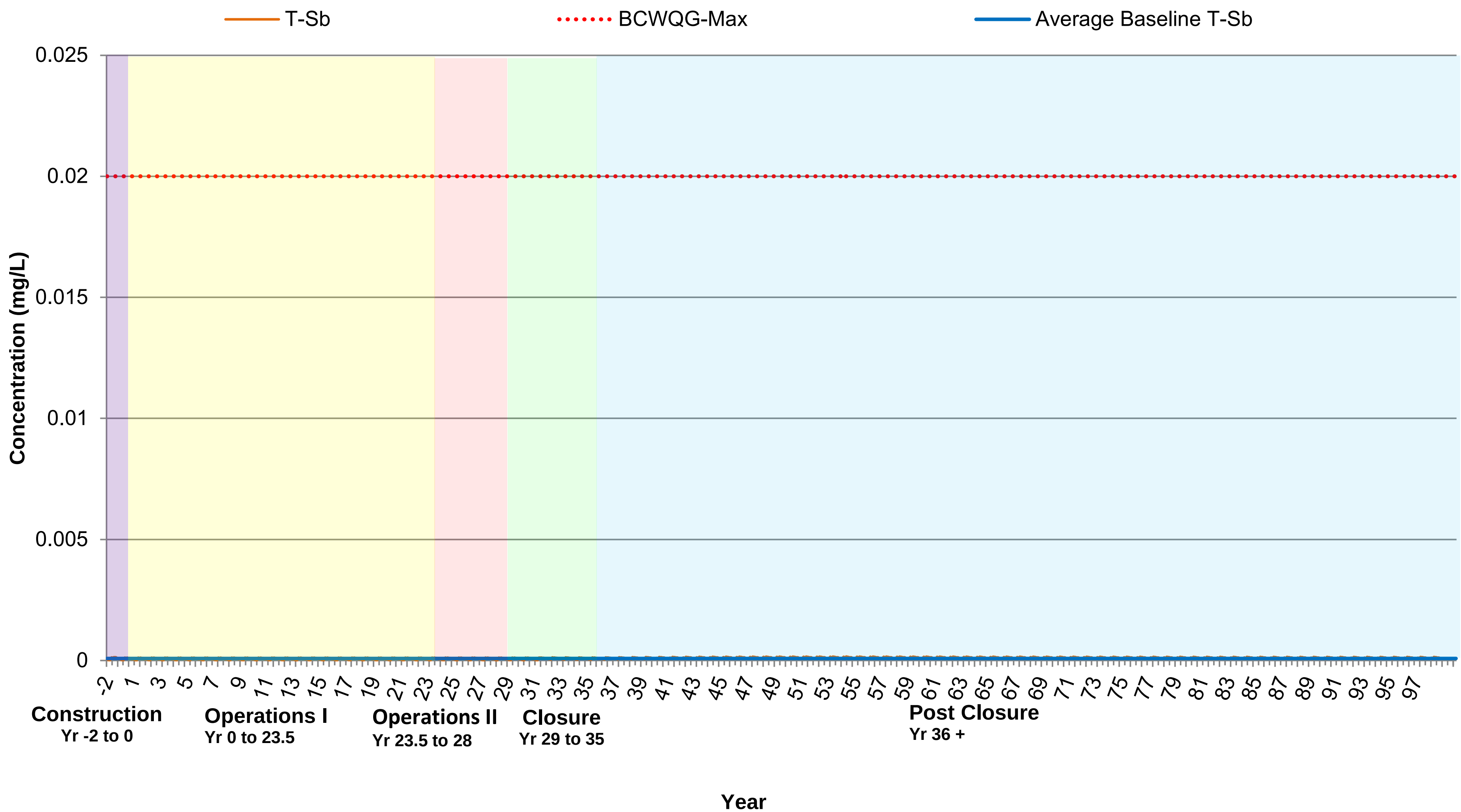
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Al

REV 0



NOTES:

1. THE BCWQG IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).

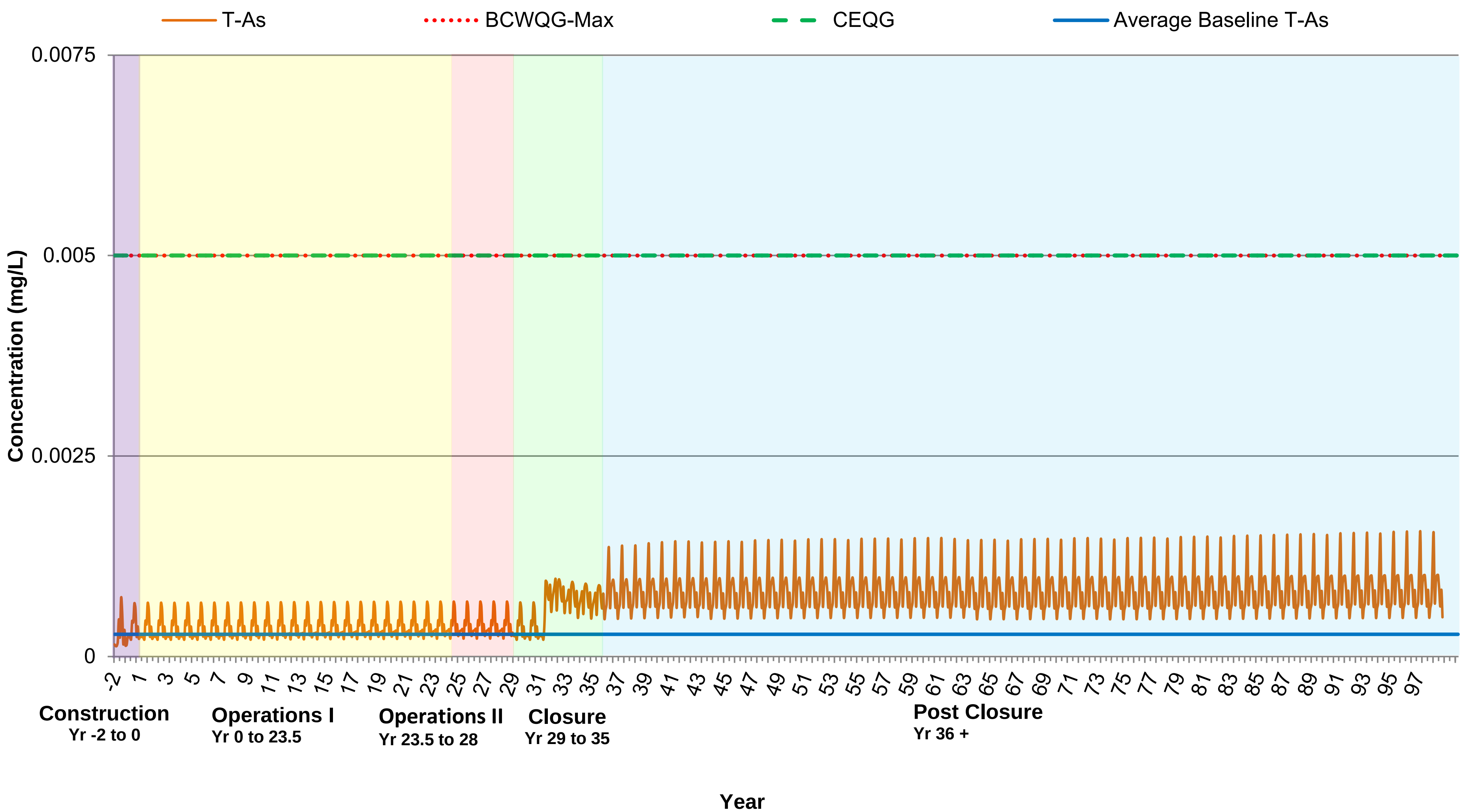
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

Knight Piésold CONSULTING	P/A NO. VA101-458/17	REF. NO. VA14-01825	
	FIGURE A8.Sb		REV 0



NOTES:

1. THE BCWQG AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

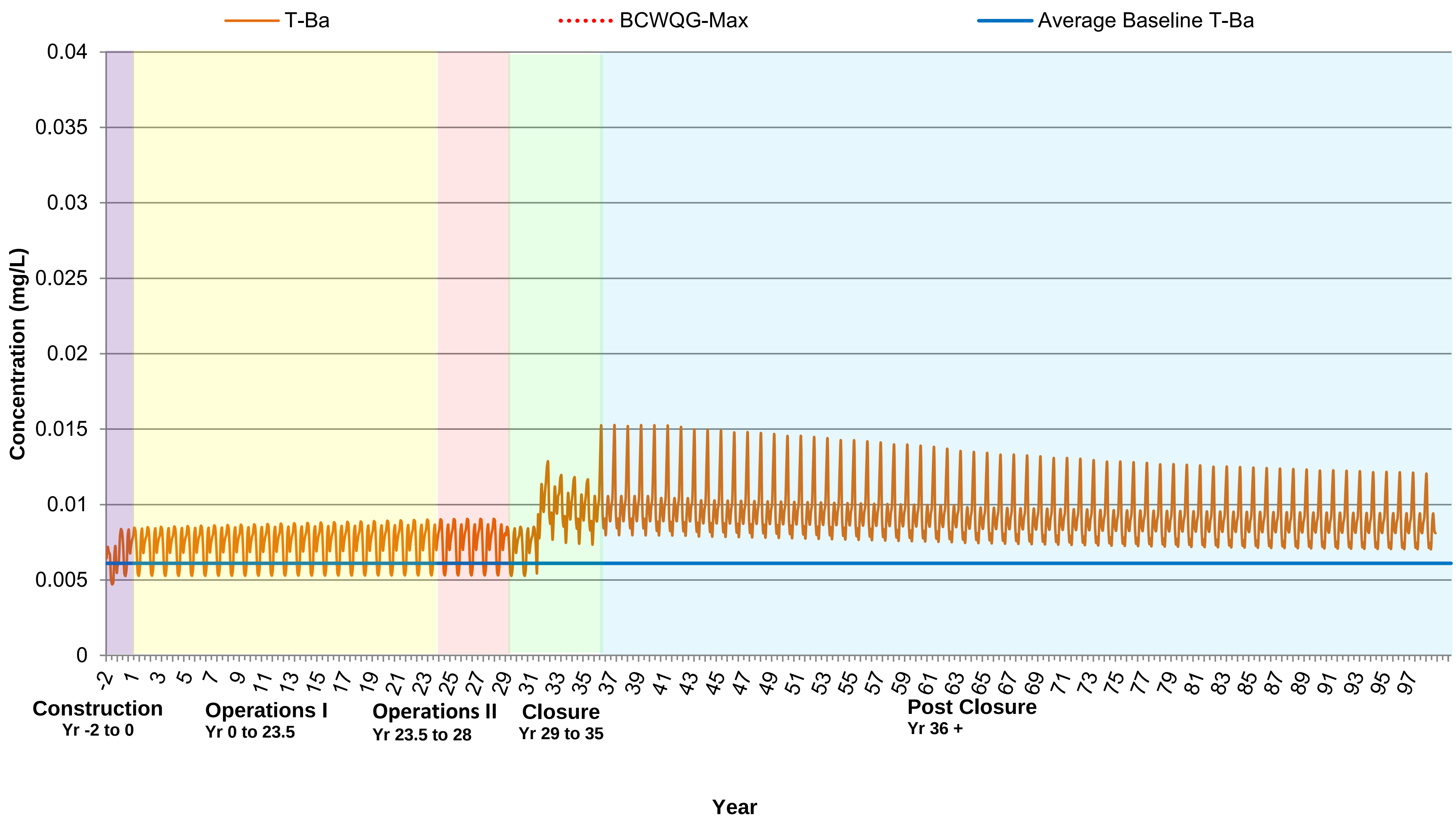
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.As

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. THE BCWQG-30 D (1 mg/L) AND BCWQG-MAX (5 mg/L) ARE NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

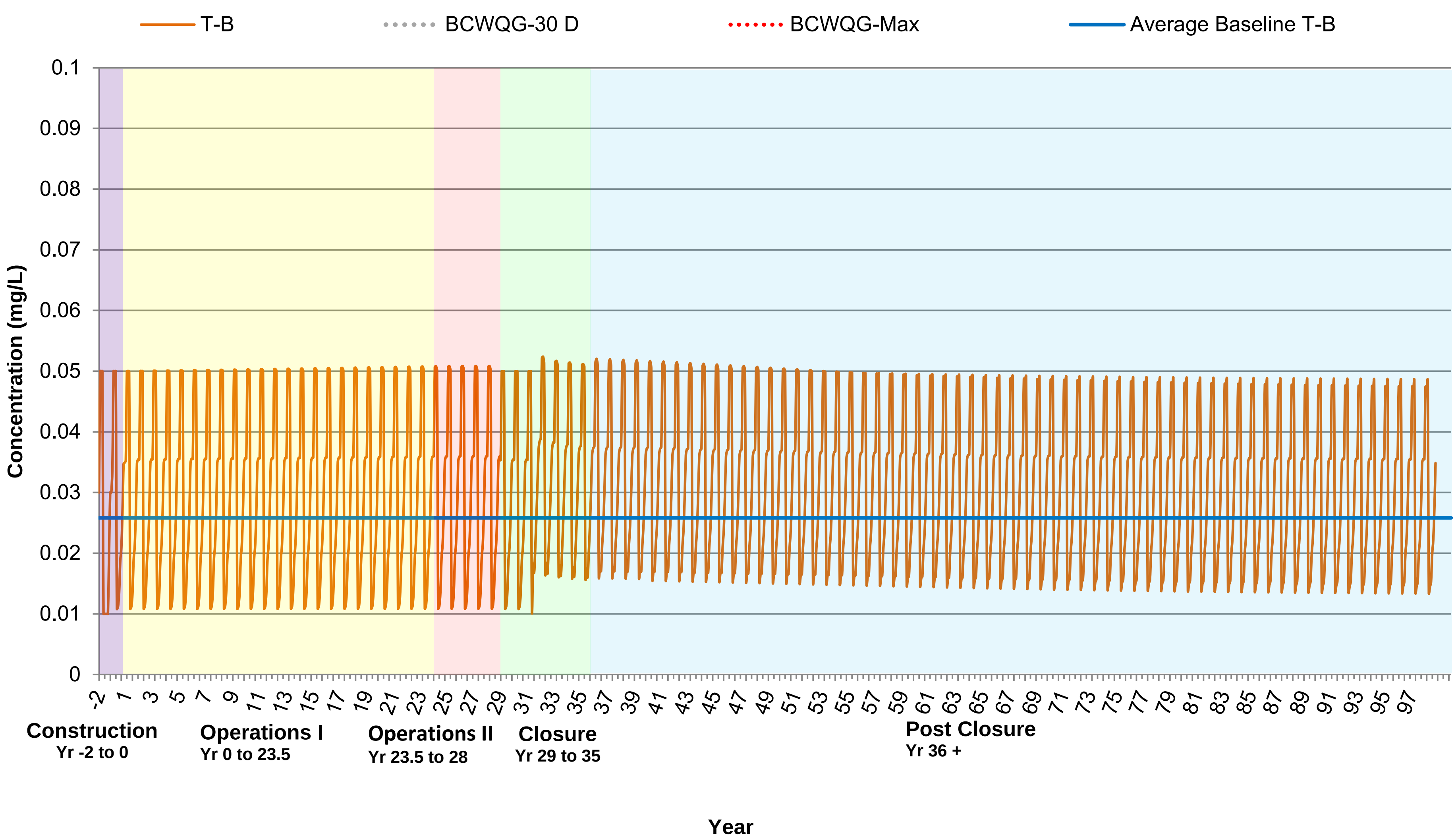
PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE A8.Ba REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
3. THE BCWQG-MAX (1.2 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

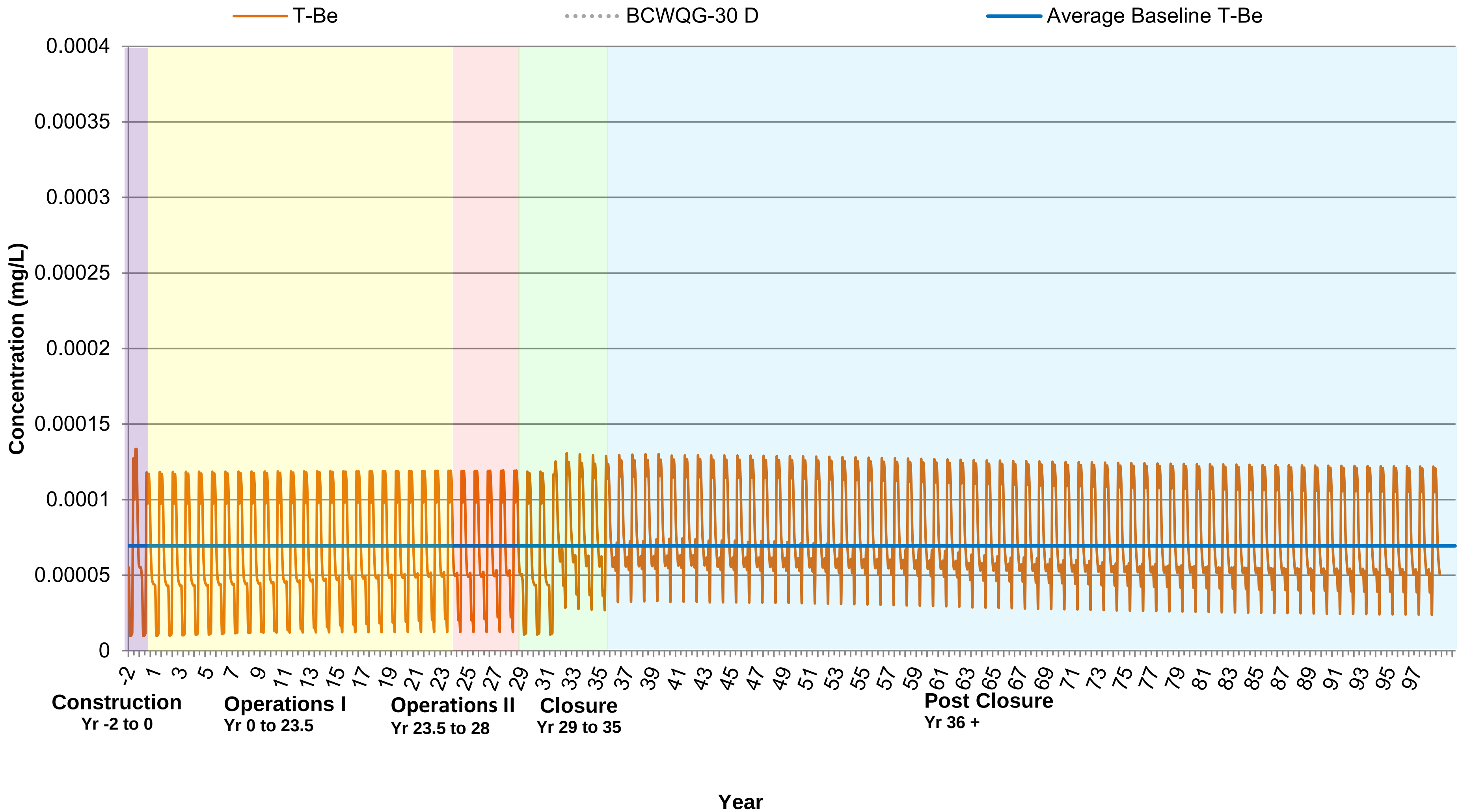
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.B

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. THE BCWQG-30 D (0.0053 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BERYLLIUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

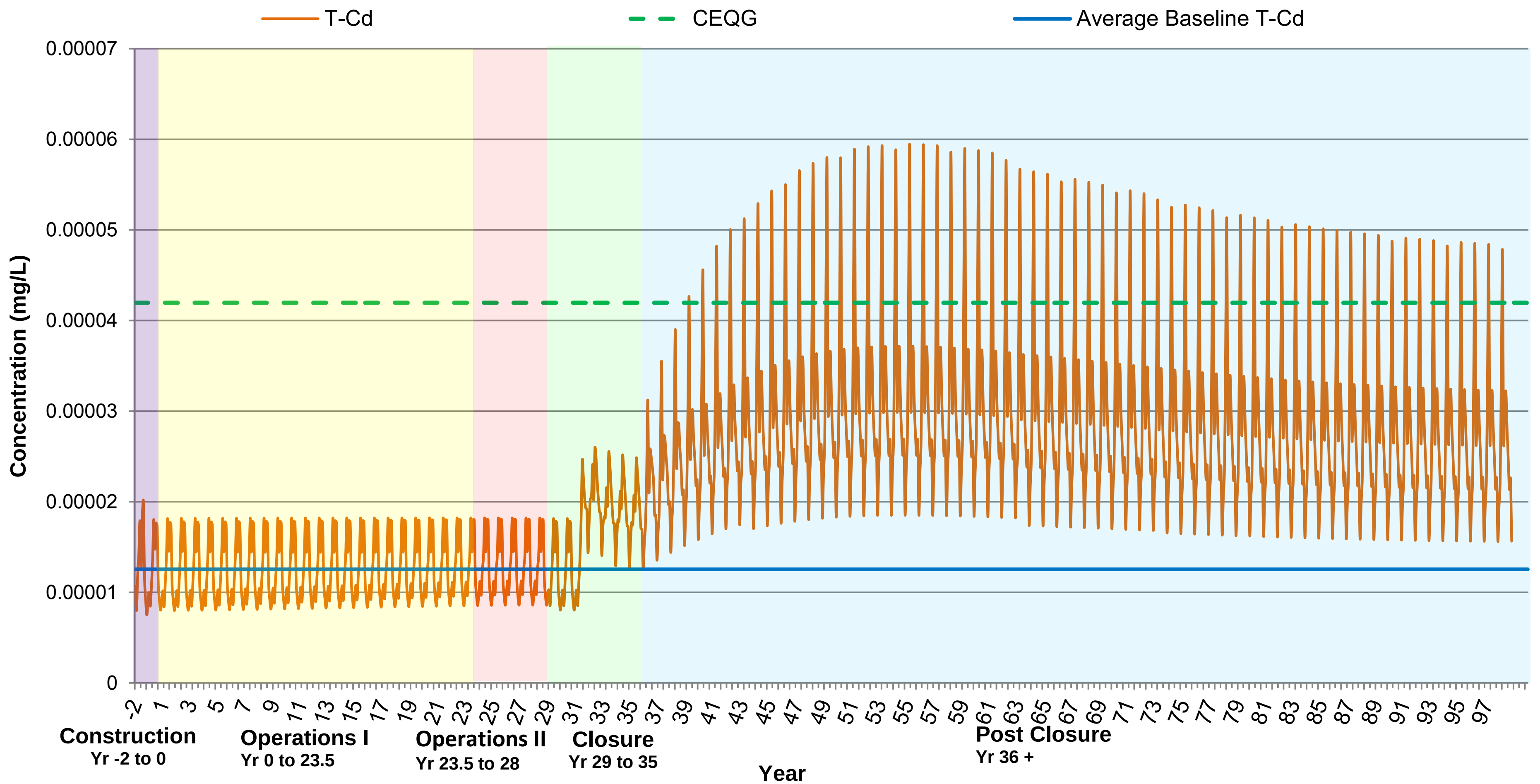
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Be

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. THE BCWQG ARE DRAFT GUIDELINES UNDER REVIEW (JUNE 2014).
3. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
4. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

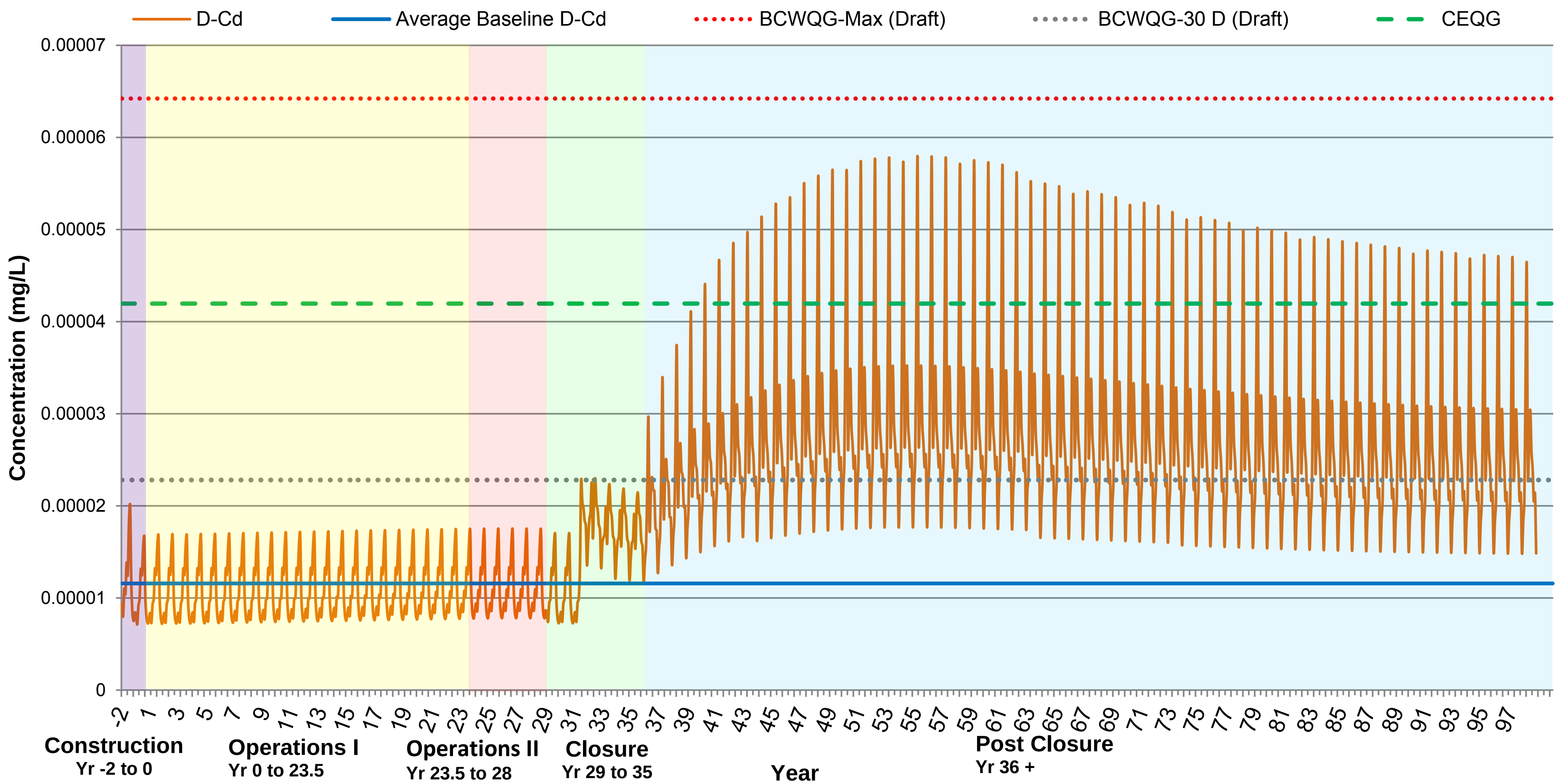
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Cd-T

REV 0



NOTES:

1. BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

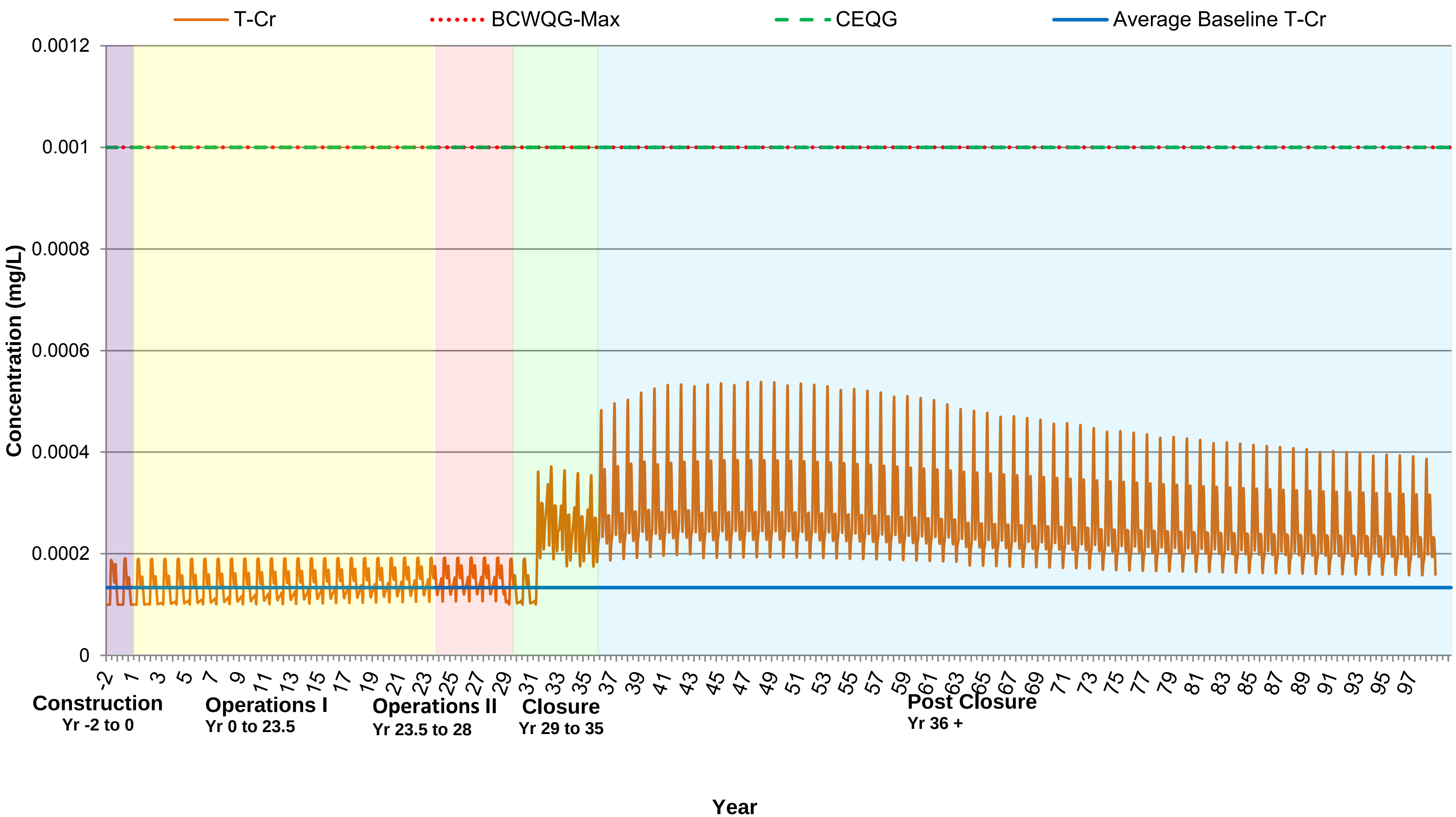
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Cd-D

REV 0



NOTES:

1. GUIDELINES ARE FOR CHROMIUM (IV), THE SPECIES MOST COMMON IN WELL OXYGENATED SURFACE WATERS.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

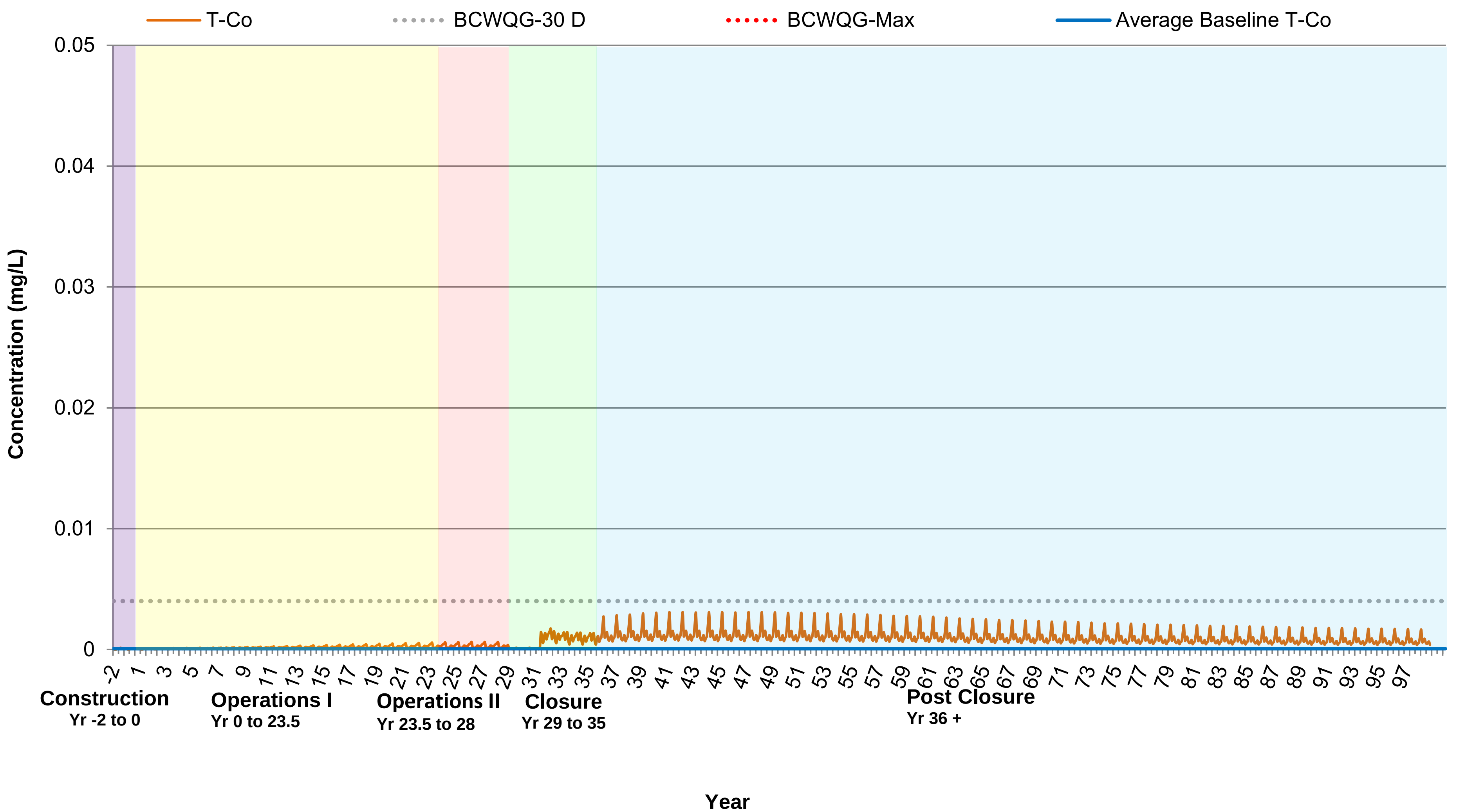
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Cr

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. THE BCWQG-MAX GUIDELINE (0.11 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

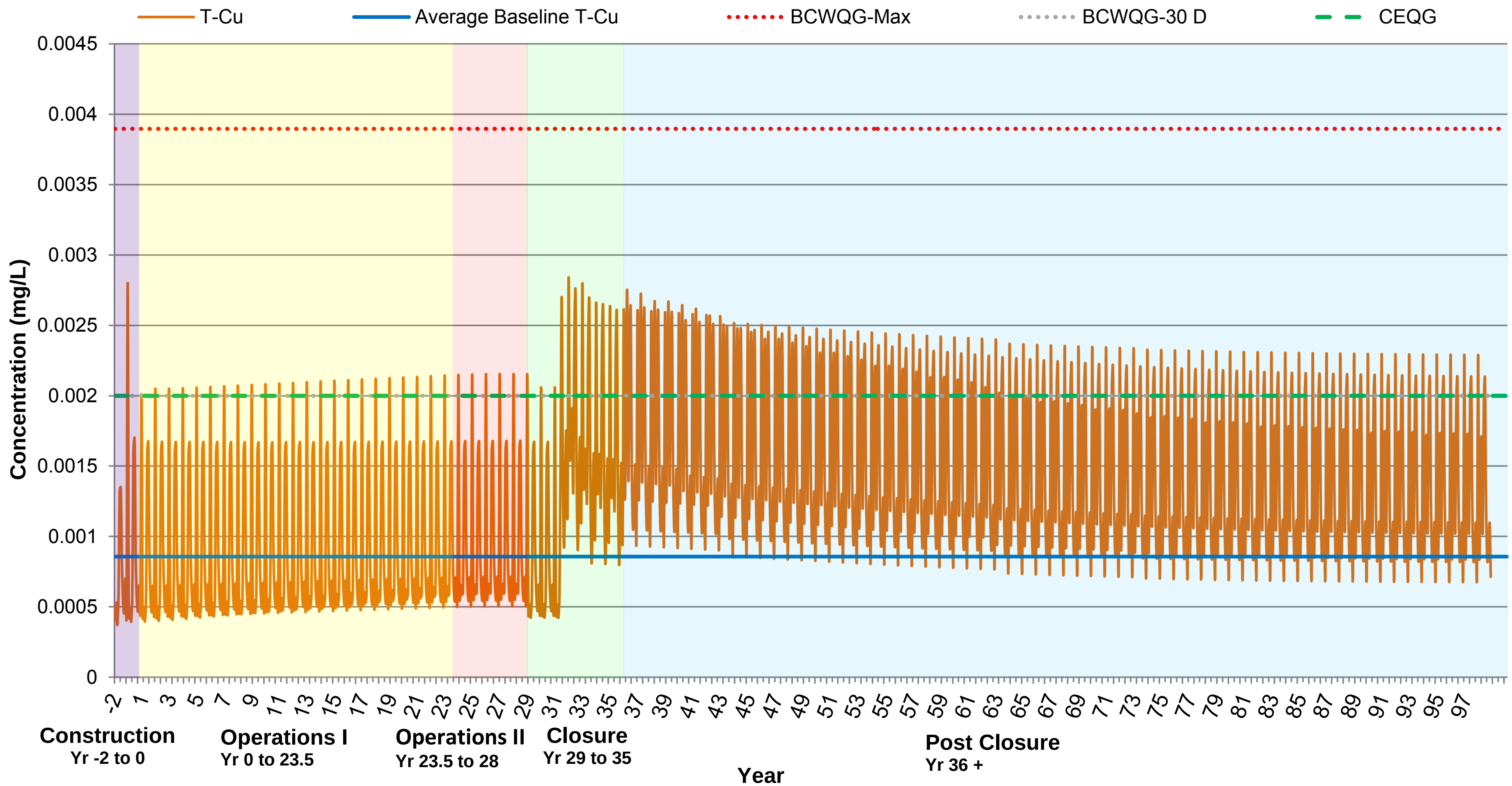
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Co

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

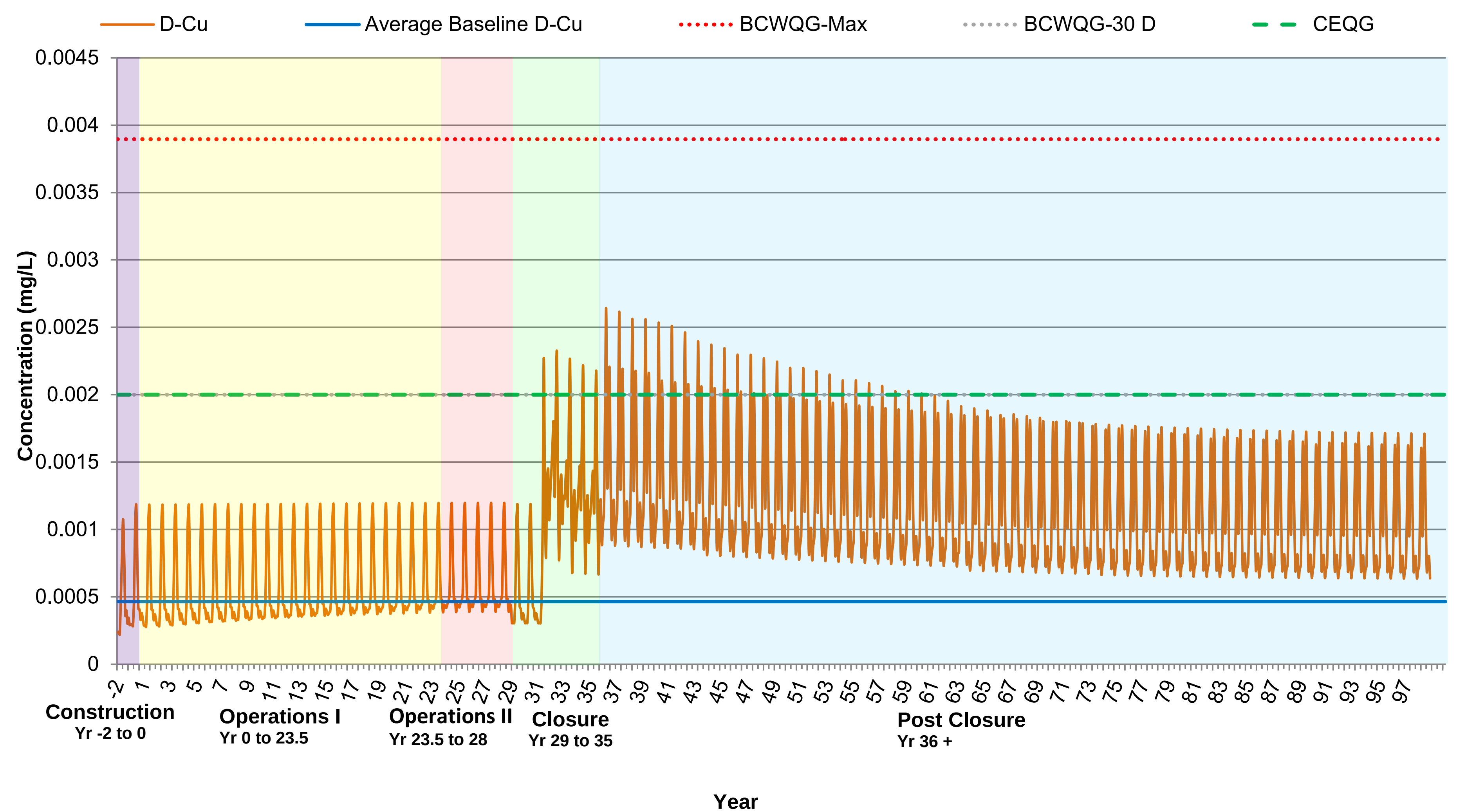
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Cu-T

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

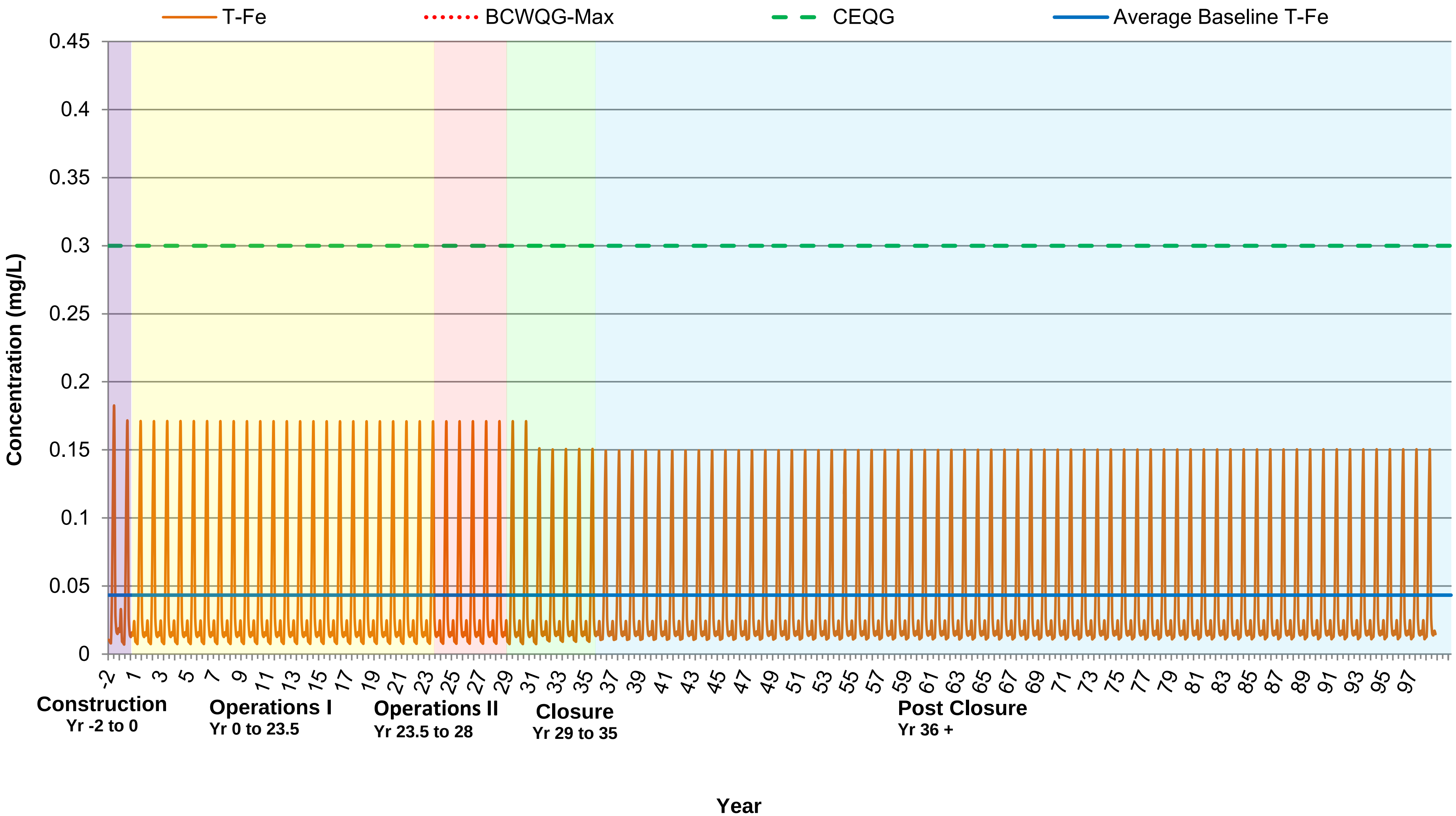
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Cu-D

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. BCWQG-MAX 1.0 mg/L IS NOT SHOWN ON GRAPH.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT TOTAL IRON CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

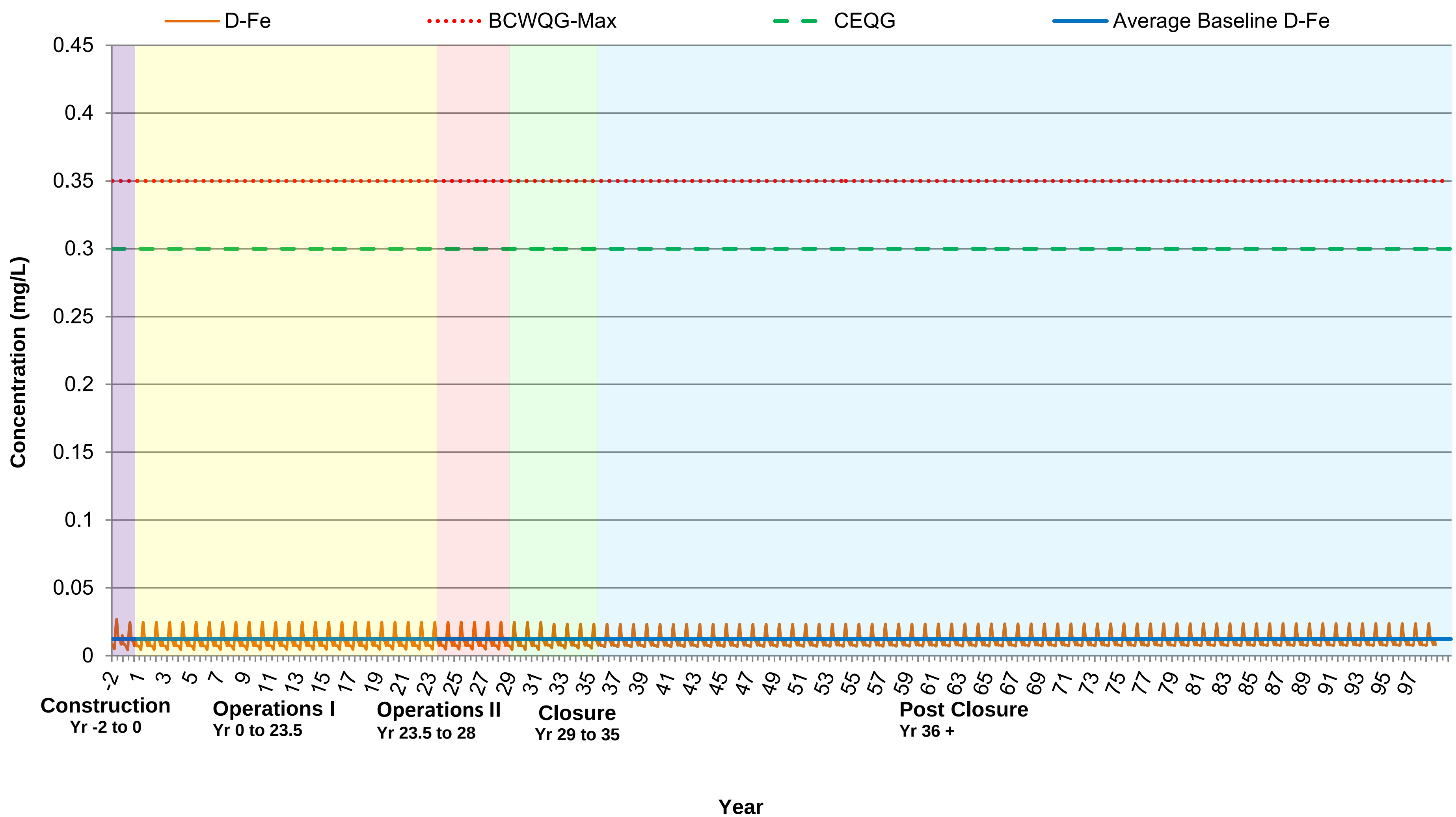
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Fe-T

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

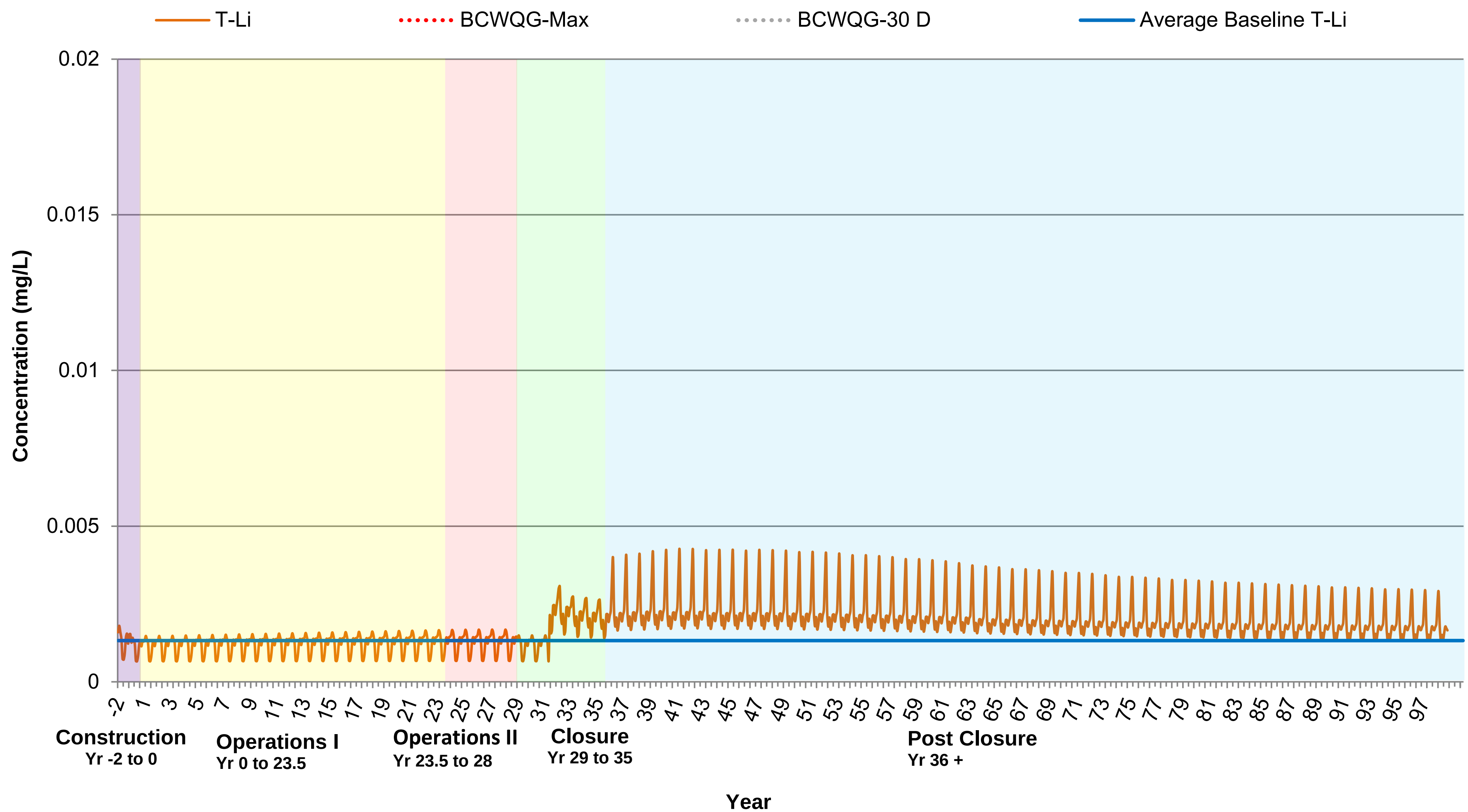
PREDICTED REASONABLE UPPER LIMIT DISSOLVED IRON CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE A8.Fe-D REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. THE BCWQG-30 D (0.096 mg/L) AND BCWQG-MAX (0.87 mg/L) ARE INTERIM (WORKING) AND ARE NOT SHOWN ON GRAPH.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LITHIUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

Knight Piésold CONSULTING

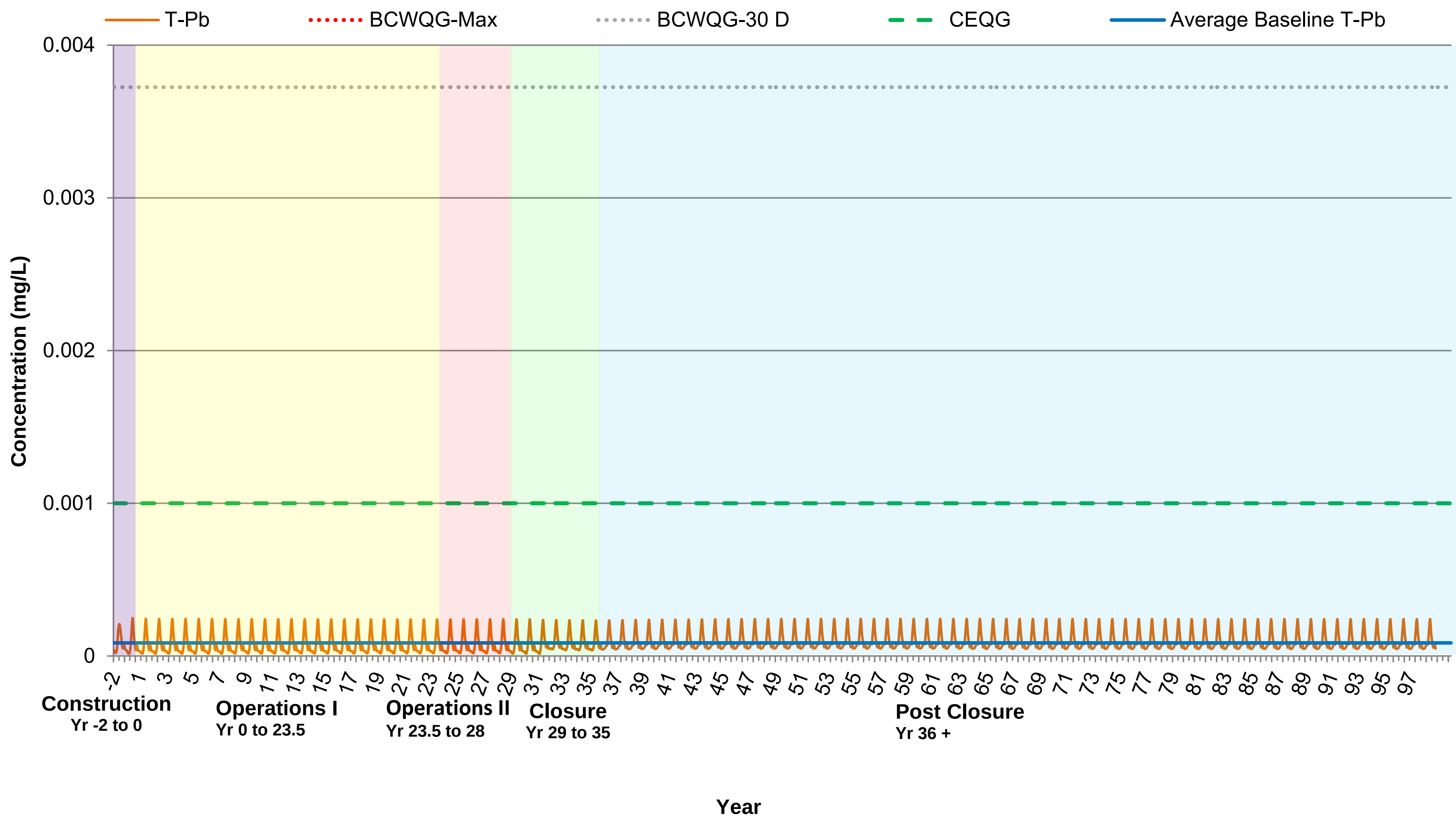
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Li

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
4. THE BCWQG-MAX (CALCULATED AT 0.011 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

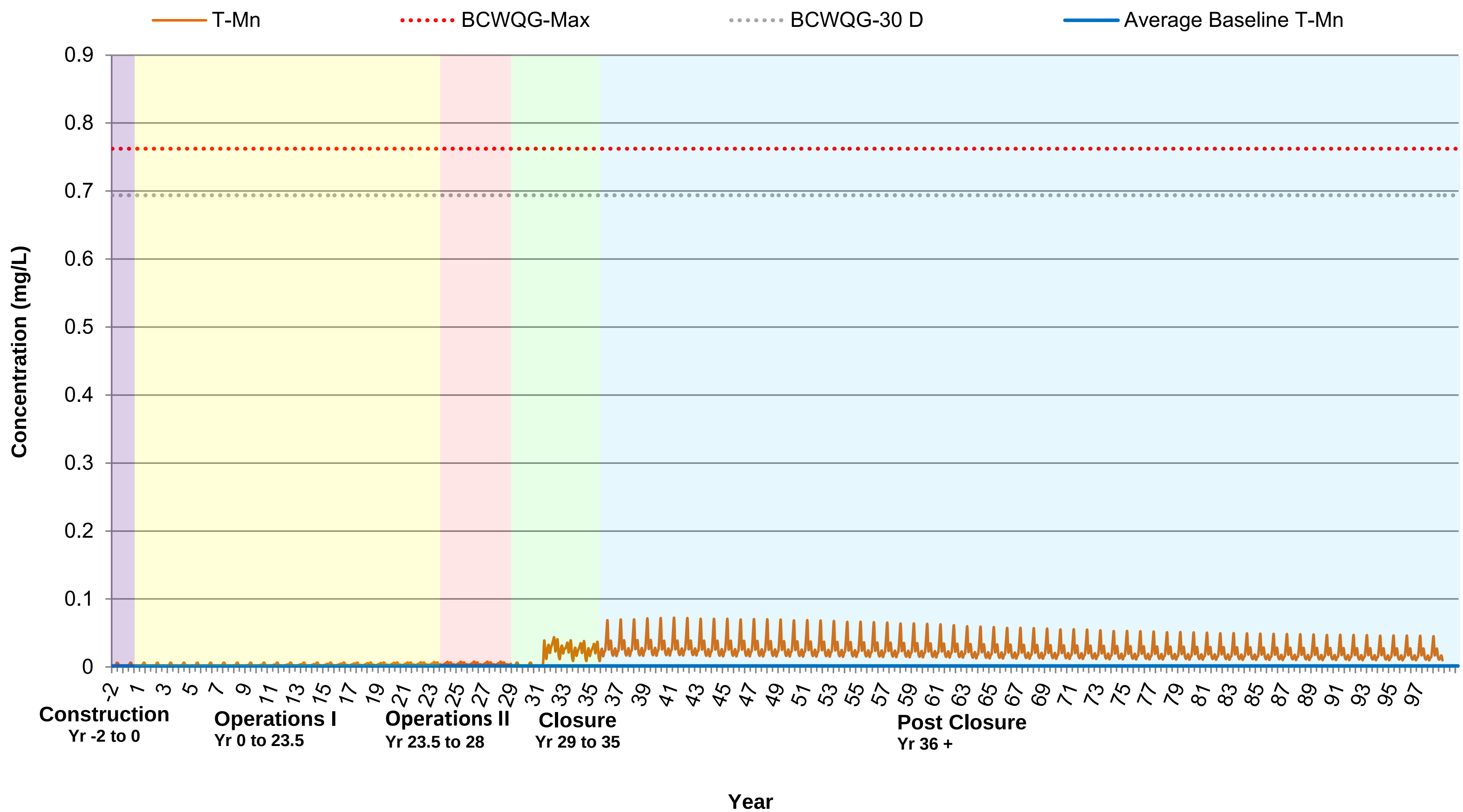
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Pb

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

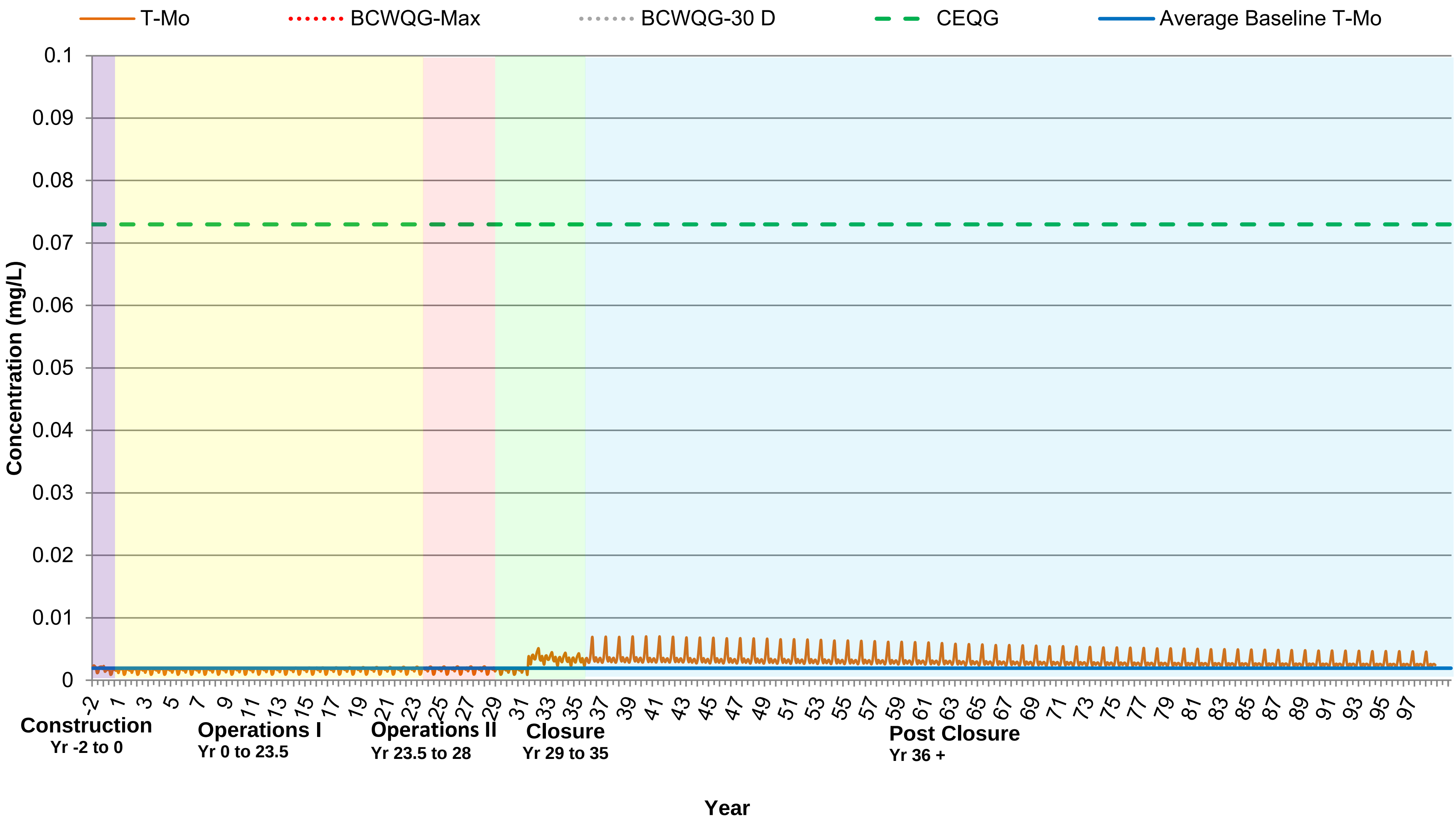
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Mn

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. THE BCWQG-MAX (2 mg/L) AND BCWQG-30 D (1 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYBDENUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

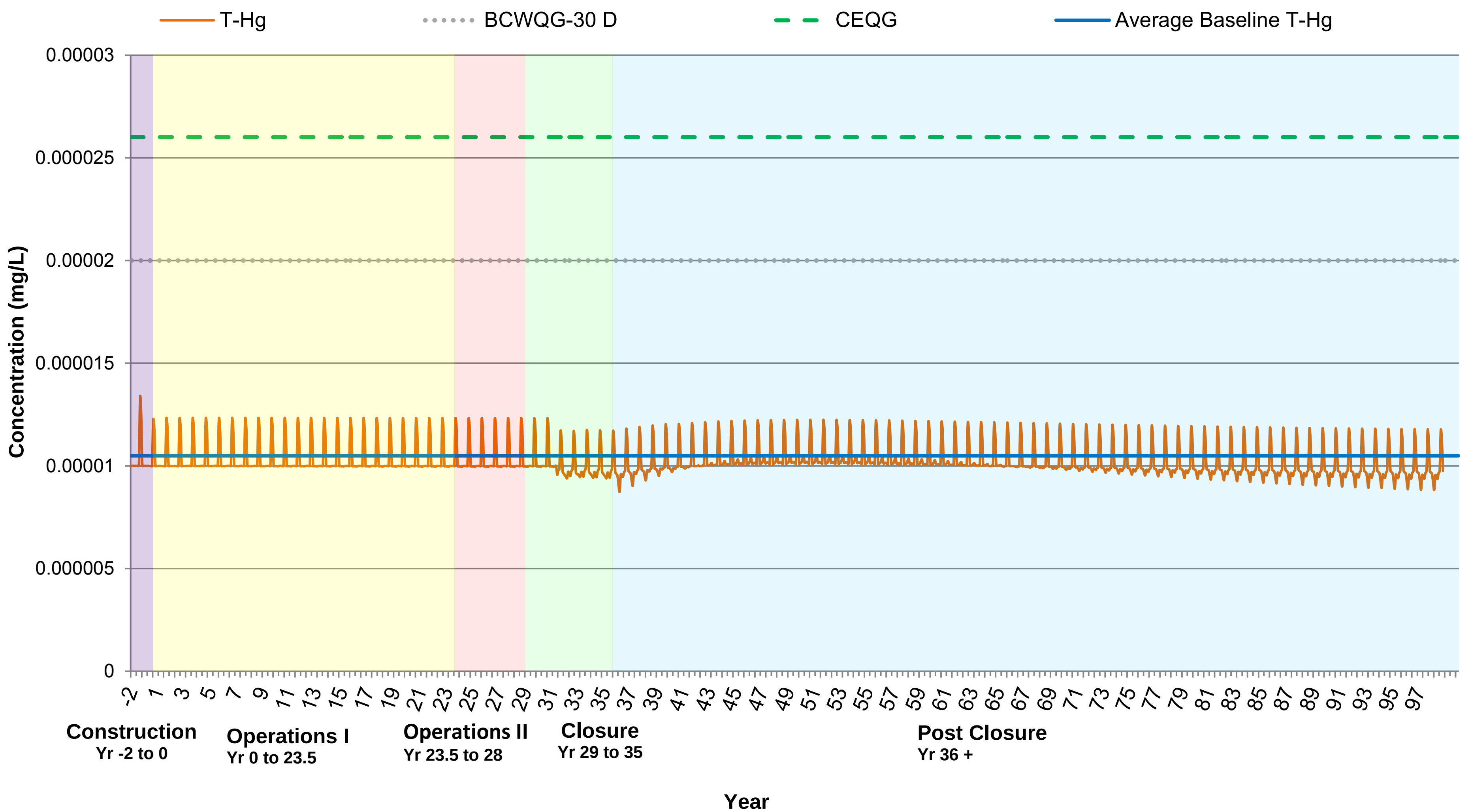
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Mo

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. BCWQG-30 D VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-Hg.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

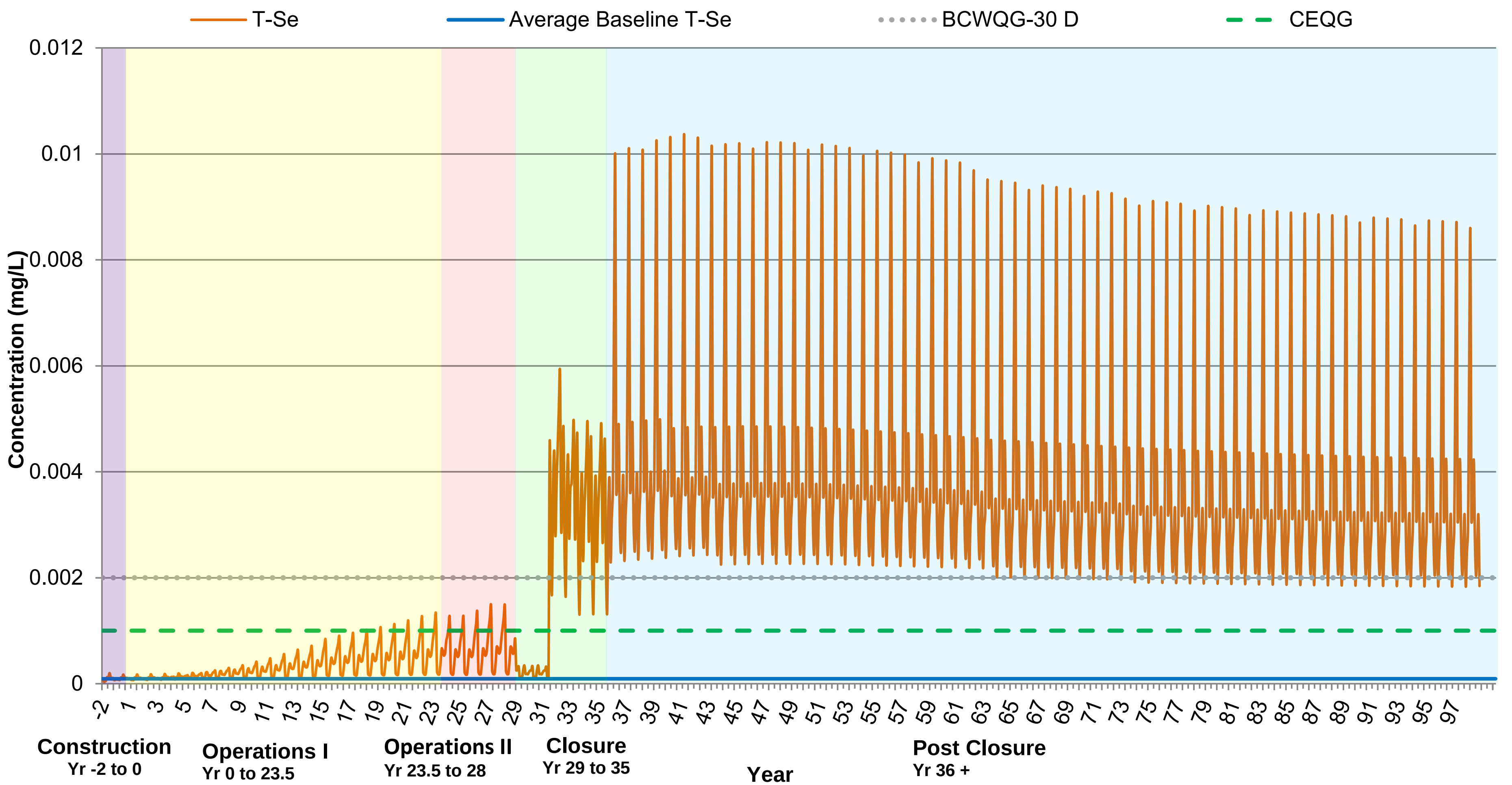
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Hg

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

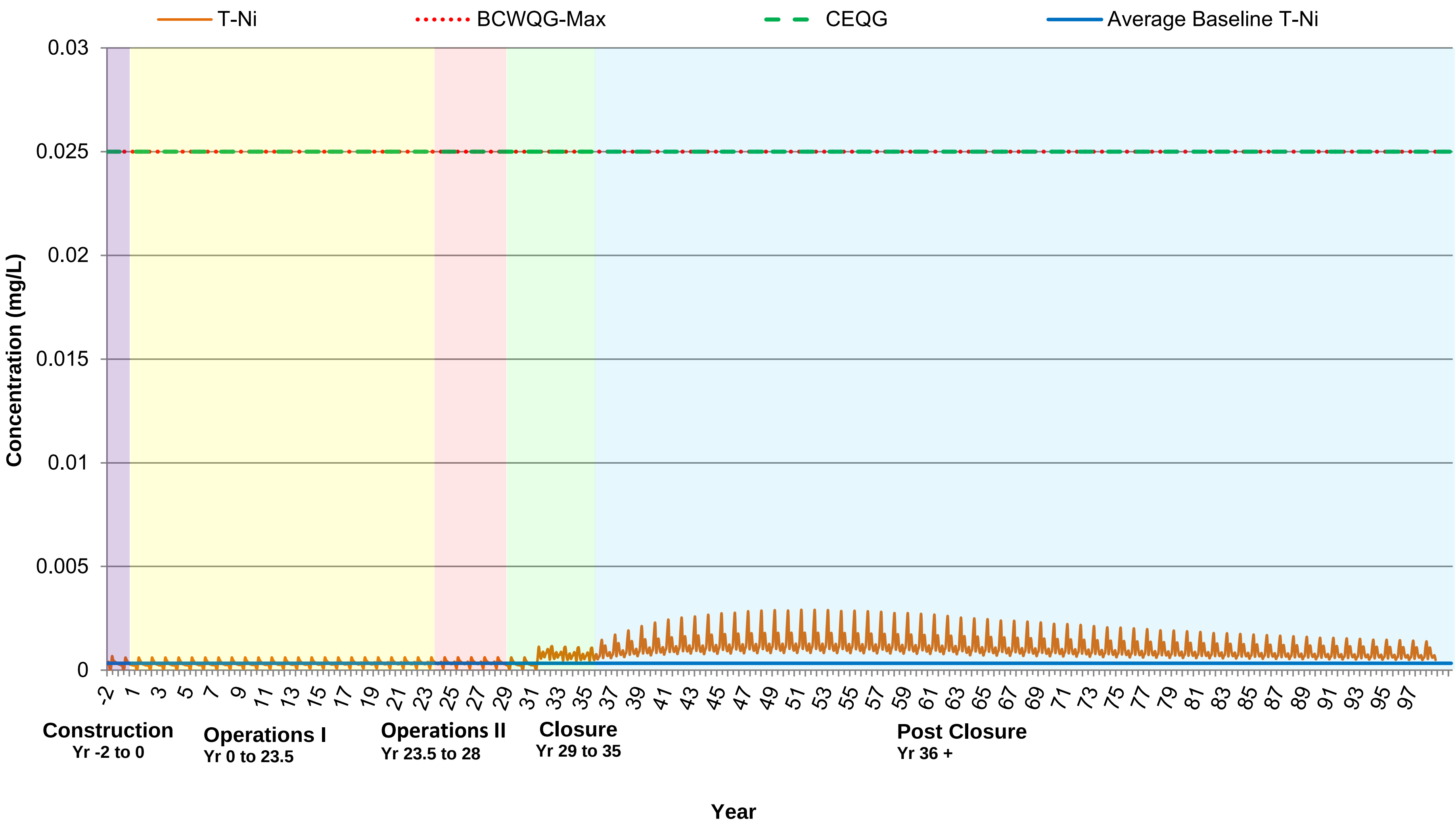
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Se

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

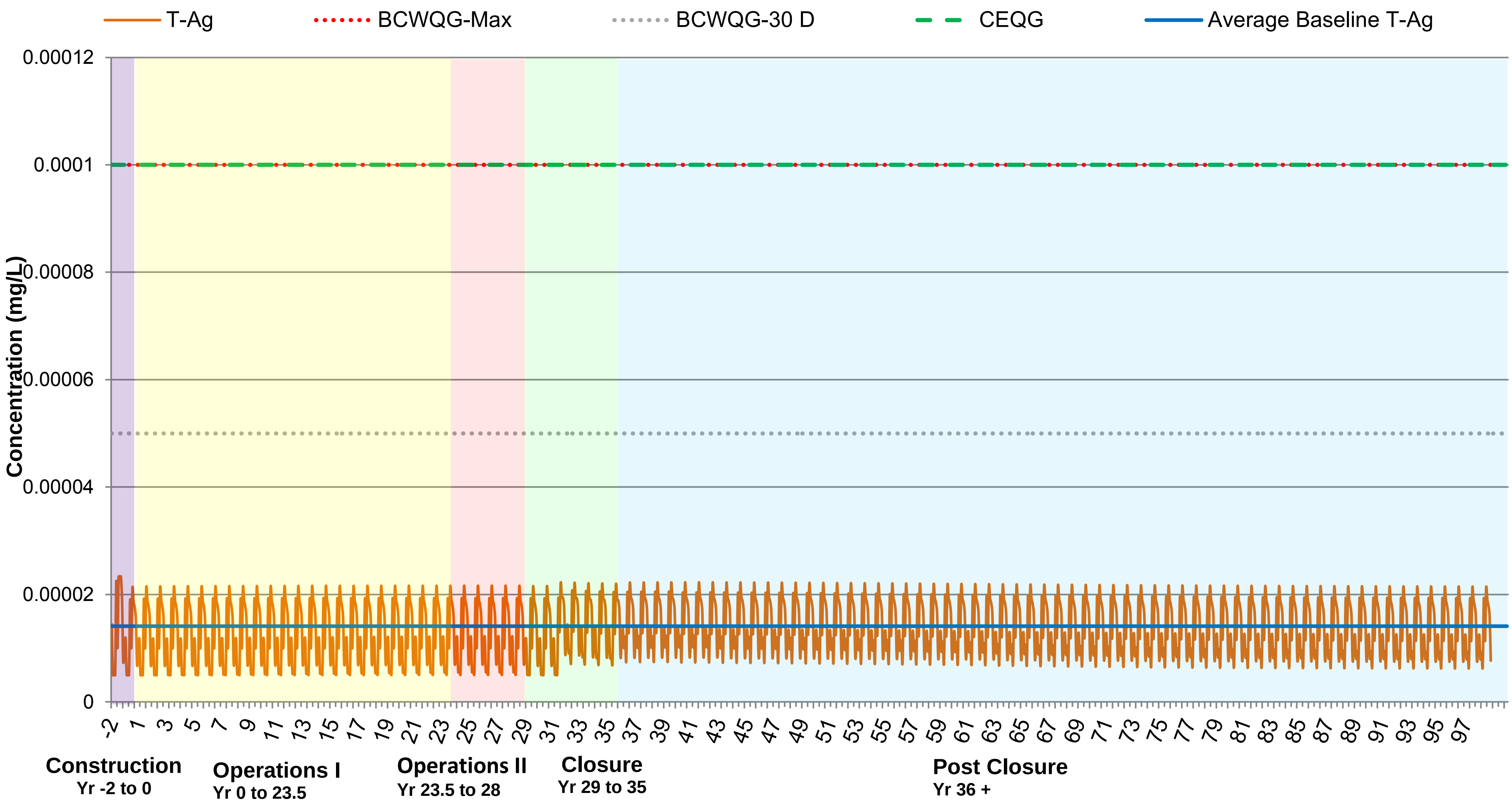
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Ni

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

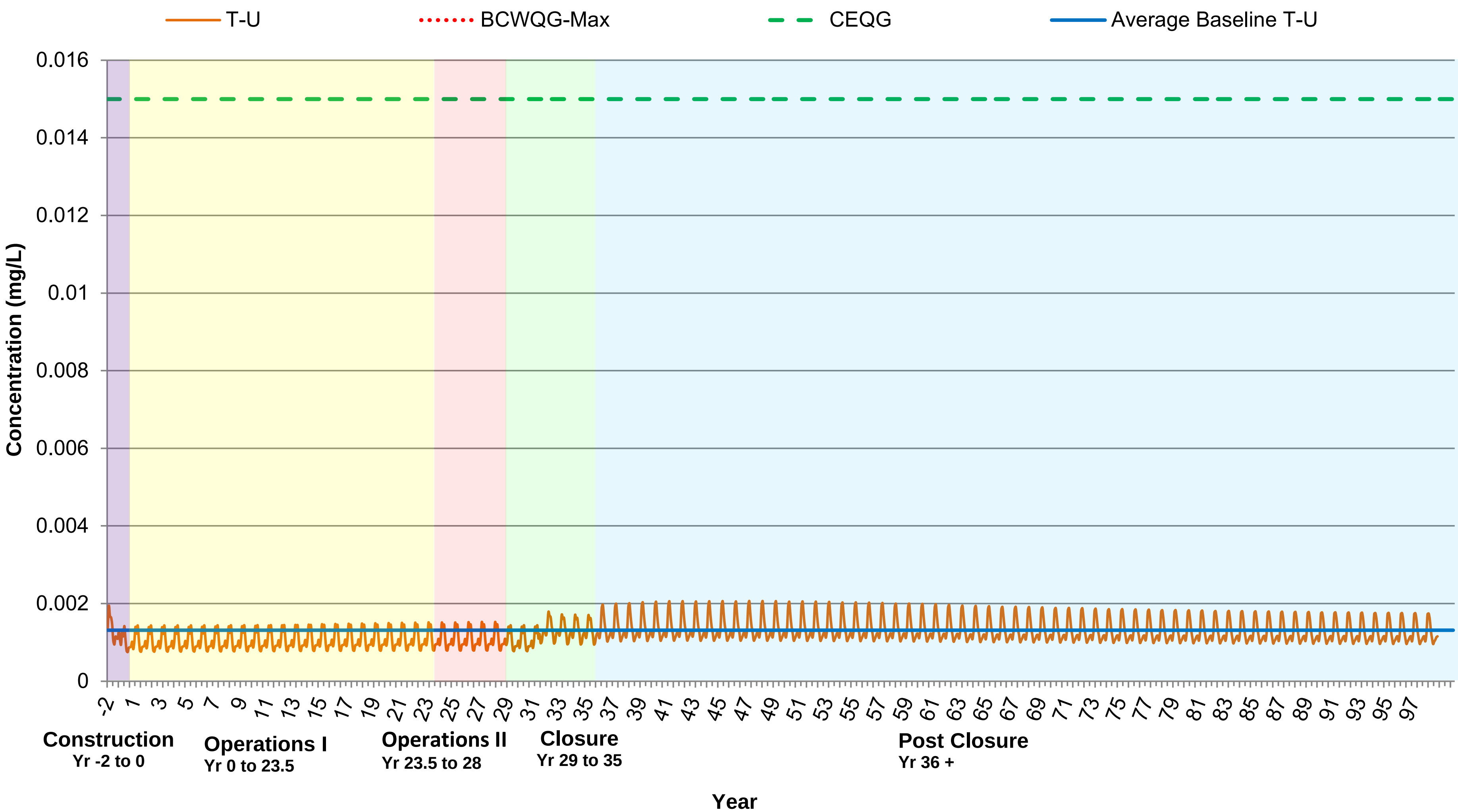
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Ag

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. THE BCWQG-MAX (0.3 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

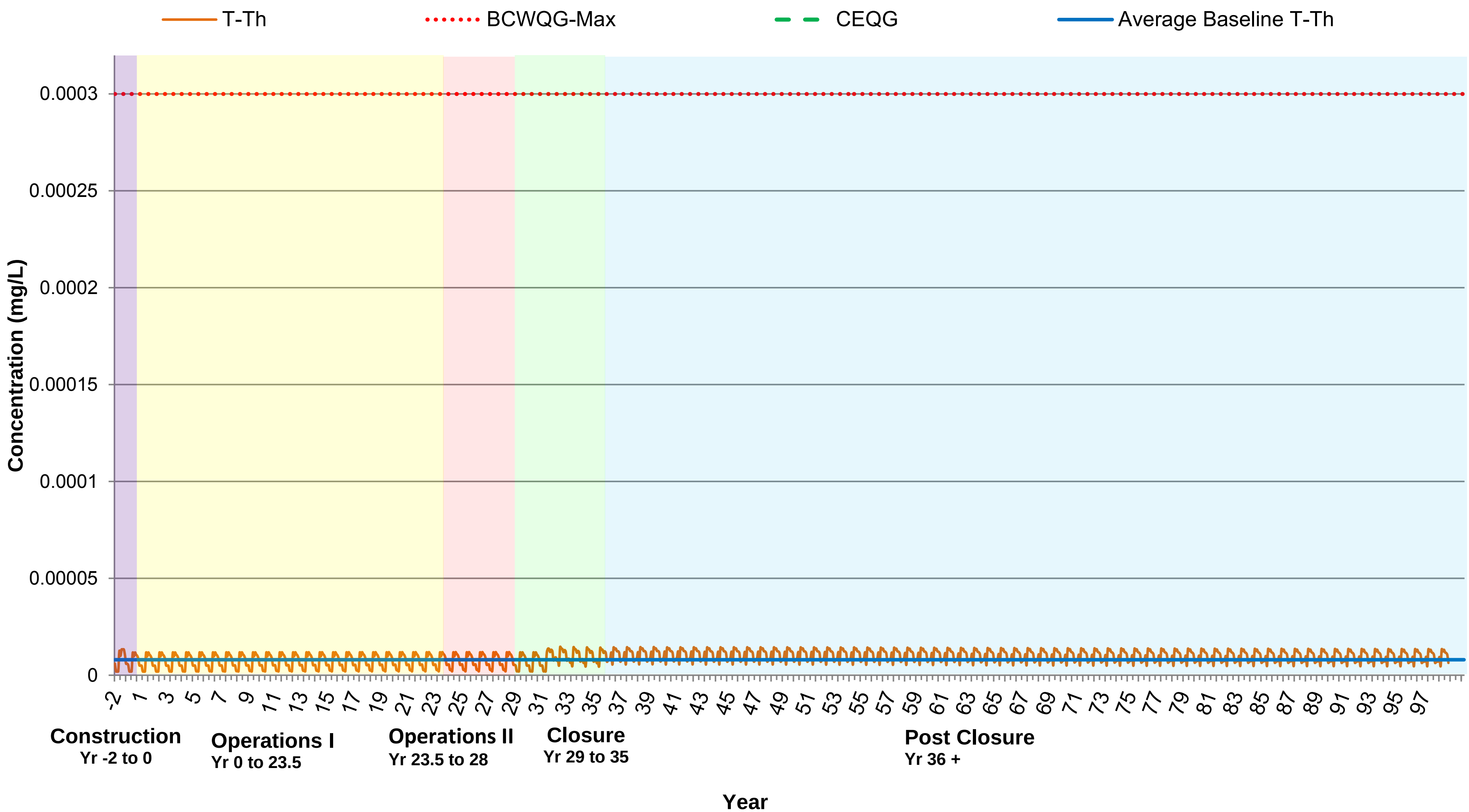
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.U

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. THE CEQG (0.0008 mg/L) IS NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

Knight Piésold CONSULTING

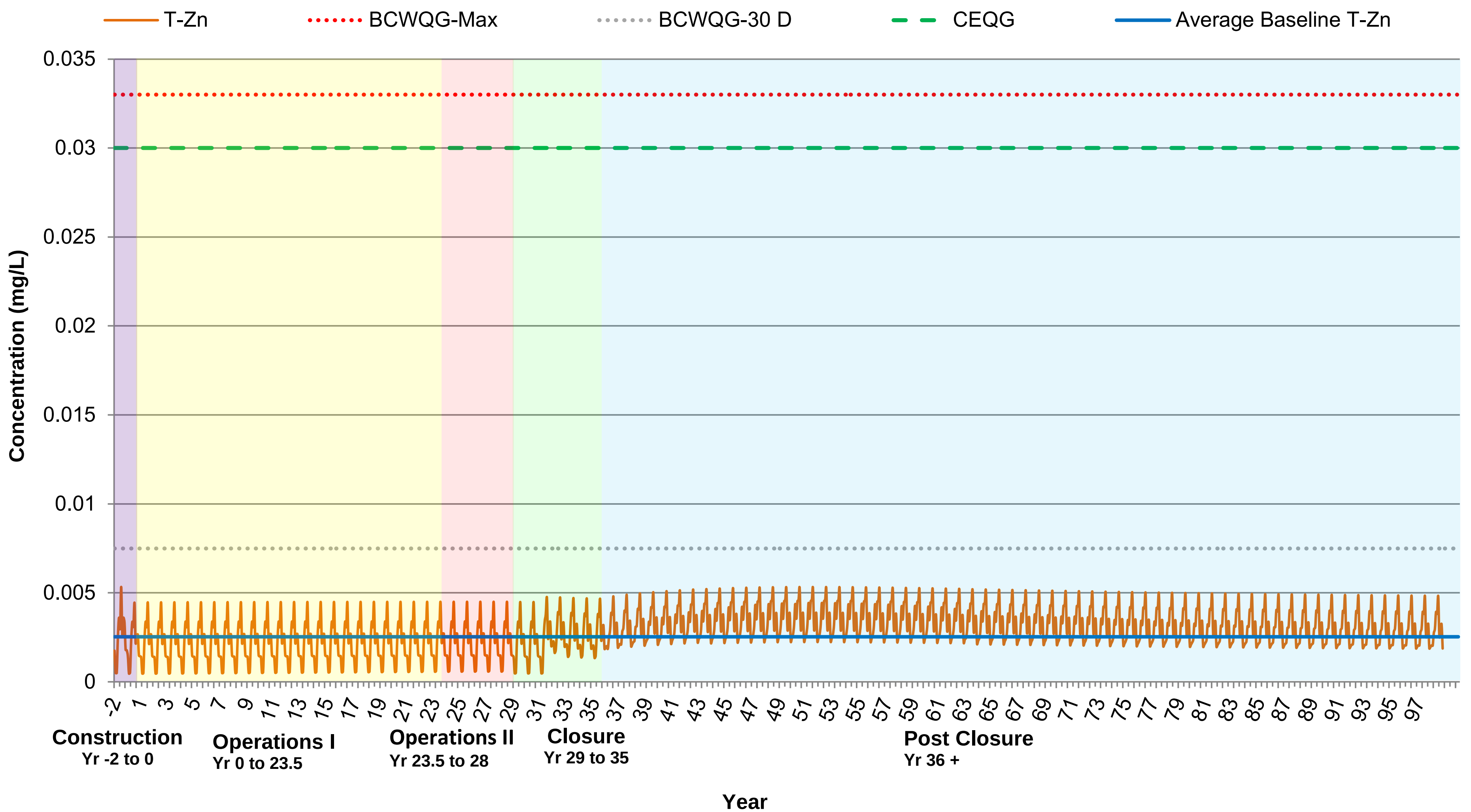
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Th

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE H1 (AVERAGE HARDNESS OF 20 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - HARPER CREEK ABOVE BARRIÈRE RIVER (HB)

Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A8.Zn

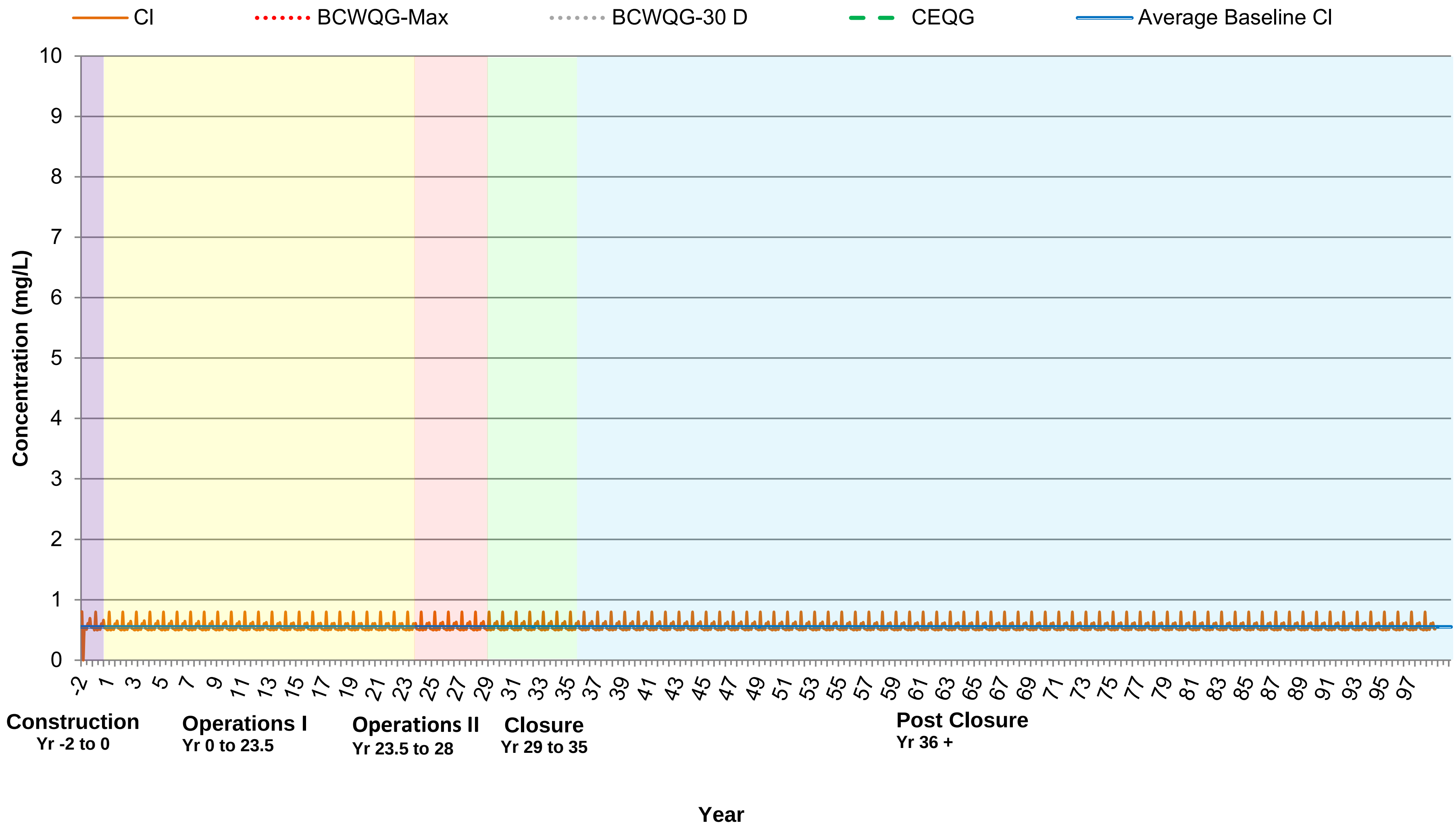
REV 0

Knight Piésold
CONSULTING

APPENDIX A9

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – MID BAKER CREEK

(Pages A9-1 to A9-30)



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. ALL GUIDELINES ARE NOT SHOWN: BCWQG-30 D (150 mg/L); BCWQG-MAX (600 mg/L); CEQG (120 mg/L AND 640 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - MID BAKER CREEK (BK1)

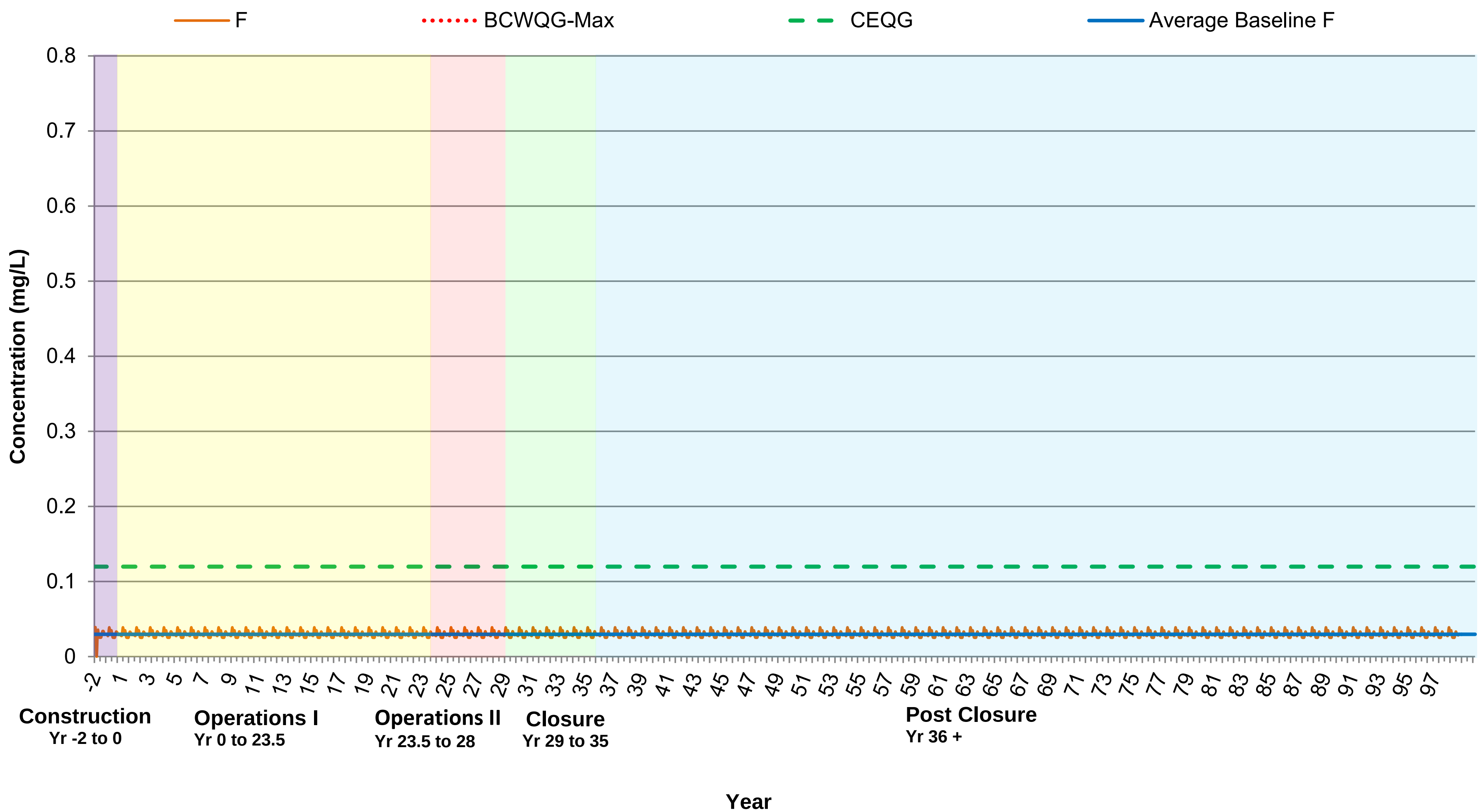
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.CI

REV 0



NOTES:

1. THE BCWQG-MAX IS HARNDESS DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - MID BAKER CREEK (BK1)

Knight Piésold CONSULTING

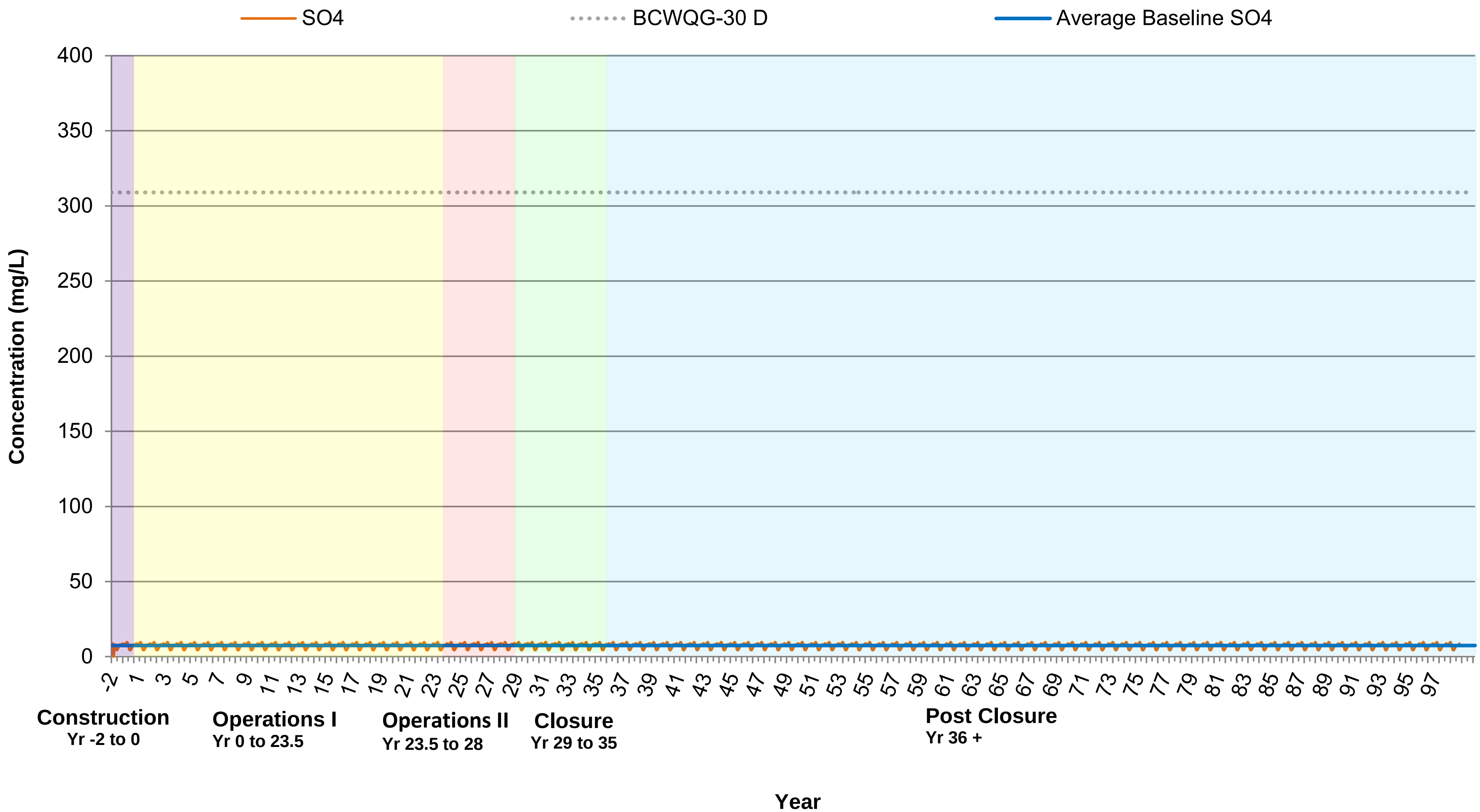
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.F

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. BCWQG-30 D IS HARDNESS DEPEDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - MID BAKER CREEK (BK1)

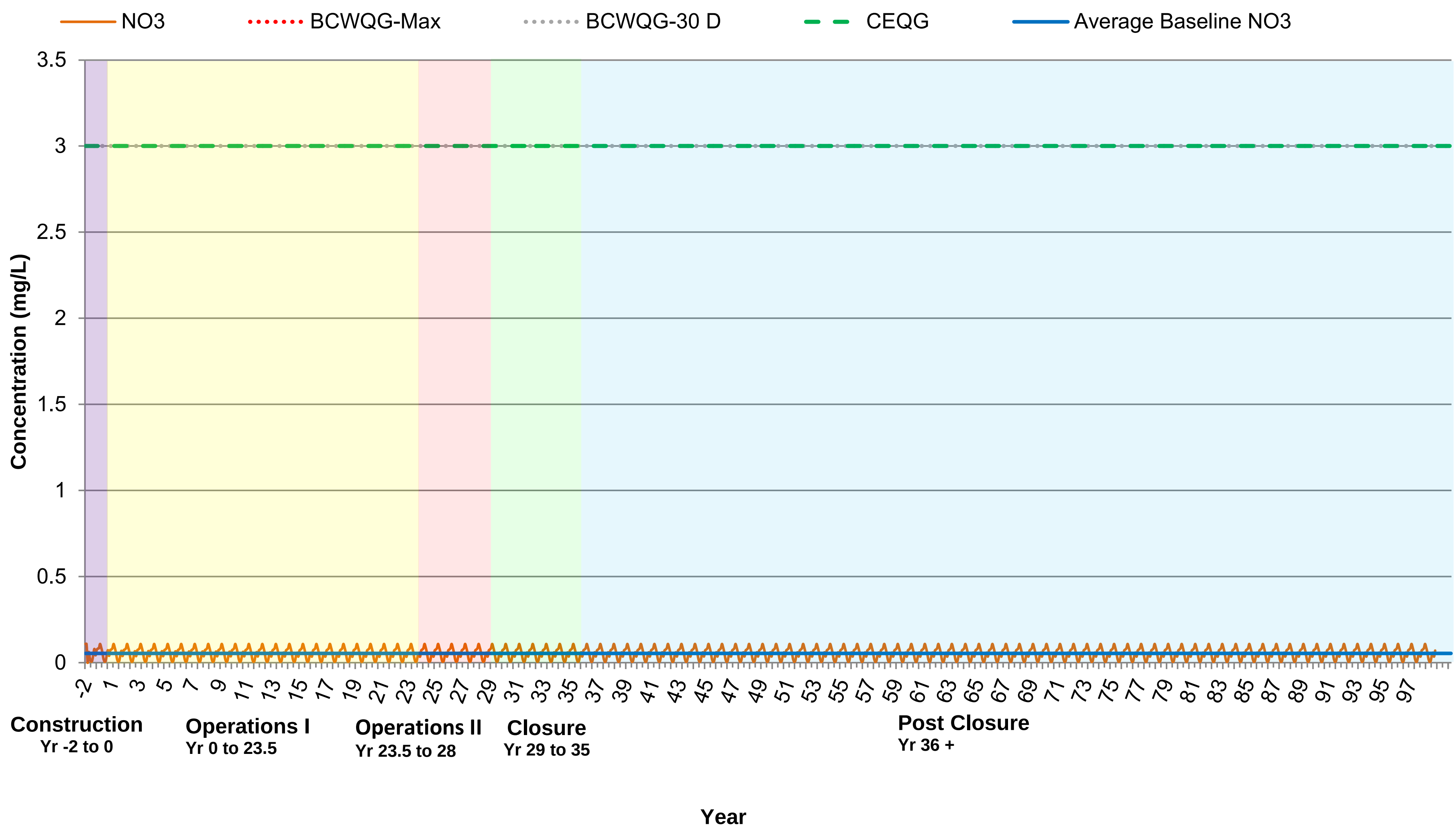
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.S04

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. THE BCWQG-MAX (32.8 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - MID BAKER CREEK (BK1)

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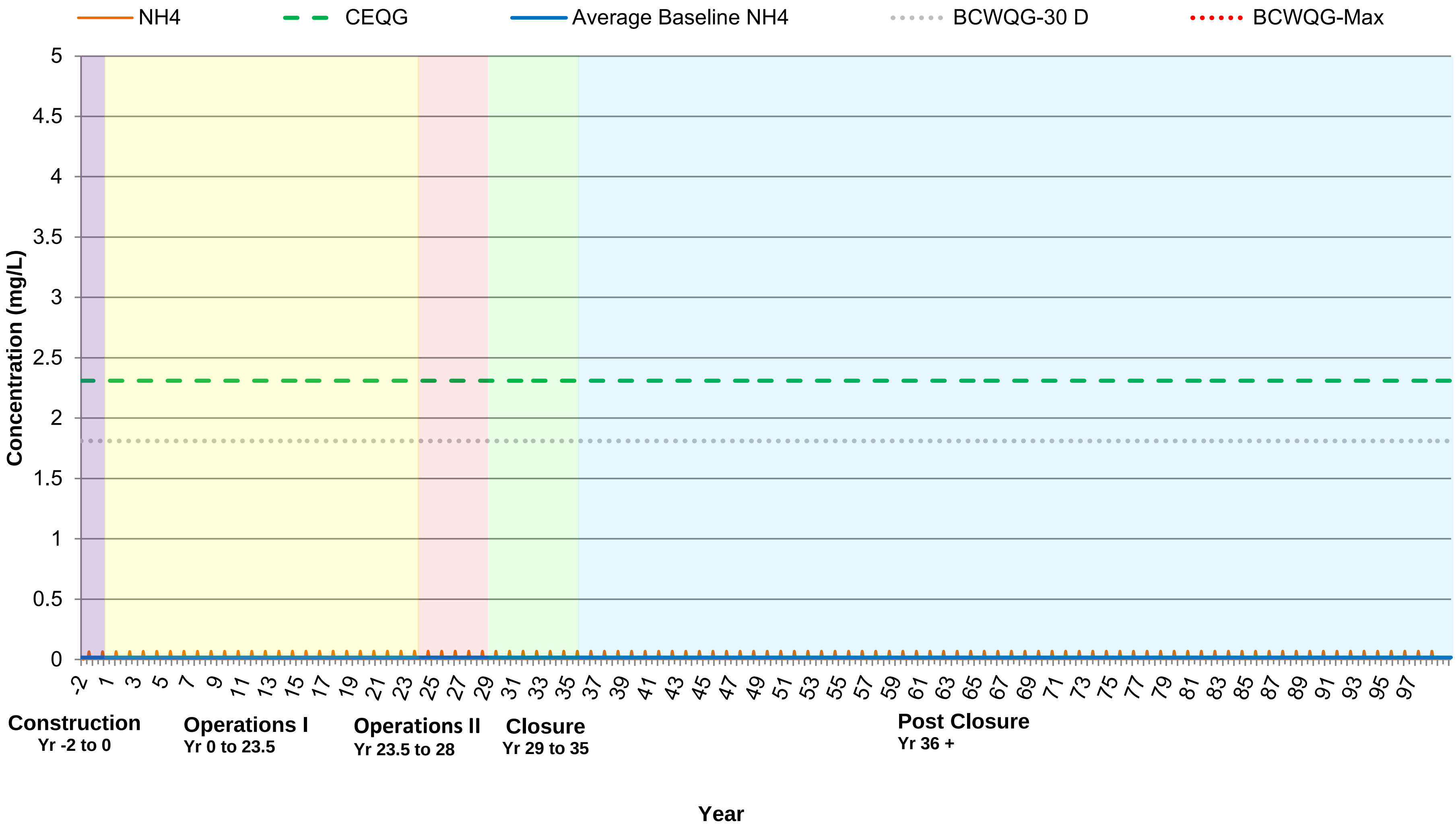
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.NO3

REV 0



NOTES:

1. THE BCWQG-30 D IS VALID FOR ONLY 6.5≤pH<9 AND 0°C≤T≤20°C.
2. THE BCWQG-MAX (20.15 mg/L) VALID FOR 6.5≤pH<9 IS NOT SHOWN.
3. THE CEQG IS TO BE USED WITH CAUTION FOR WATER WITH T<5°C AND pH>9.
4. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - MID BAKER CREEK (BK1)

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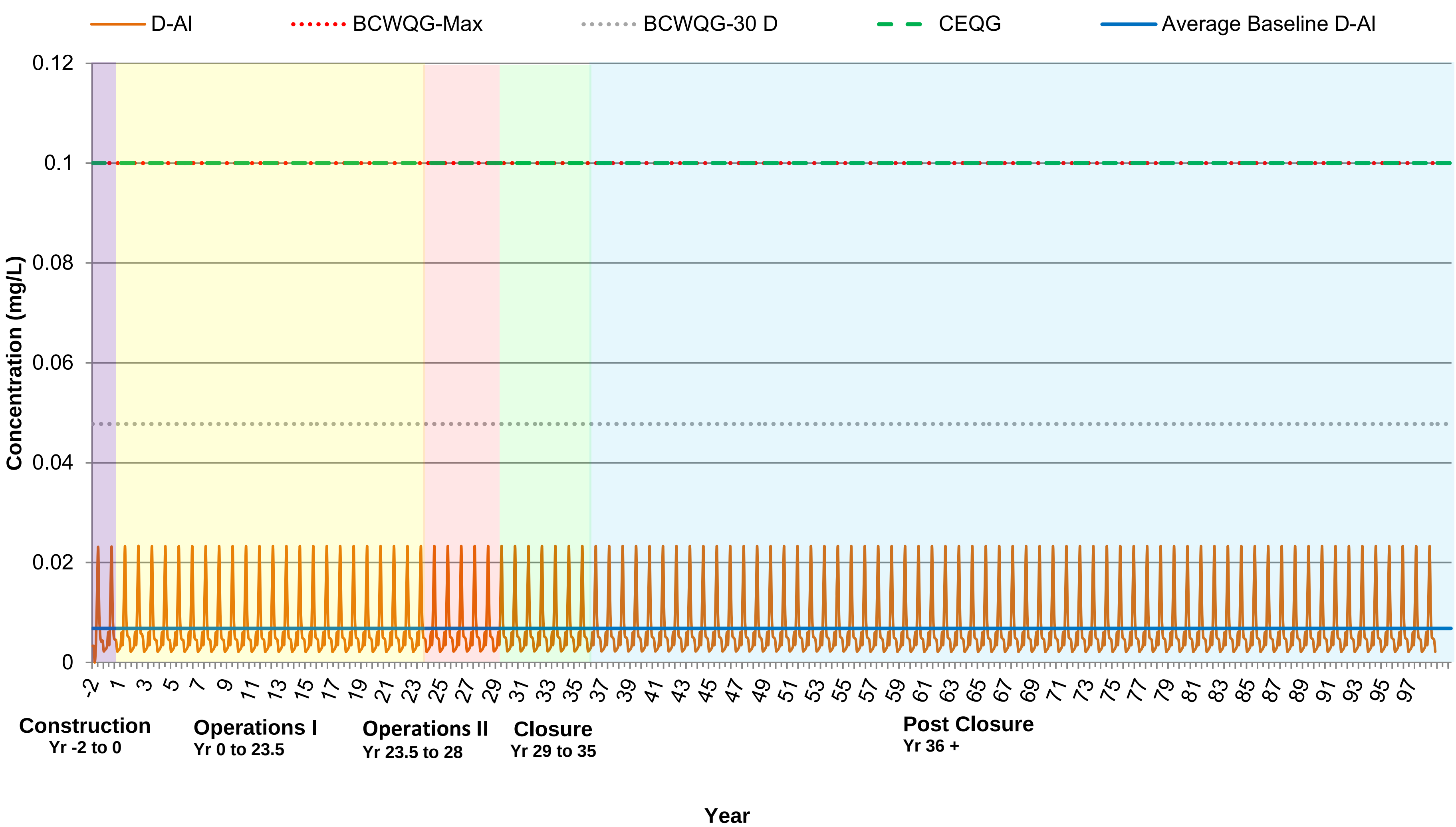
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.NH4

REV 0



NOTES:

1. ALL GUIDELINES ARE pH-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. AVERAGE BASELINE pH USED TO CALCULATE GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED ALUMINUM CONCENTRATIONS - MID BAKER CREEK (BK1)

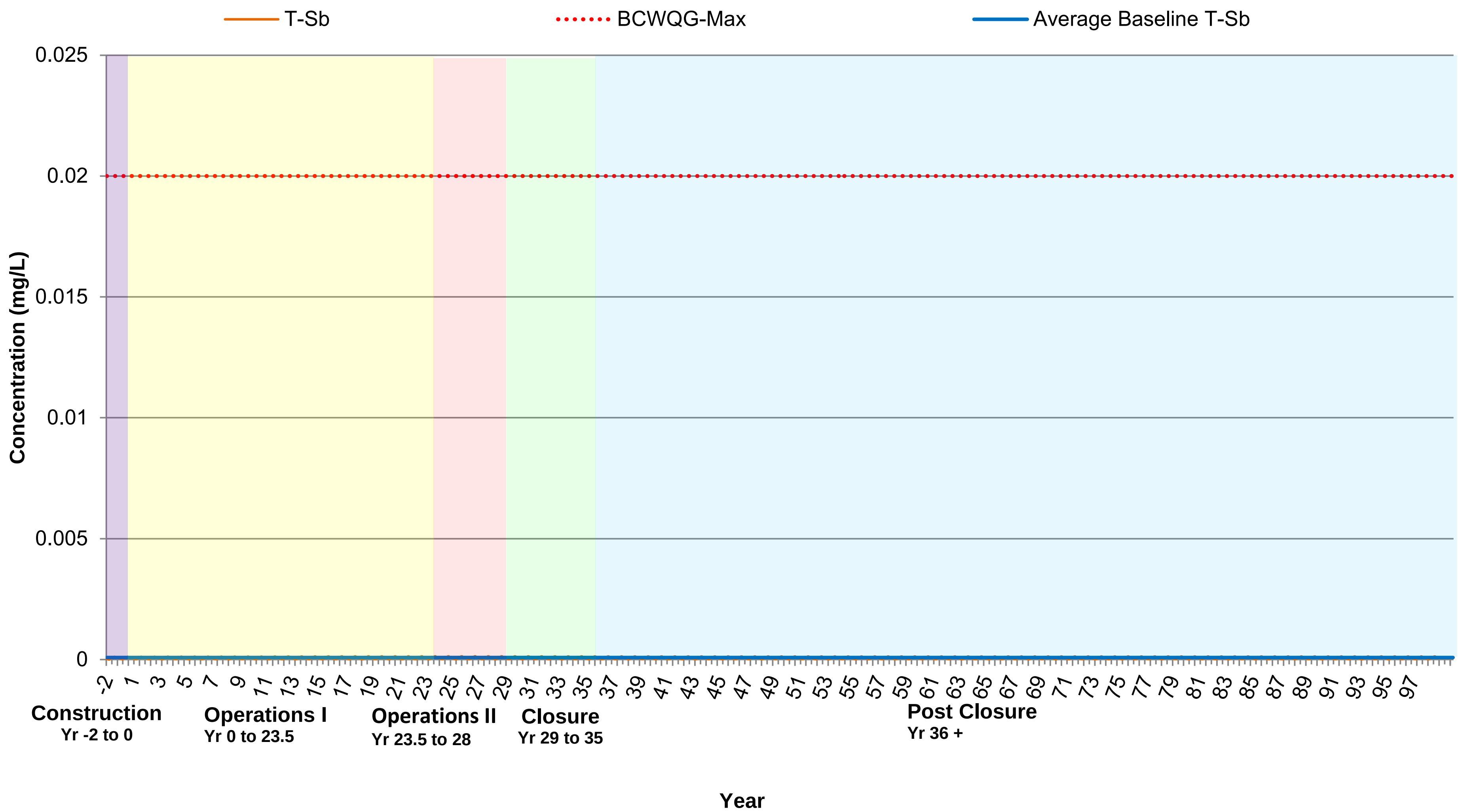
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Al

REV 0



NOTES:

1. THE BCWQG IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - MID BAKER CREEK (BK1)

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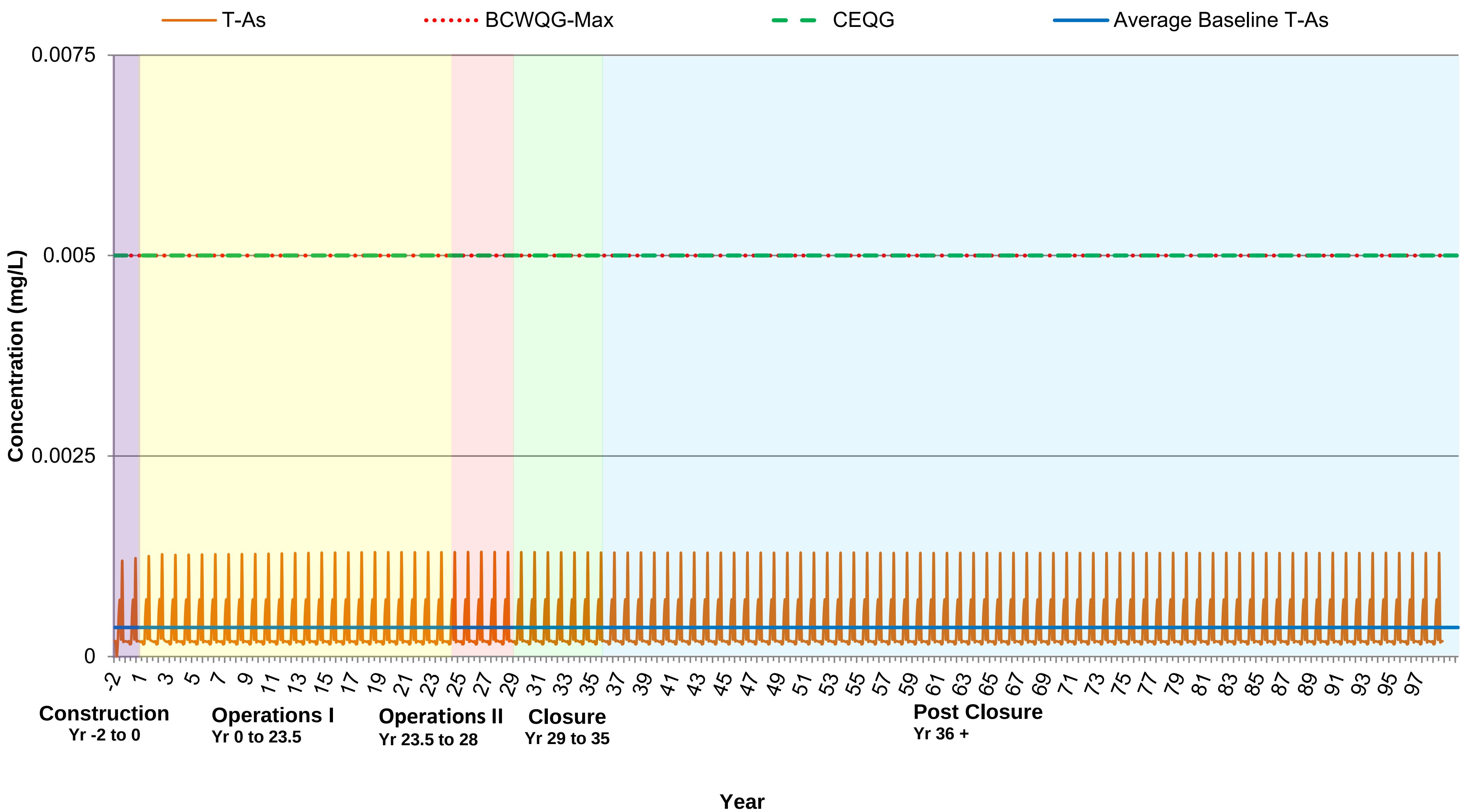
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Sb

REV 0



NOTES:

1. THE BCWQG AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - MID BAKER CREEK (BK1)

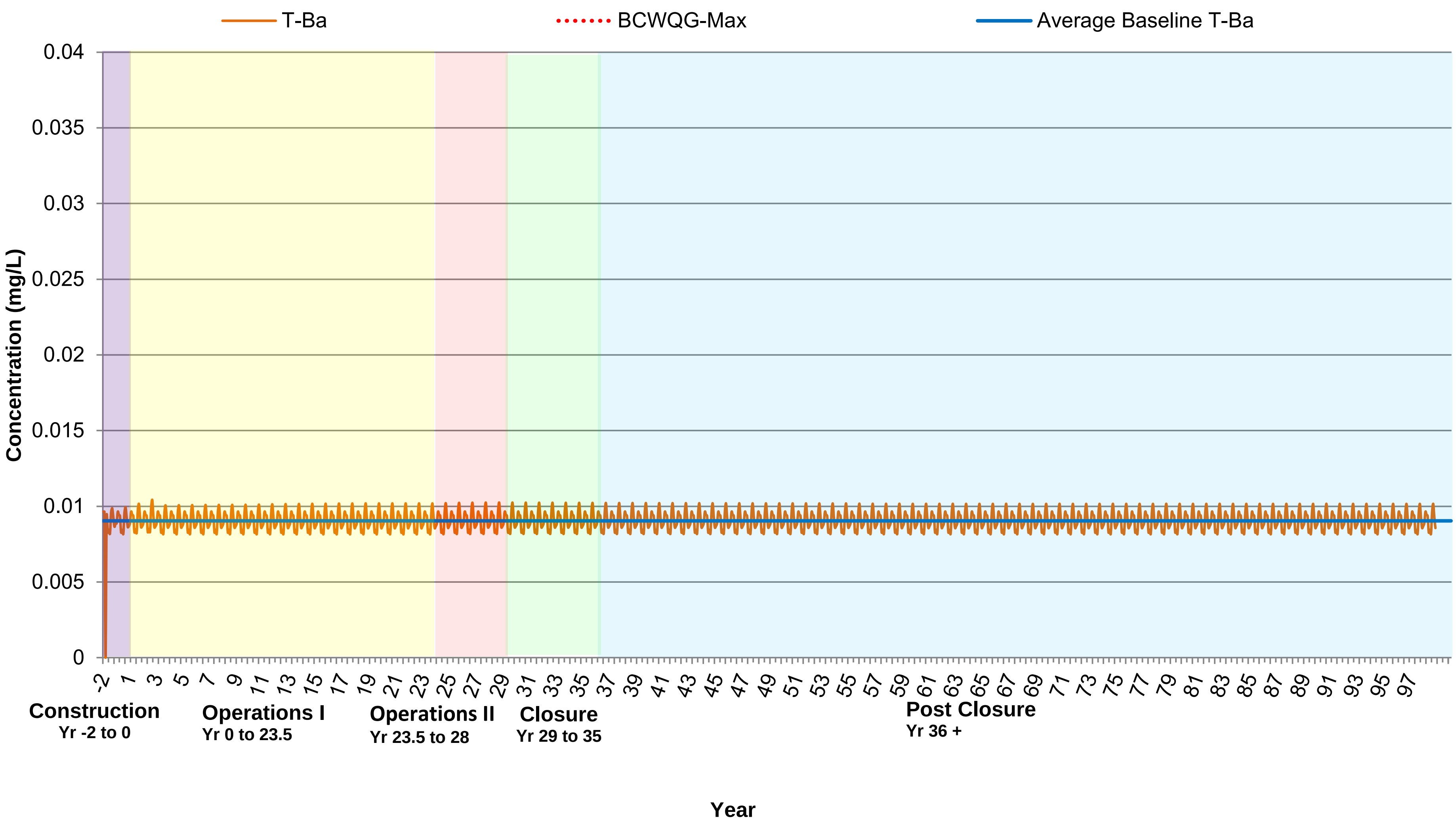
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.As

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. THE BCWQG-30 D (1 mg/L) AND BCWQG-MAX (5 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - MID BAKER CREEK (BK1)

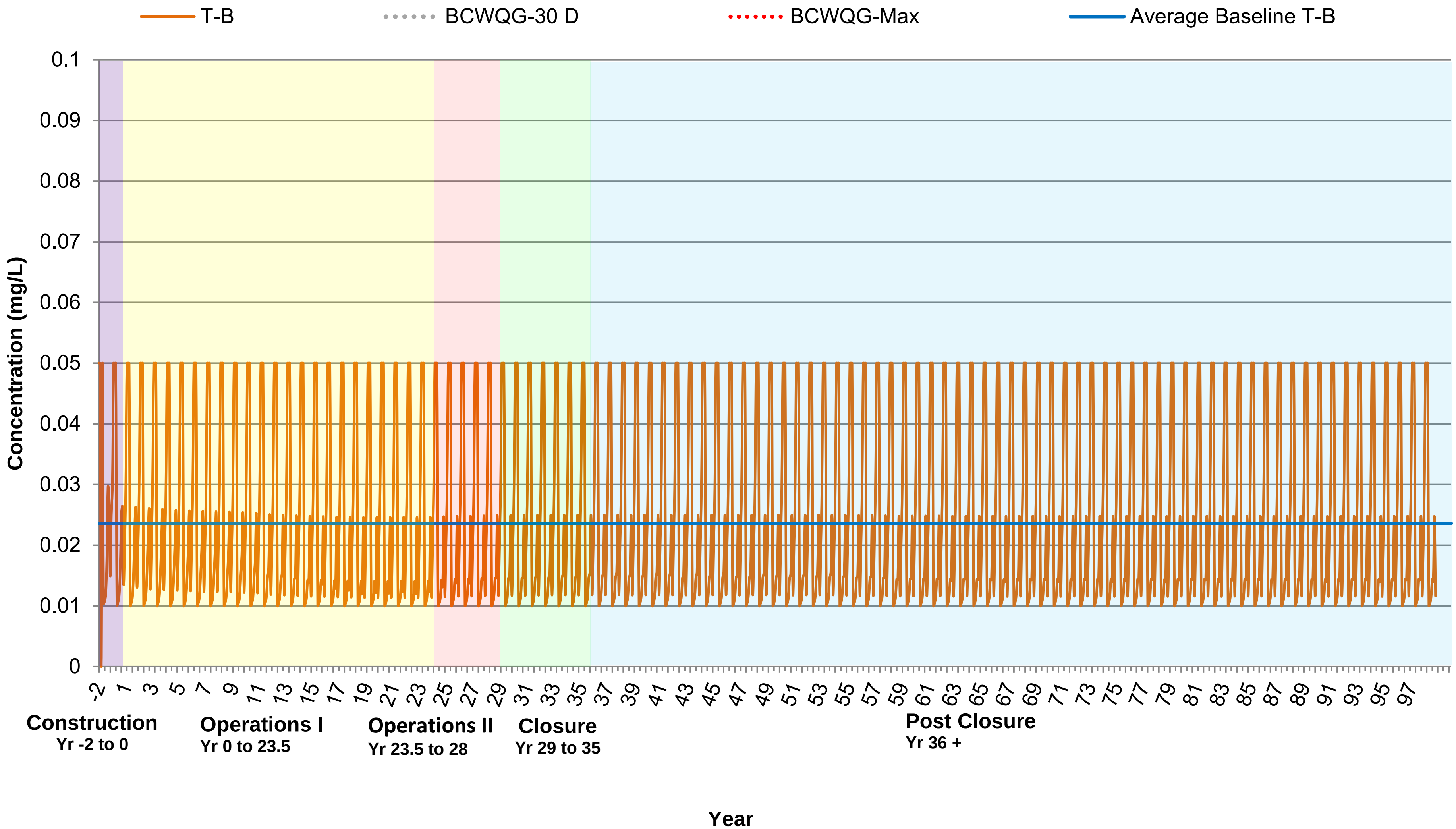
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Ba

REV 0



NOTES:

1. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
3. THE BCWQG-MAX (1.2 mg/L) IS NOT SHOWN.

HARPER CREEK MINING CORP.

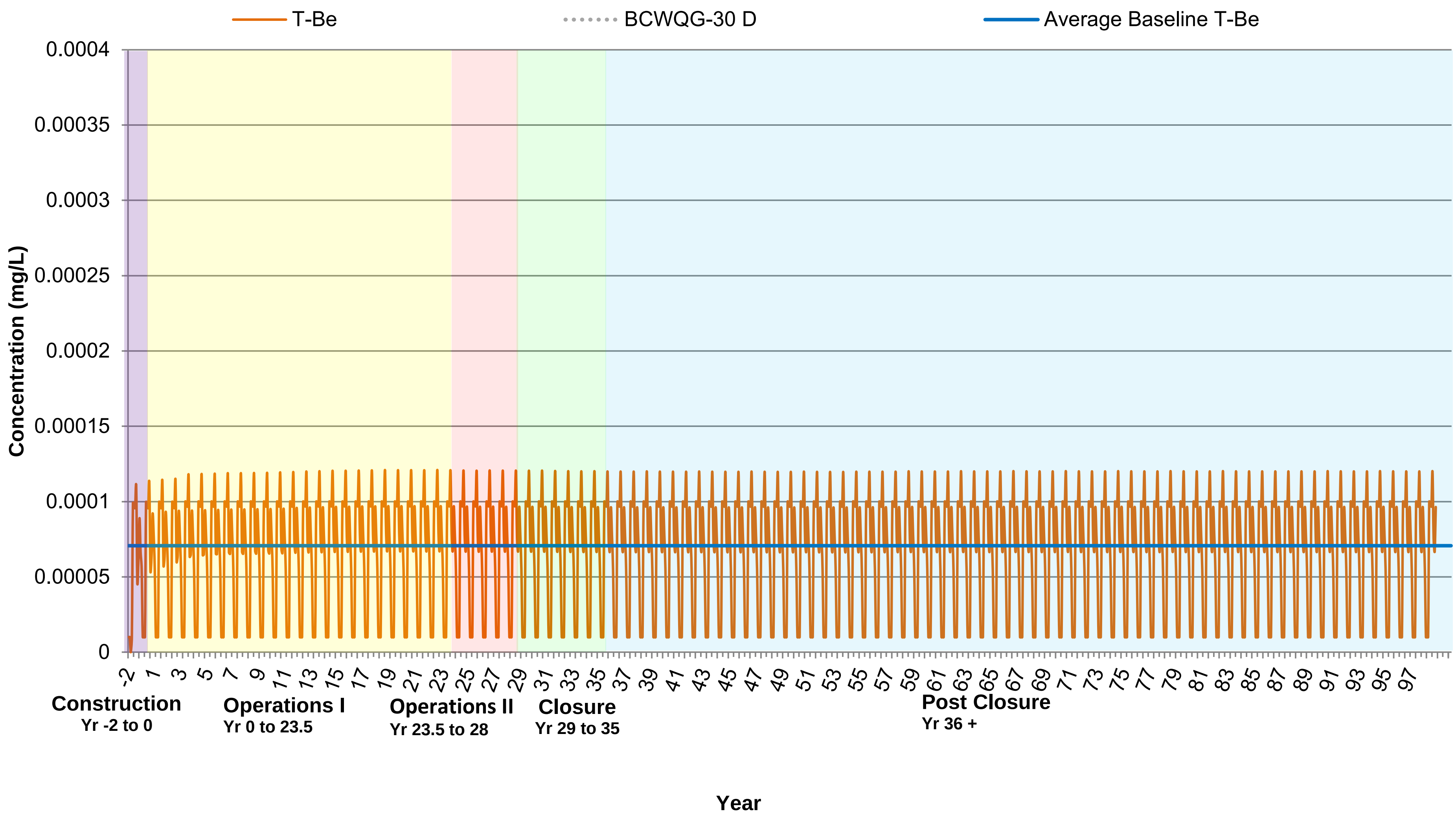
HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - MID BAKER CREEK (BK1)

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-458/17	VA14-01825	
FIGURE A9.B		REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. THE BCWQG-30 D (0.0053 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BERYLLIUM CONCENTRATIONS - MID BAKER CREEK (BK1)

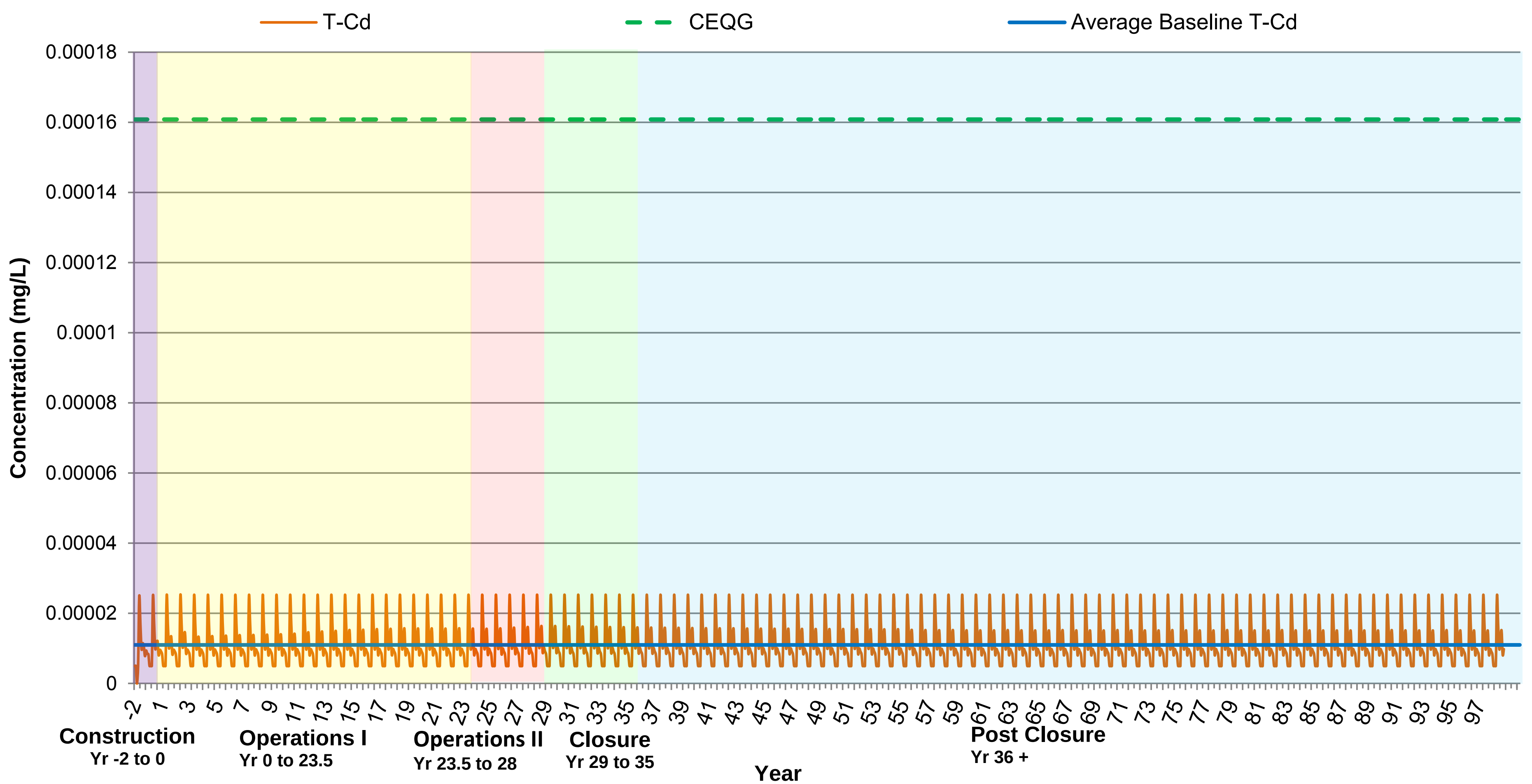
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Be

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. THE BCWQG ARE DRAFT GUIDELINES UNDER REVIEW (JUNE 2014).
3. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
4. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - MID BAKER CREEK (BK1)

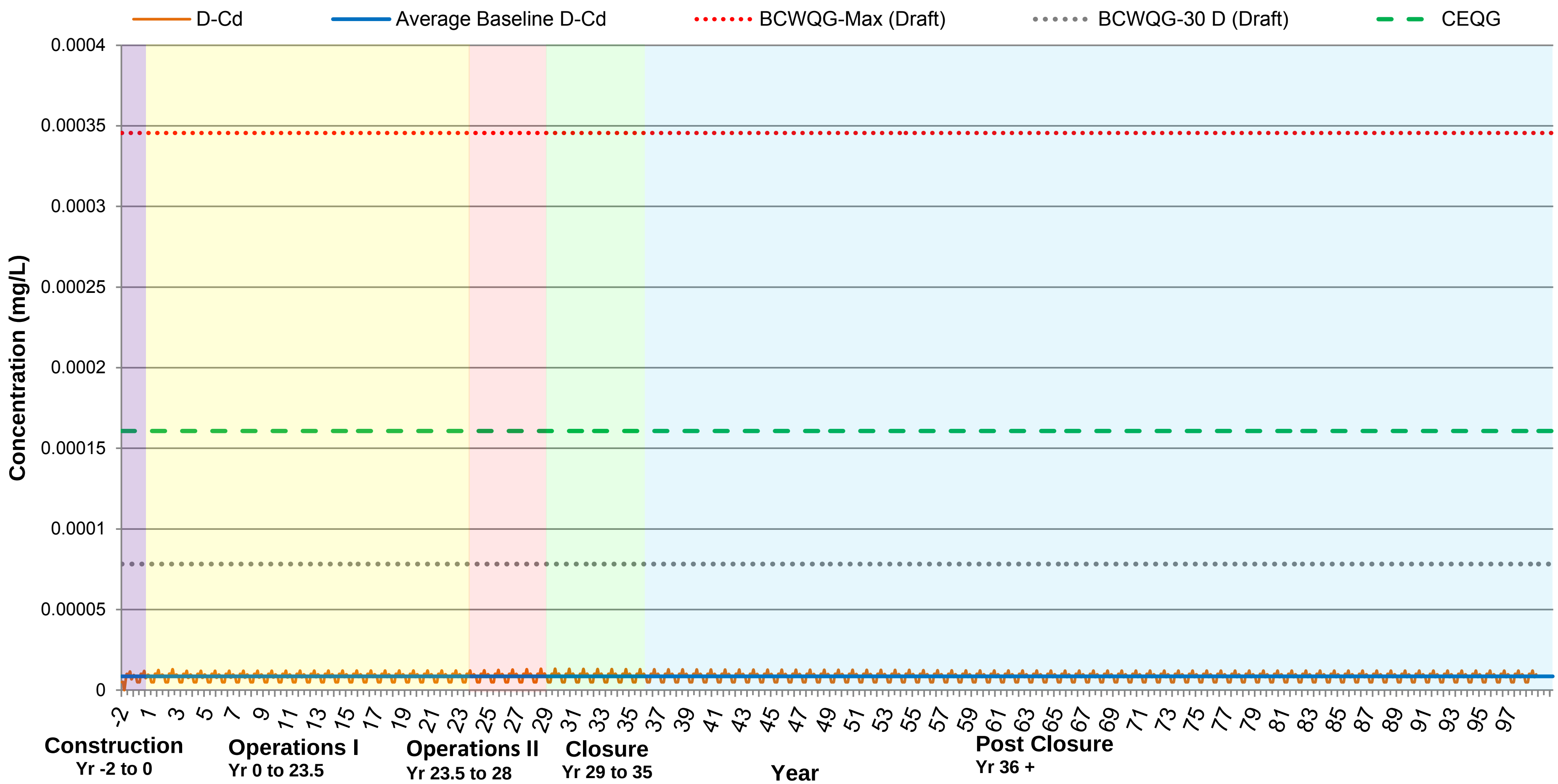
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Cd-T

REV 0



NOTES:

1. BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - MID BAKER CREEK (BK1)

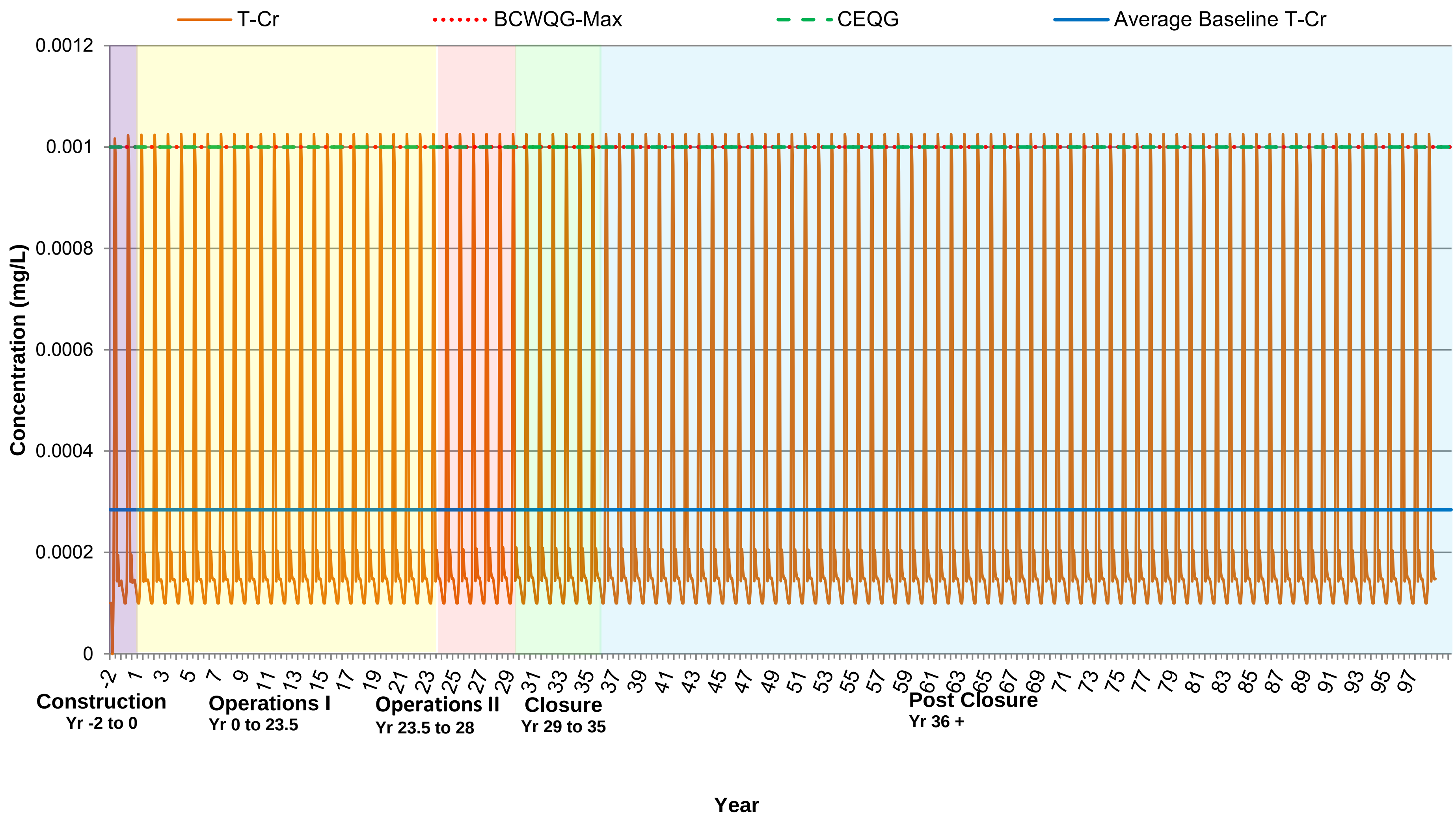
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Cd-D

REV 0



NOTES:

1. GUIDELINES ARE FOR CHROMIUM (IV), THE SPECIES MOST COMMON IN WELL OXYGENATED SURFACE WATERS.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - MID BAKER CREEK (BK1)

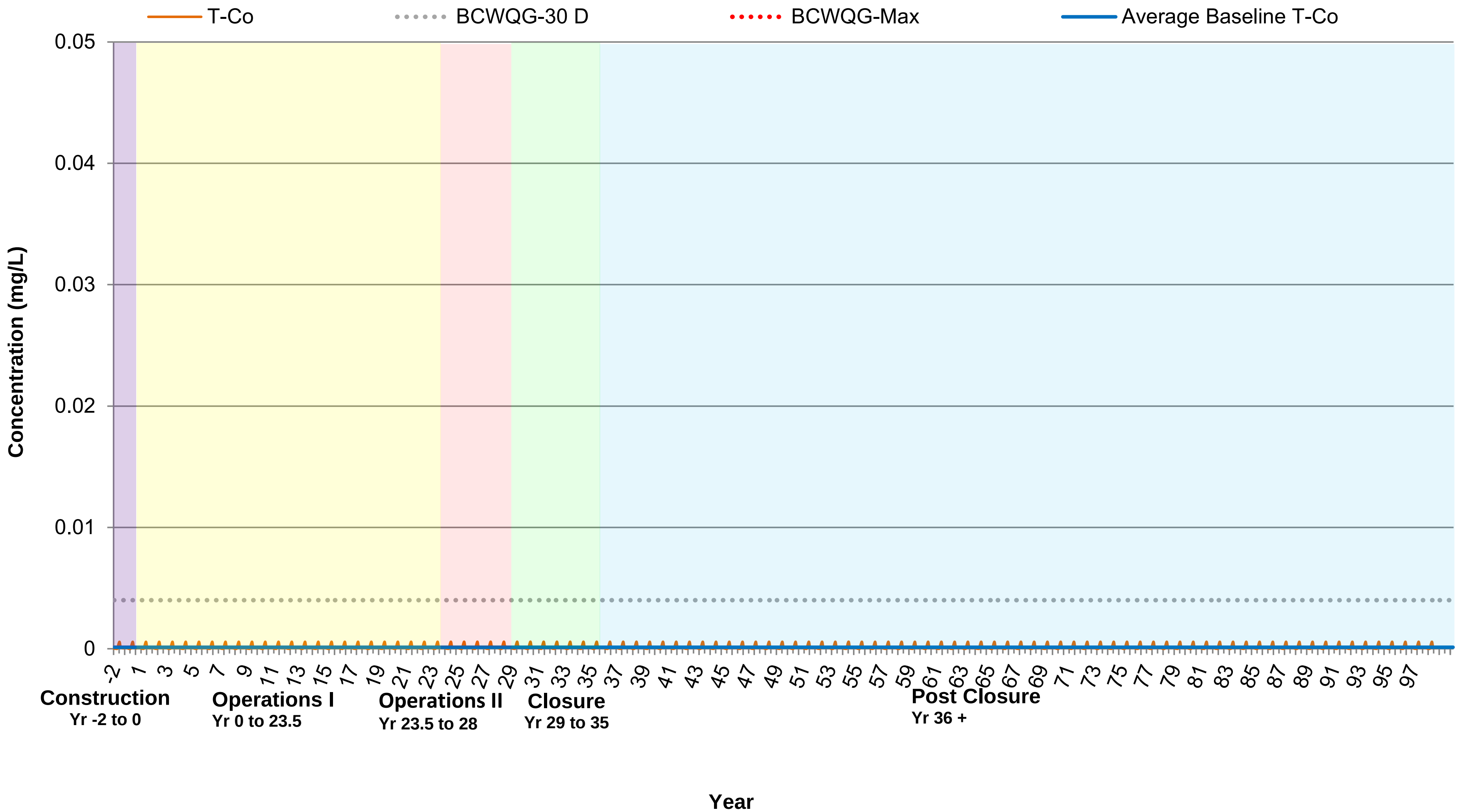
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Cr

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. THE BCWQG-MAX GUIDELINE (0.11 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - MID BAKER CREEK (BK1)

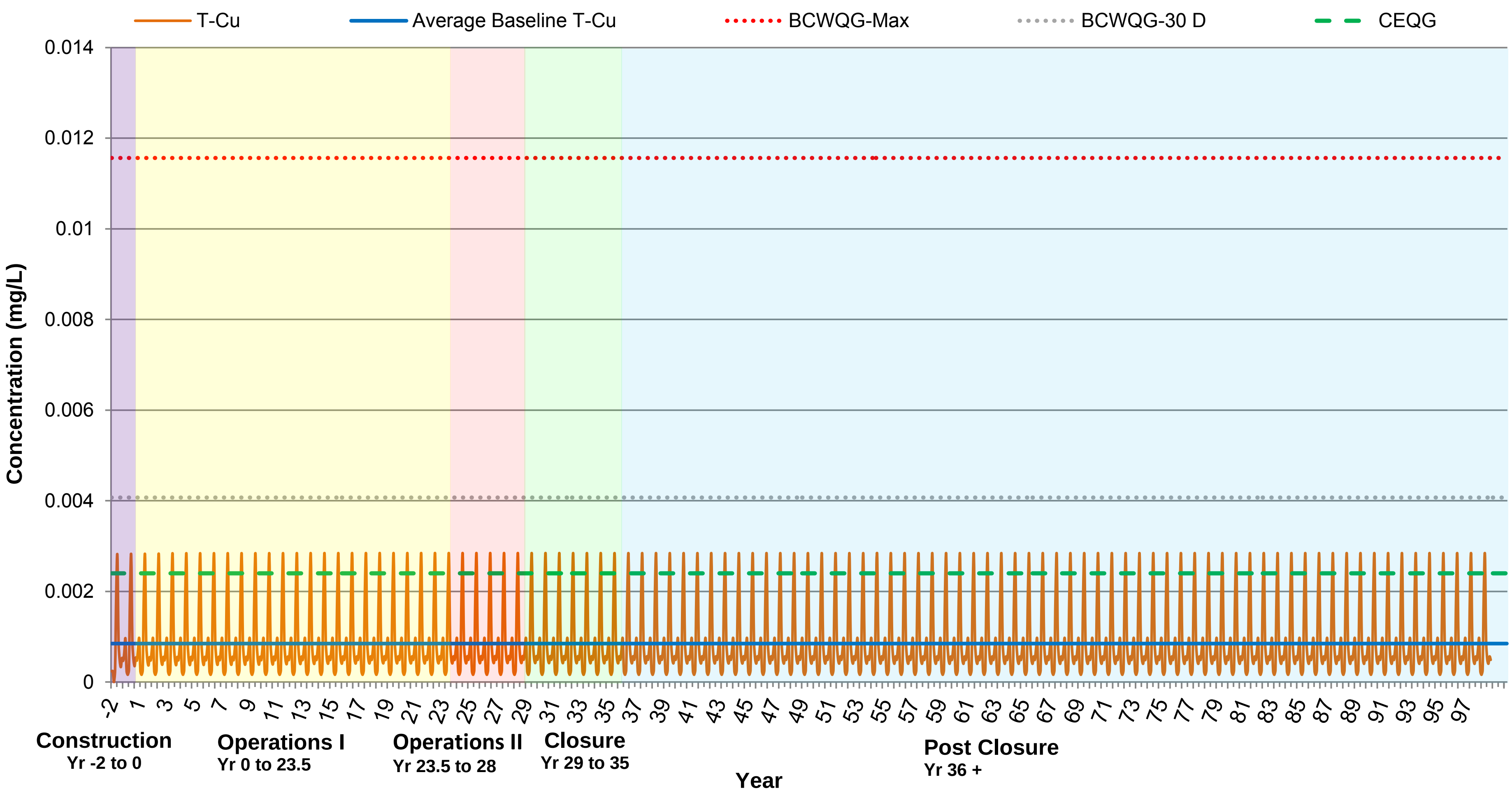
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Co

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - MID BAKER CREEK (BK1)

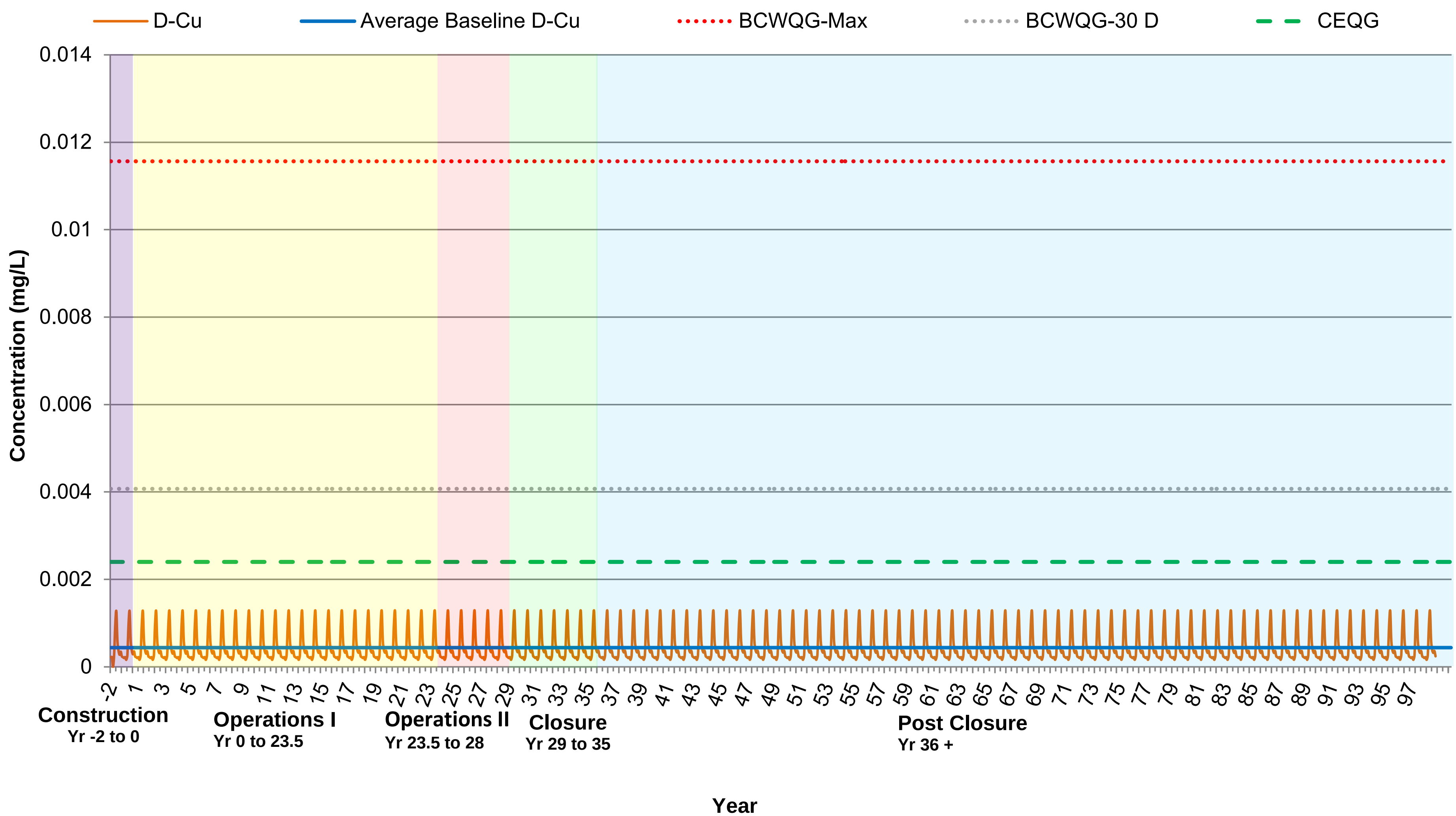
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Cu-T

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - MID BAKER CREEK (BK1)

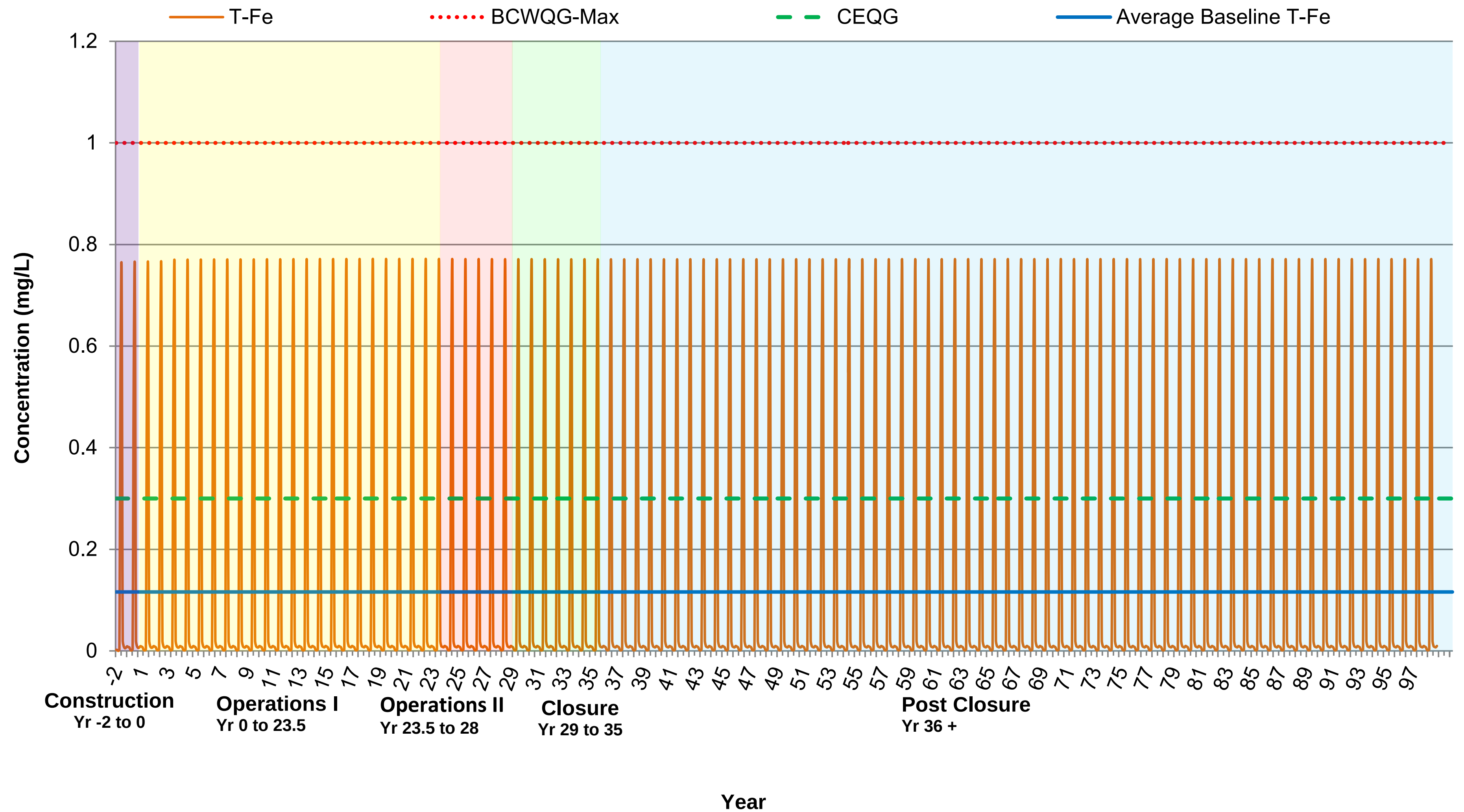
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Cu-D

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. BCWQG-MAX 1.0 mg/L IS NOT SHOWN ON GRAPH.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT TOTAL IRON CONCENTRATIONS - MID BAKER CREEK (BK1)

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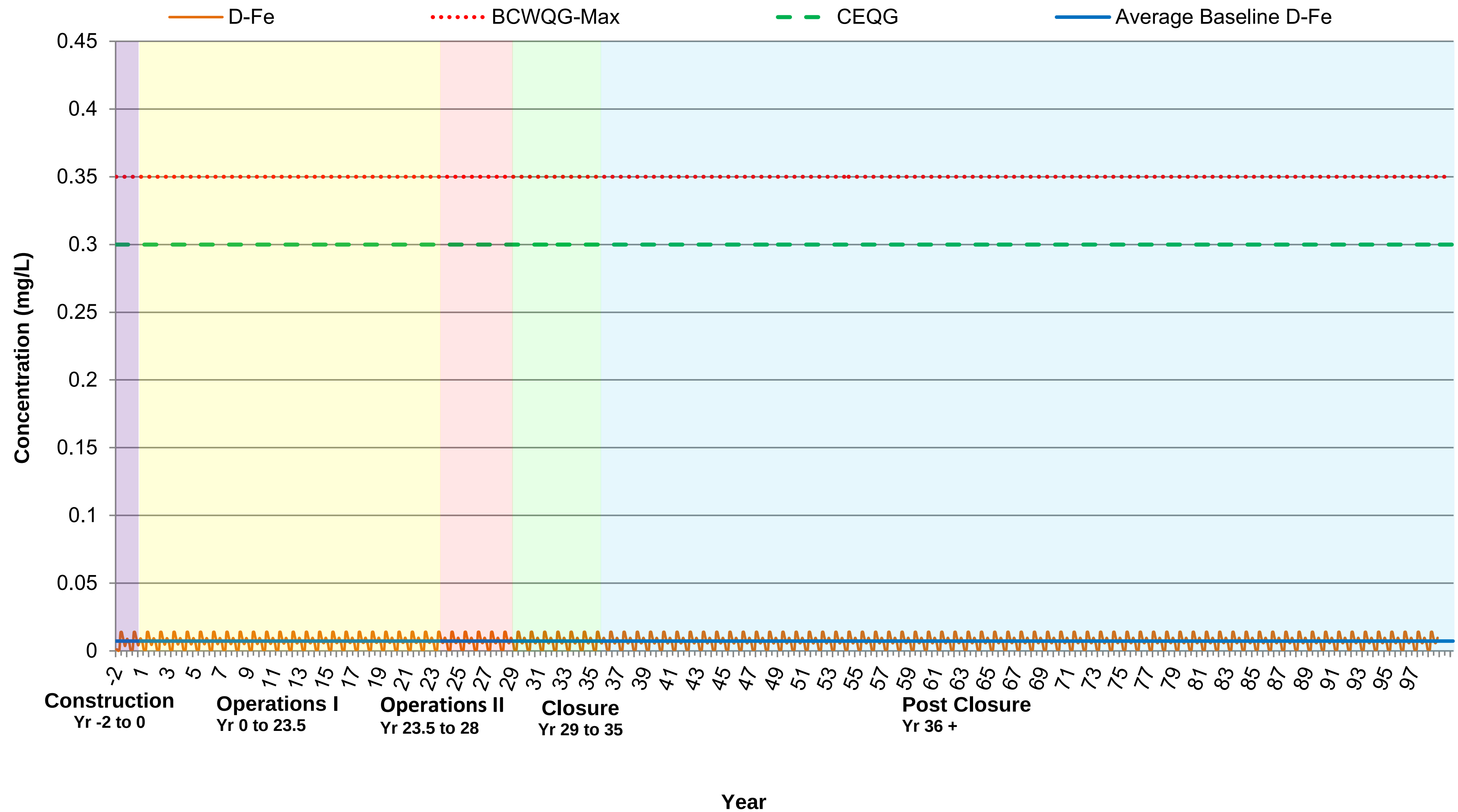
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Fe-T

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED IRON CONCENTRATIONS - MID BAKER CREEK (BK1)

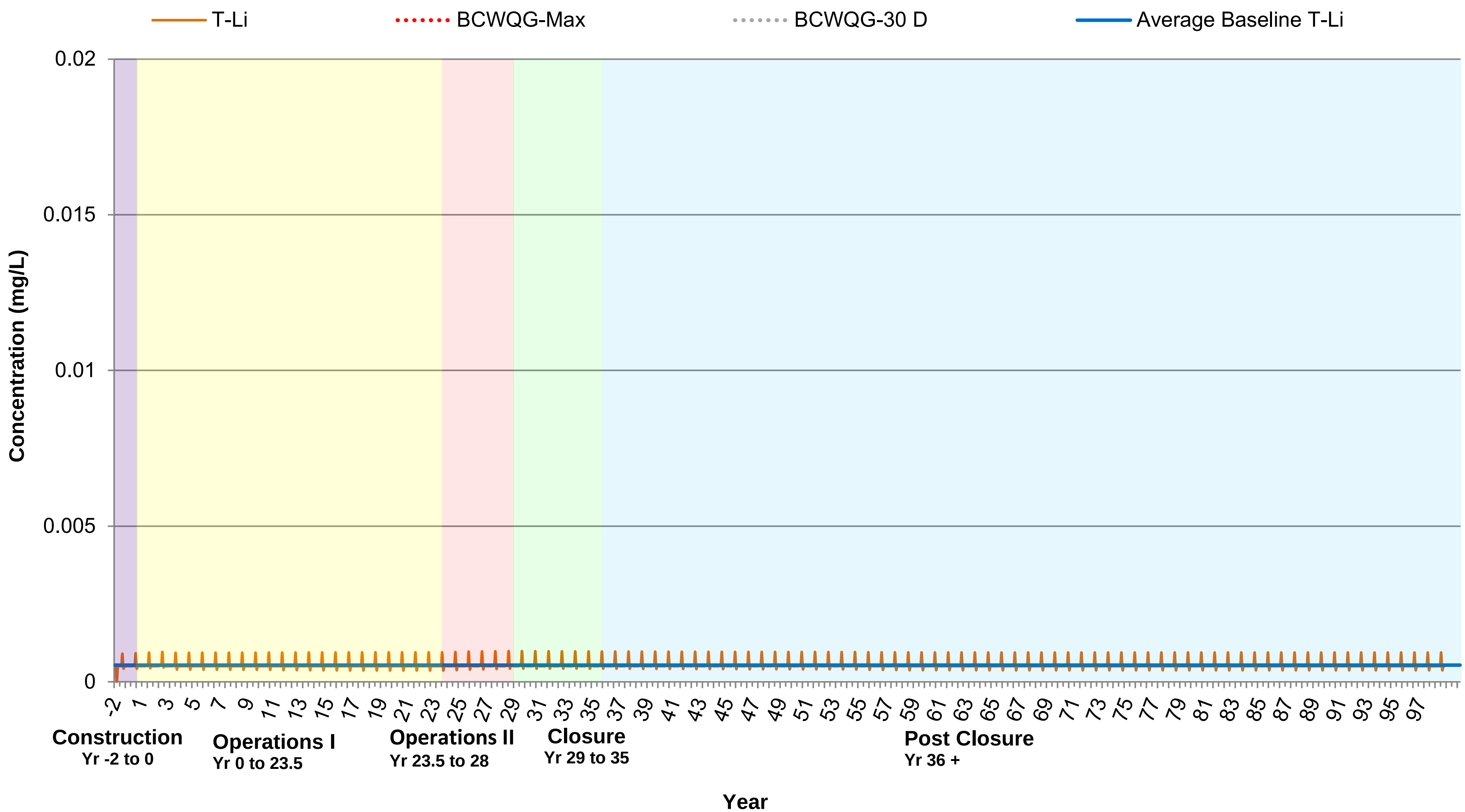
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Fe-D

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. THE BCWQG-30 D (0.096 mg/L) AND BCWQG-MAX (0.87 mg/L) ARE INTERIM (WORKING) AND ARE NOT SHOWN ON GRAPH.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LITHIUM CONCENTRATIONS - MID BAKER CREEK (BK1)

Knight Piésold CONSULTING

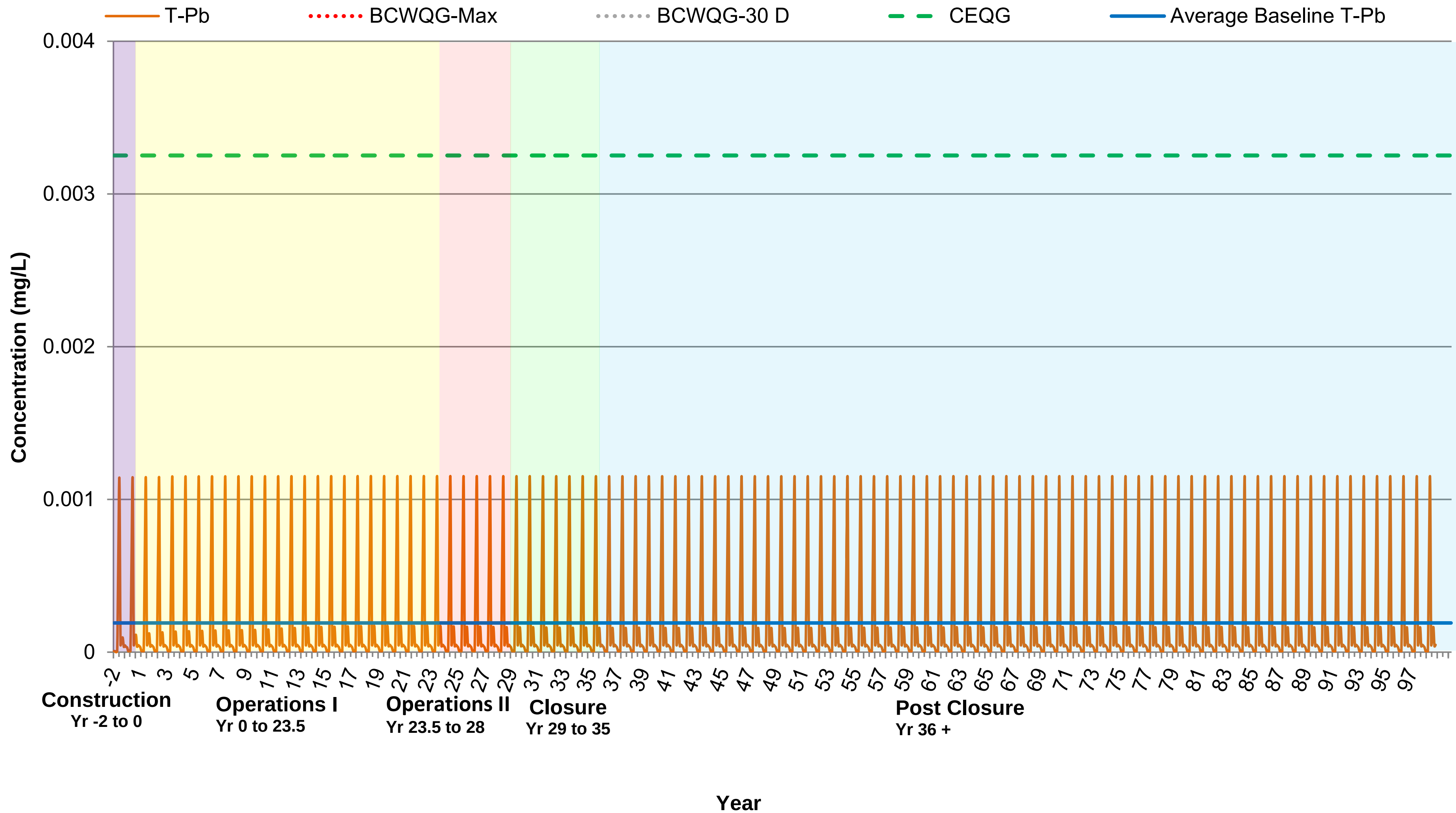
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Li

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
4. THE BCWQG-MAX (CALCULATED AT 0.011 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - MID BAKER CREEK (BK1)

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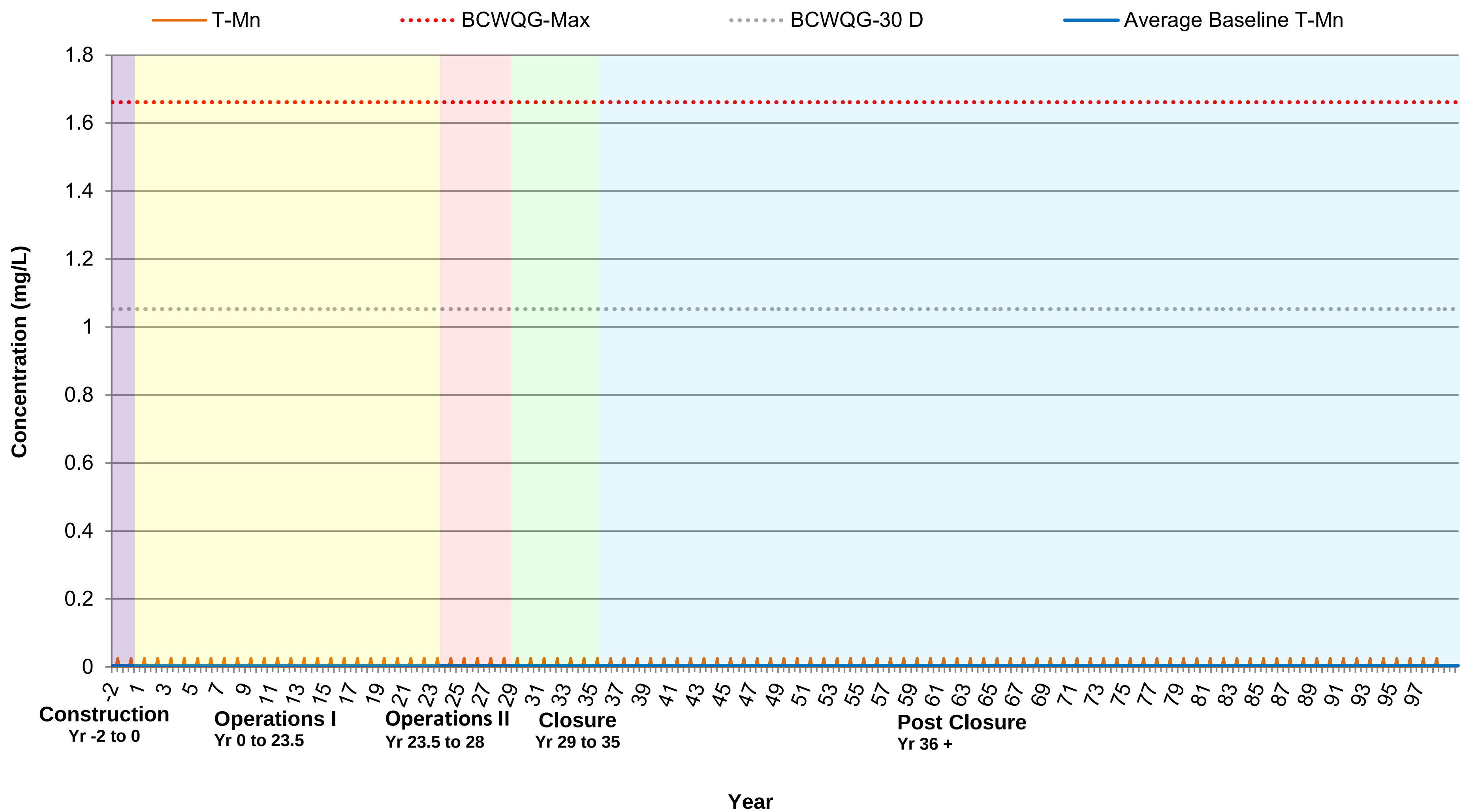
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Pb

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - MID BAKER CREEK (BK1)

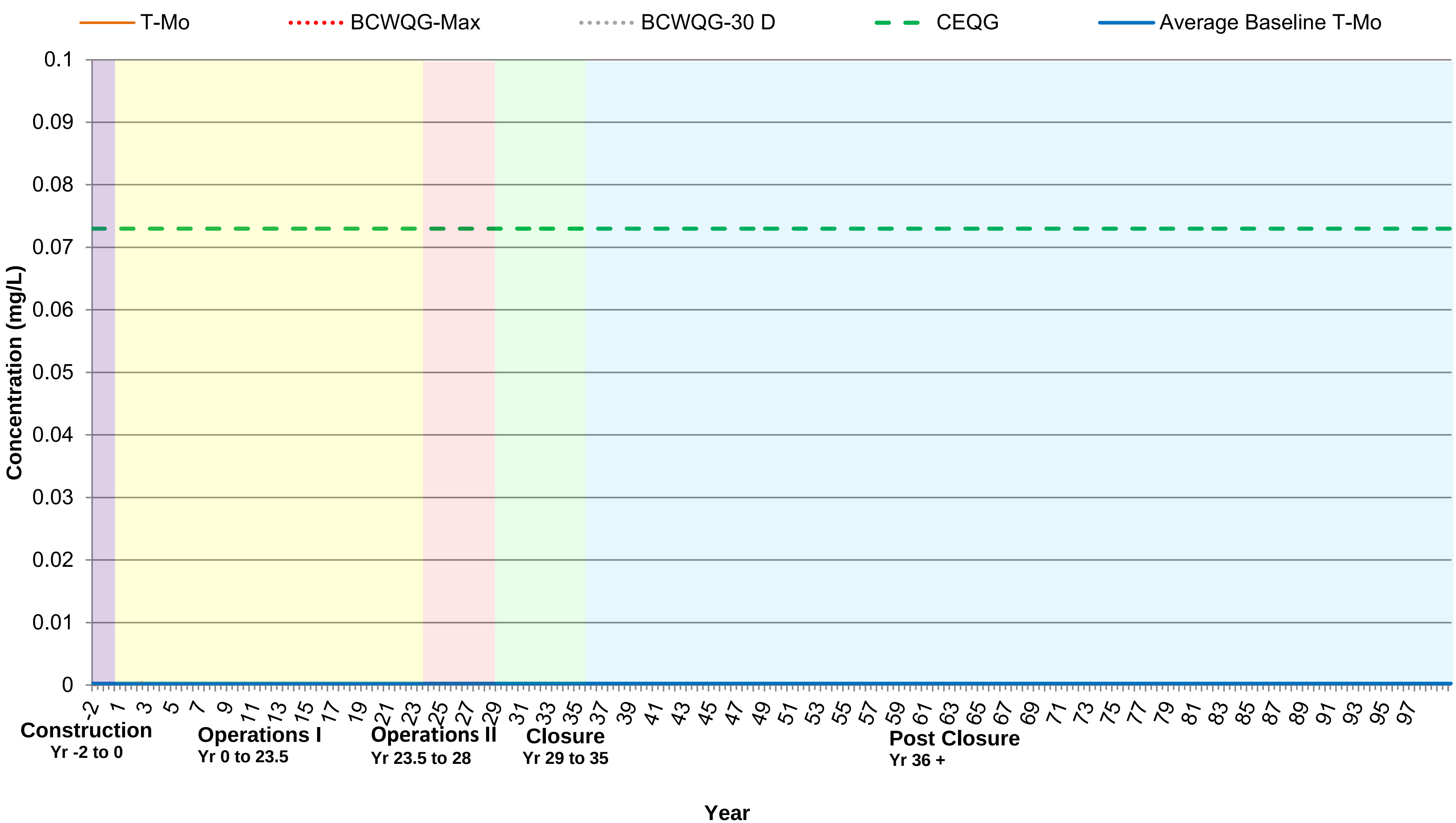
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Mn

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. THE BCWQG-MAX (2 mg/L) AND BCWQG-30 D (1 mg/L) ARE NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYBDENUM CONCENTRATIONS - MID BAKER CREEK (BK1)

Knight Piésold CONSULTING

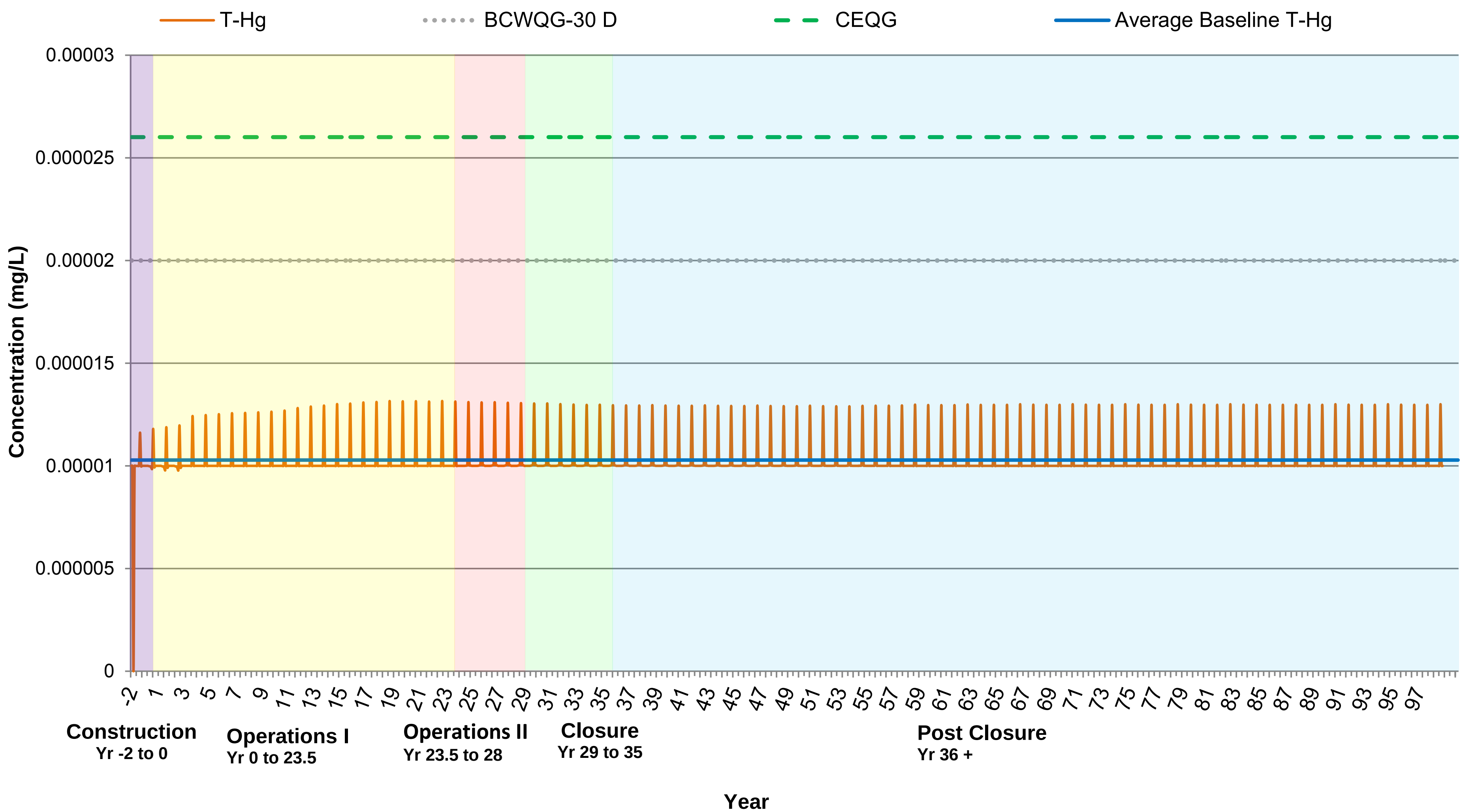
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Mo

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. BCWQG-30 D VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-Hg.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - MID BAKER CREEK (BK1)

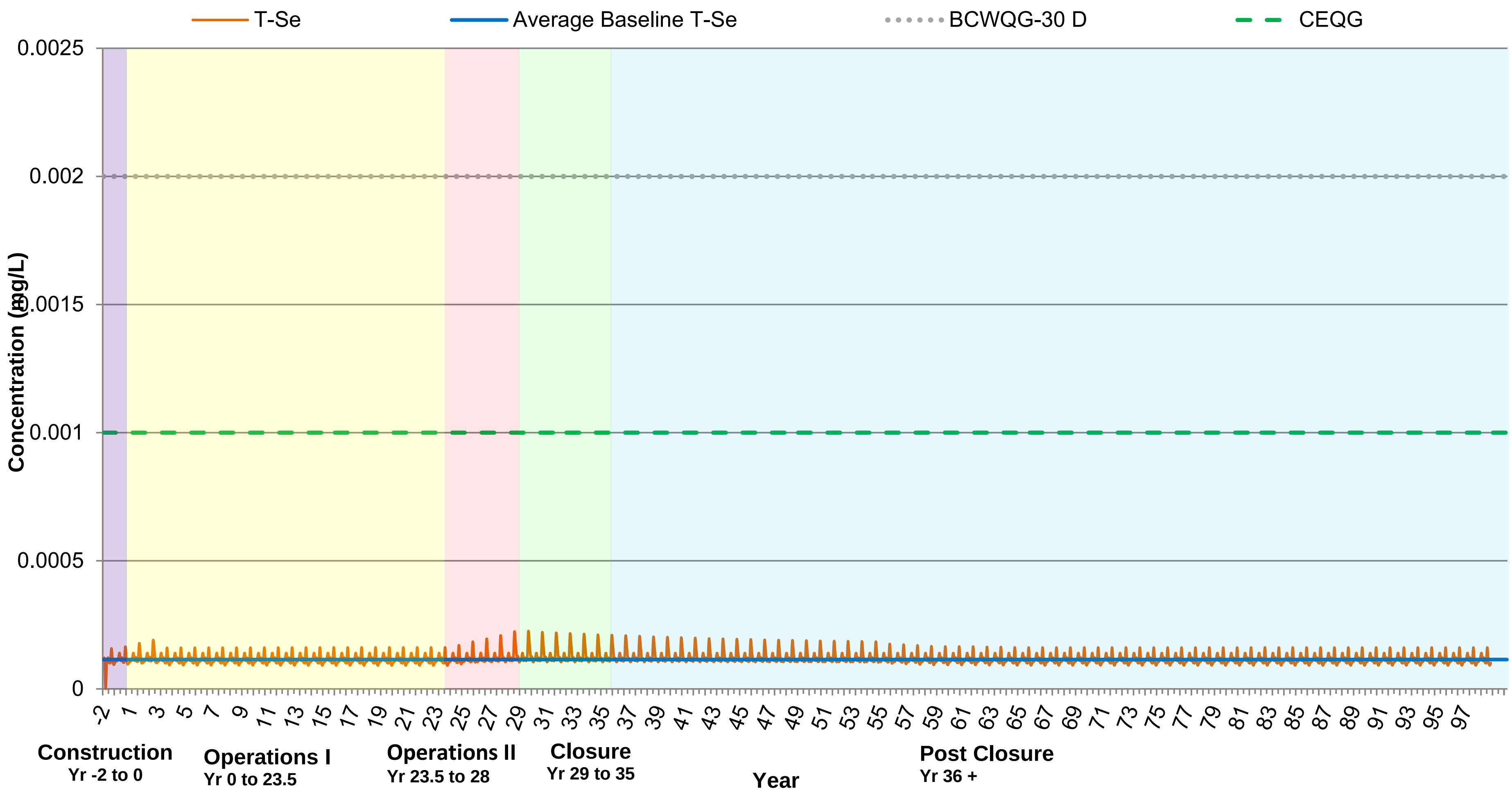
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Hg

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - MID BAKER CREEK (BK1)

Knight Piésold CONSULTING

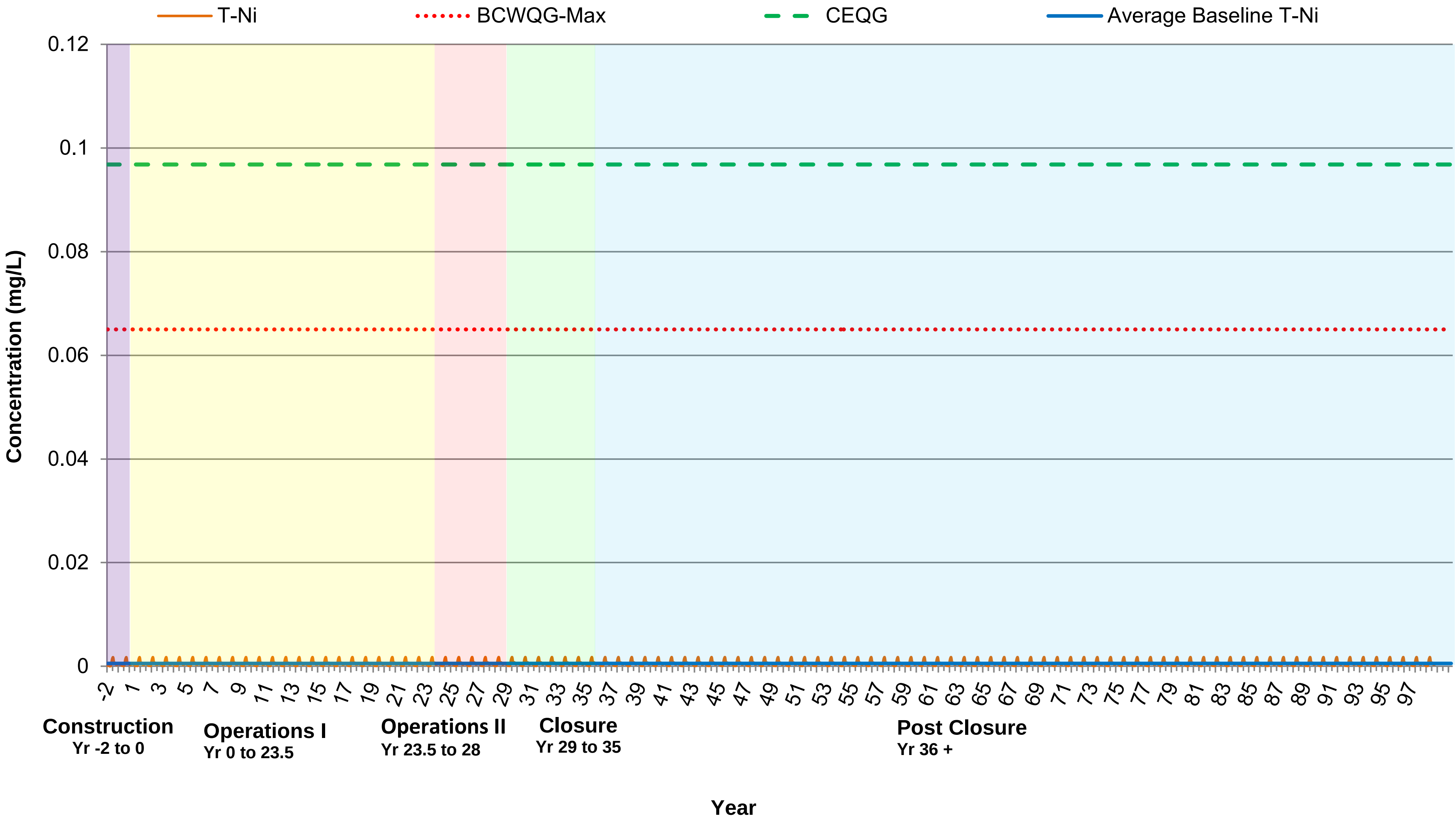
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Se

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - MID BAKER CREEK (BK1)

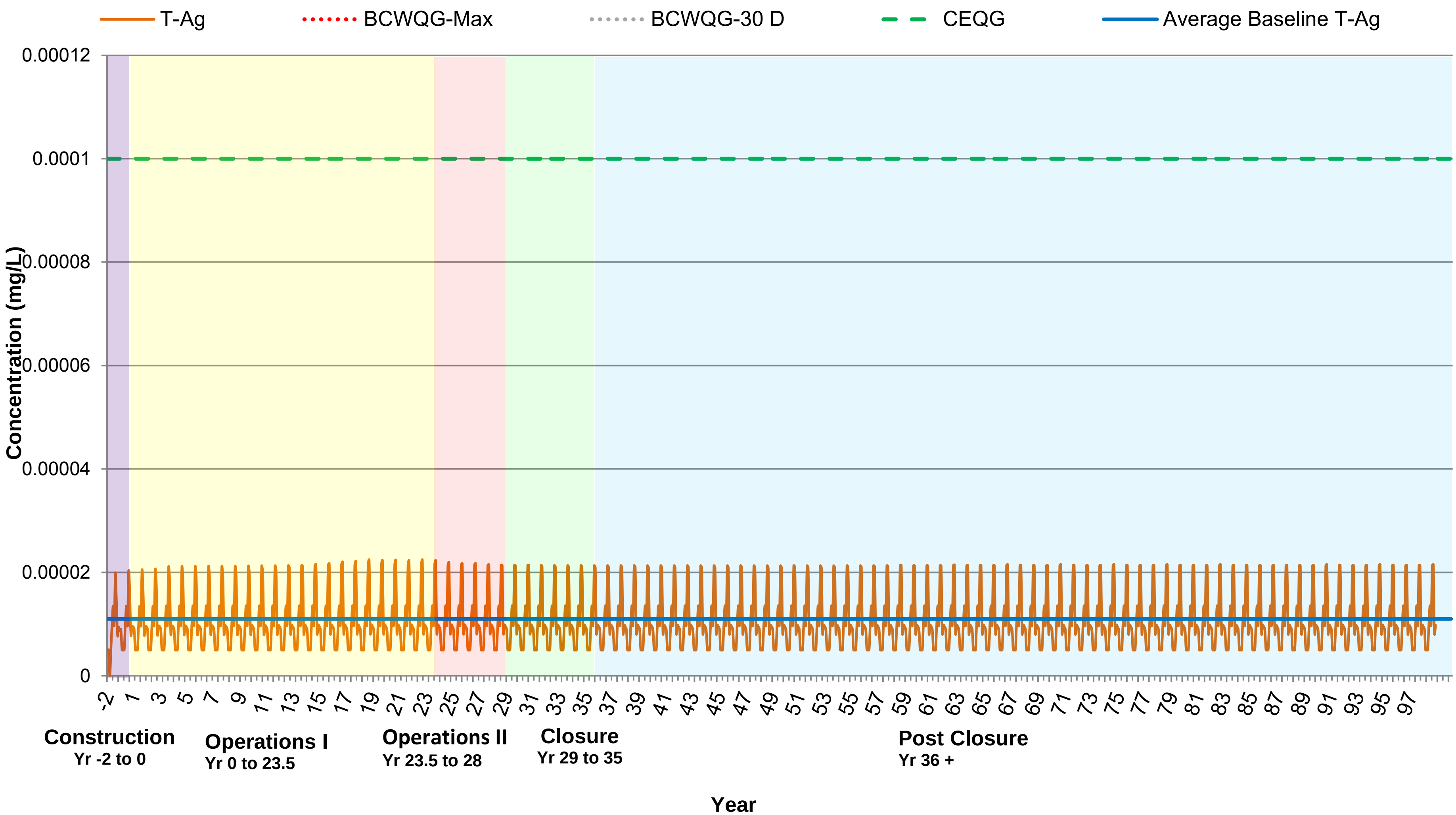
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Ni

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - MID BAKER CREEK (BK1)

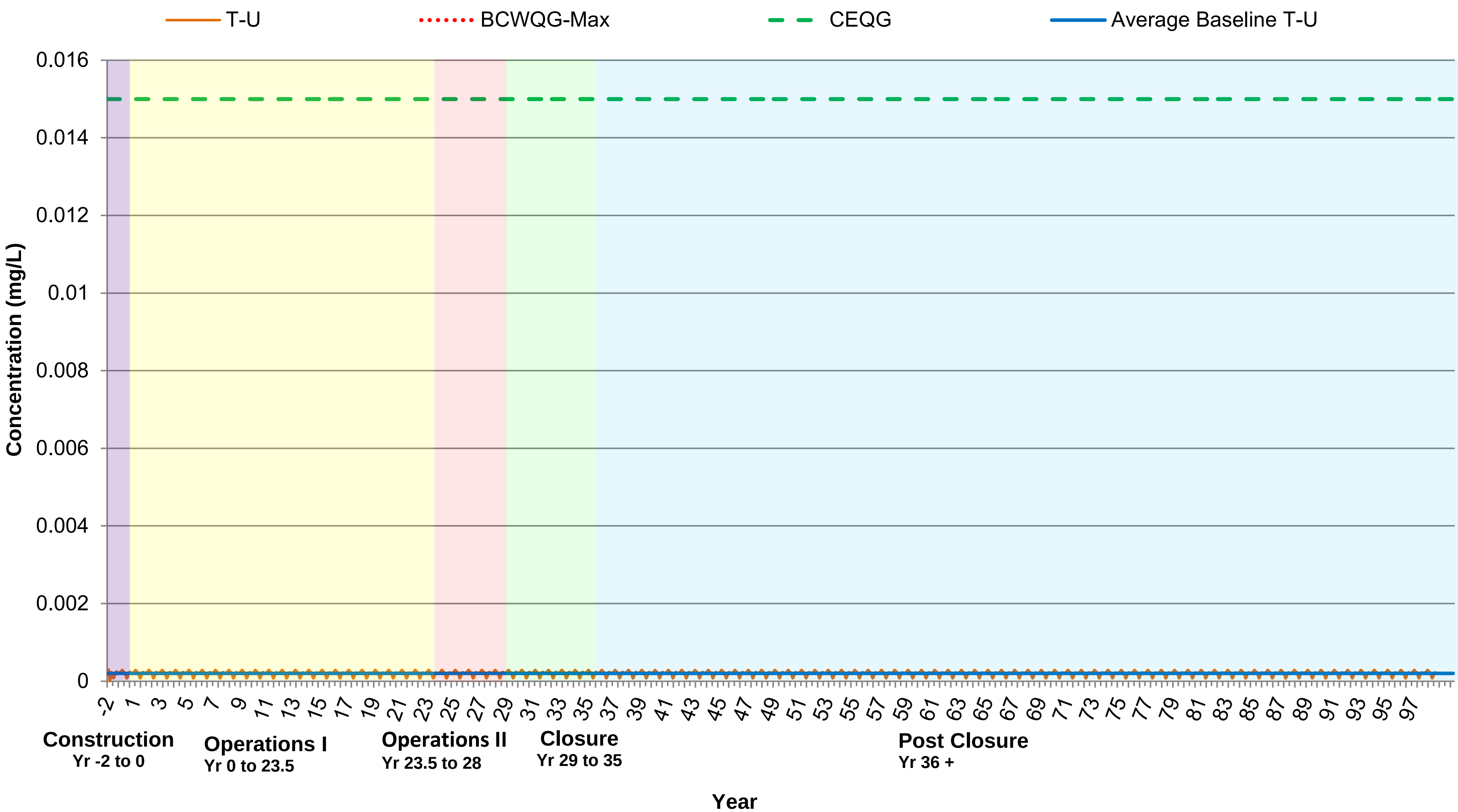
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Ag

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. THE BCWQG-MAX (0.3 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - MID BAKER CREEK (BK1)

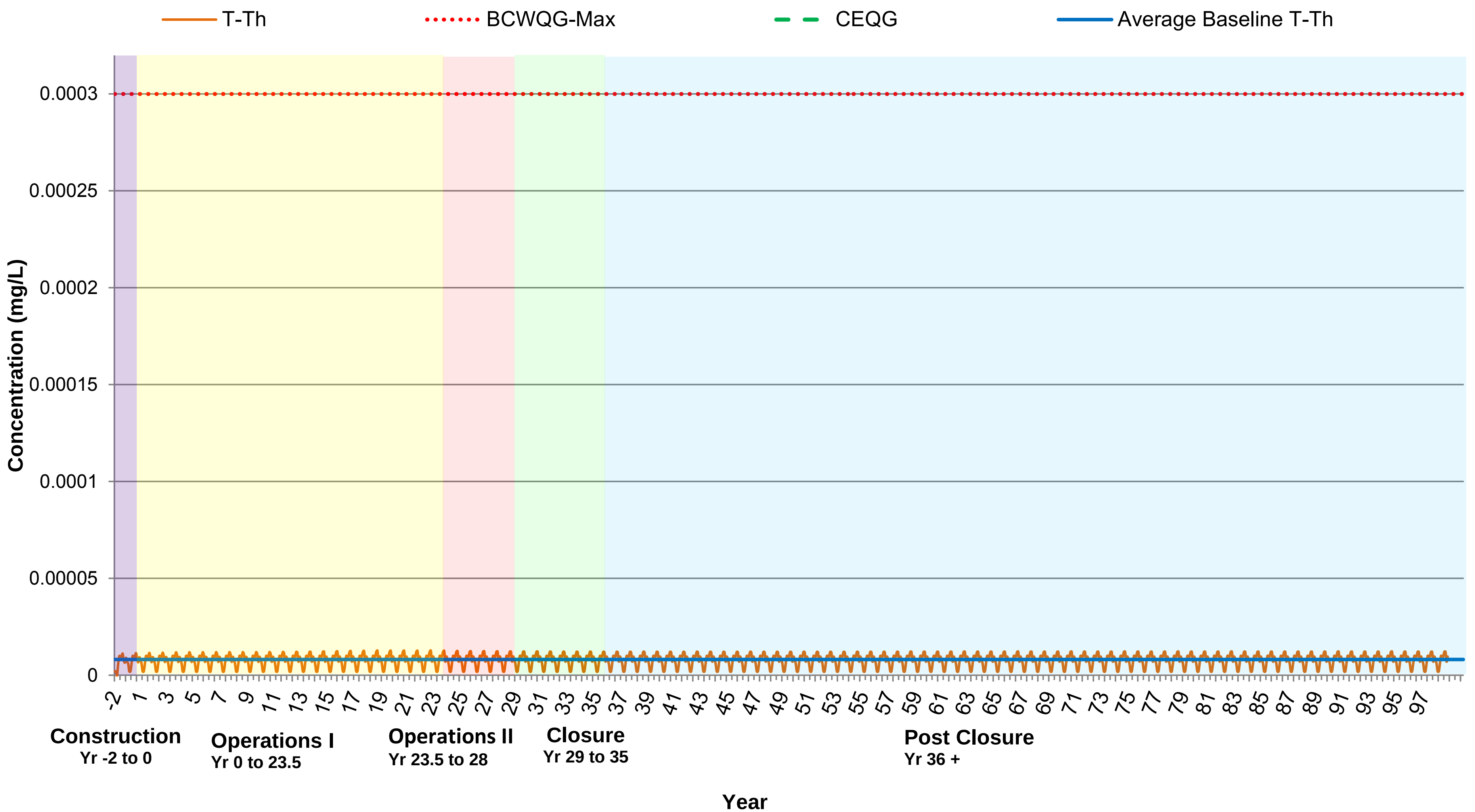
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.U

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. THE CEQG (0.0008 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - MID BAKER CREEK (BK1)

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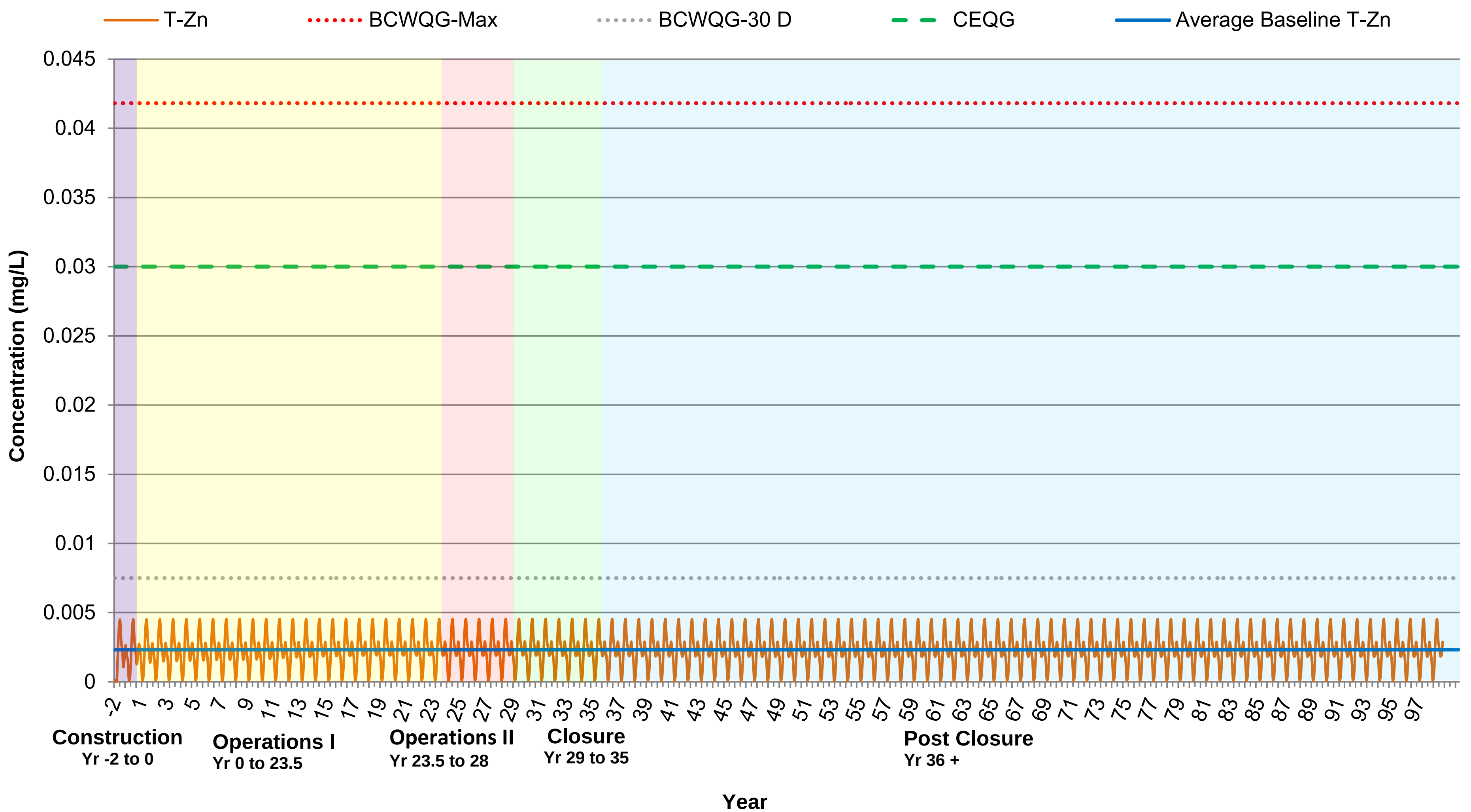
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A9.Th

REV 0



NOTES:

1. BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK1 (AVERAGE HARDNESS OF 101 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - MID BAKER CREEK (BK1)

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REF. NO. VA14-01825

FIGURE A9.Zn

REV 0

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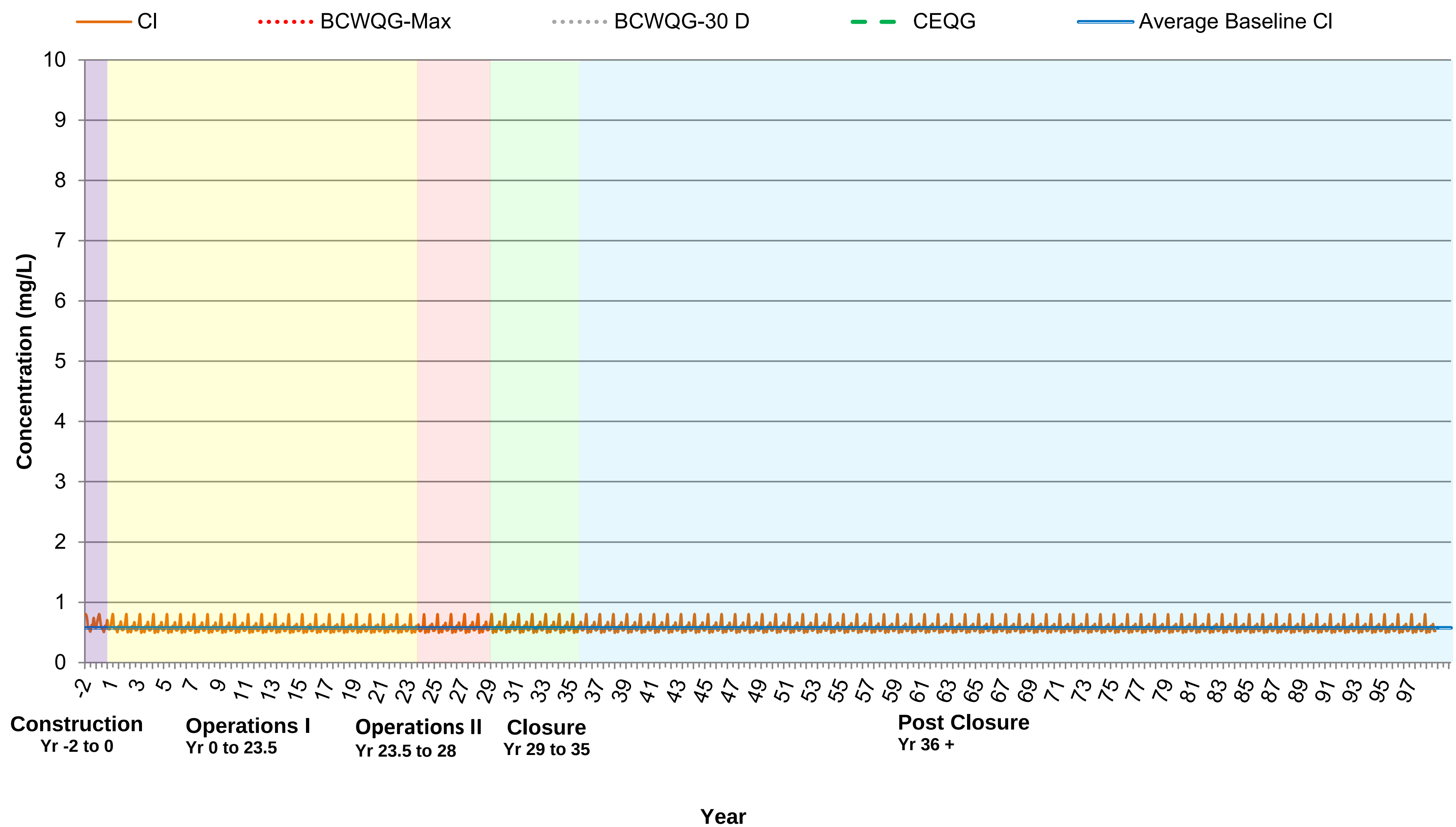
APPENDIX A10

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – LOWER BAKER CREEK

(Pages A10-1 to A10-30)

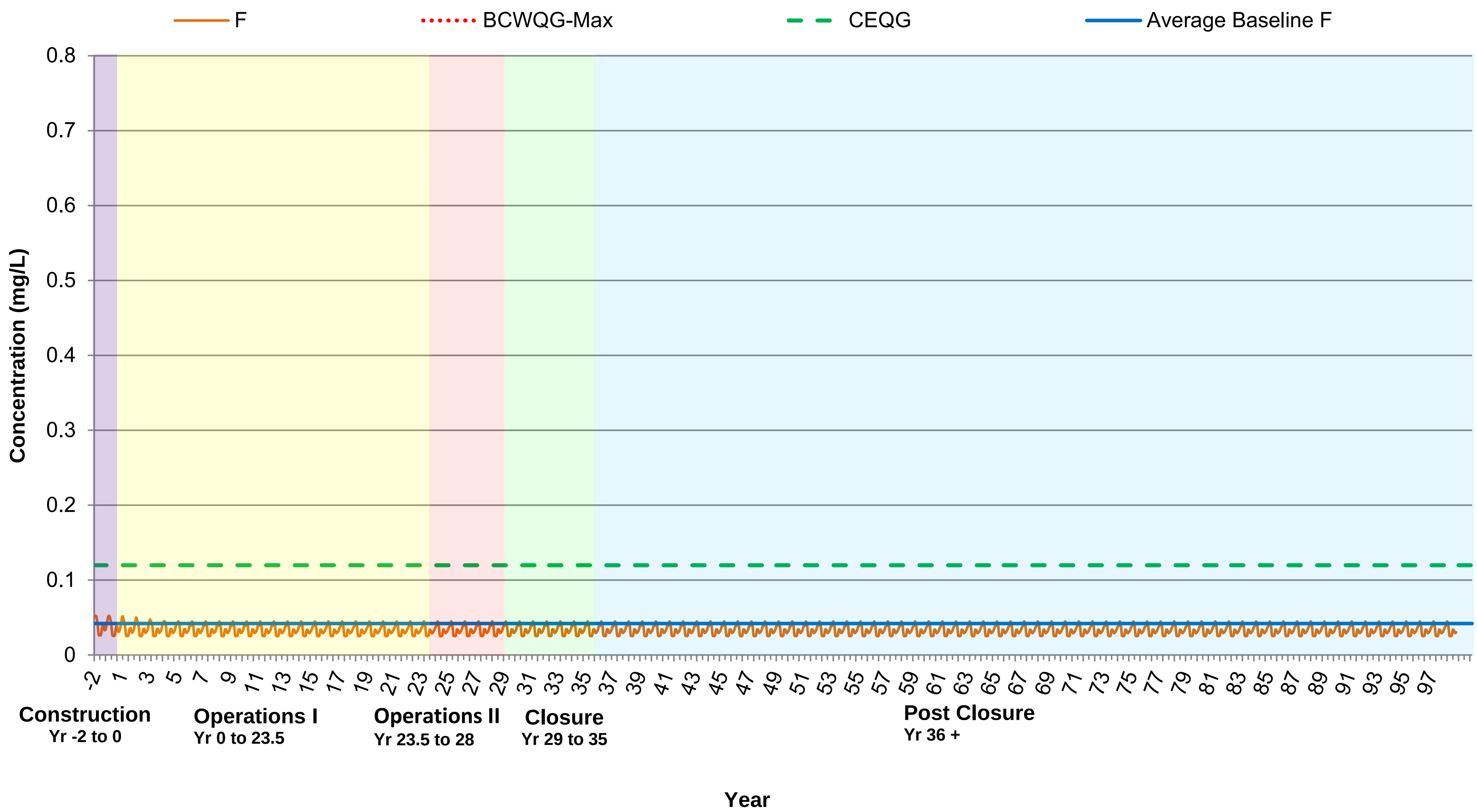


NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. ALL GUIDELINES ARE NOT SHOWN: BCWQG-30 D (150 mg/L); BCWQG-MAX (600 mg/L); CEQG (120 mg/L AND 640 mg/L).

HARPER CREEK MINING CORP.		
HARPER CREEK PROJECT		
PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - LOWER BAKER CREEK (BK0)		
Knight Piésold CONSULTING	P/A NO. VA101-458/17	REF. NO. VA14-001825
	FIGURE A10.CI	REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. THE BCWQG-MAX IS HARNDESS DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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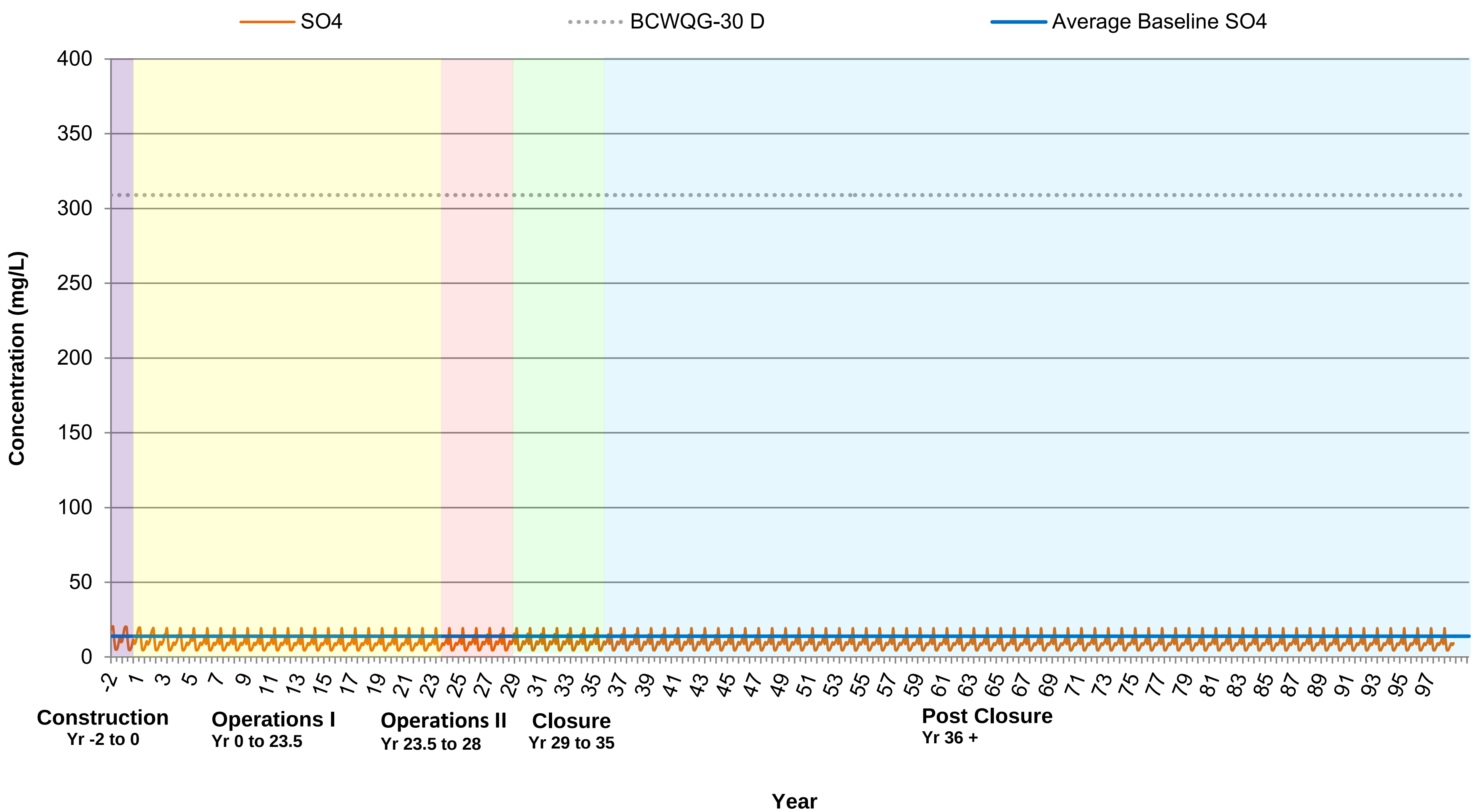
P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.F

REV 0



NOTES:

1. BCWQG-30 D IS HARDNESS DEPEDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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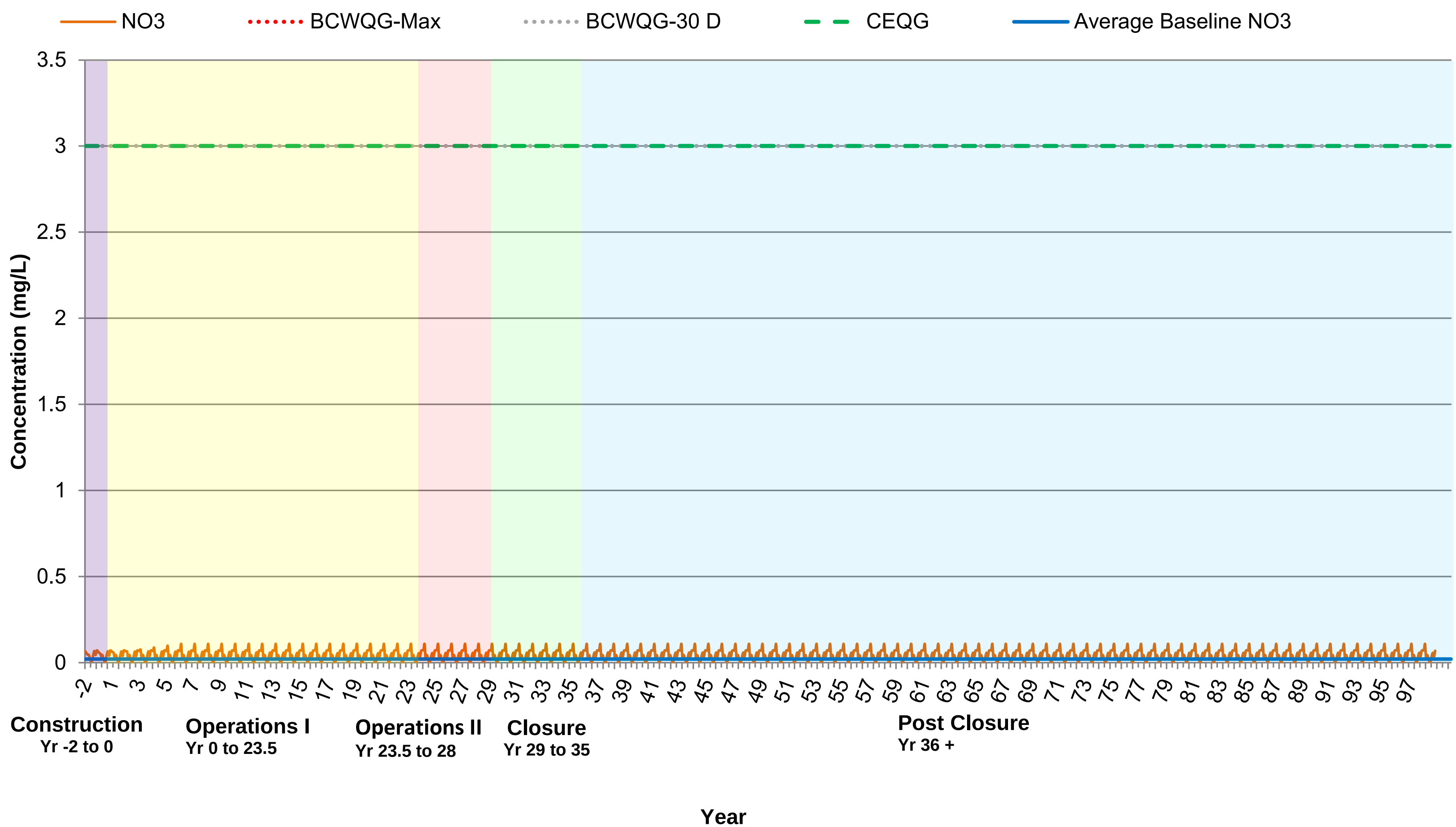
P/A NO. VA101-458/17 | REF. NO. VA14-001825

FIGURE A10.S04 REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. THE BCWQG-MAX (32.8 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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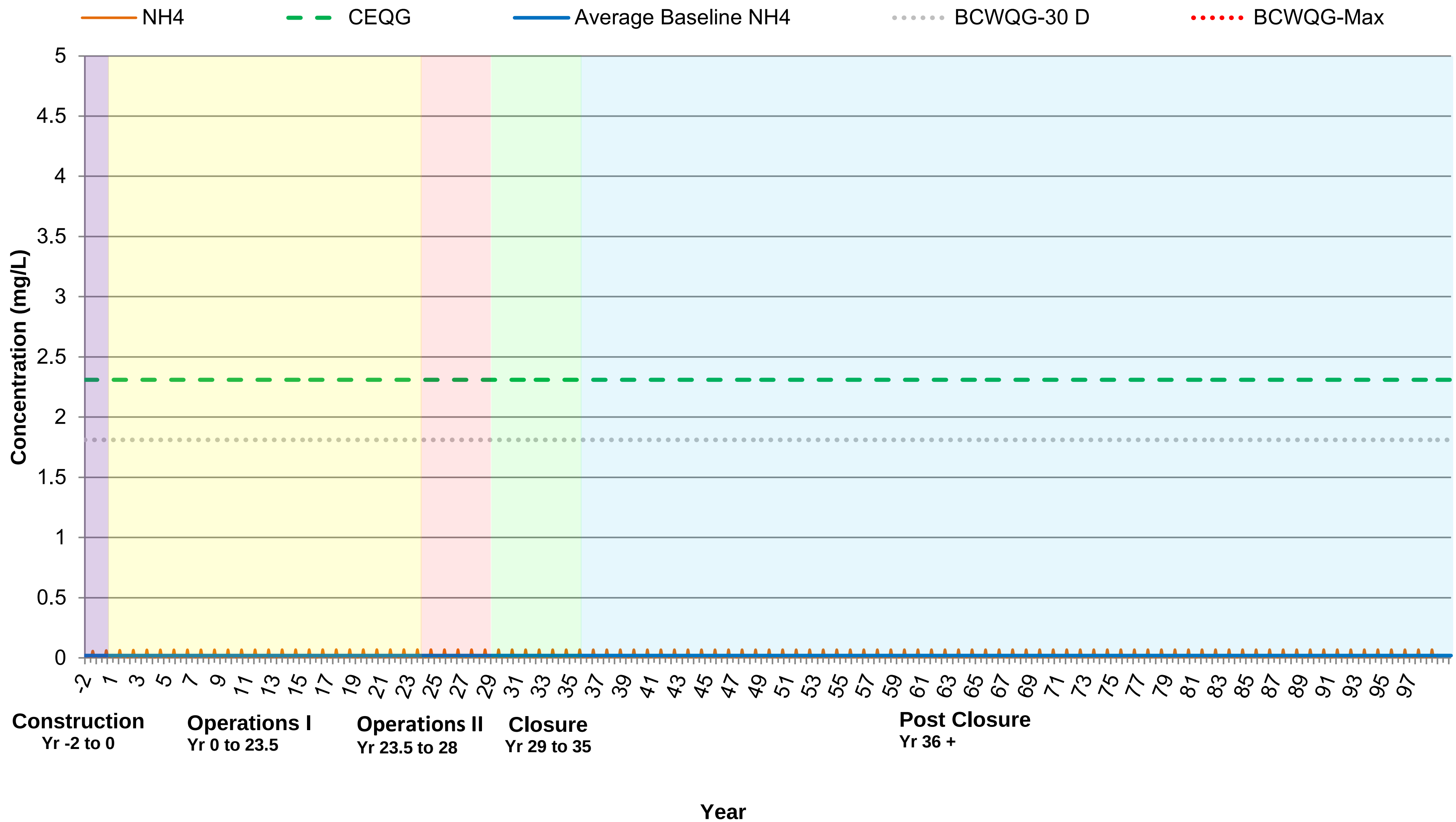
P/A NO.	REF. NO.	
VA101-458/17	VA14-001825	
FIGURE A10.NO3		REV 0



NOTES:

1. THE BCWQG-30 D IS VALID FOR ONLY 6.5≤pH<9 AND 0°C≤T≤20°C.
2. THE BCWQG-MAX (20.15 mg/L) VALID FOR 6.5≤pH<9 IS NOT SHOWN.
3. THE CEQG IS TO BE USED WITH CAUTION FOR WATER WITH T<5°C AND pH>9.
4. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - LOWER BAKER CREEK (BK0)

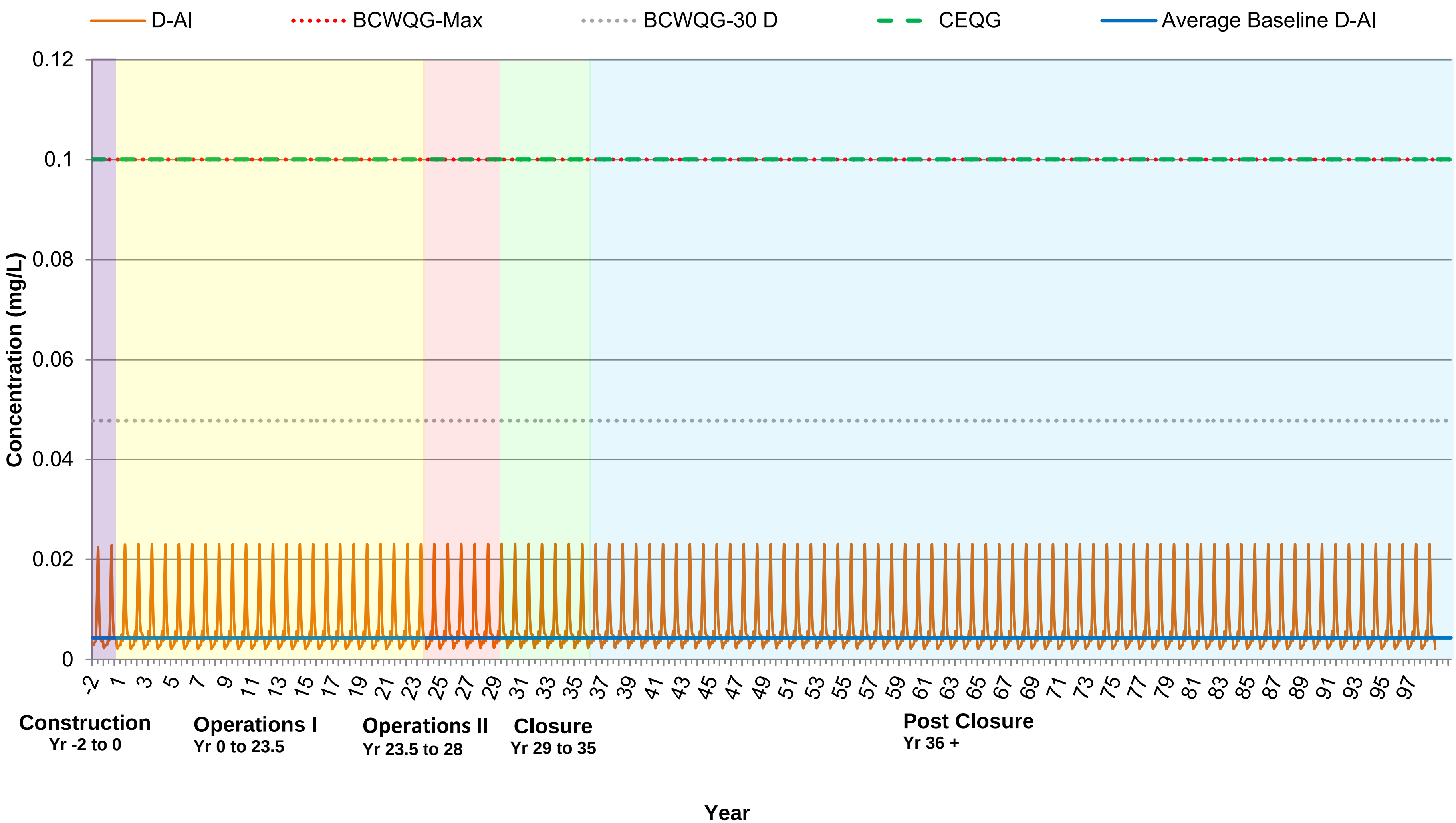
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.NH4

REV 0



NOTES:

1. ALL GUIDELINES ARE pH-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. AVERAGE BASELINE pH USED TO CALCULATE GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED ALUMINUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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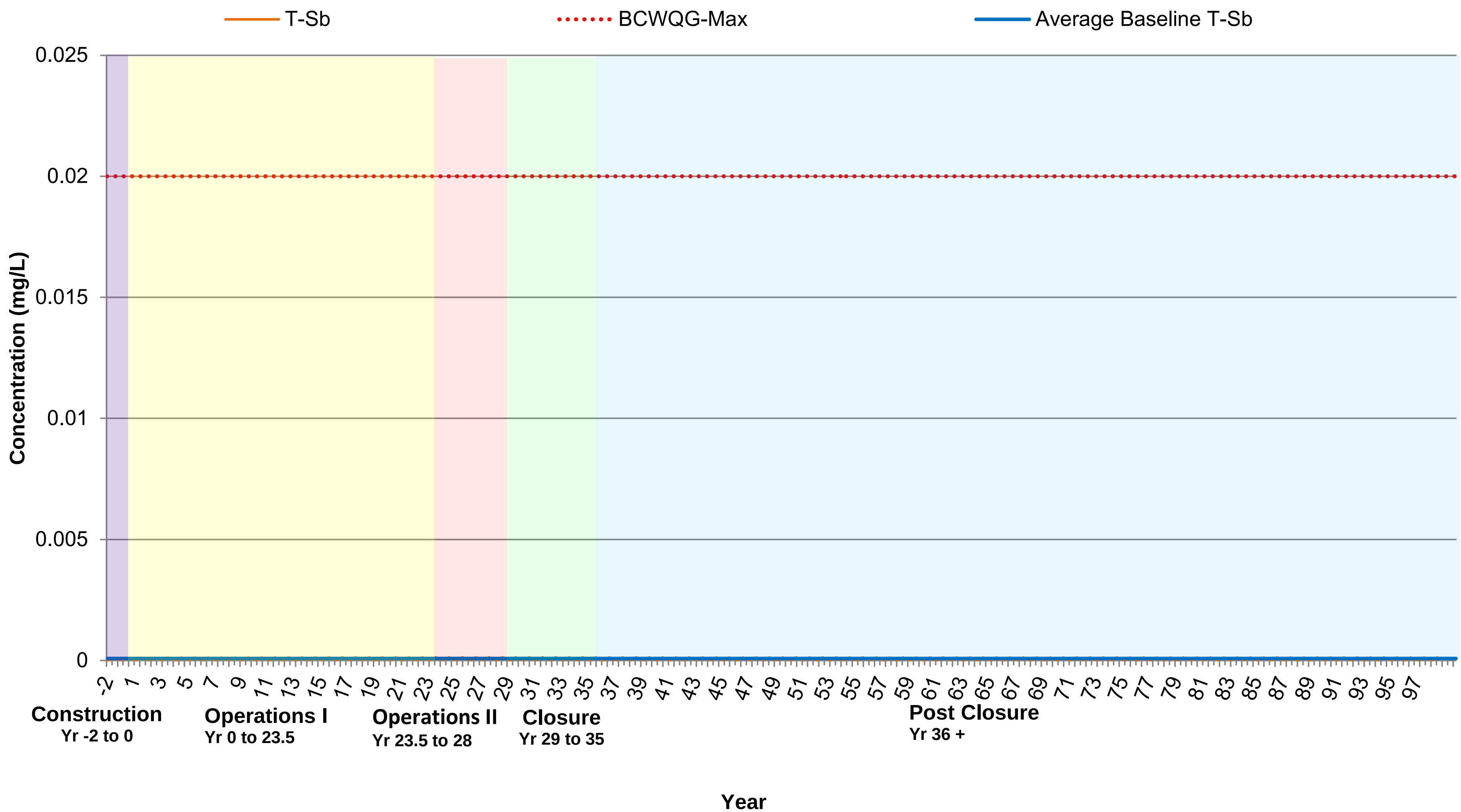
P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.AI

REV 0



NOTES:

1. THE BCWQG IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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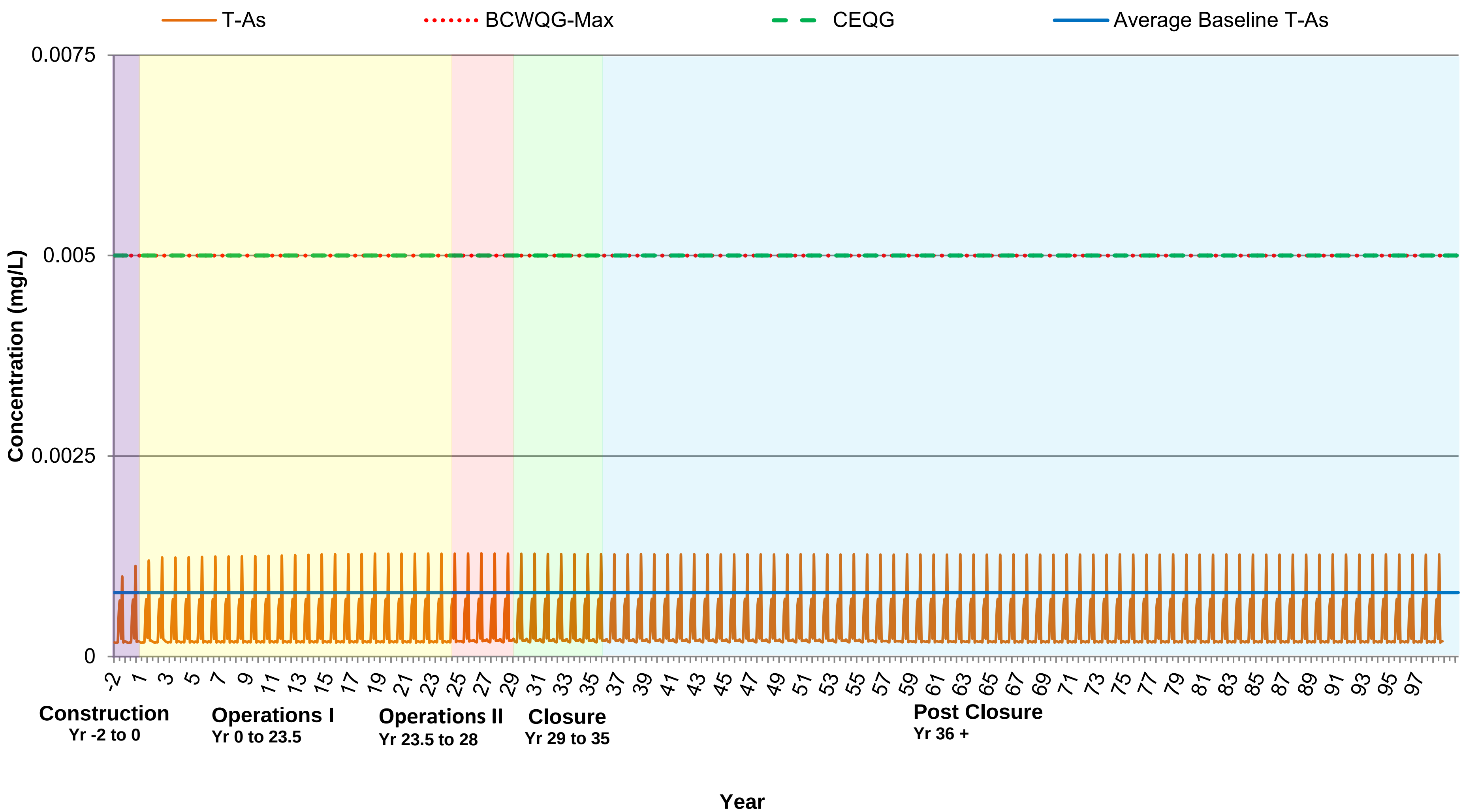
P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Sb

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. THE BCWQG AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - LOWER BAKER CREEK (BK0)

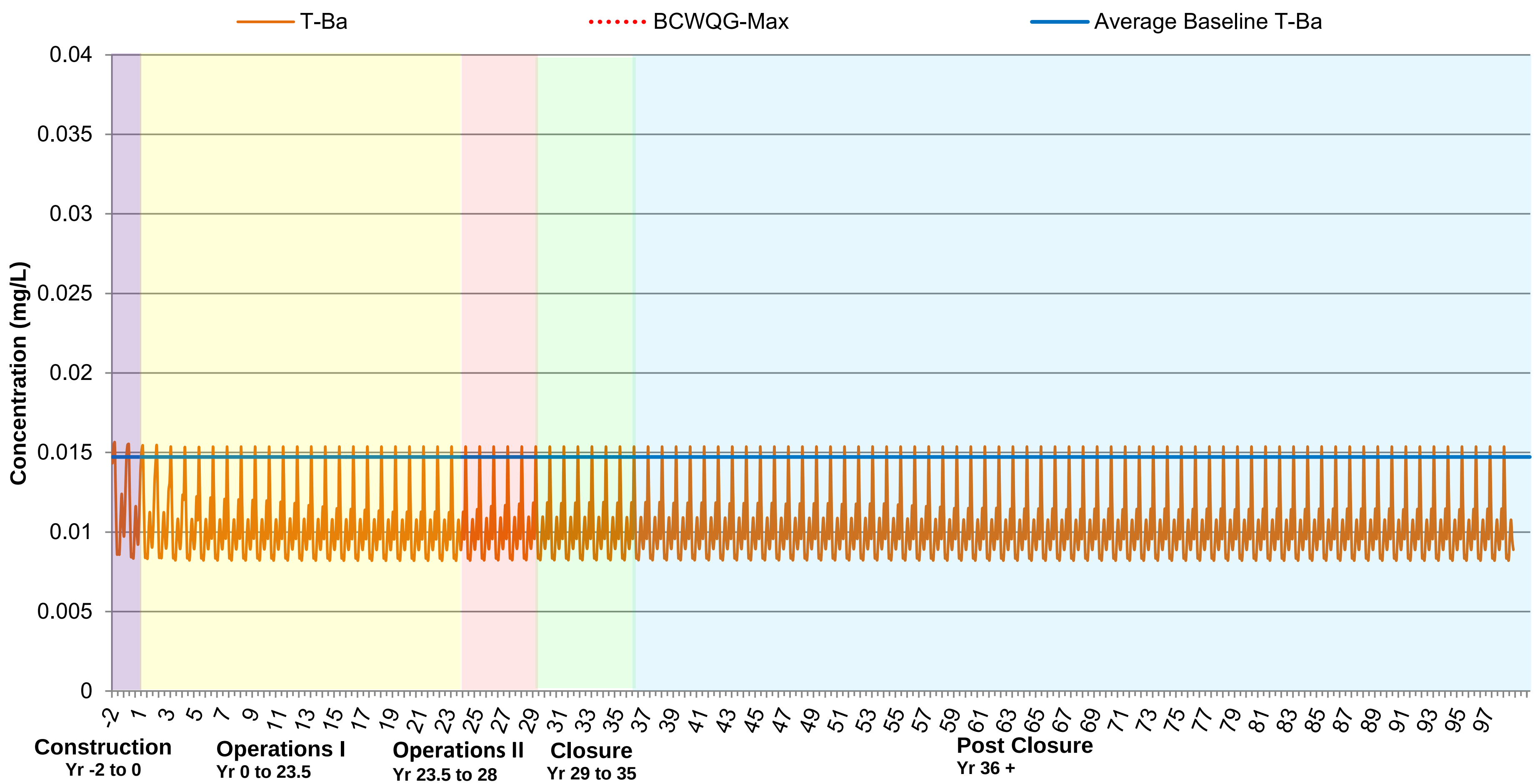
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.As

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. THE BCWQG-30 D (1 mg/L) AND BCWQG-MAX (5 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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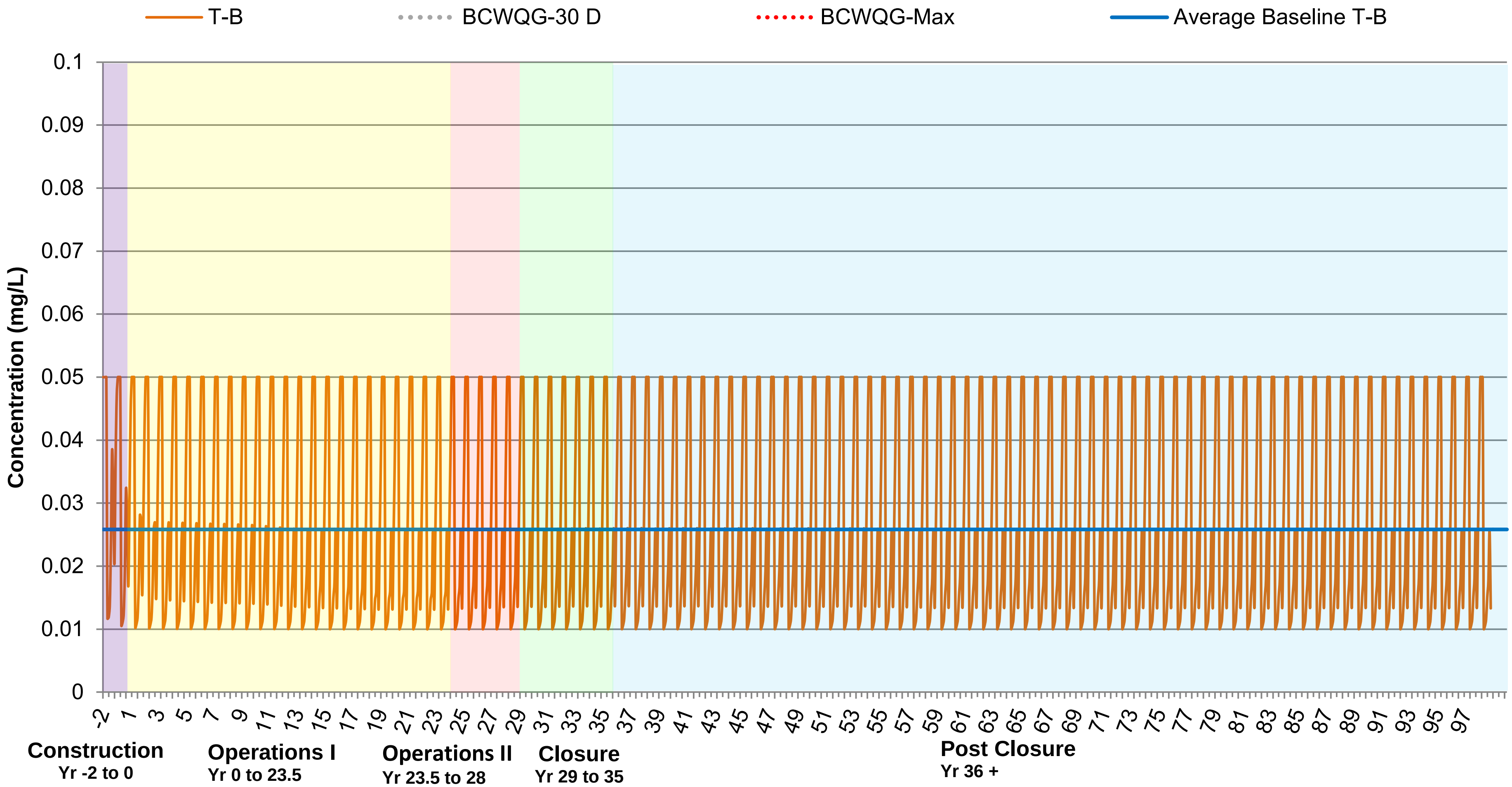
P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Ba

REV 0



NOTES:

1. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
3. THE BCWQG-MAX (1.2 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

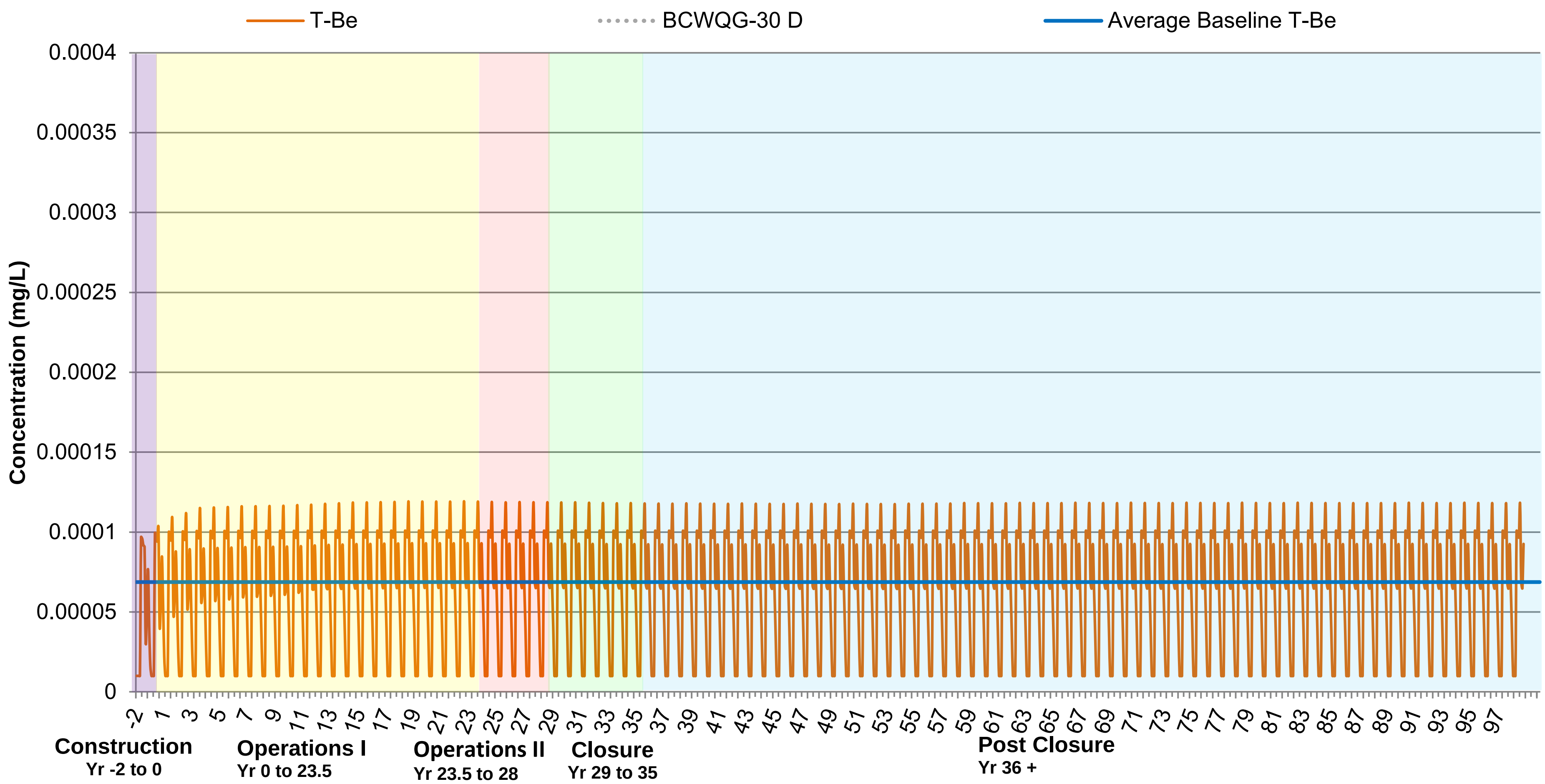
HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - LOWER BAKER CREEK (BK0)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-001825

FIGURE A10.B REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. THE BCWQG-30 D (0.0053 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BERYLLIUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

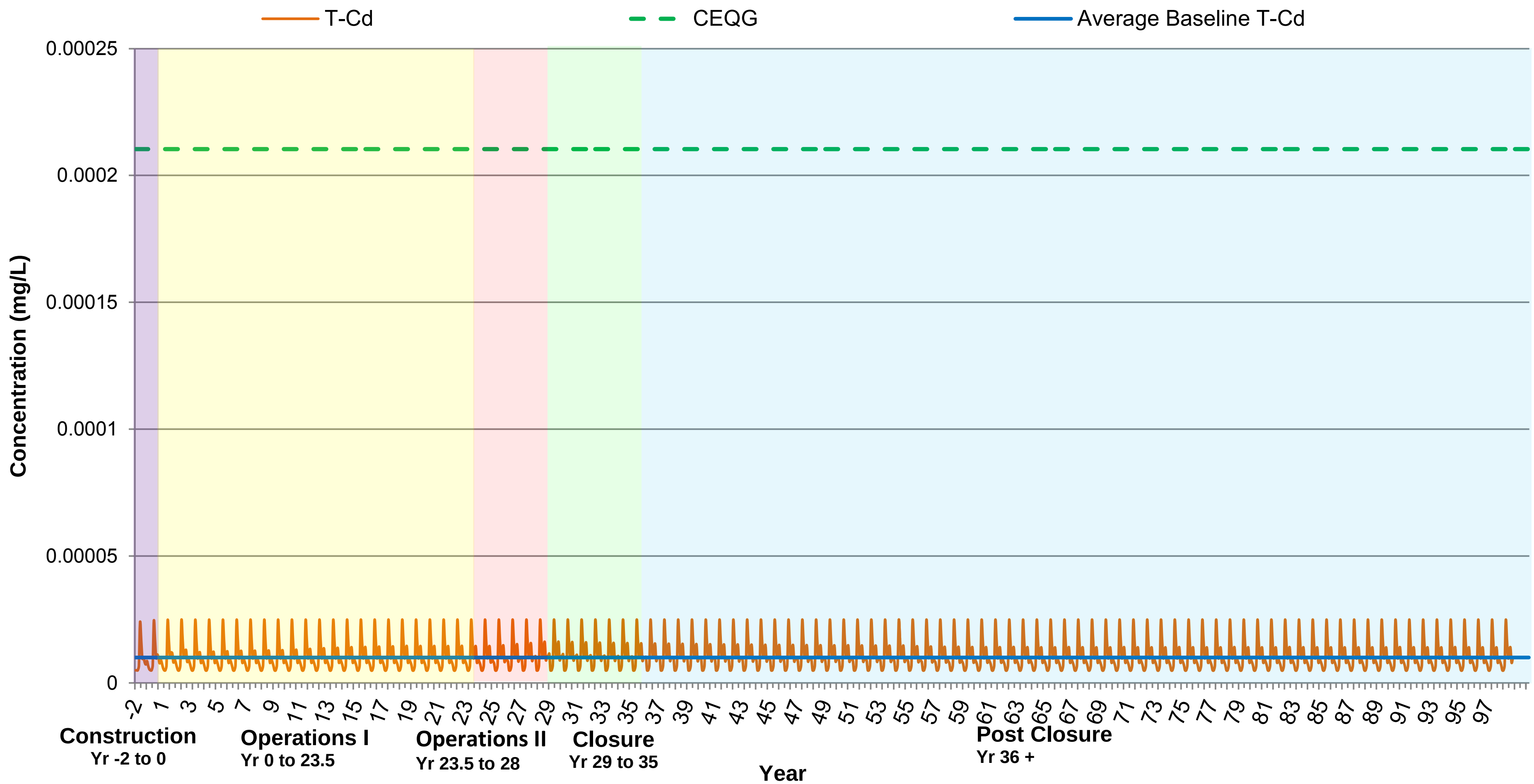
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Be

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. THE BCWQG ARE DRAFT GUIDELINES UNDER REVIEW (JUNE 2014).
3. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
4. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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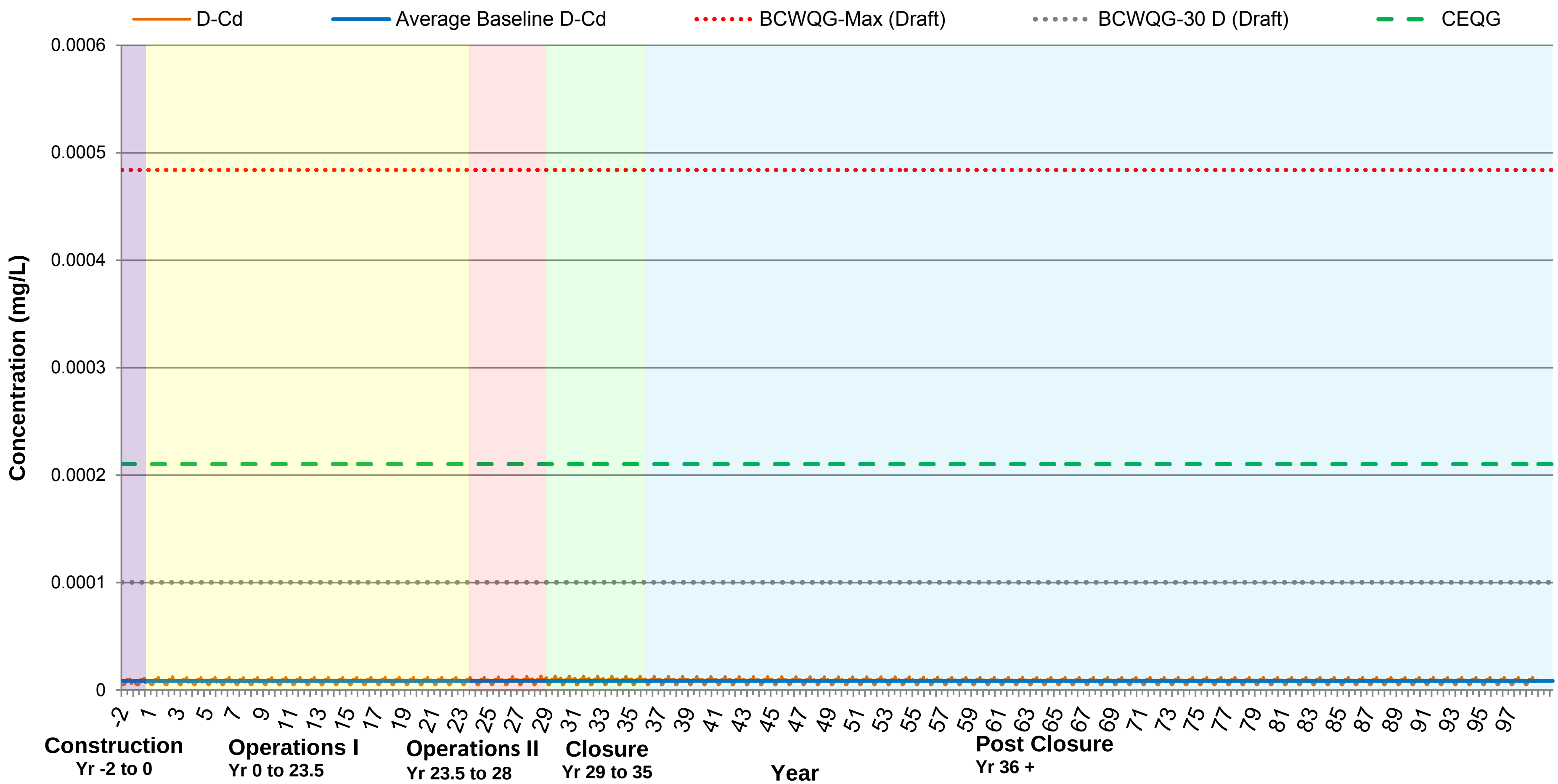
P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Cd-T

REV 0



NOTES:

1. BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

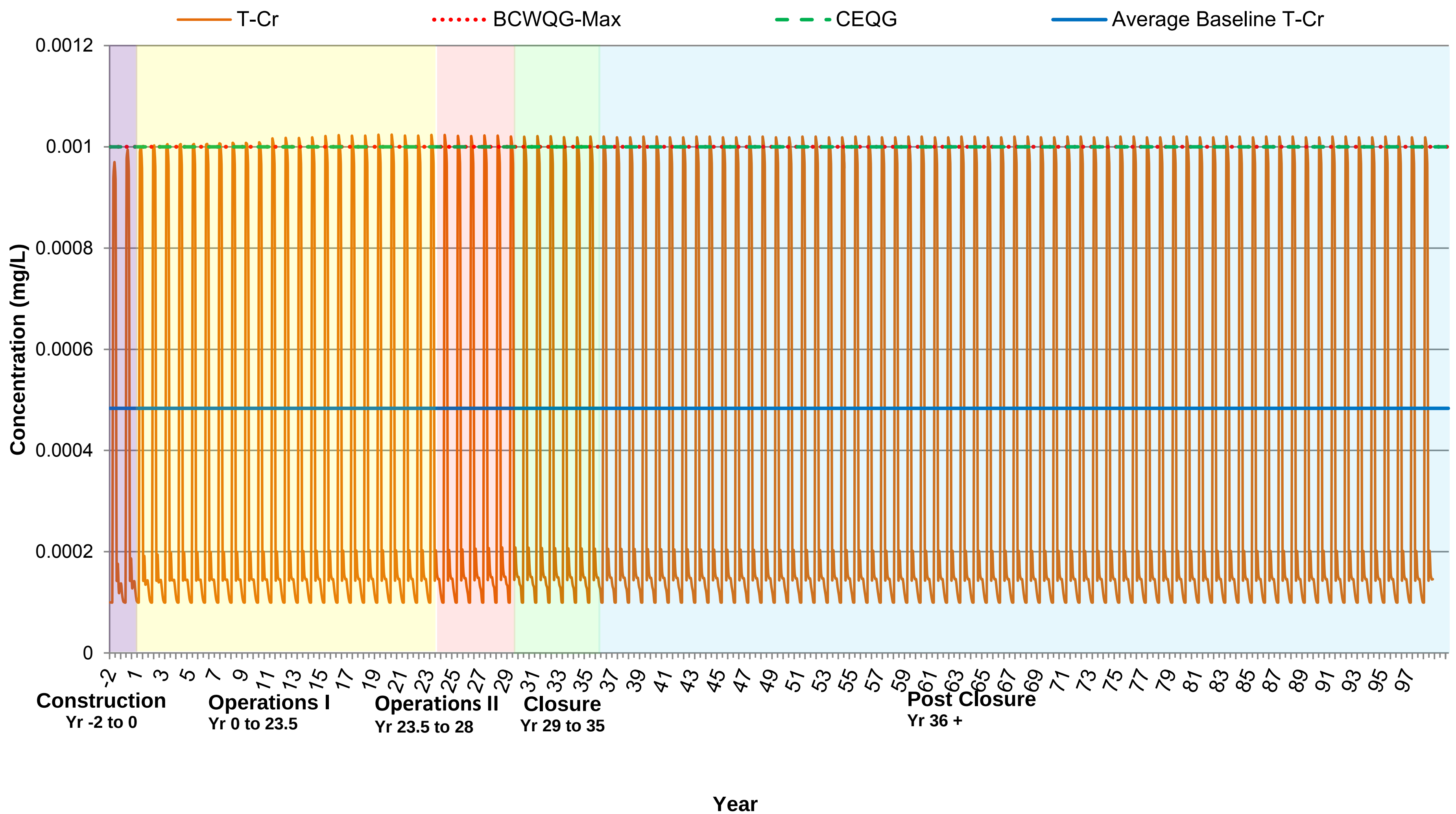
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Cd-D

REV 0



NOTES:

1. GUIDELINES ARE FOR CHROMIUM (IV), THE SPECIES MOST COMMON IN WELL OXYGENATED SURFACE WATERS.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

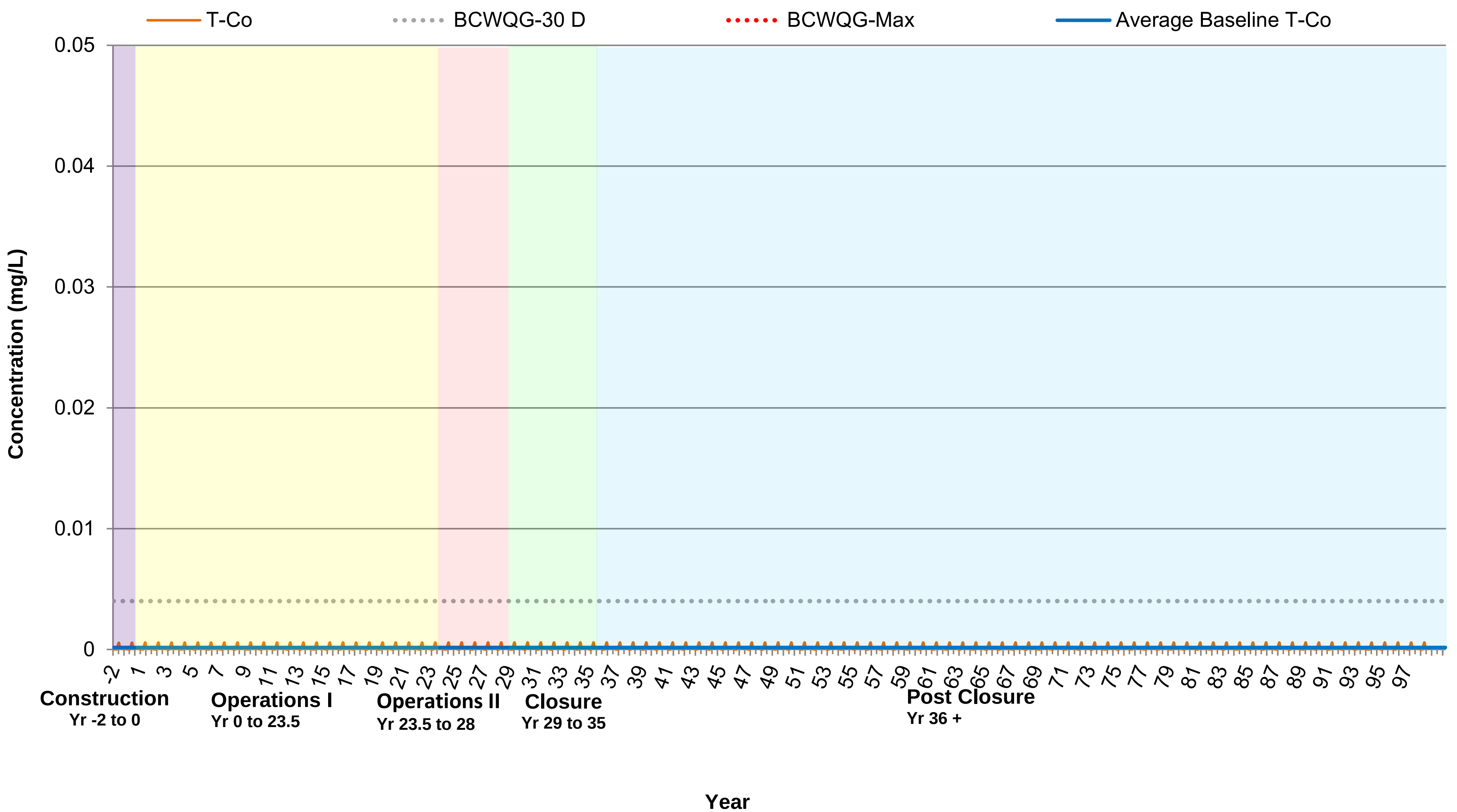
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Cr

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. THE BCWQG-MAX GUIDELINE (0.11 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - LOWER BAKER CREEK (BK0)

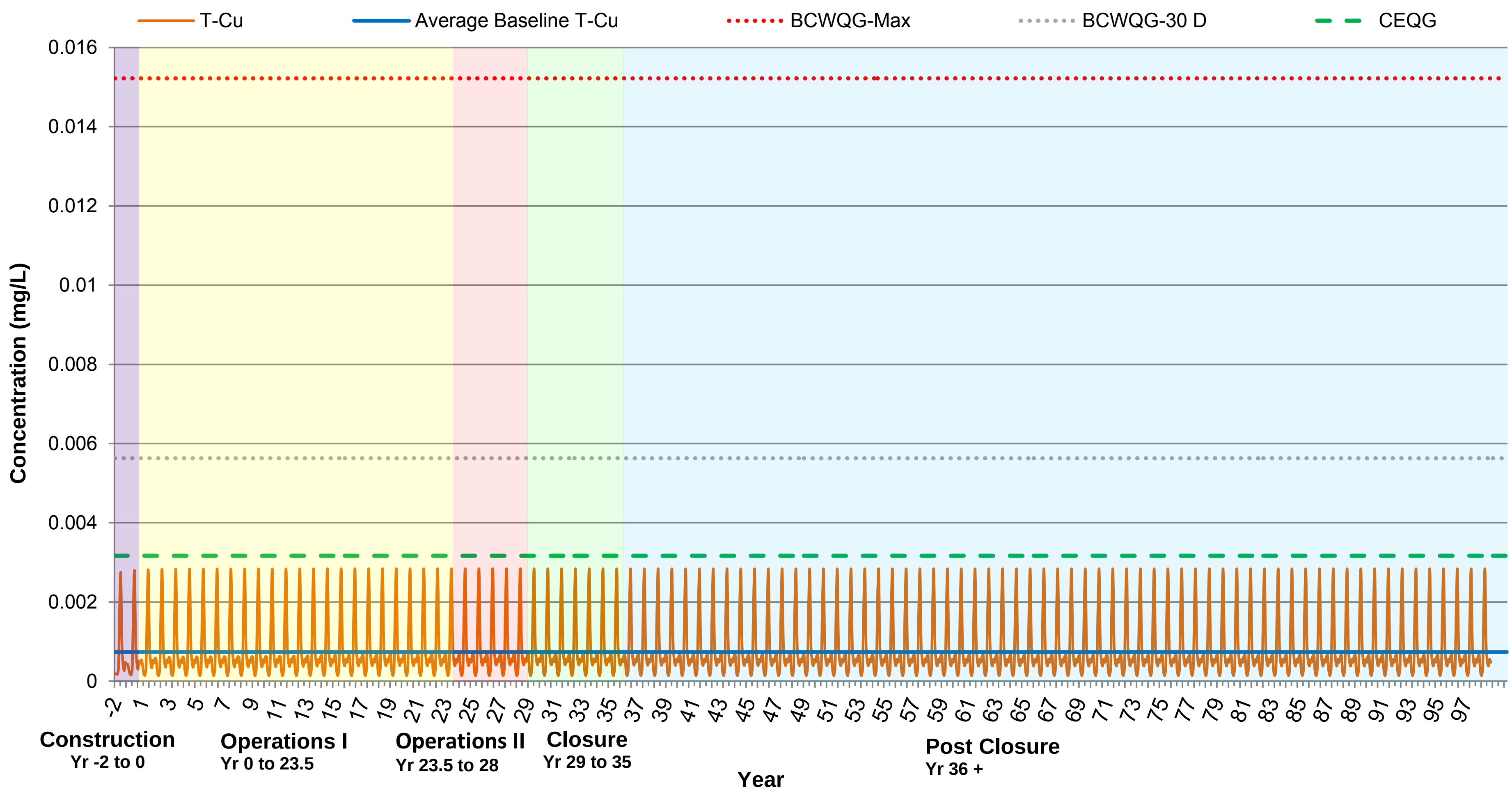
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Co

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - LOWER BAKER CREEK (BK0)

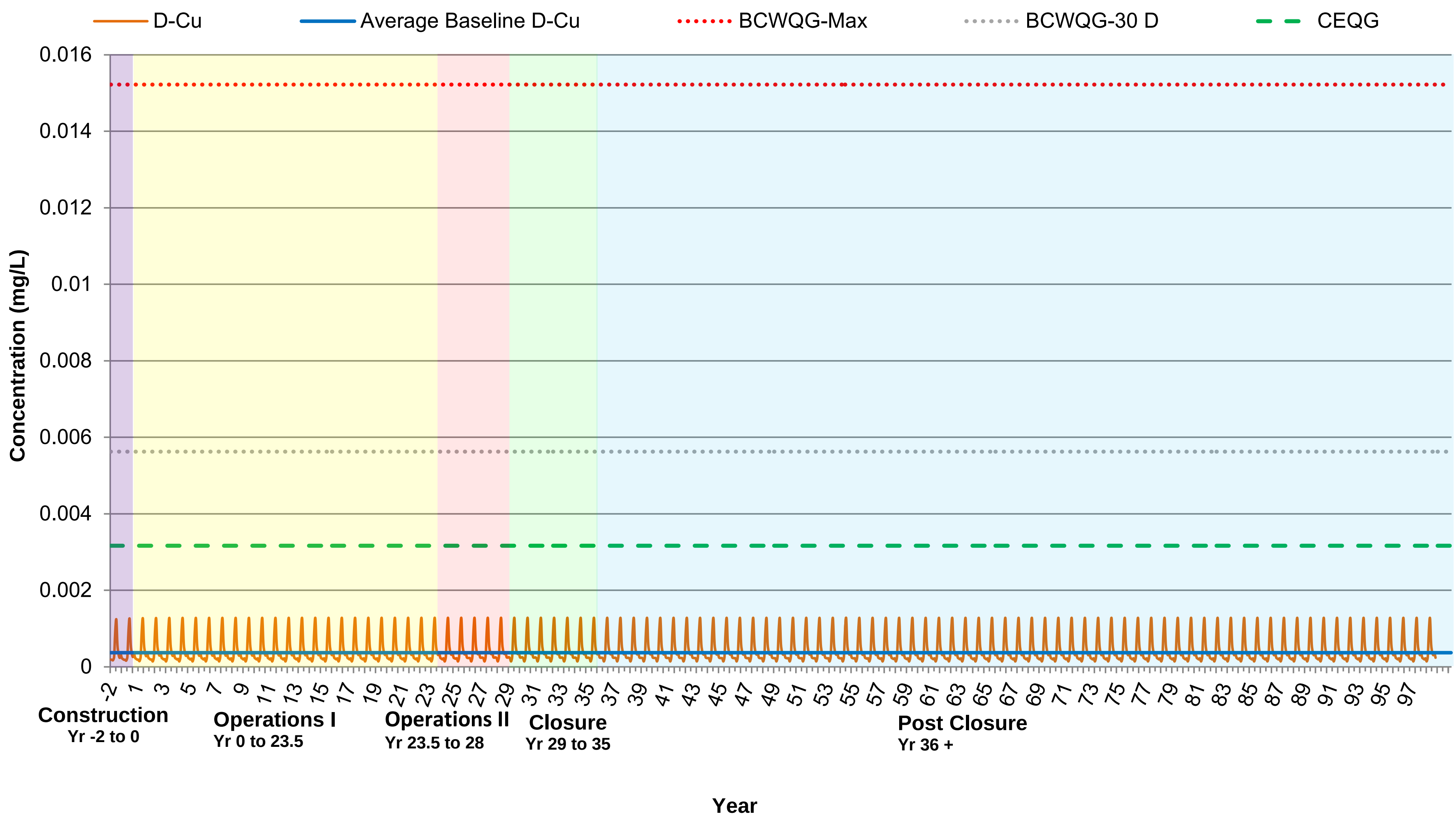
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Cu-T

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - LOWER BAKER CREEK (BK0)

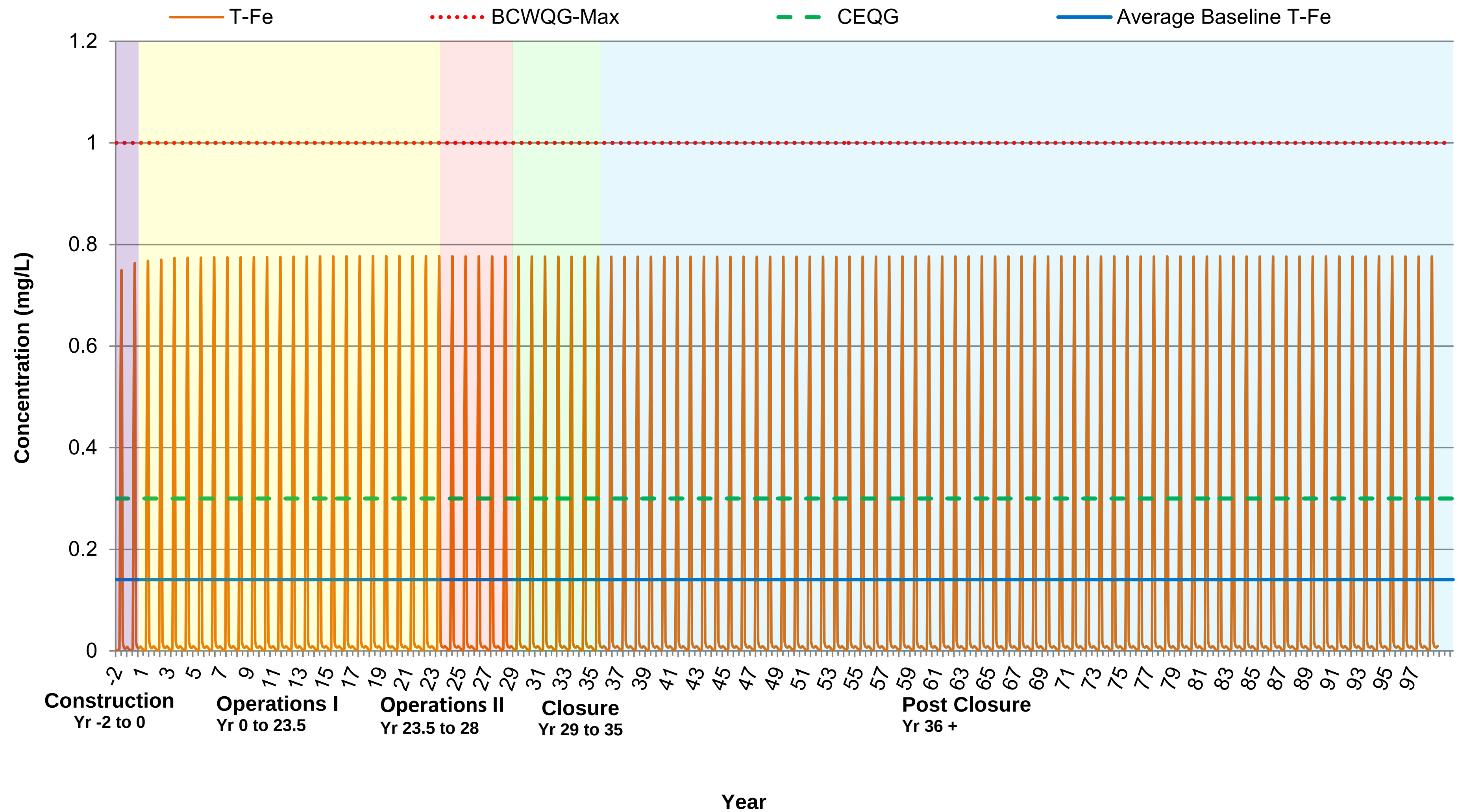
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Cu-D

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. BCWQG-MAX 1.0 mg/L IS NOT SHOWN ON GRAPH.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT TOTAL IRON CONCENTRATIONS - LOWER BAKER CREEK (BK0)

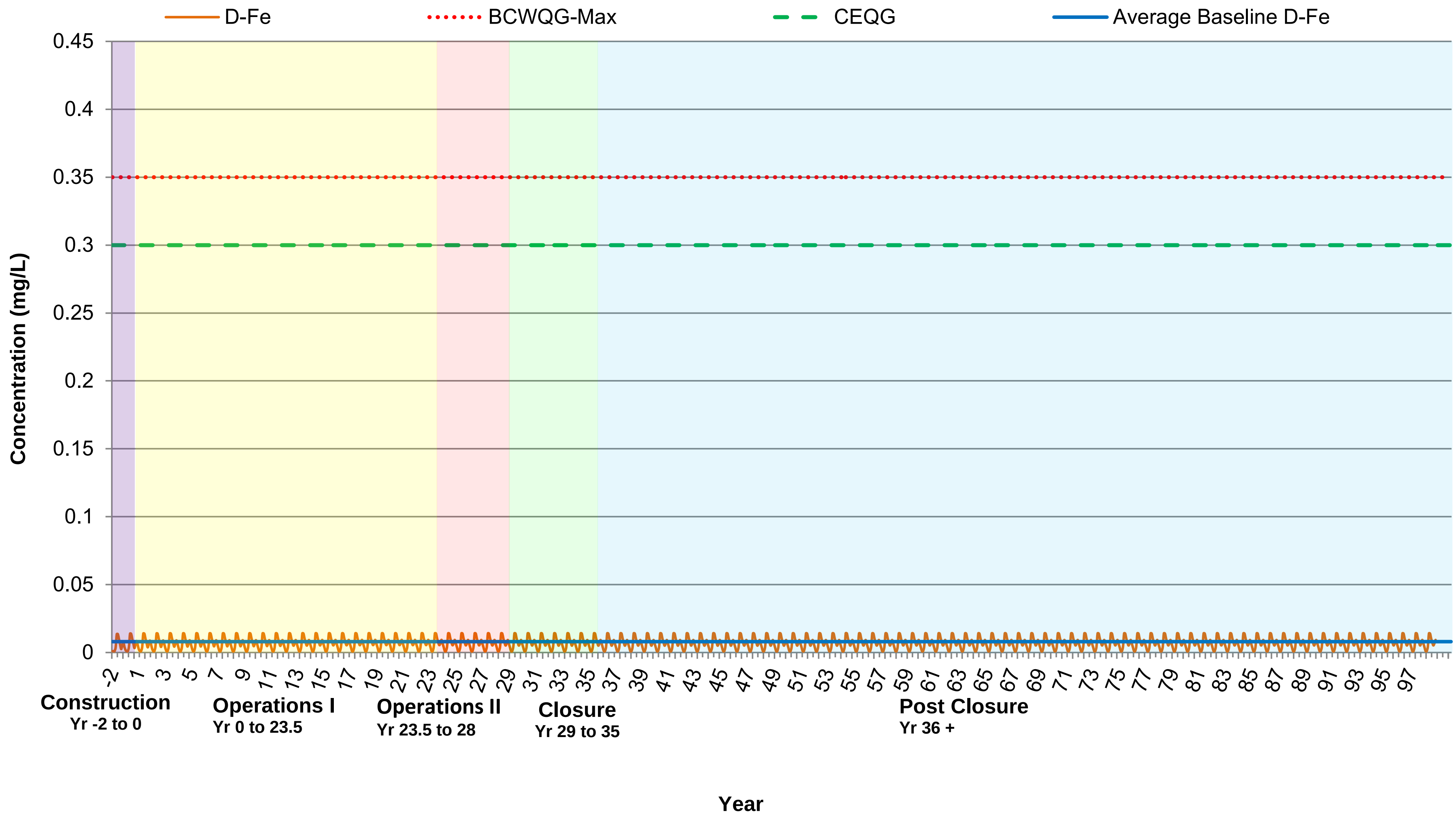
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Fe-T

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED IRON CONCENTRATIONS - LOWER BAKER CREEK (BK0)

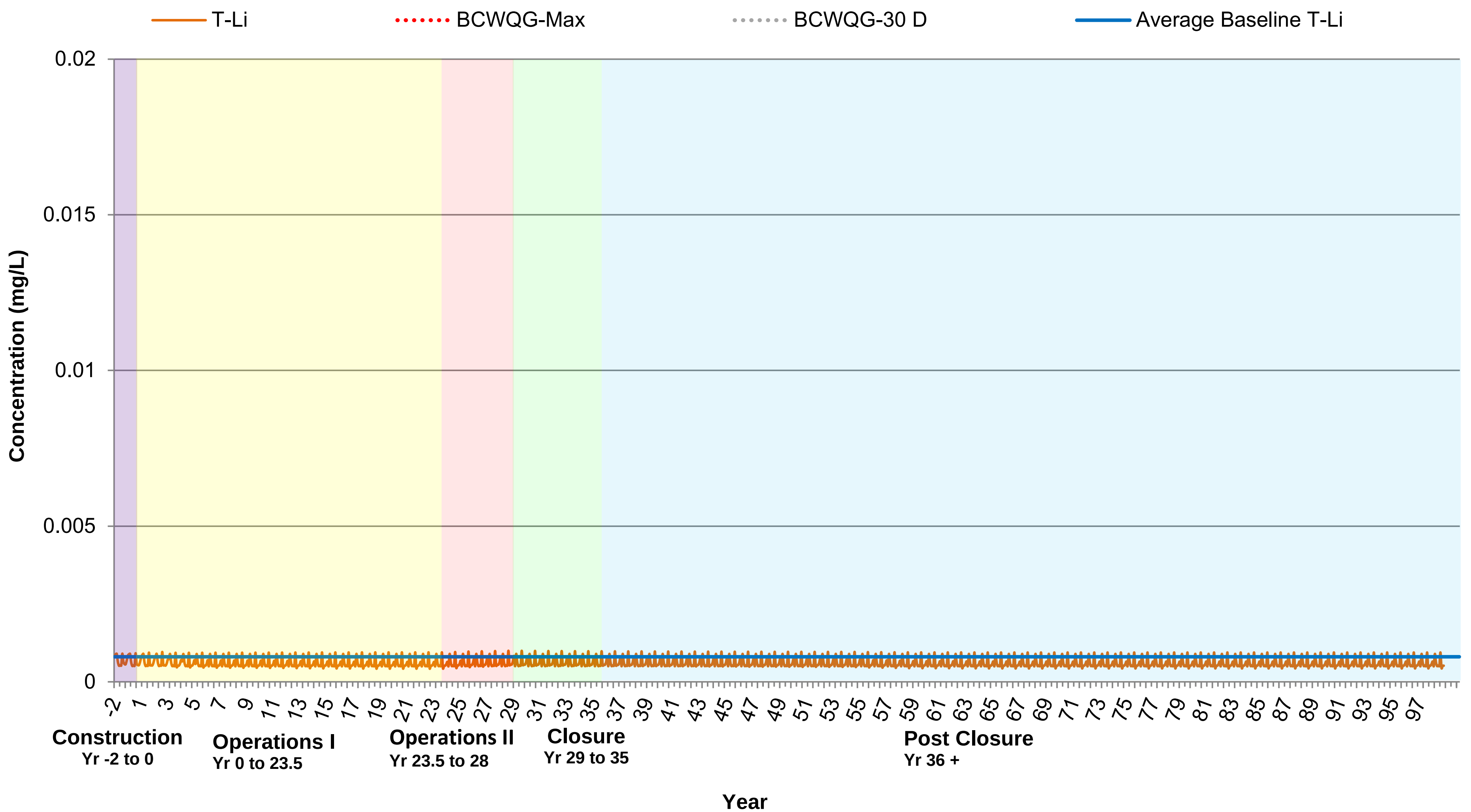
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Fe-D

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. THE BCWQG-30 D (0.096 mg/L) AND BCWQG-MAX (0.87 mg/L) ARE INTERIM (WORKING) AND ARE NOT SHOWN ON GRAPH.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LITHIUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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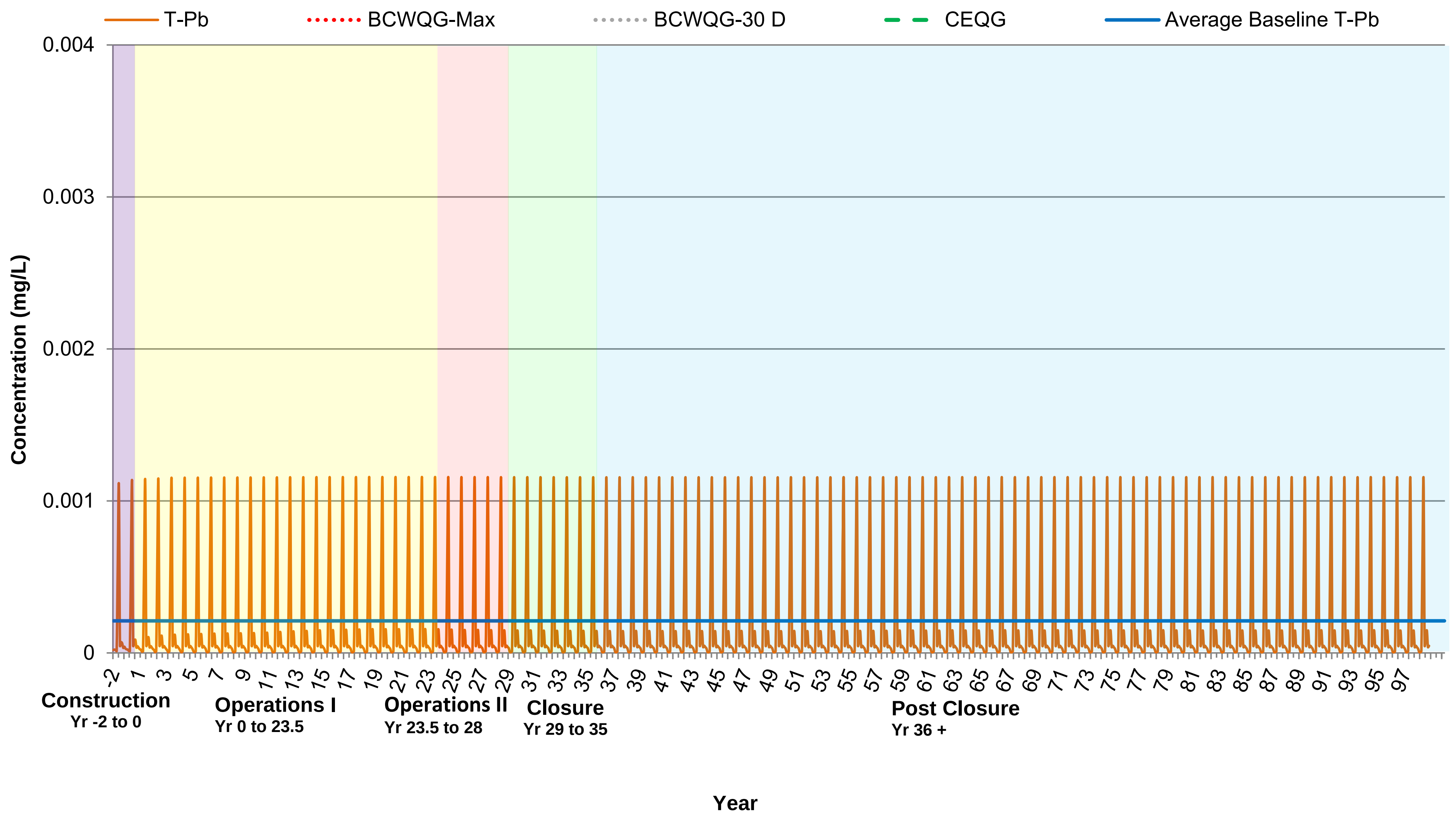
P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Li

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
4. THE BCWQG-MAX (CALCULATED AT 0.011 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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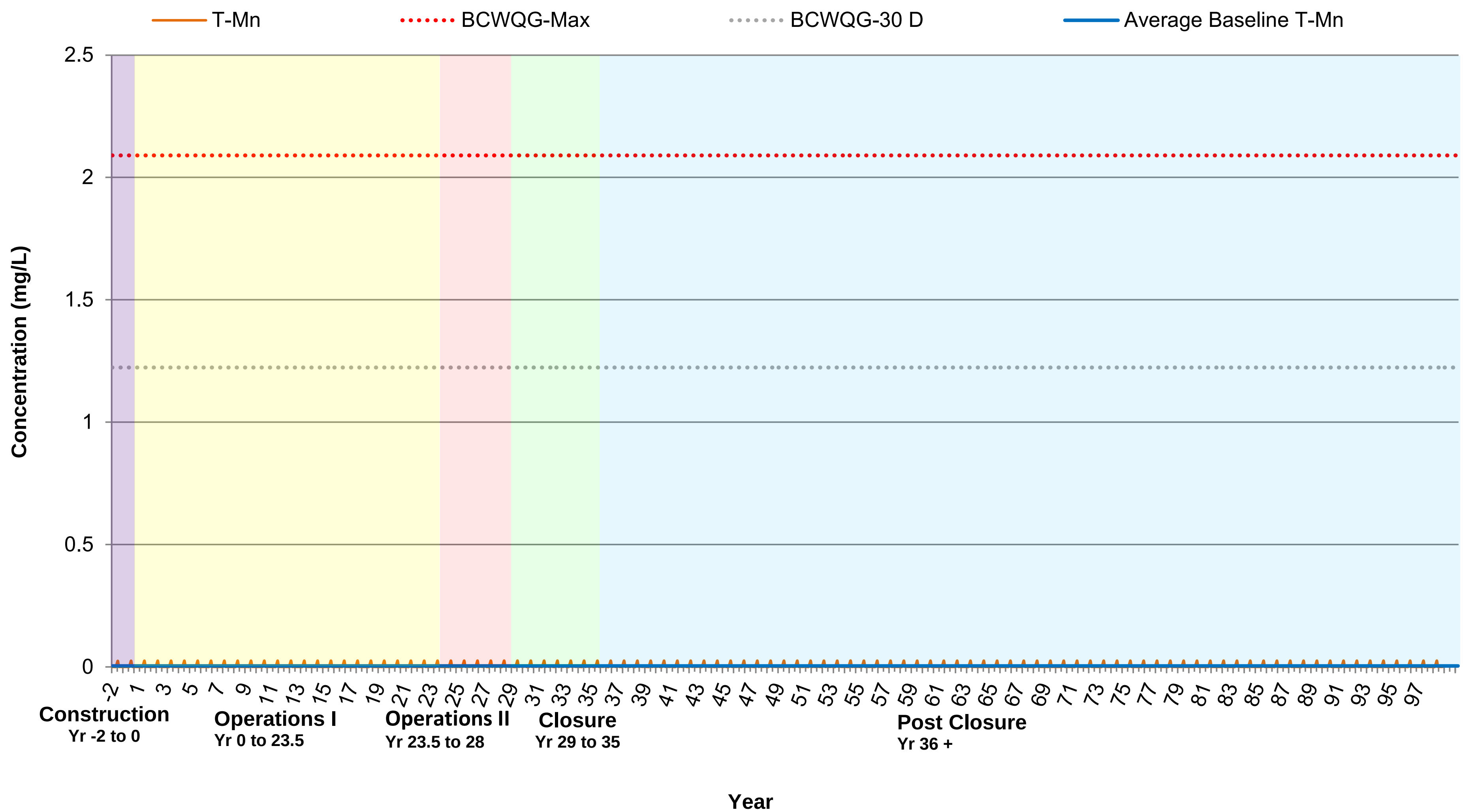
P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Pb

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - LOWER BAKER CREEK (BK0)

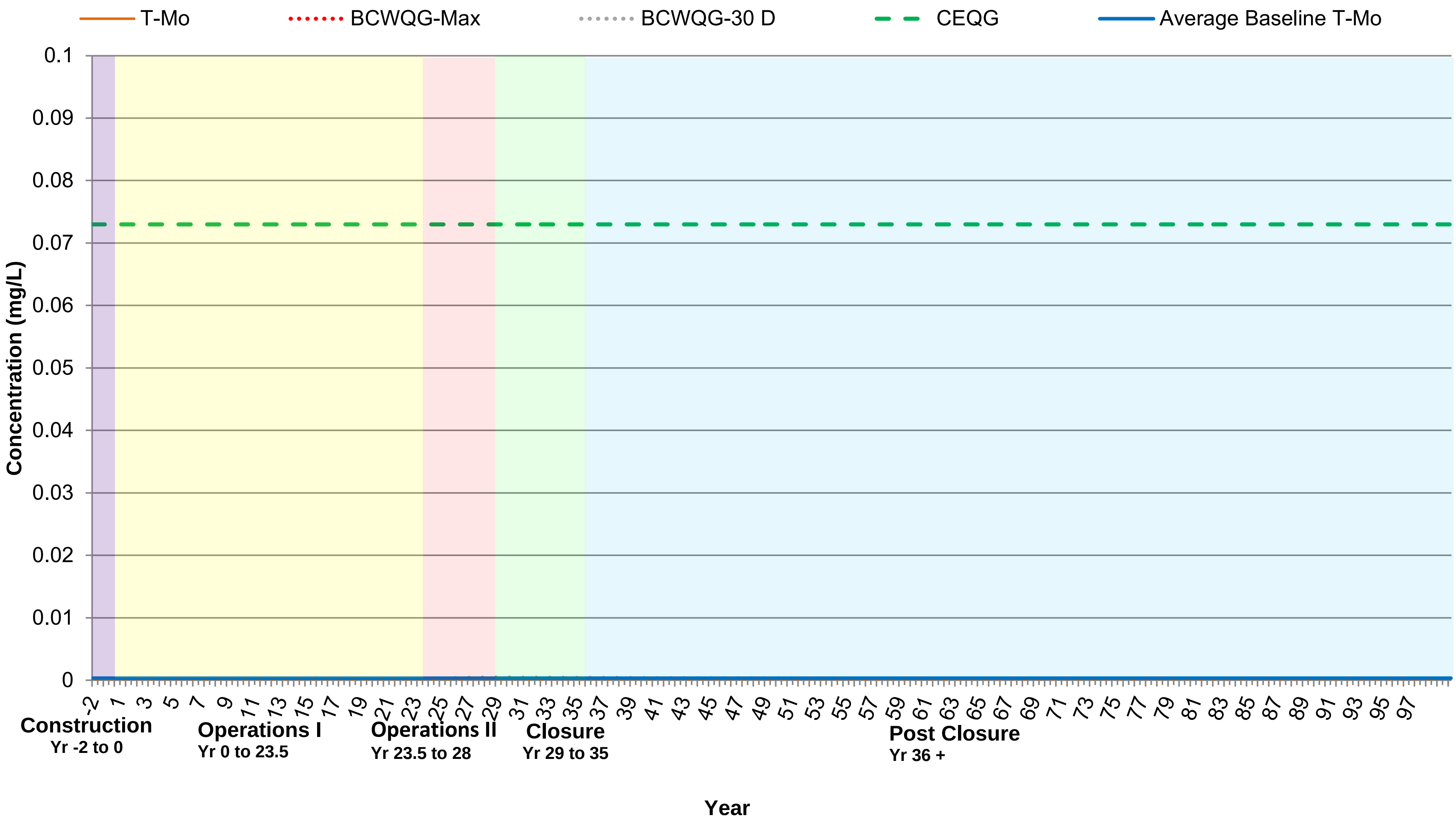
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Mn

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. THE BCWQG-MAX (2 mg/L) AND BCWQG-30 D (1 mg/L) ARE NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYBDENUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

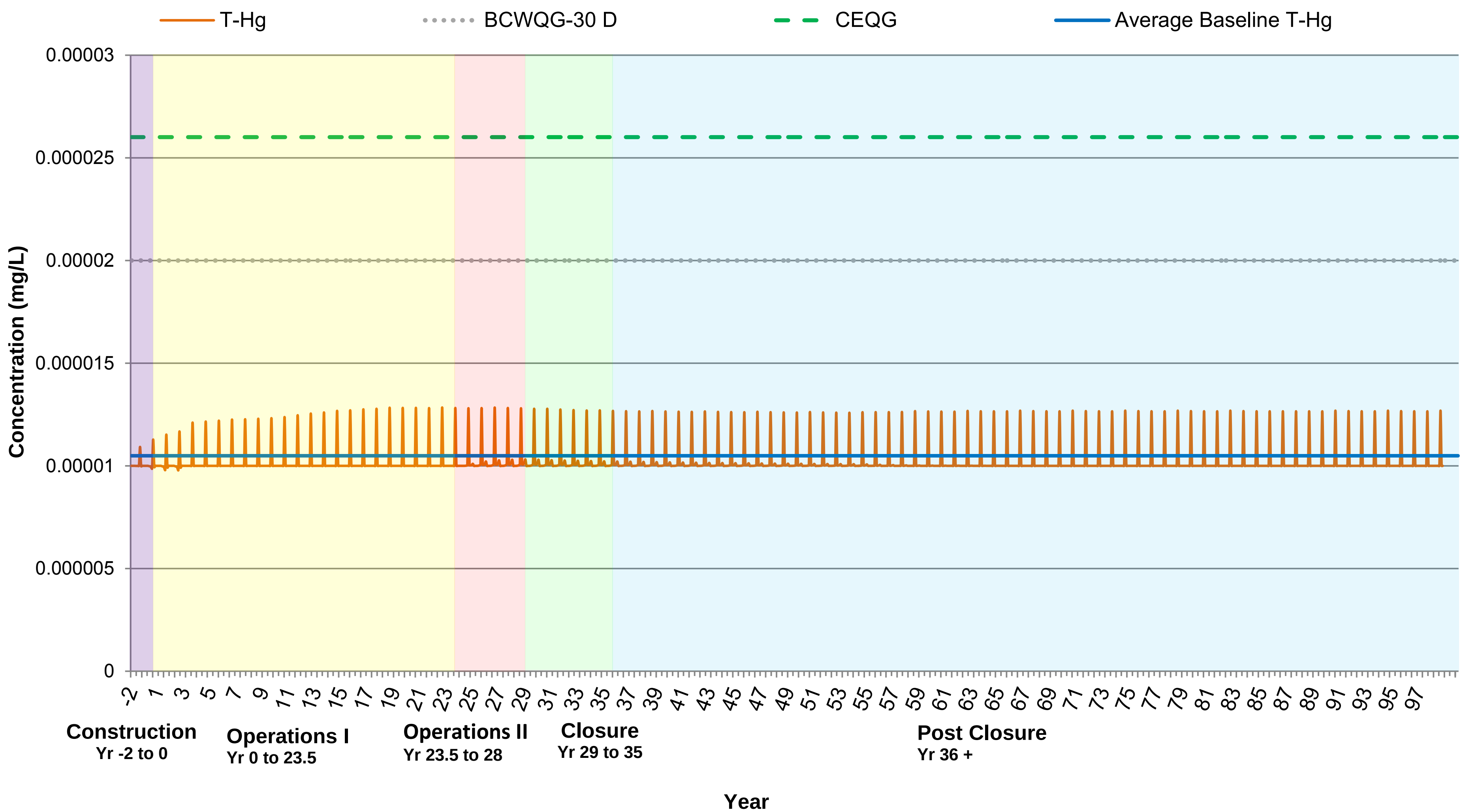
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Mo

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. BCWQG-30 D VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-Hg.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - LOWER BAKER CREEK (BK0)

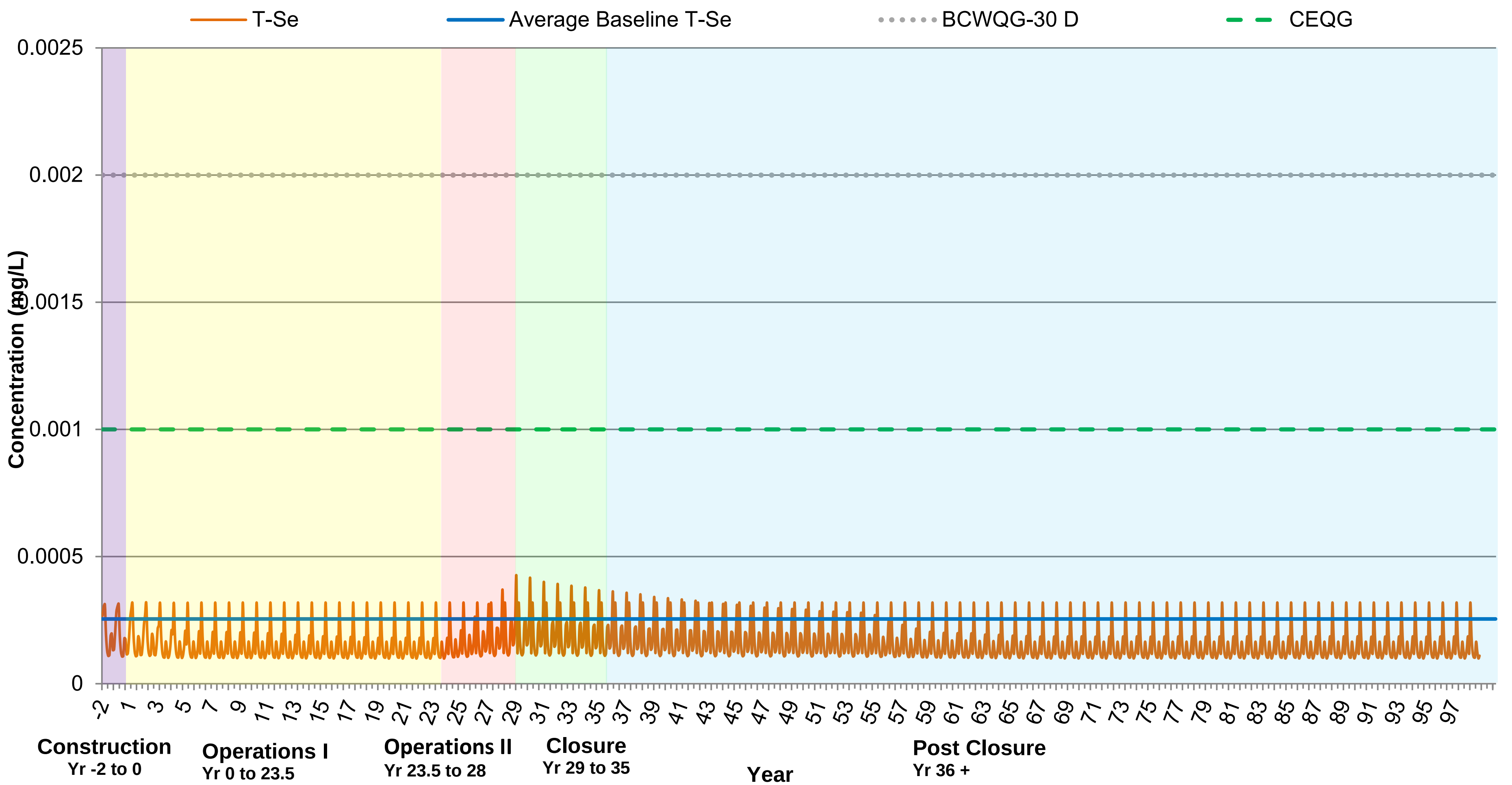
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Hg

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

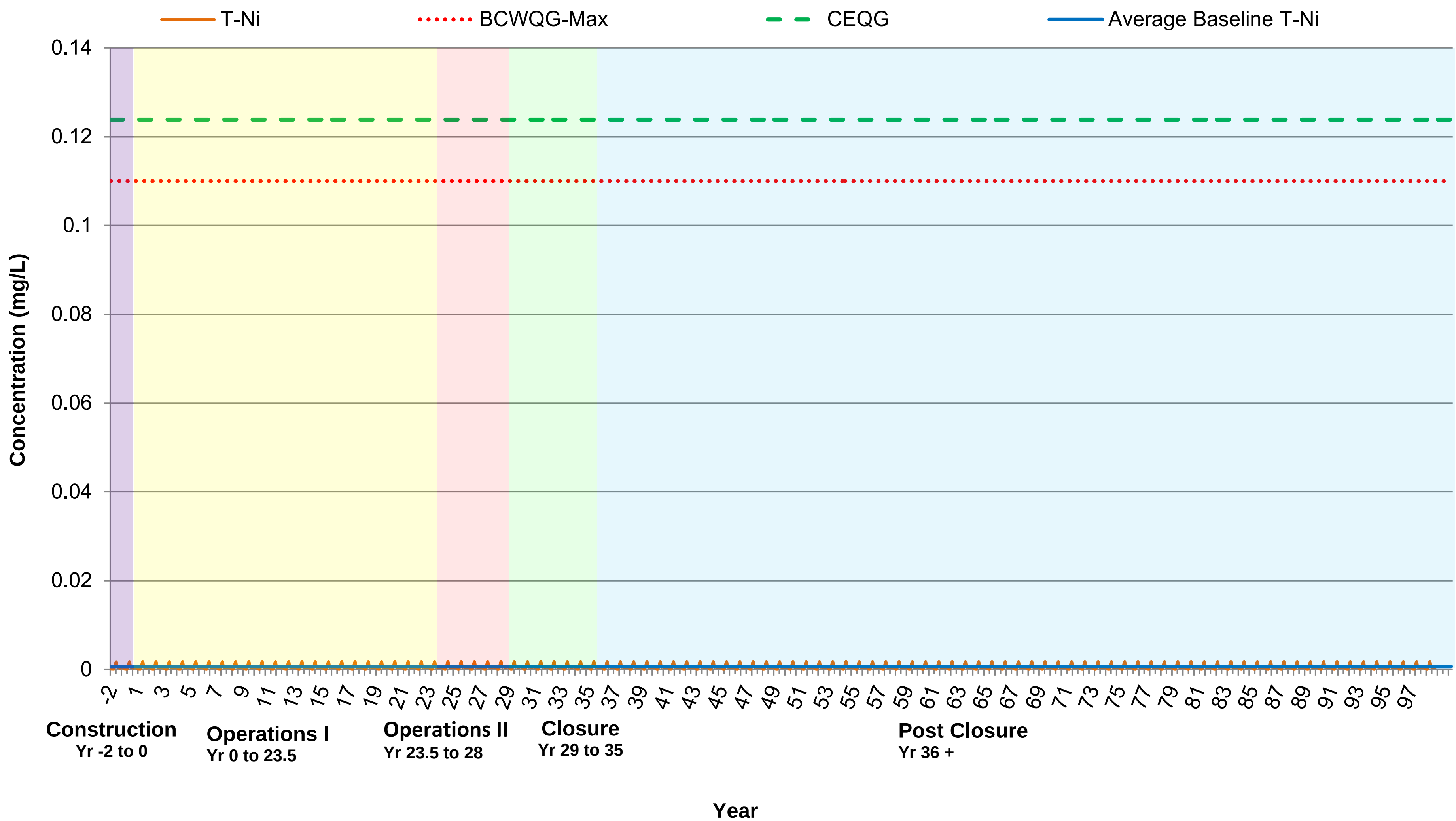
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Se

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

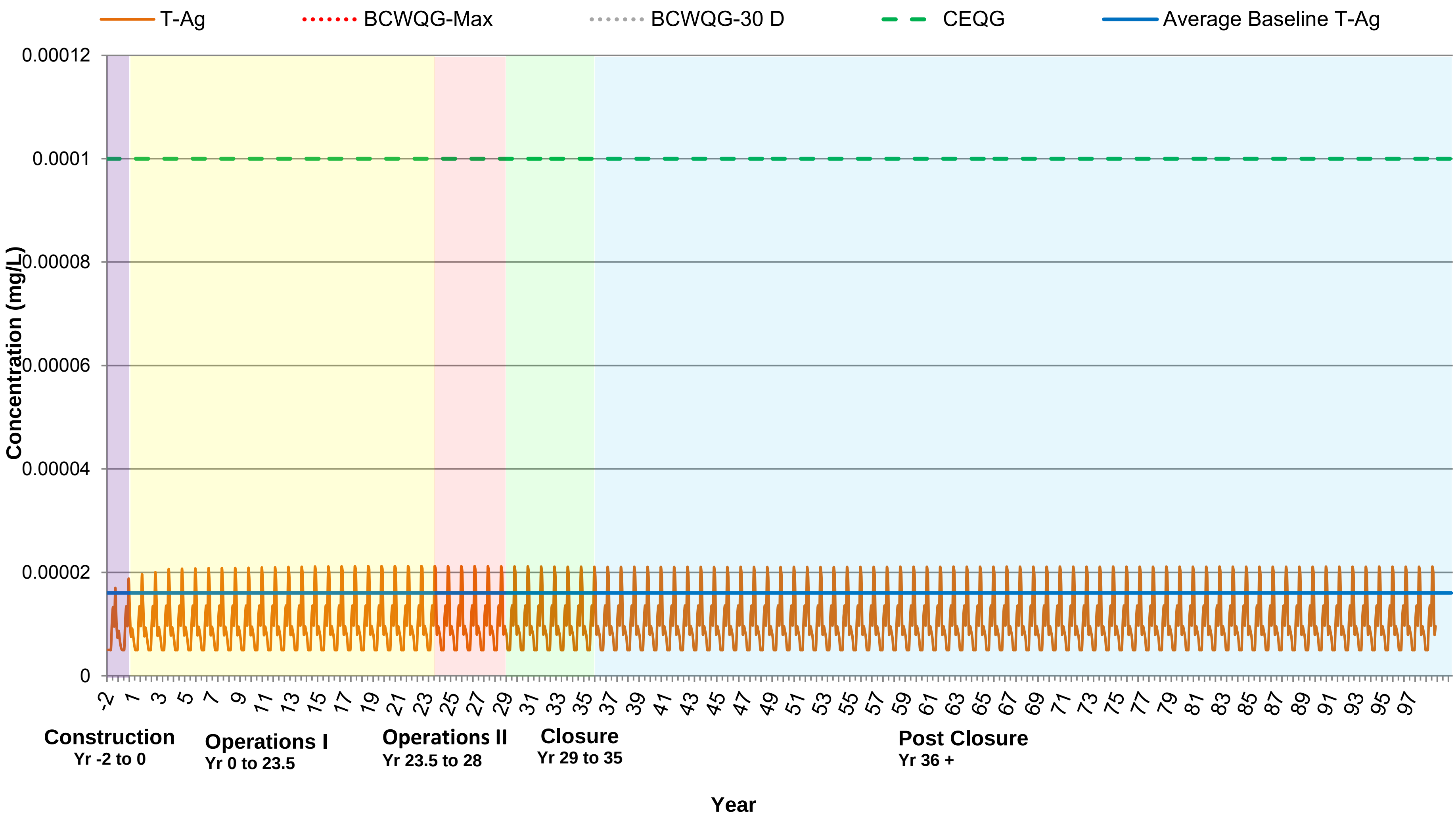
PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - LOWER BAKER CREEK (BK0)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-001825

FIGURE A10.Ni REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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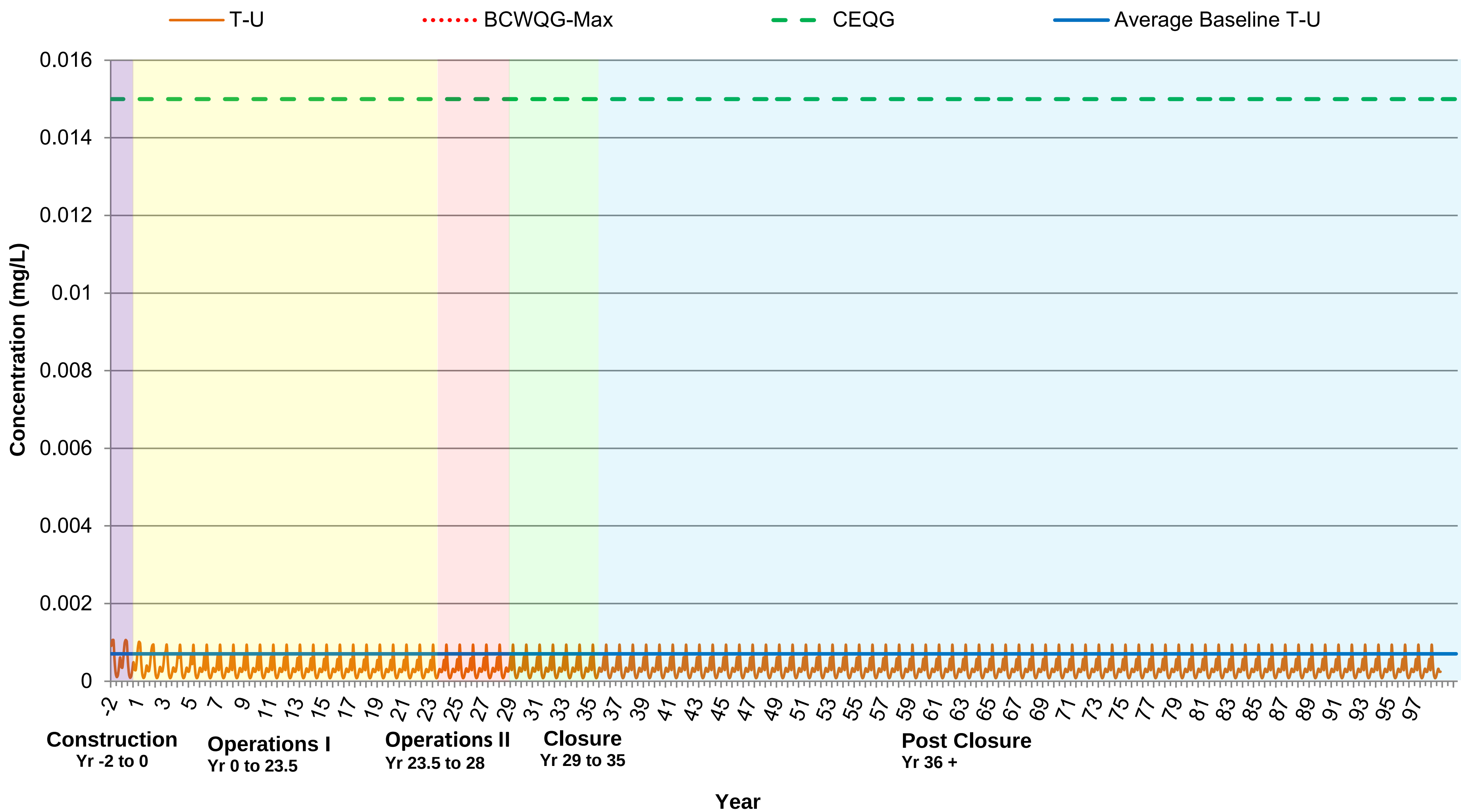
REF. NO. VA14-001825

FIGURE A10.Ag

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. THE BCWQG-MAX (0.3 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

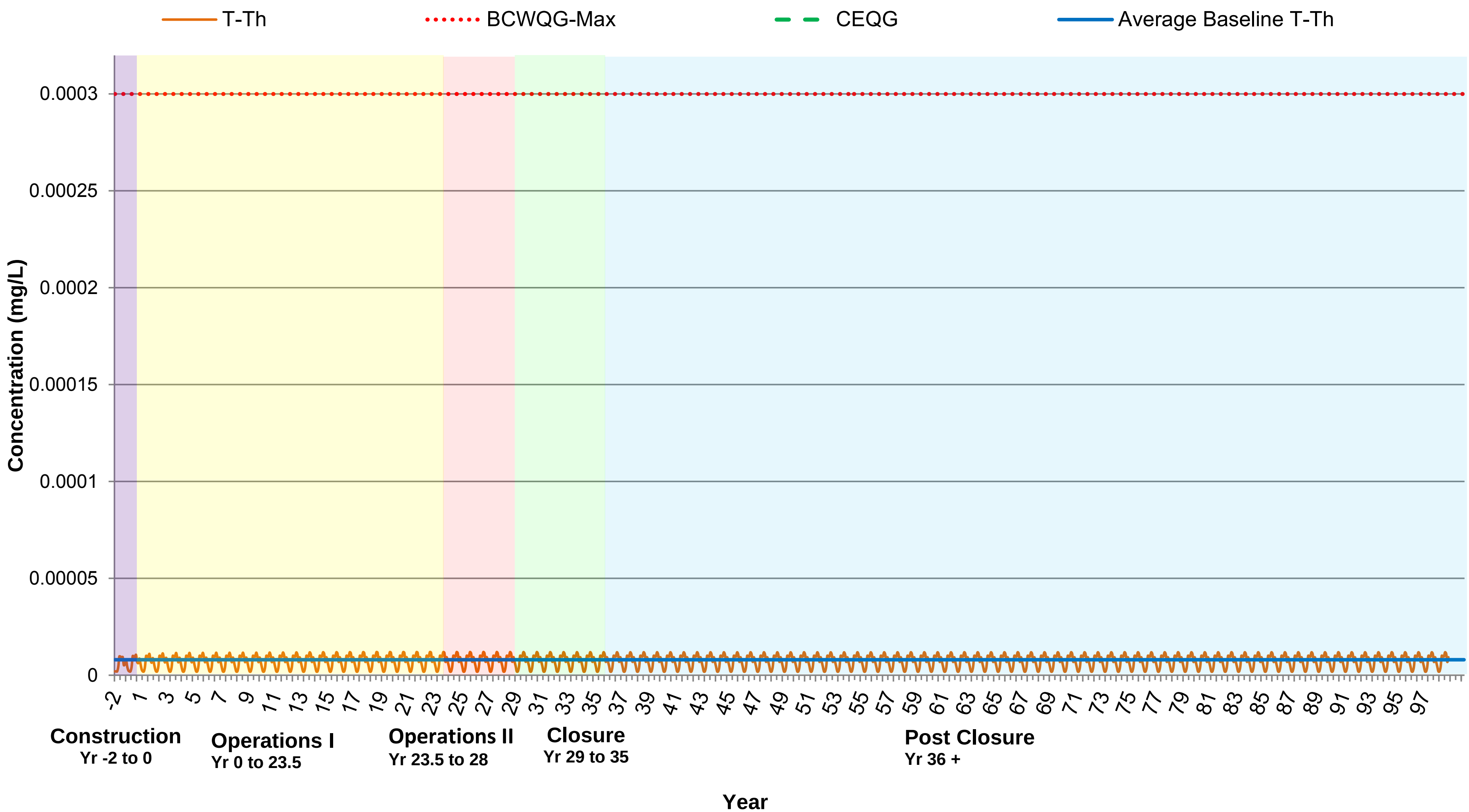
HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-001825

FIGURE A10.U REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. THE CEQG (0.0008 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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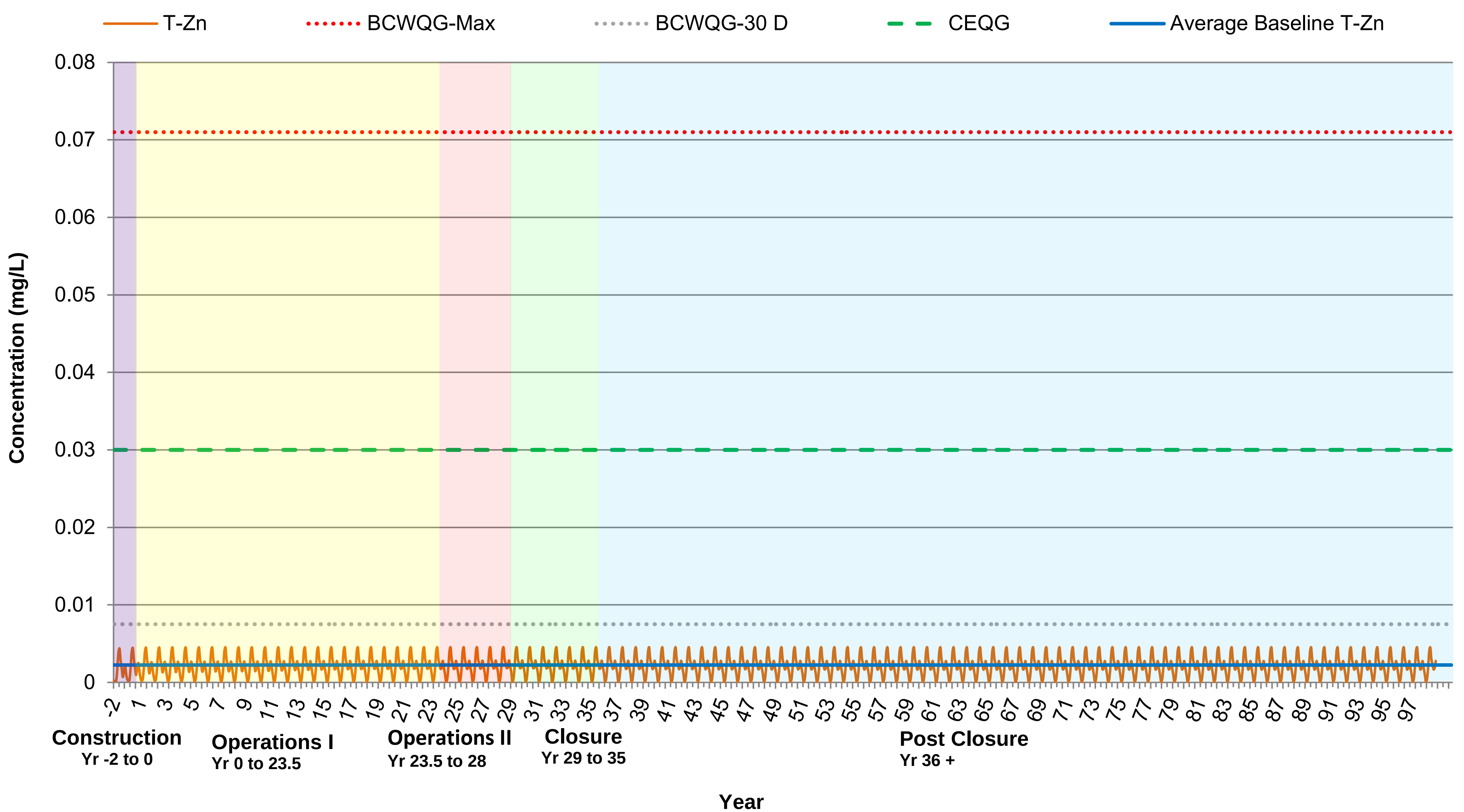
P/A NO. VA101-458/17

REF. NO. VA14-001825

FIGURE A10.Th

REV 0



NOTES:

1. BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE BK0 (AVERAGE HARDNESS OF 140 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - LOWER BAKER CREEK (BK0)

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REF. NO. VA14-001825

FIGURE A10.Zn

REV 0

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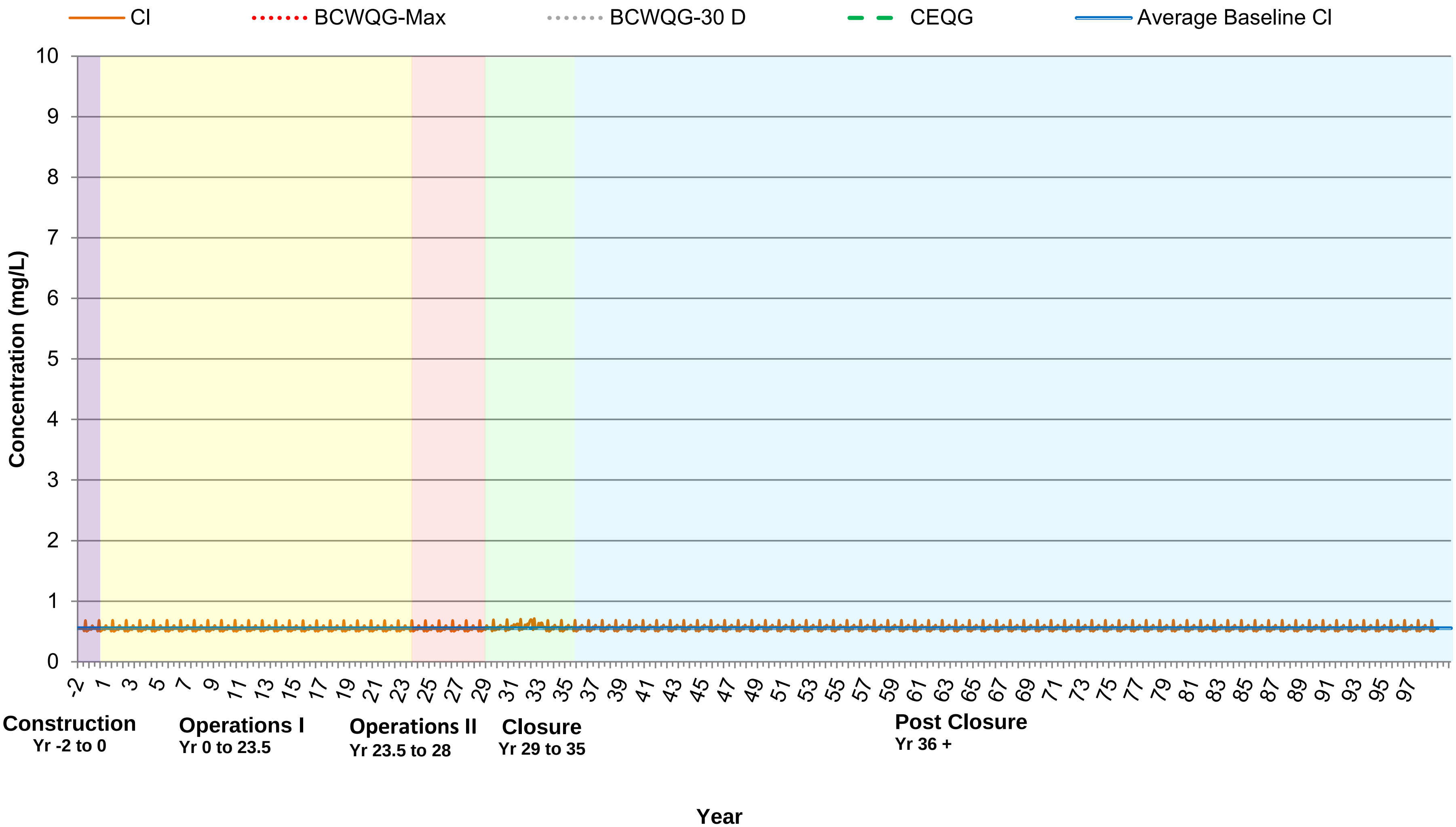
APPENDIX A11

PREDICTED REASONABLE UPPER LIMIT CASE PREDICTIONS – JONES CREEK

(Pages A11-1 to A11-30)



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. ALL GUIDELINES ARE NOT SHOWN: BCWQG-30 D (150 mg/L); BCWQG-MAX (600 mg/L); CEQG (120 mg/L AND 640 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHLORIDE CONCENTRATIONS - JONES CREEK (J1)

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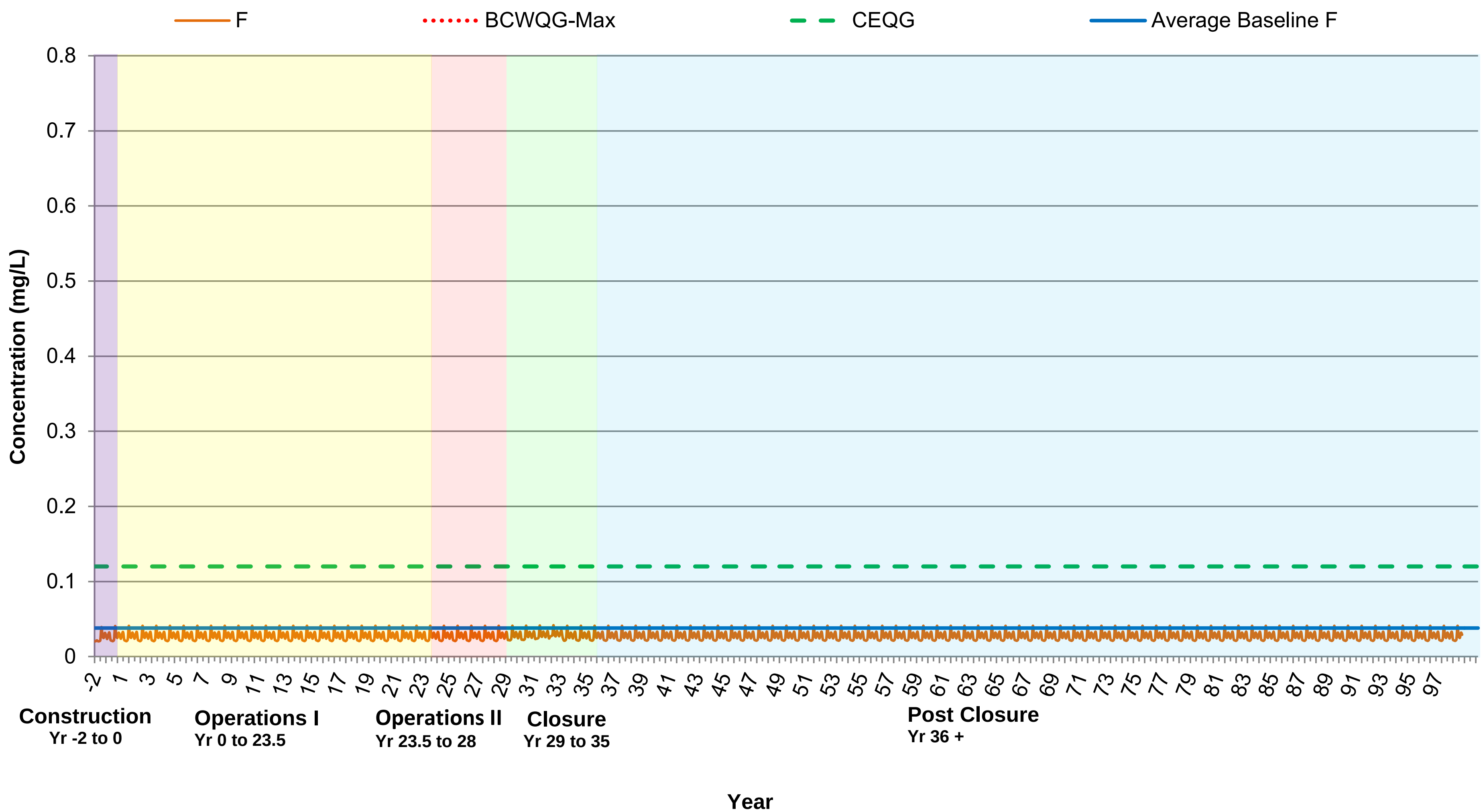
REF. NO. VA14-01825

FIGURE A11.Cl

REV 0



NOTES:

1. THE BCWQG-MAX IS HARNDESS DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT FLUORIDE CONCENTRATIONS - JONES CREEK (J1)

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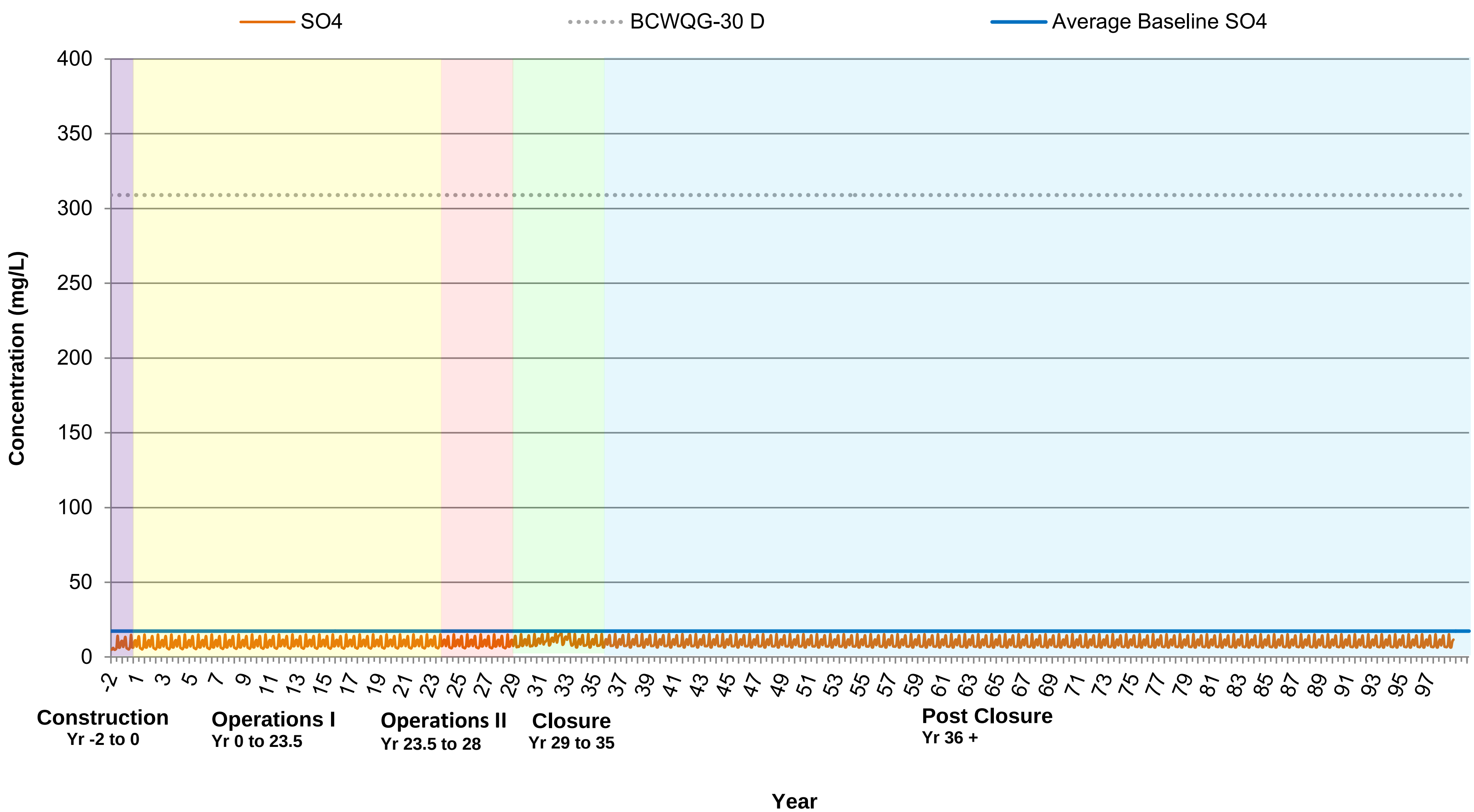
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.F

REV 0



NOTES:

1. BCWQG-30 D IS HARDNESS DEPEDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SULPHATE CONCENTRATIONS - JONES CREEK (J1)

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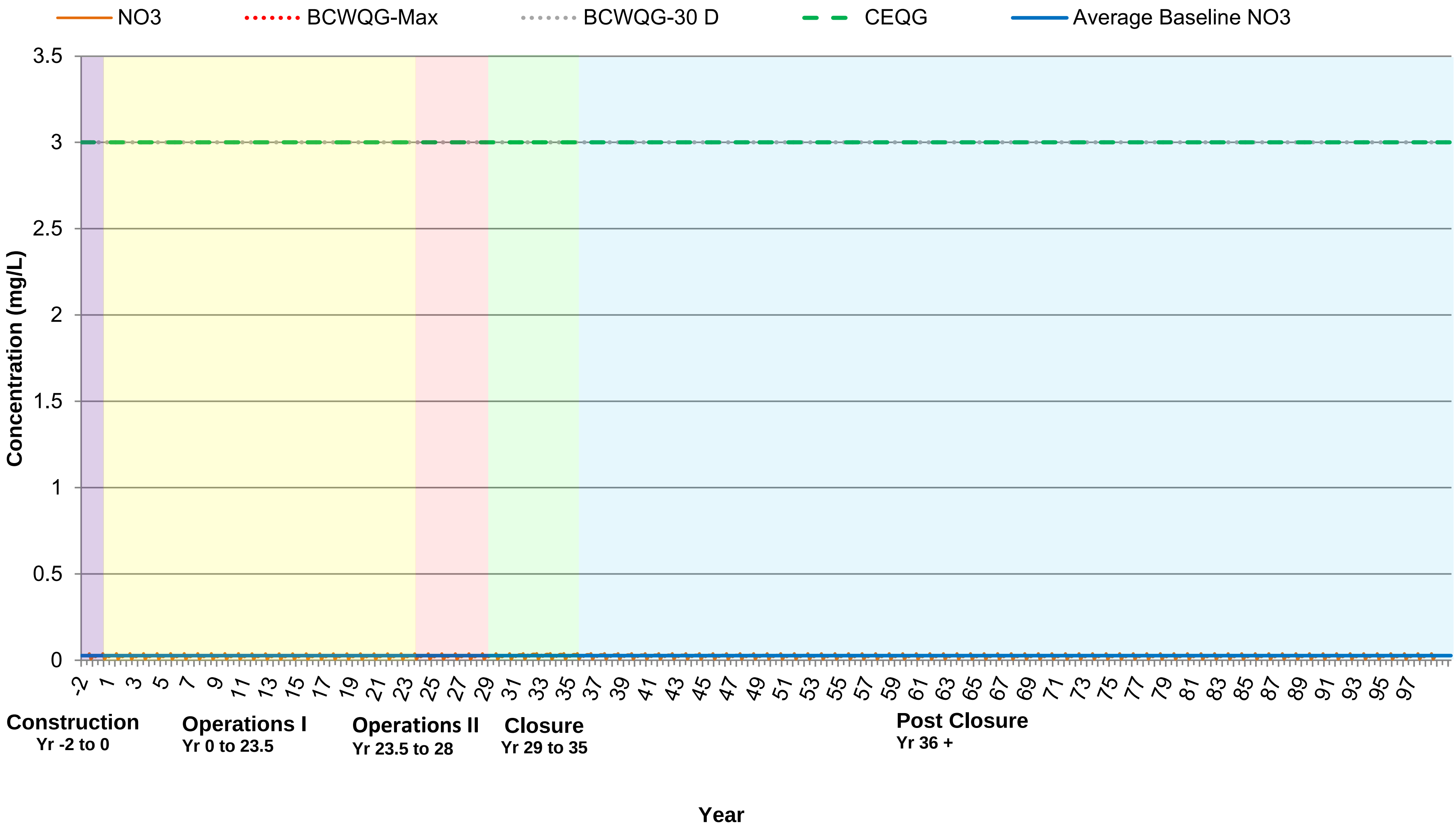
REF. NO. VA14-01825

FIGURE A11.S04

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. THE BCWQG-MAX (32.8 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NITRATE CONCENTRATIONS - JONES CREEK (J1)

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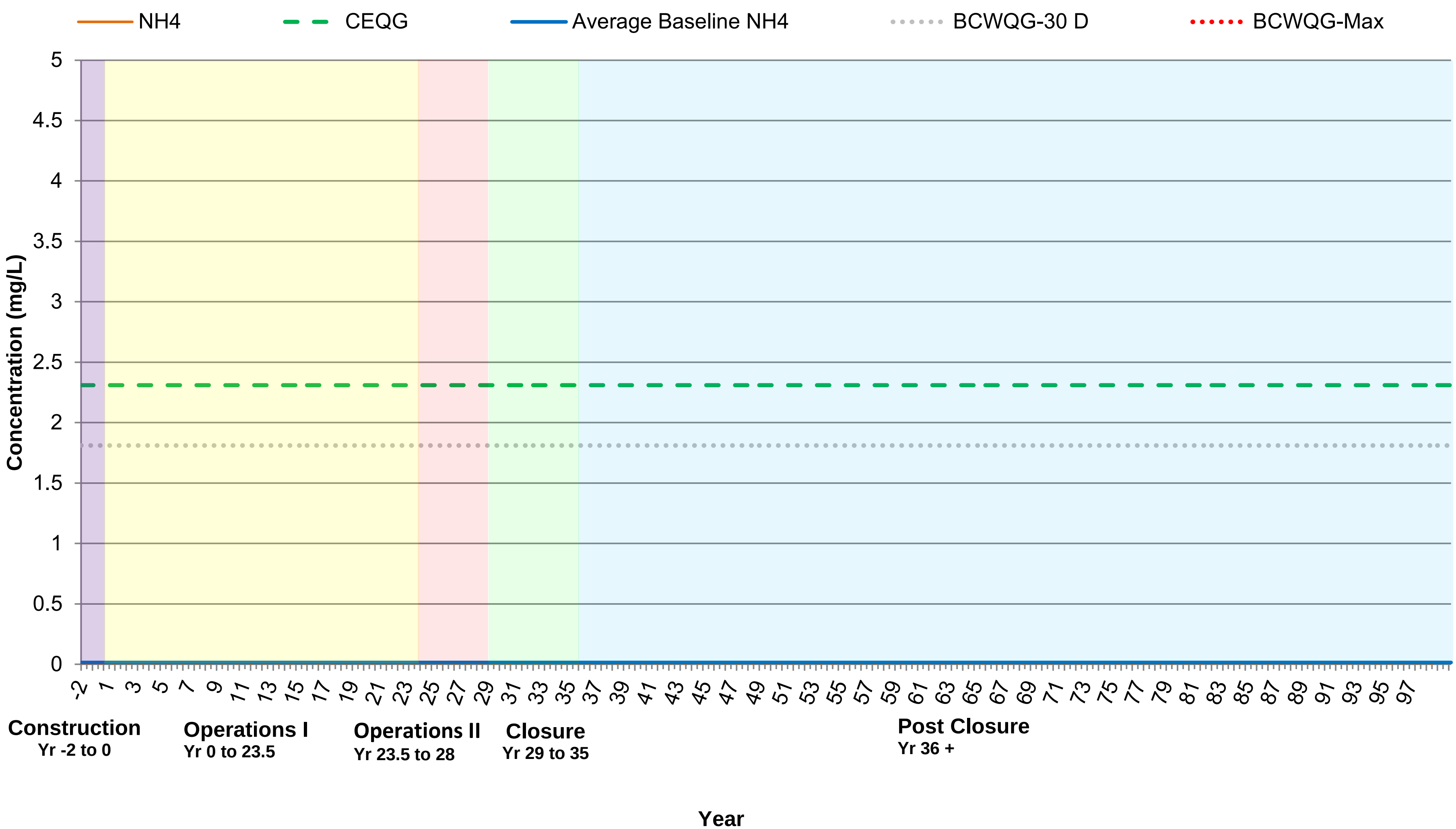
REF. NO. VA14-01825

FIGURE A11.NO3

REV 0



NOTES:

1. THE BCWQG-30 D IS VALID FOR ONLY 6.5≤pH<9 AND 0°C≤T≤20°C.
2. THE BCWQG-MAX (20.15 mg/L) VALID FOR 6.5≤pH<9 IS NOT SHOWN.
3. THE CEQG IS TO BE USED WITH CAUTION FOR WATER WITH T<5°C AND pH>9.
4. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT AMMONIA CONCENTRATIONS - JONES CREEK (J1)

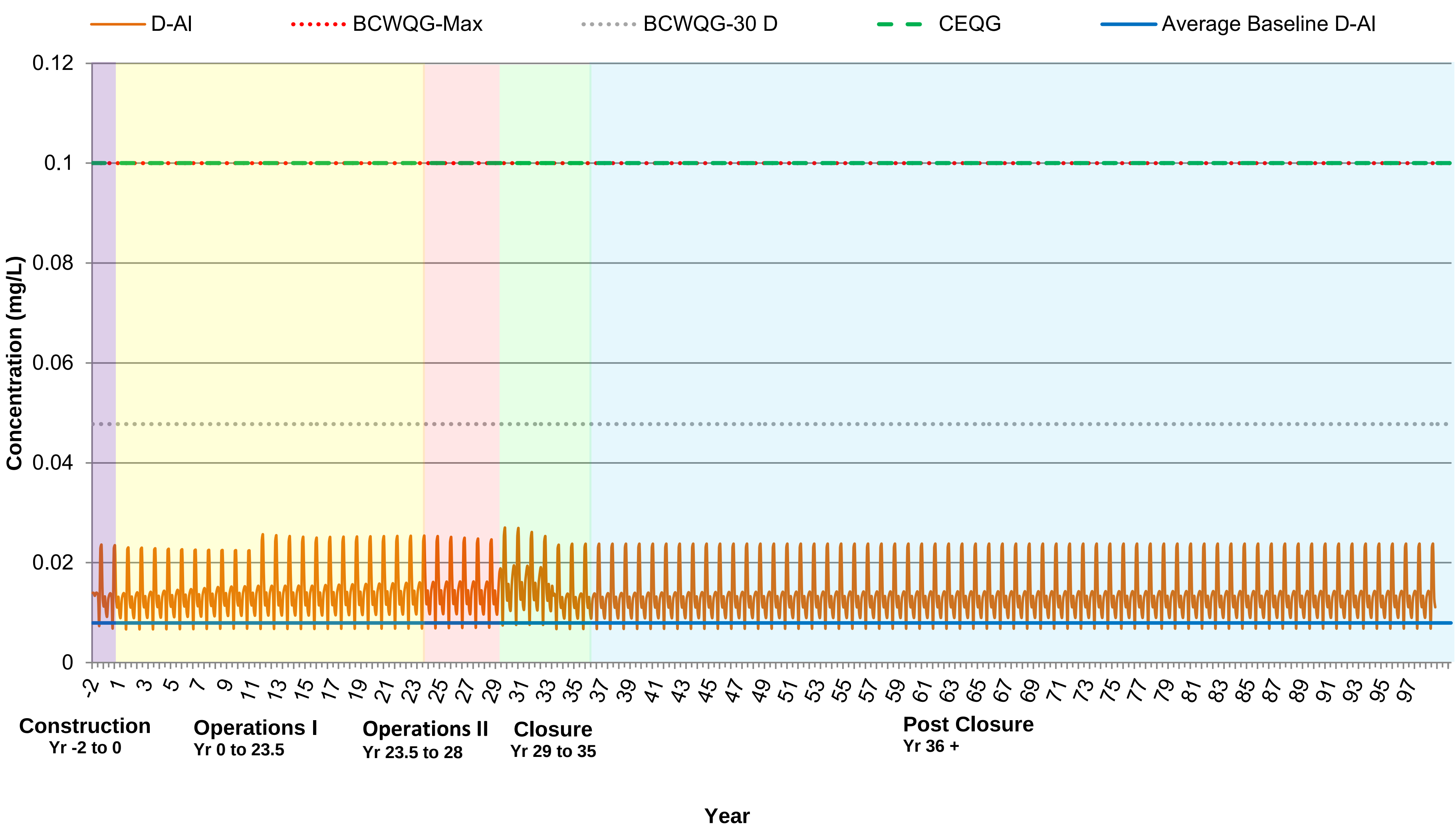
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.NH4

REV 0



NOTES:

1. ALL GUIDELINES ARE pH-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. AVERAGE BASELINE pH USED TO CALCULATE GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED ALUMINUM CONCENTRATIONS - JONES CREEK (J1)

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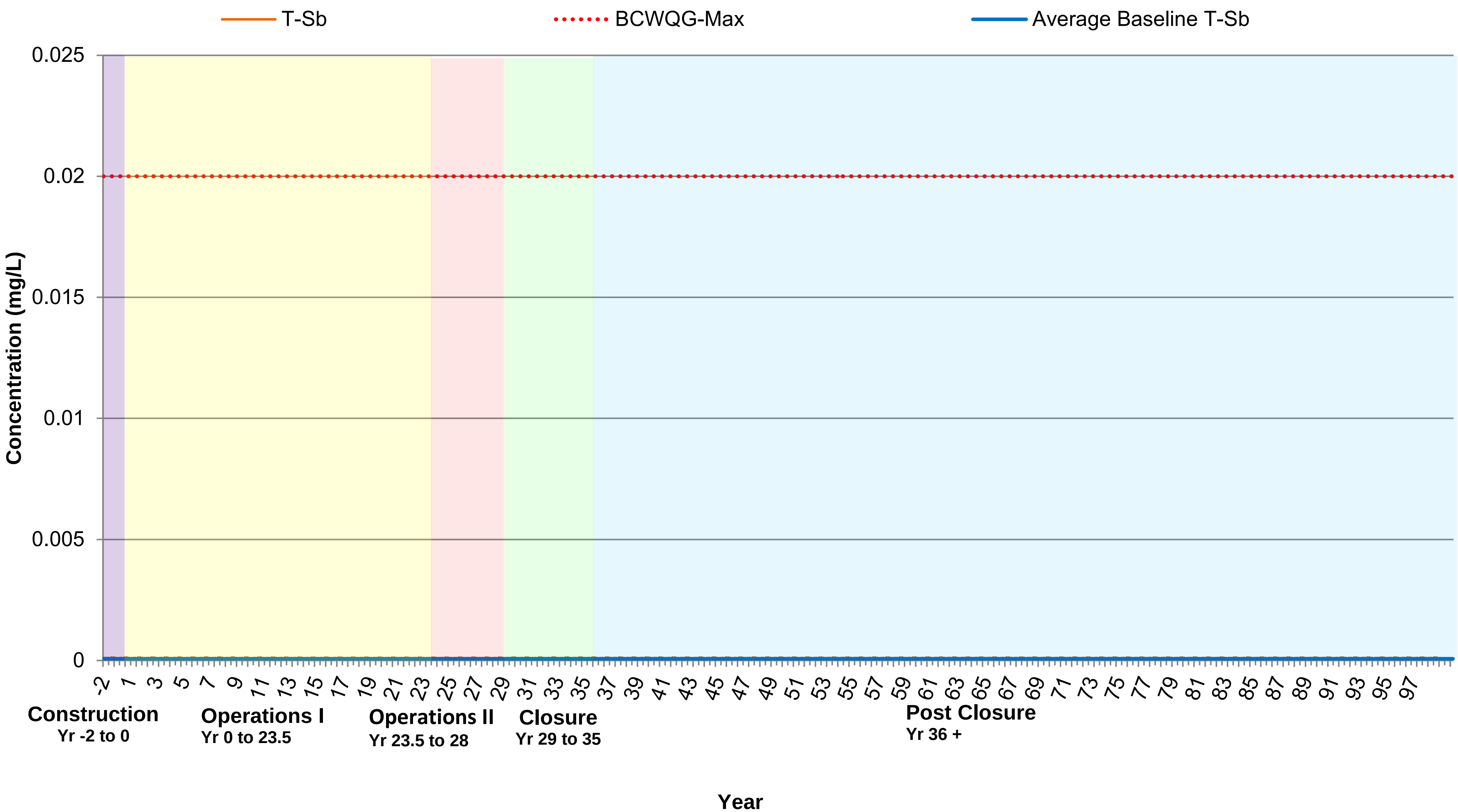
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Al

REV 0

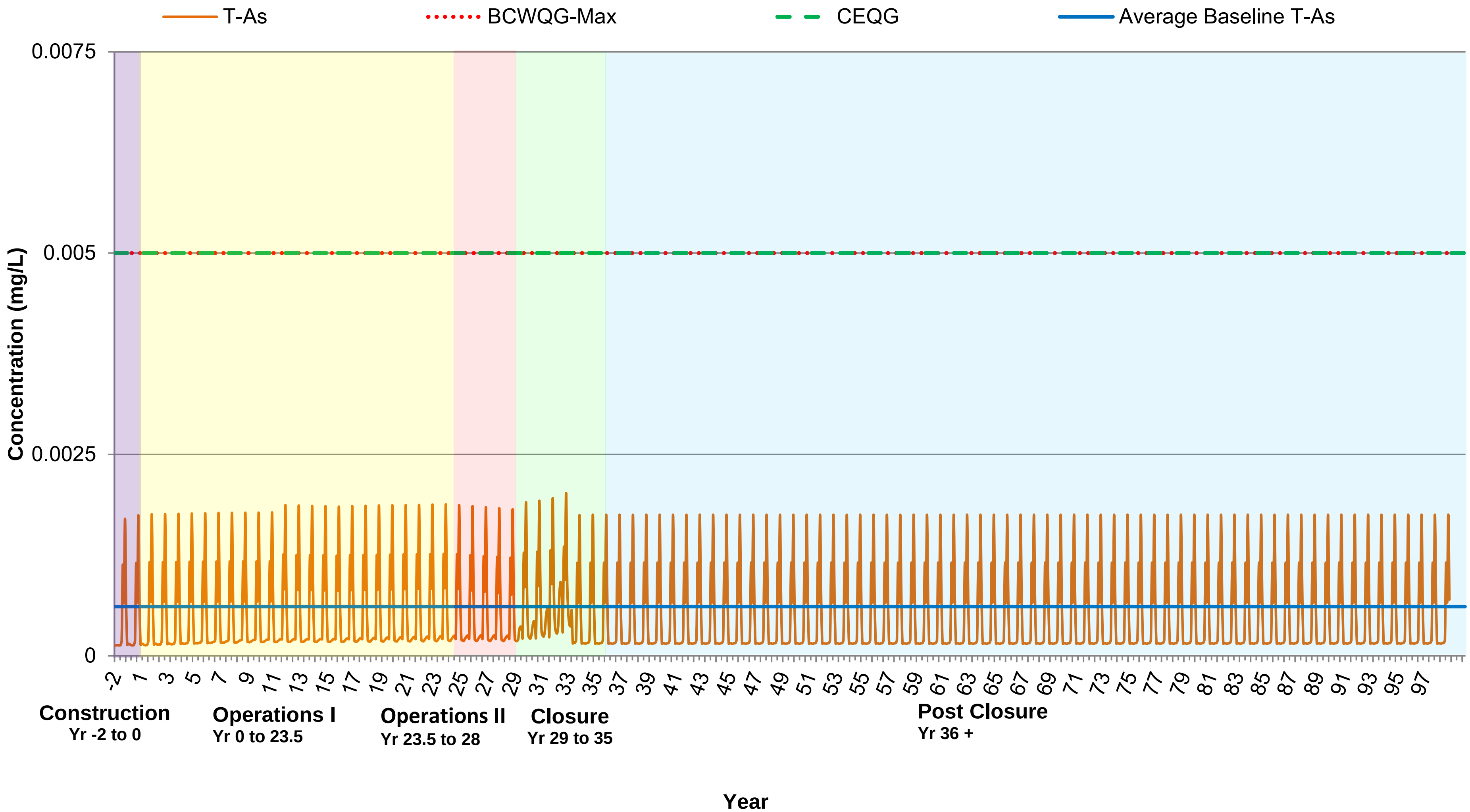


NOTES:

1. THE BCWQG IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.		
HARPER CREEK PROJECT		
PREDICTED REASONABLE UPPER LIMIT ANTIMONY CONCENTRATIONS - JONES CREEK (J1)		
Knight Piésold CONSULTING	P/A NO. VA101-458/17	REF. NO. VA14-01825
	FIGURE A11.Sb	REV 0



NOTES:

1. THE BCWQG AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ARSENIC CONCENTRATIONS - JONES CREEK (J1)

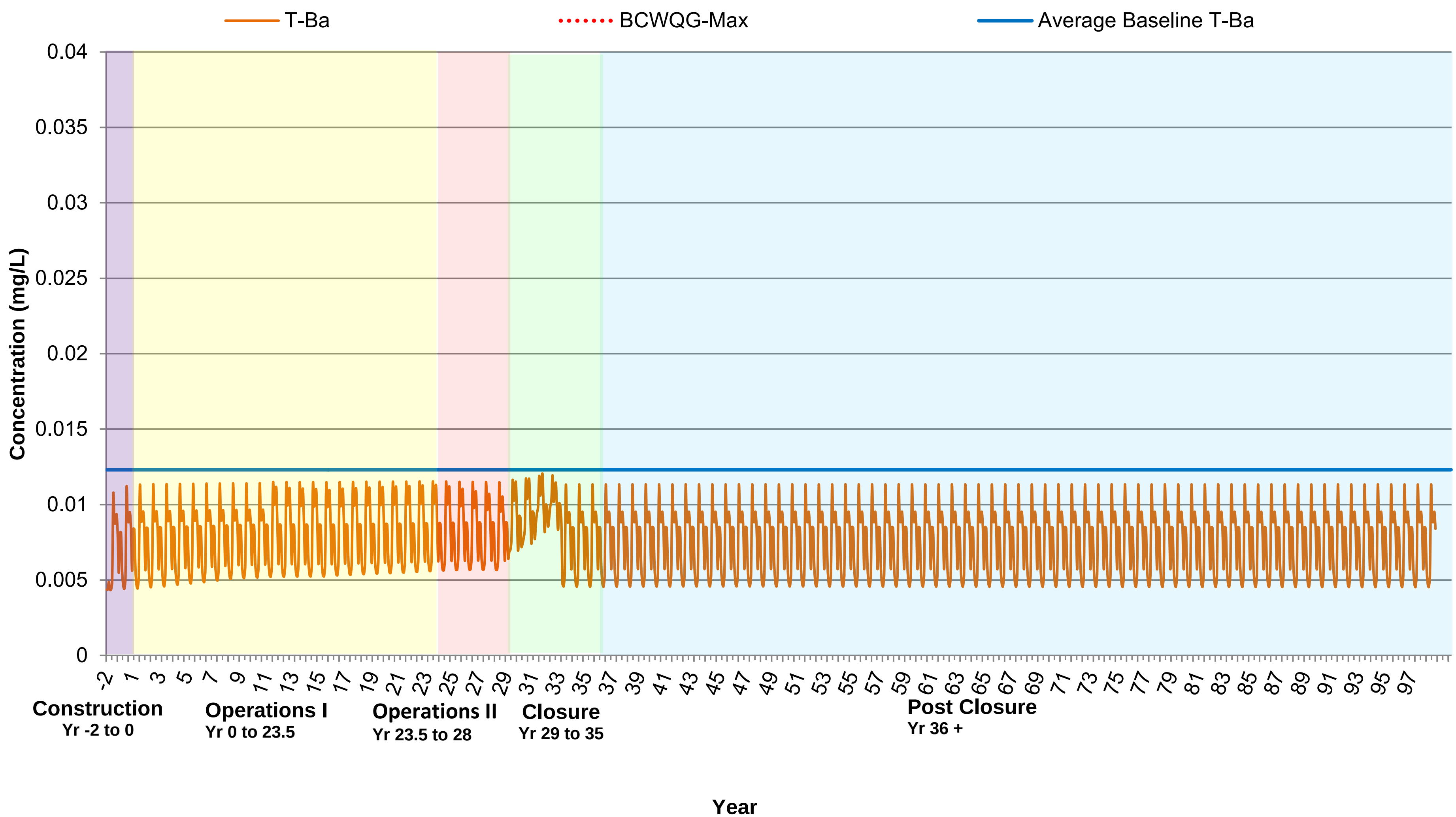
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.As

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. THE BCWQG-30 D (1 mg/L) AND BCWQG-MAX (5 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BARIUM CONCENTRATIONS - JONES CREEK (J1)

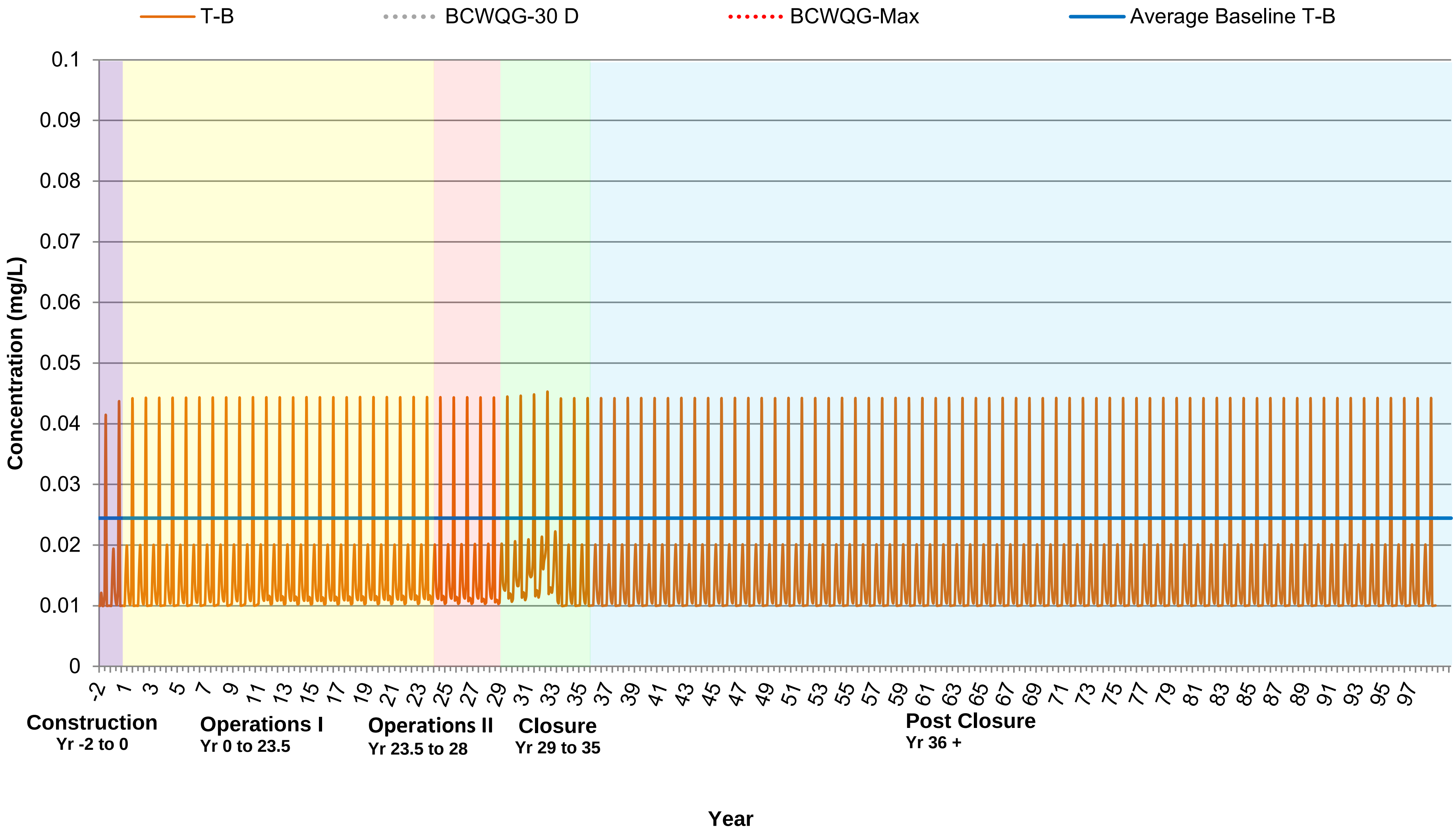
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Ba

REV 0



NOTES:

1. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
3. THE BCWQG-MAX (1.2 mg/L) IS NOT SHOWN.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BORON CONCENTRATIONS - JONES CREEK (J1)

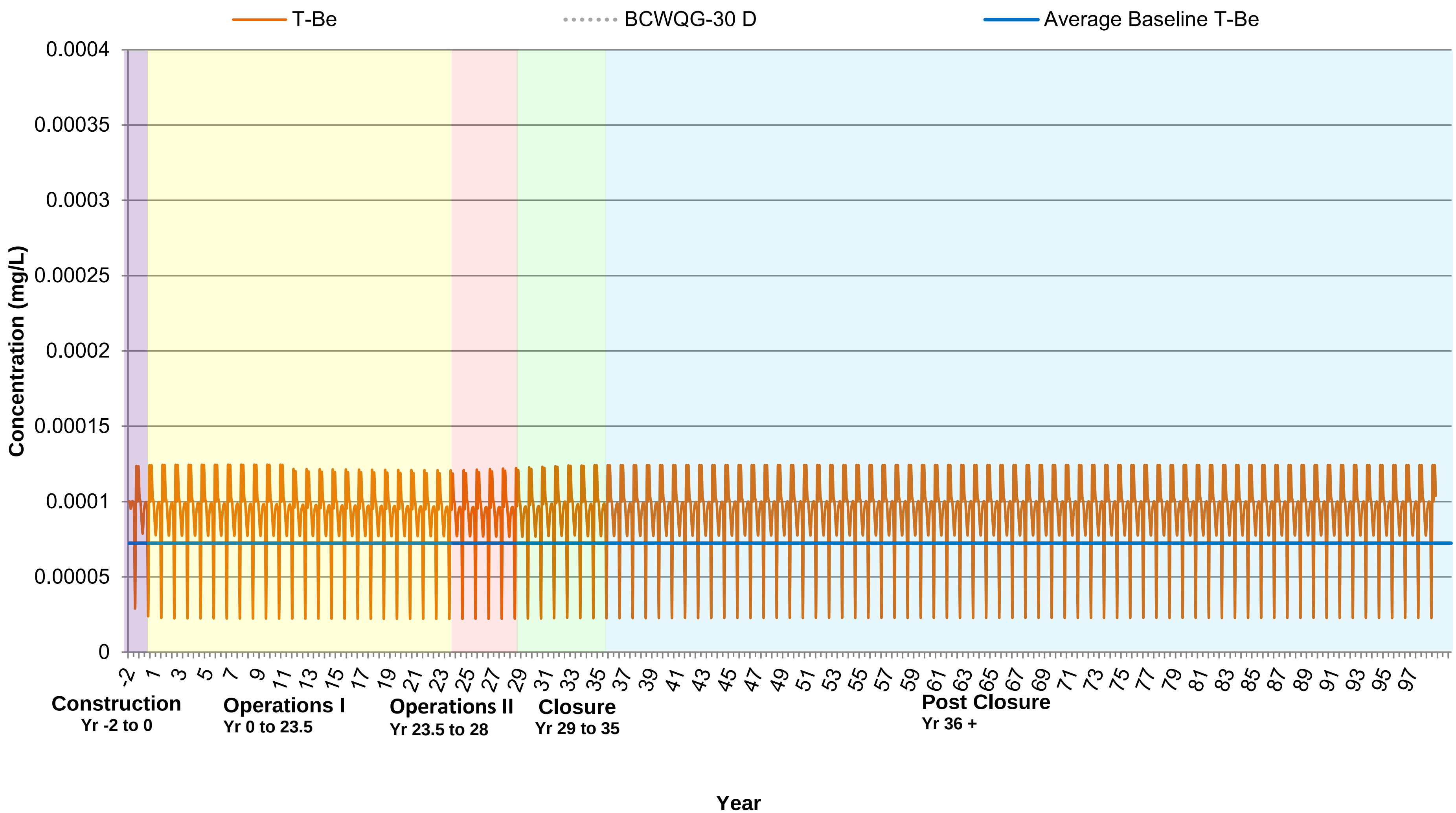
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.B

REV 0



NOTES:

1. THE BCWQG-MAX IS A FIXED VALUE.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. THE BCWQG-30 D (0.0053 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT BERYLLIUM CONCENTRATIONS - JONES CREEK (J1)

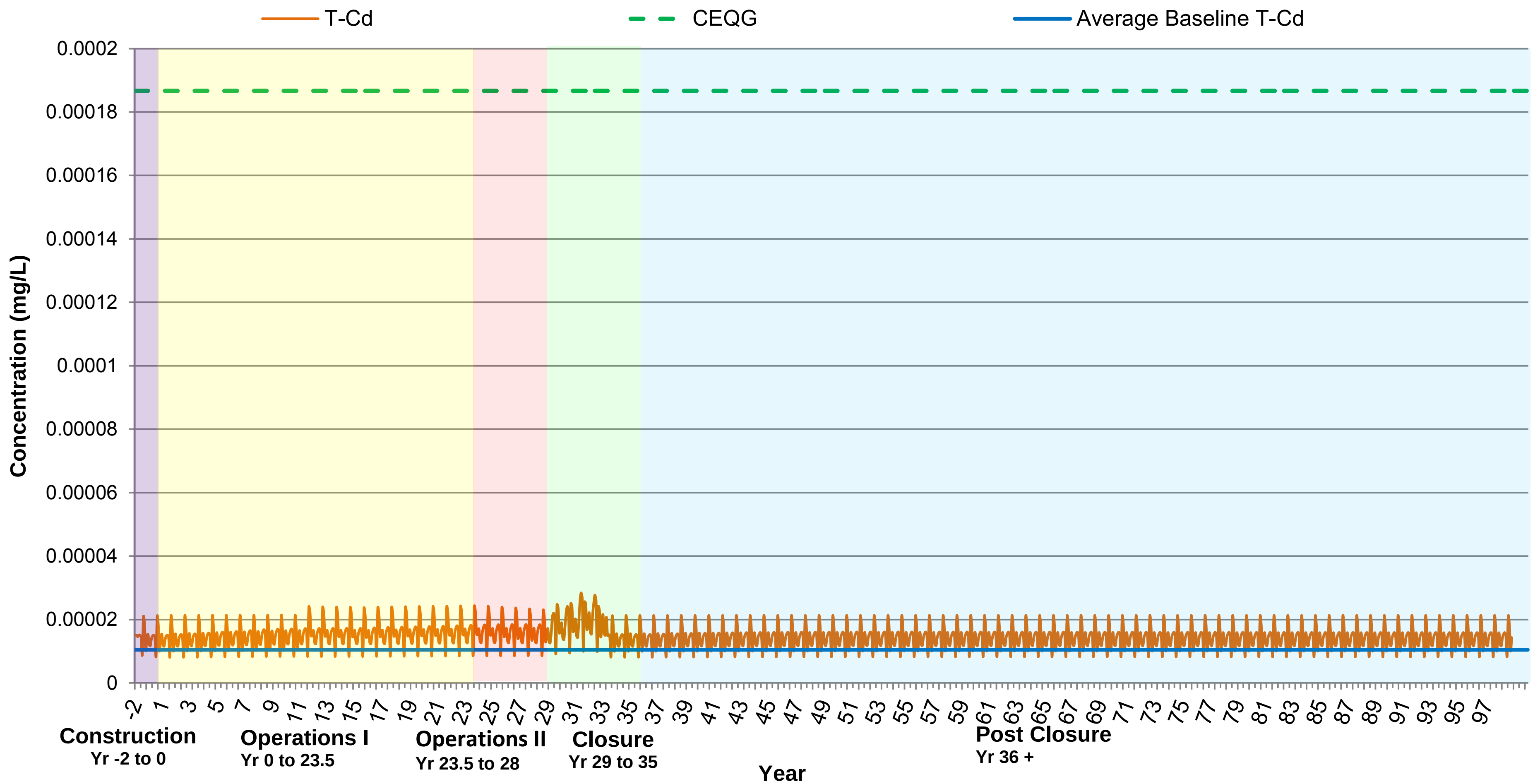
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Be

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. THE BCWQG ARE DRAFT GUIDELINES UNDER REVIEW (JUNE 2014).
3. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
4. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - JONES CREEK (J1)

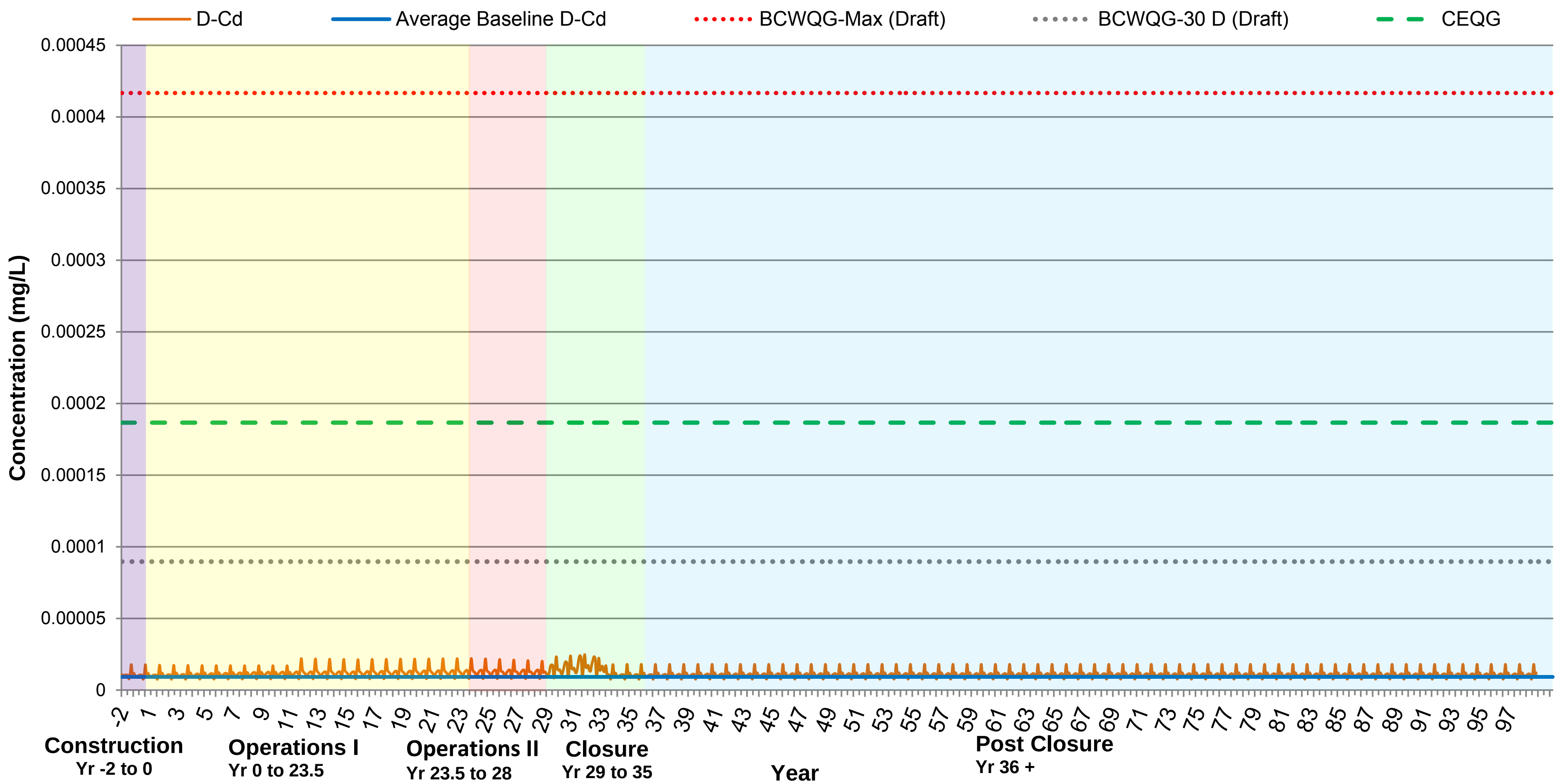
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Cd-T

REV 0



NOTES:

1. BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CADMIUM CONCENTRATIONS - JONES CREEK (J1)

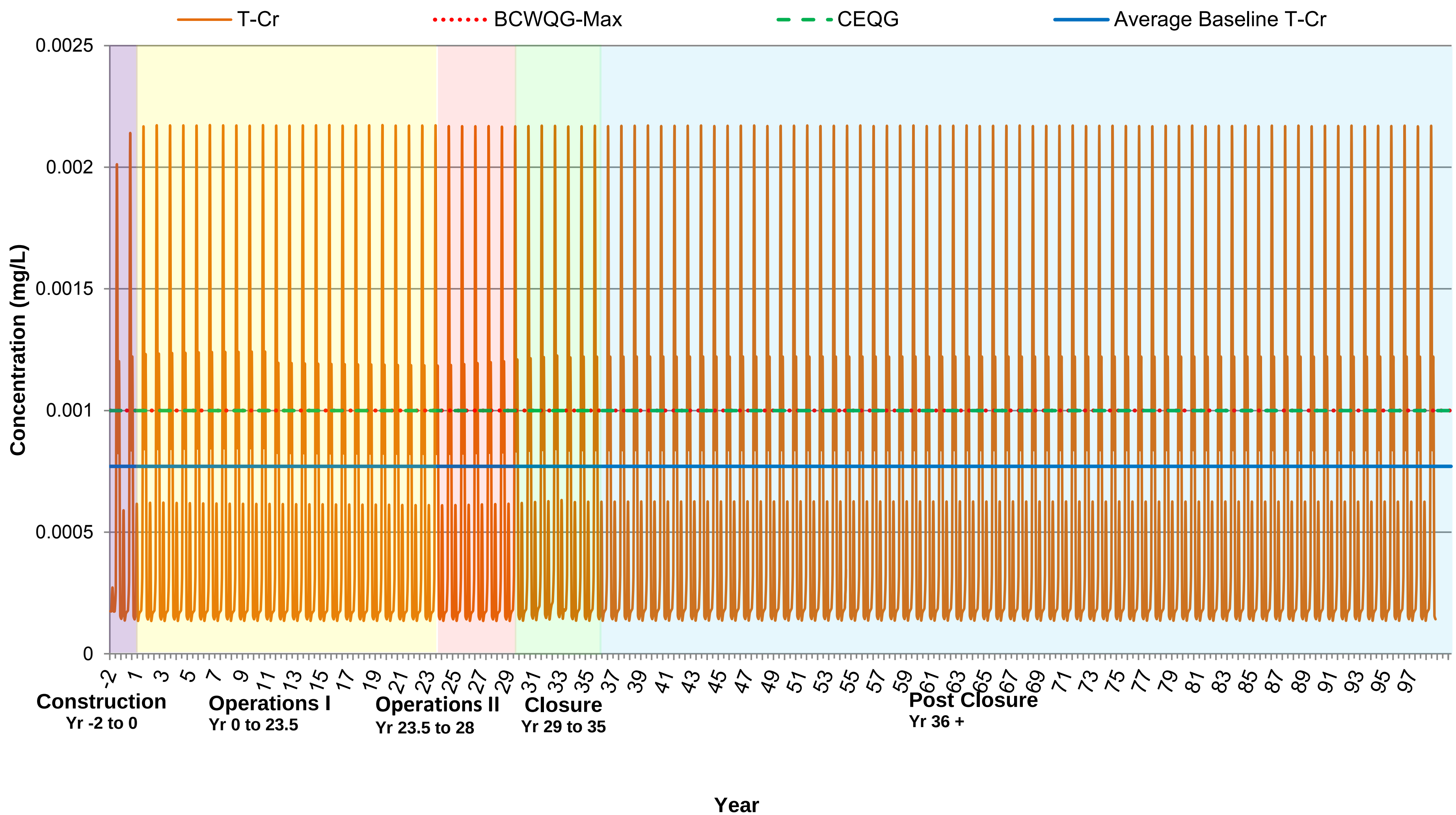
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Cd-D

REV 0



NOTES:

1. GUIDELINES ARE FOR CHROMIUM (IV), THE SPECIES MOST COMMON IN WELL OXYGENATED SURFACE WATERS.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT CHROMIUM CONCENTRATIONS - JONES CREEK (J1)

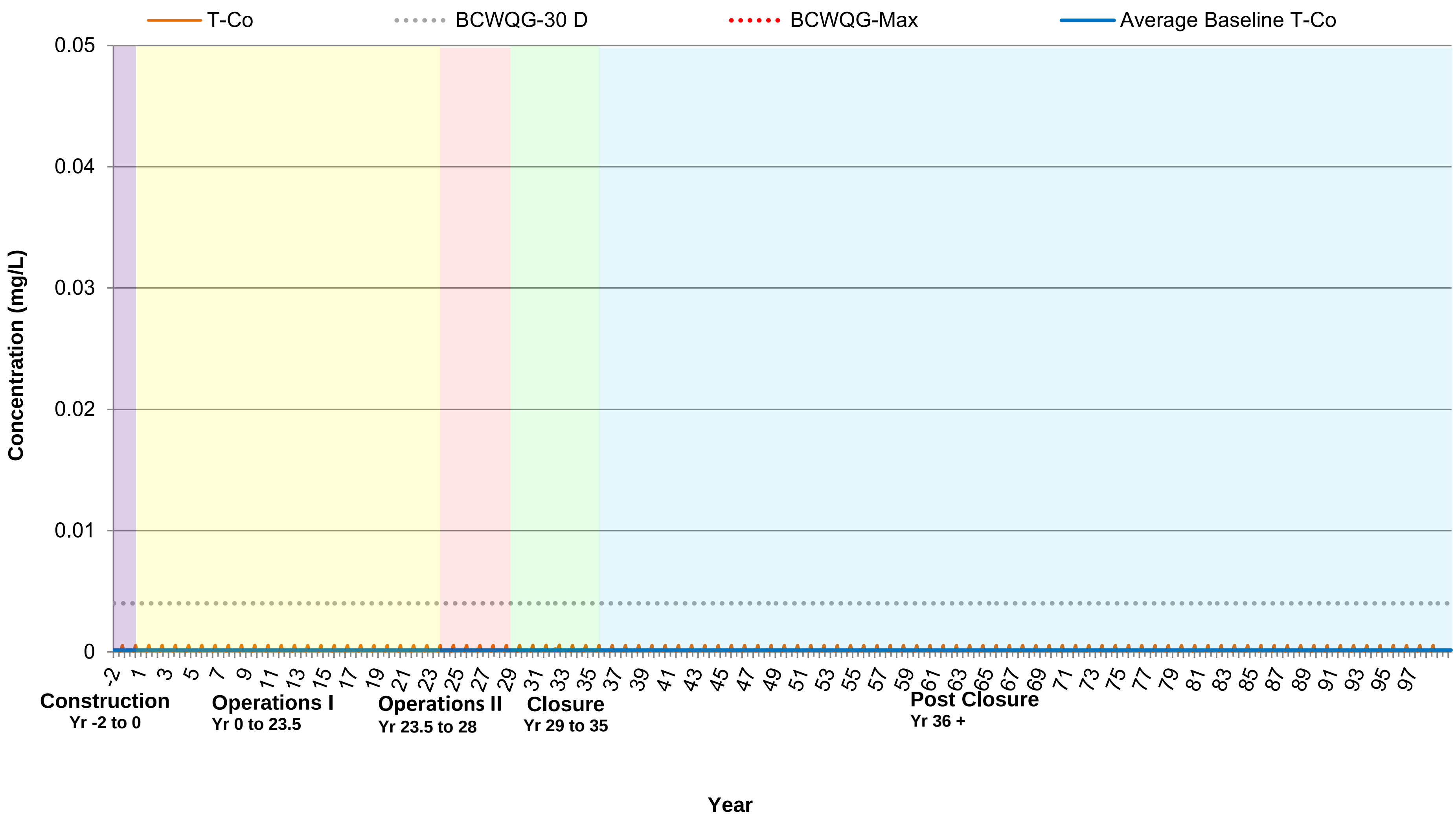
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Cr

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. THE BCWQG-MAX GUIDELINE (0.11 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COBALT CONCENTRATIONS - JONES CREEK (J1)

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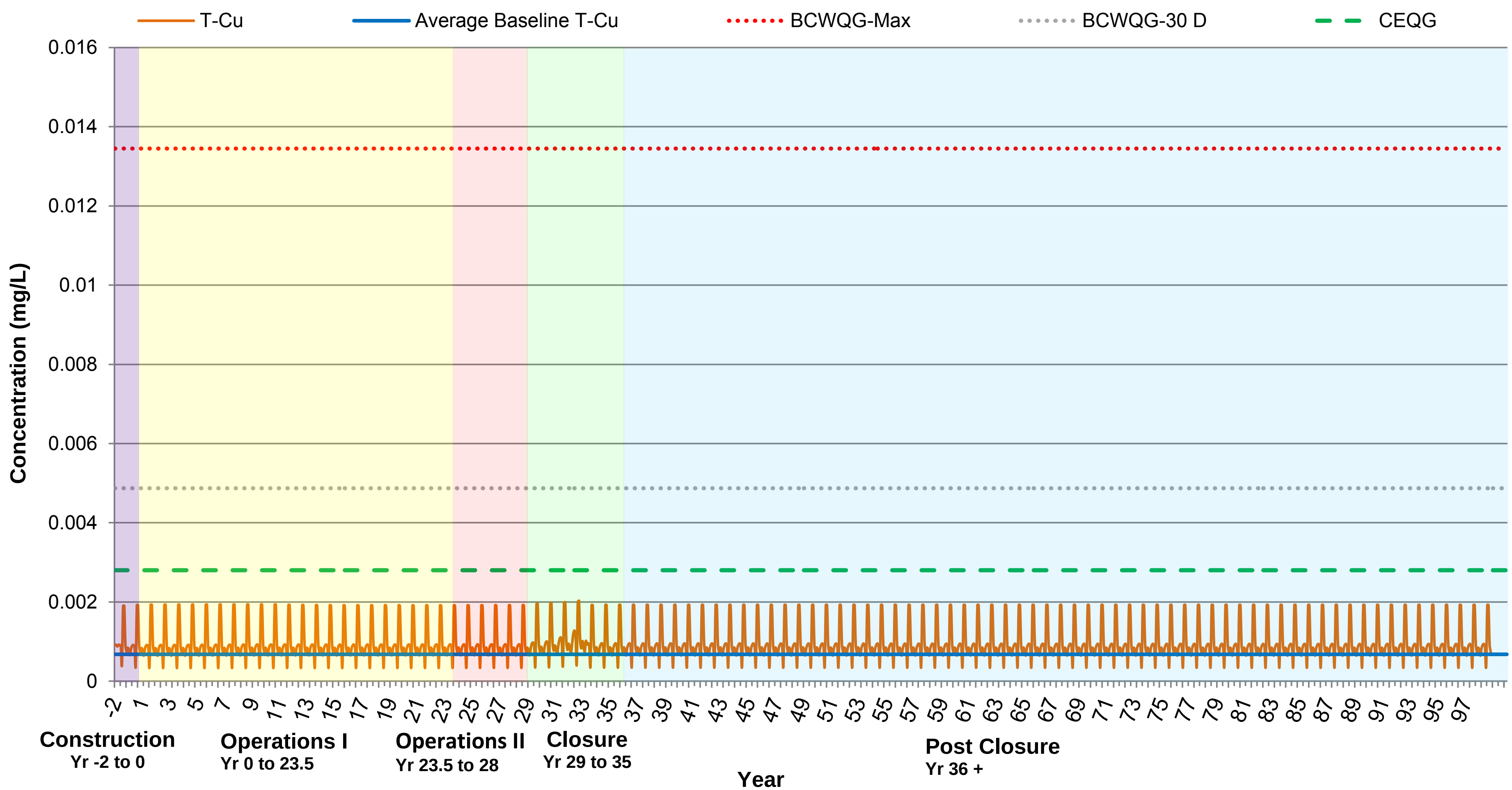
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Co

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - JONES CREEK (J1)

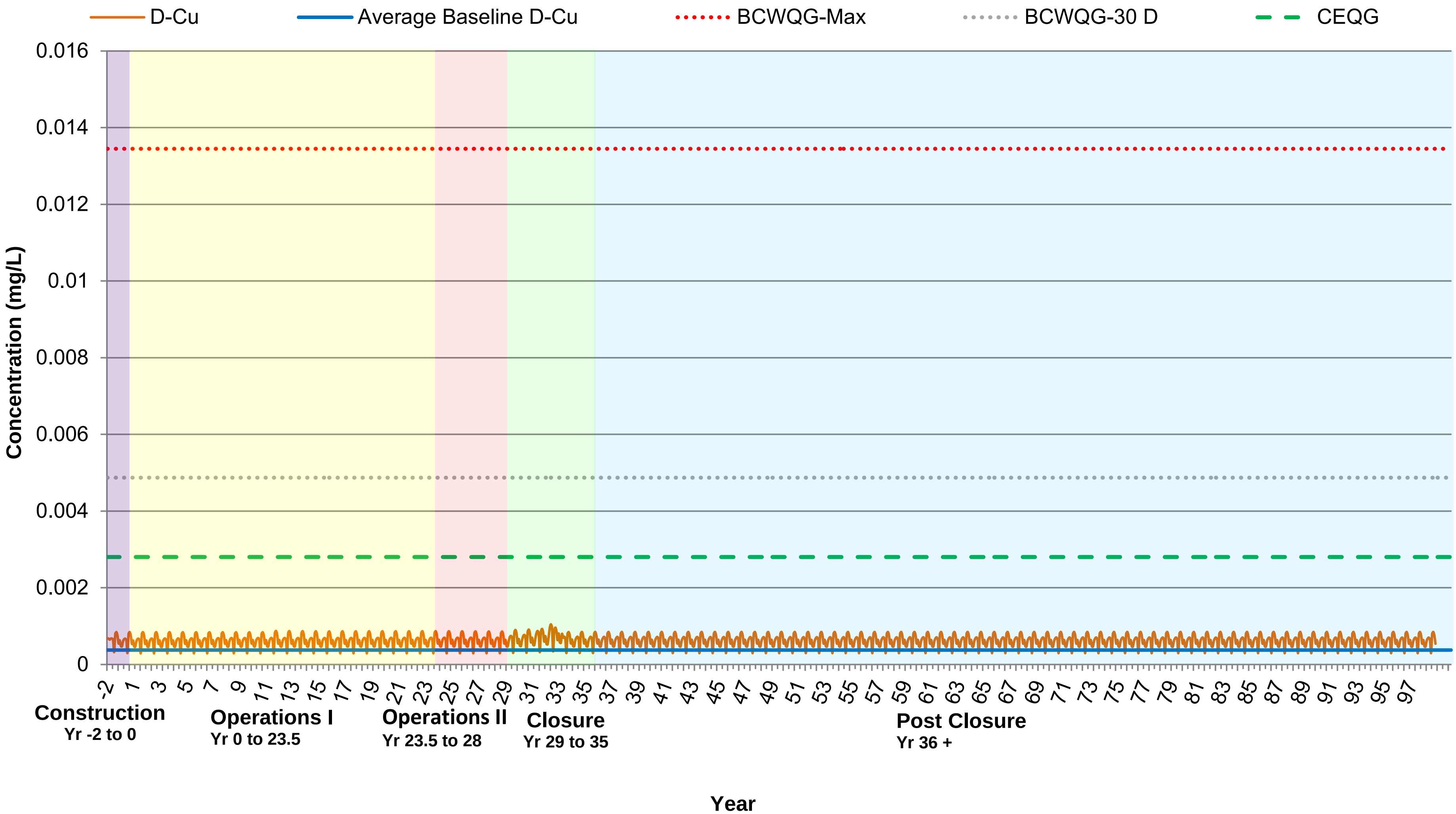
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Cu-T

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT COPPER CONCENTRATIONS - JONES CREEK (J1)

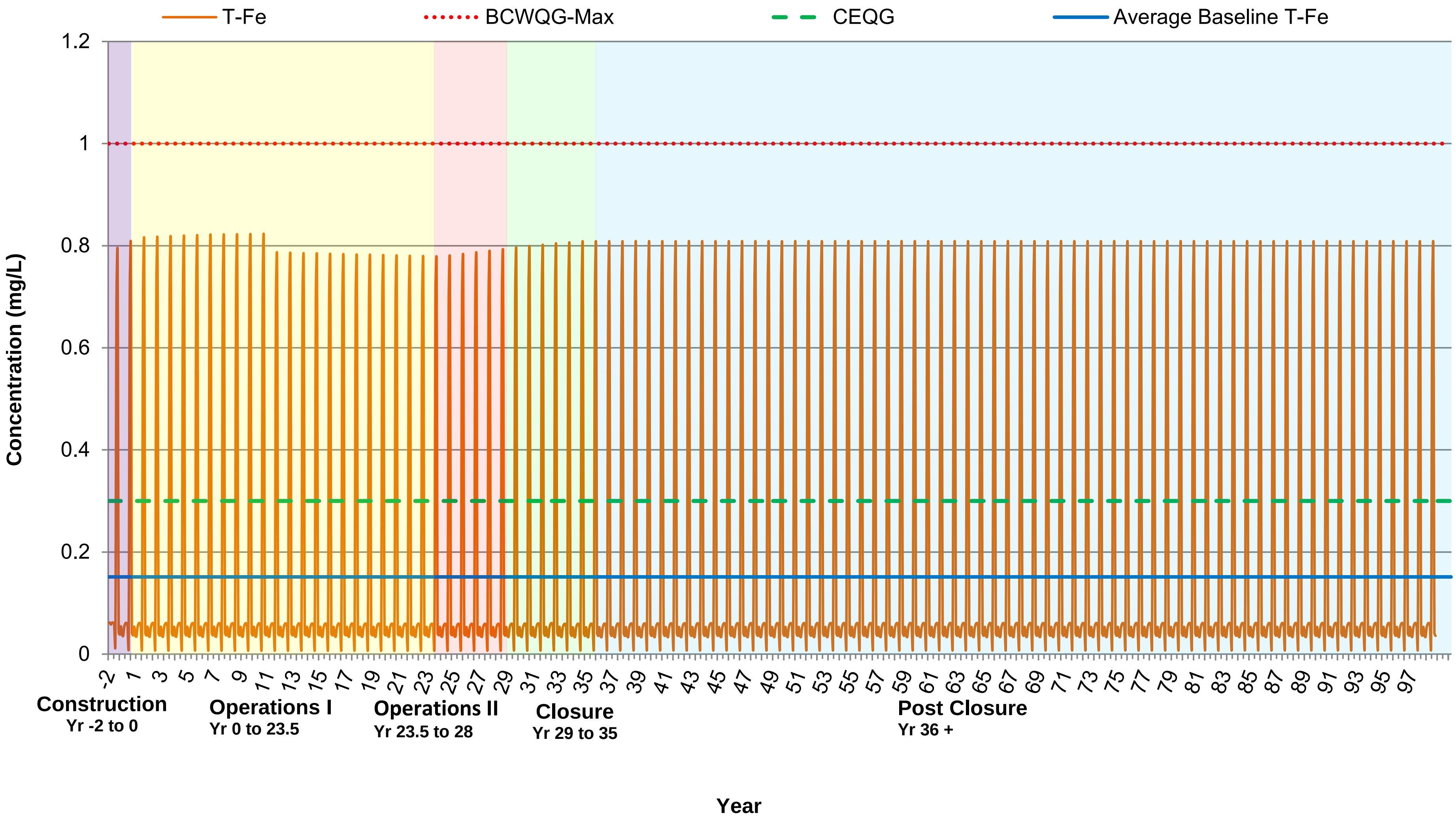
Knight Piésold CONSULTING

P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Cu-D

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. BCWQG-MAX 1.0 mg/L IS NOT SHOWN ON GRAPH.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT TOTAL IRON CONCENTRATIONS - JONES CREEK (J1)

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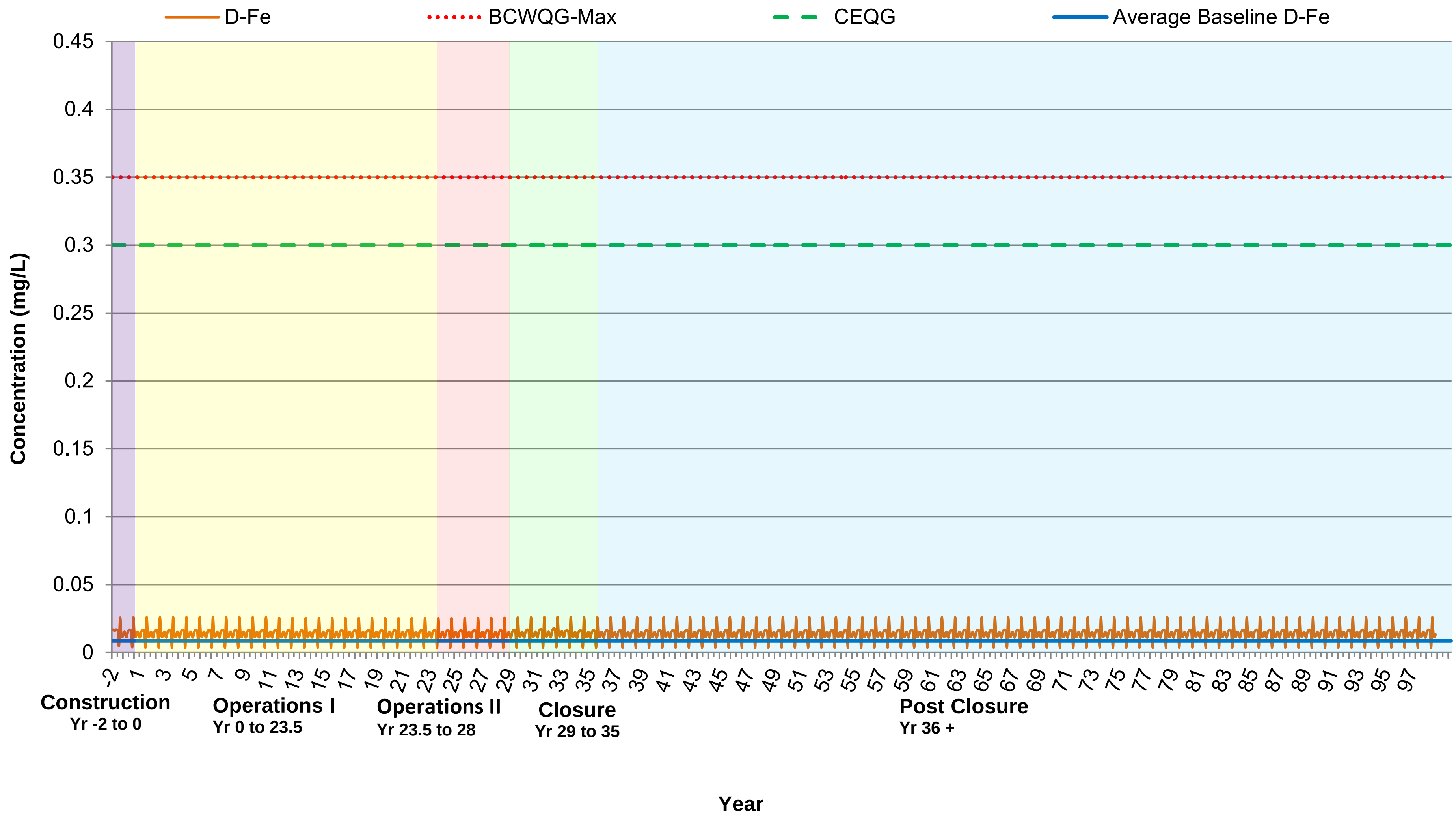
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Fe-T

REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

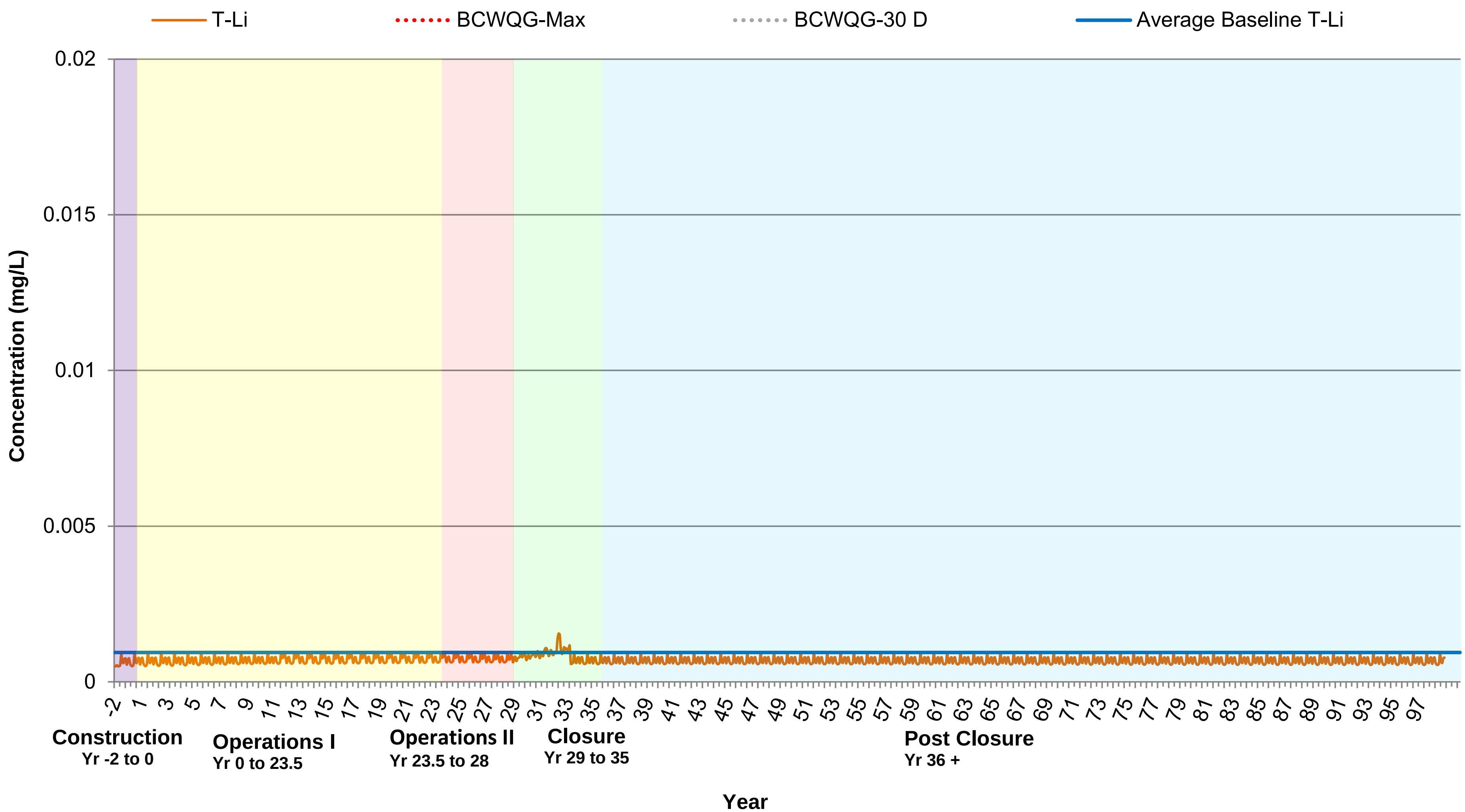
HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT DISSOLVED IRON CONCENTRATIONS - JONES CREEK (J1)

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-458/17	VA14-01825	
FIGURE A11.Fe-D		REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. THE BCWQG-30 D (0.096 mg/L) AND BCWQG-MAX (0.87 mg/L) ARE INTERIM (WORKING) AND ARE NOT SHOWN ON GRAPH.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LITHIUM CONCENTRATIONS - JONES CREEK (J1)

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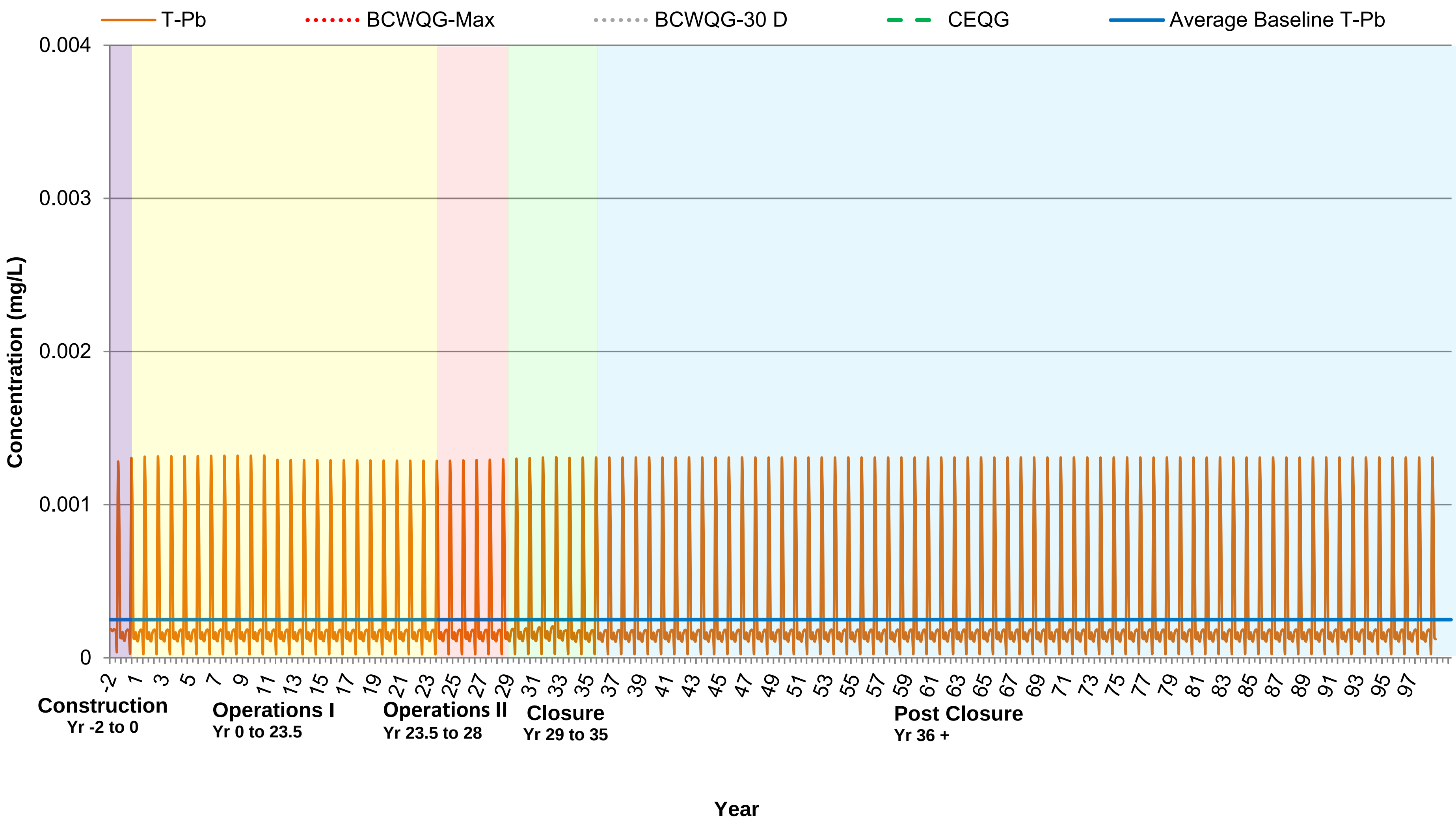
FIGURE A11.Li REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.
4. THE BCWQG-MAX (CALCULATED AT 0.011 mg/L) IS NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT LEAD CONCENTRATIONS - JONES CREEK (J1)

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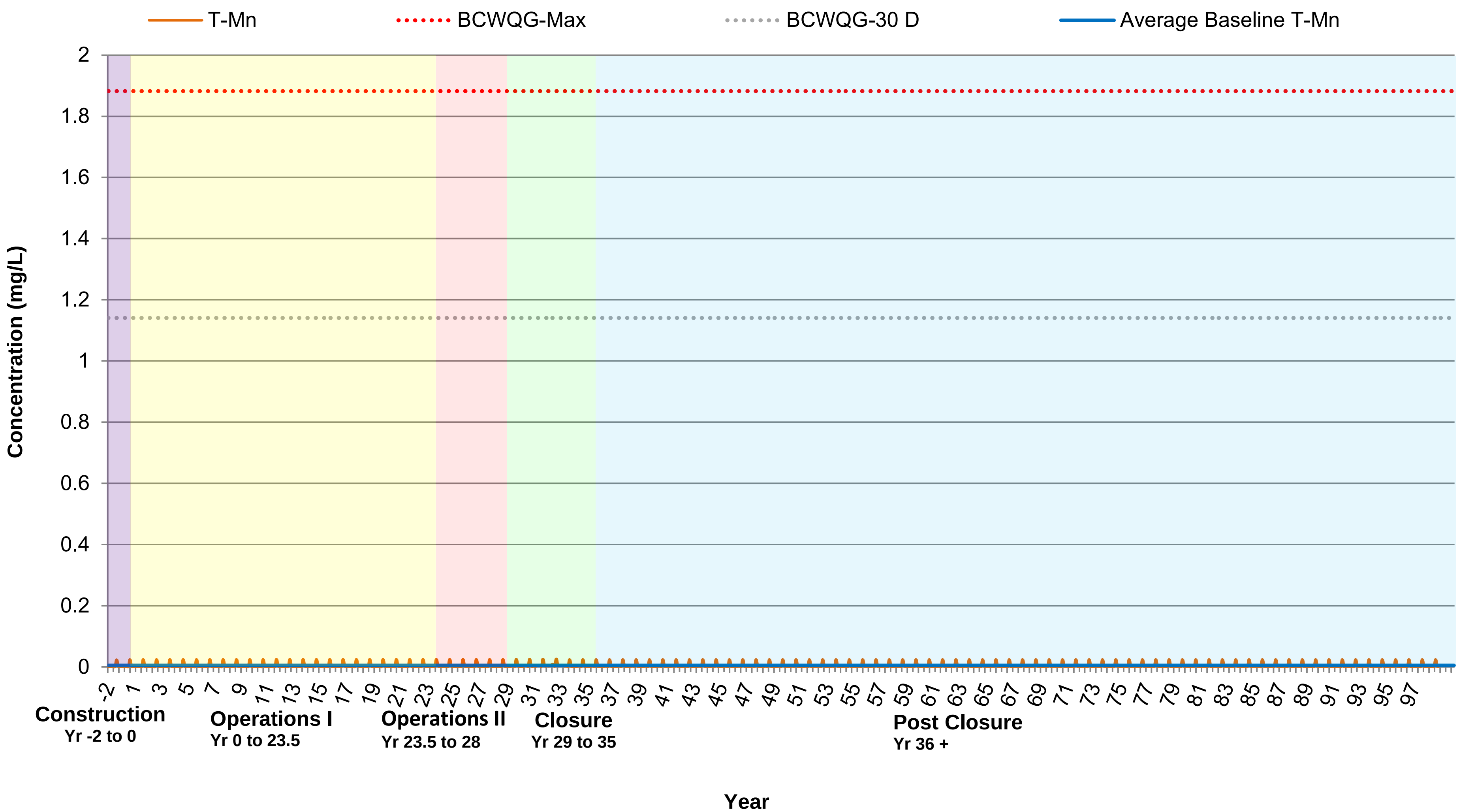
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Pb

REV 0



NOTES:

1. ALL GUIDELINES ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MANGANESE CONCENTRATIONS - JONES CREEK (J1)

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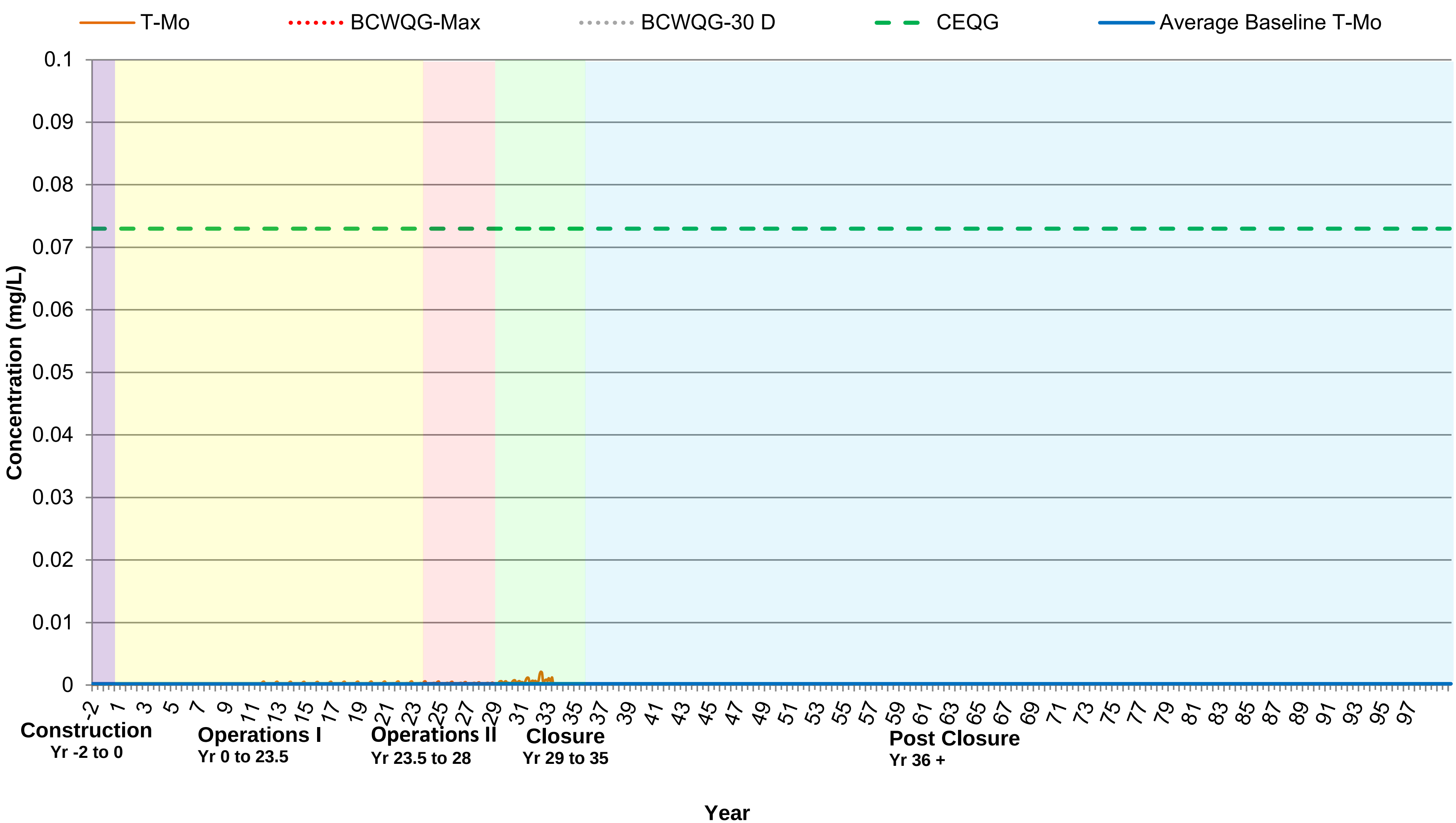
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Mn

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. THE BCWQG-MAX (2 mg/L) AND BCWQG-30 D (1 mg/L) ARE NOT SHOWN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MOLYBDENUM CONCENTRATIONS - JONES CREEK (J1)

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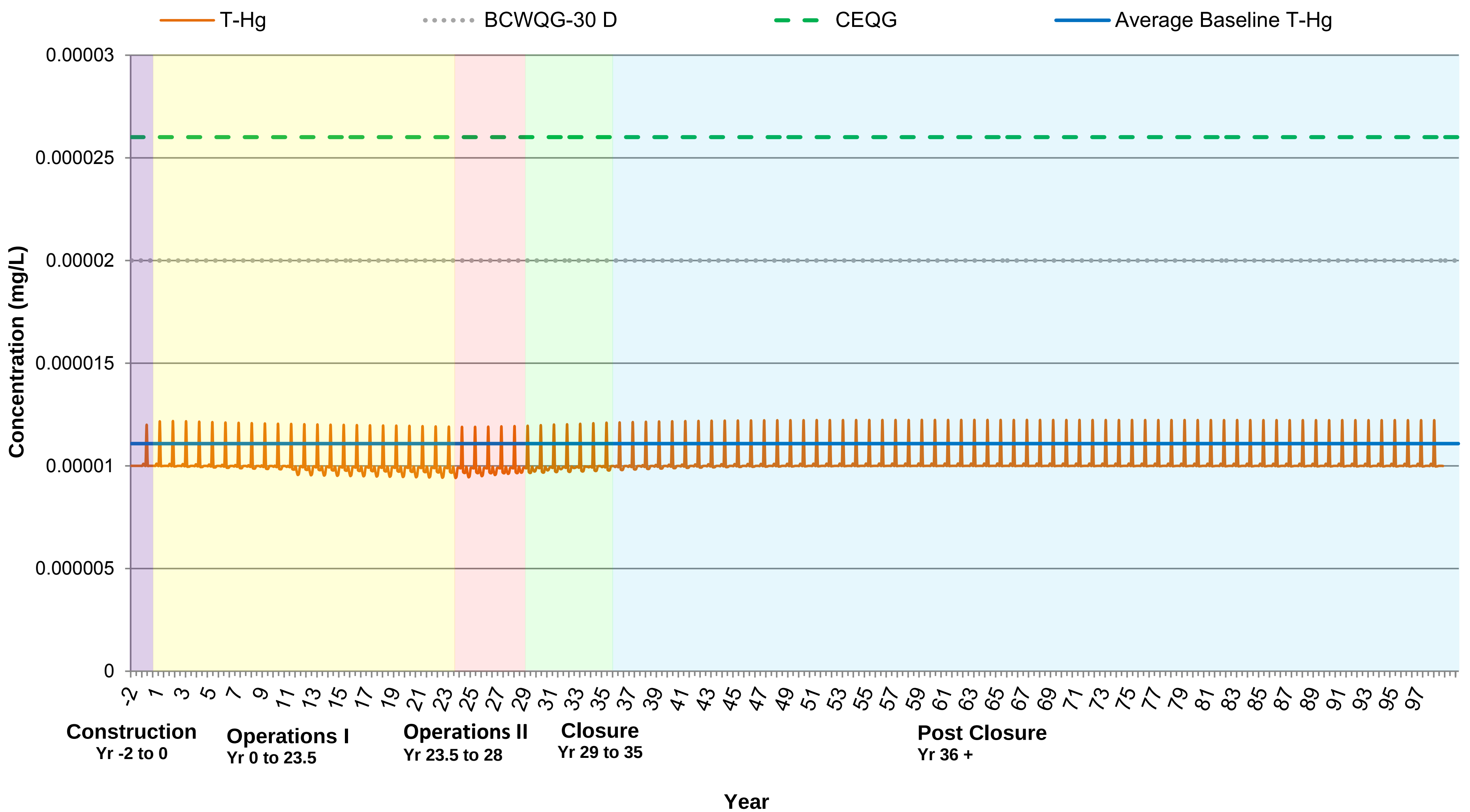
REF. NO. VA14-01825

FIGURE A11.Mo

REV 0



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. BCWQG-30 D VALUE APPLIED ON ASSUMPTION THAT METHYL-Hg IS EQUAL TO 0.5% OF T-Hg.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT MERCURY CONCENTRATIONS - JONES CREEK (J1)

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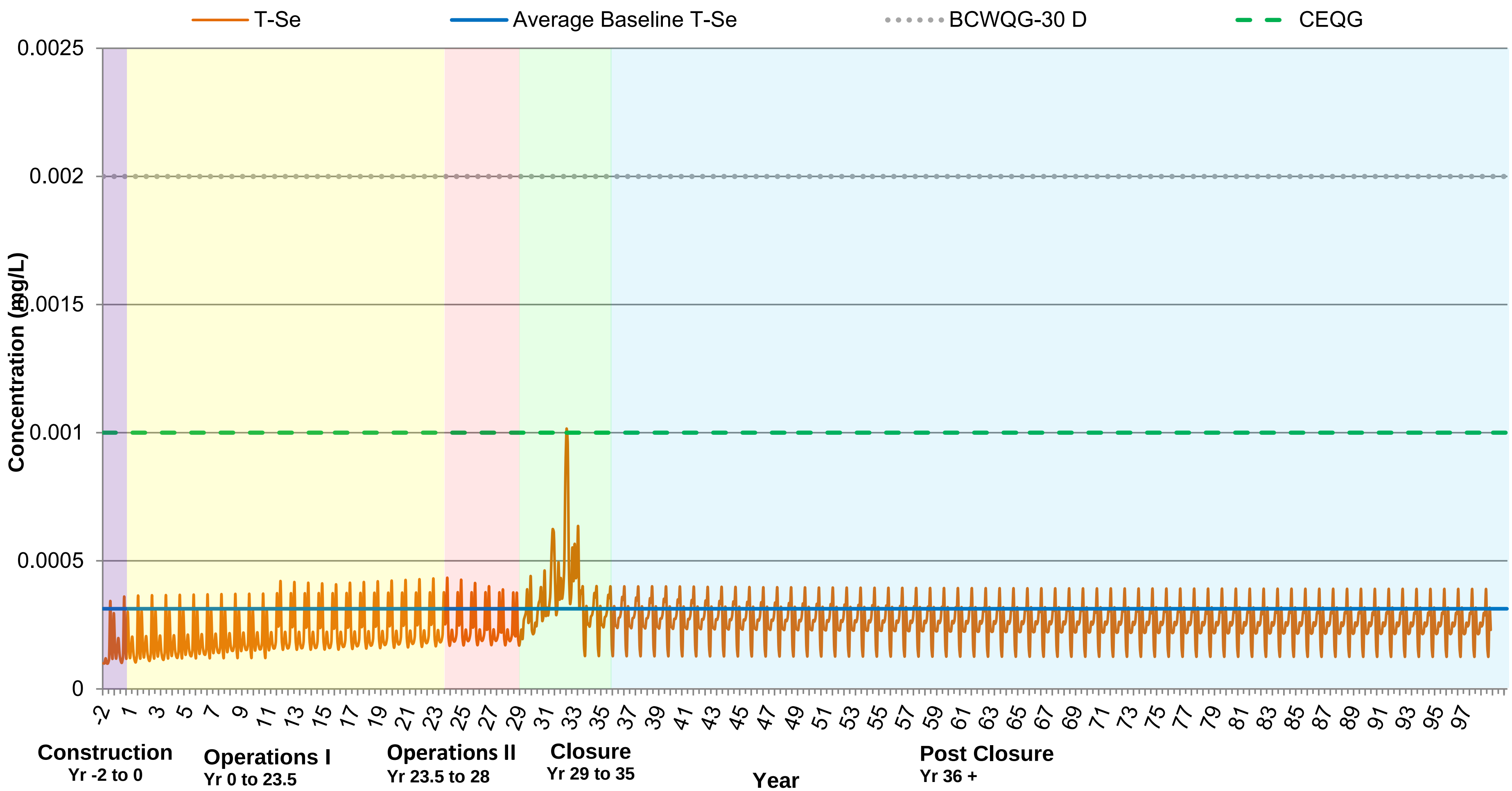
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.Hg

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. THE BCWQG-30 D AND CEQG ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

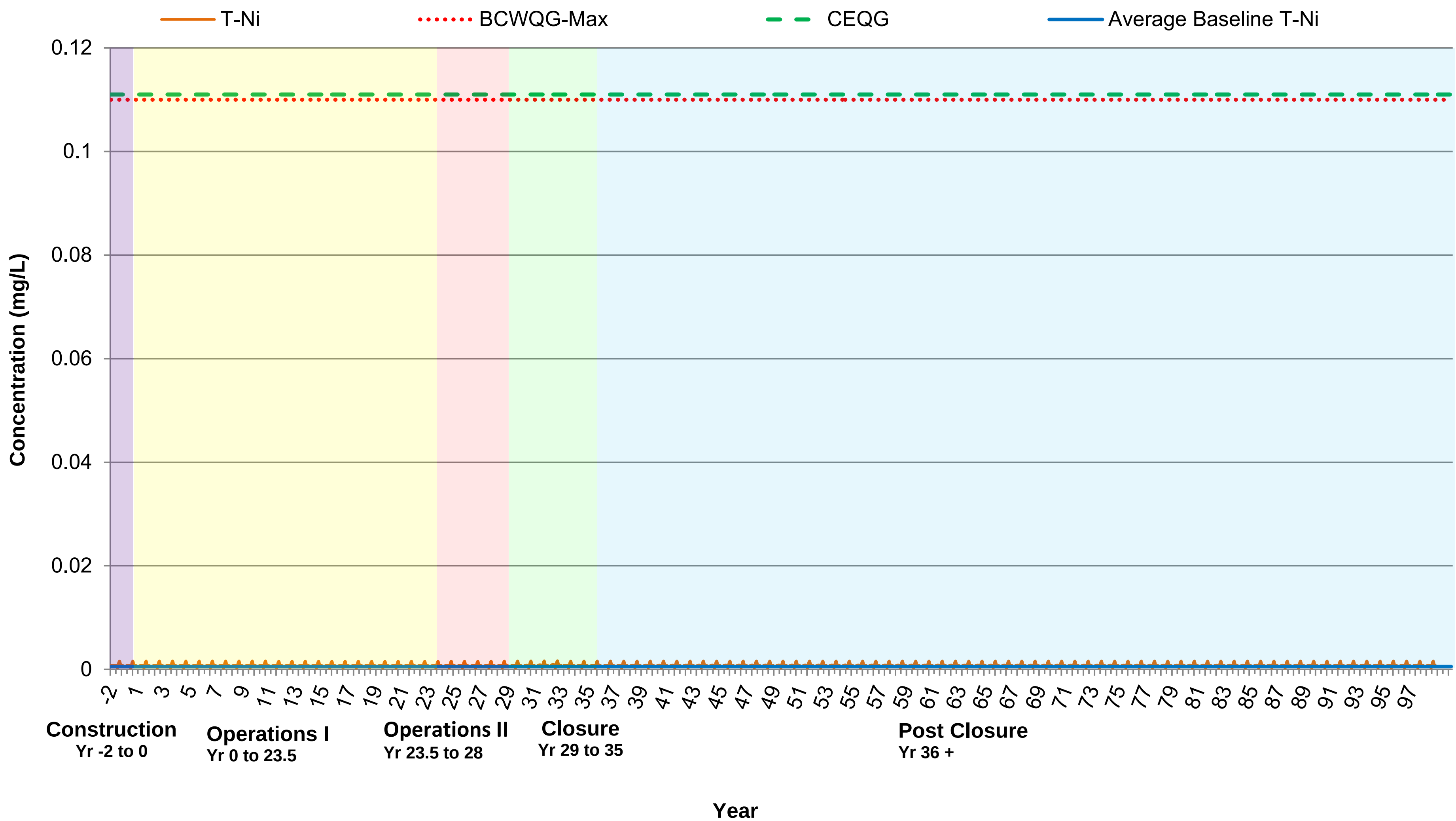
HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SELENIUM CONCENTRATIONS - JONES CREEK (J1)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE A11.Se REV 0



NOTES:

1. THE BCWQG-MAX AND CEQG ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT NICKEL CONCENTRATIONS - JONES CREEK (J1)

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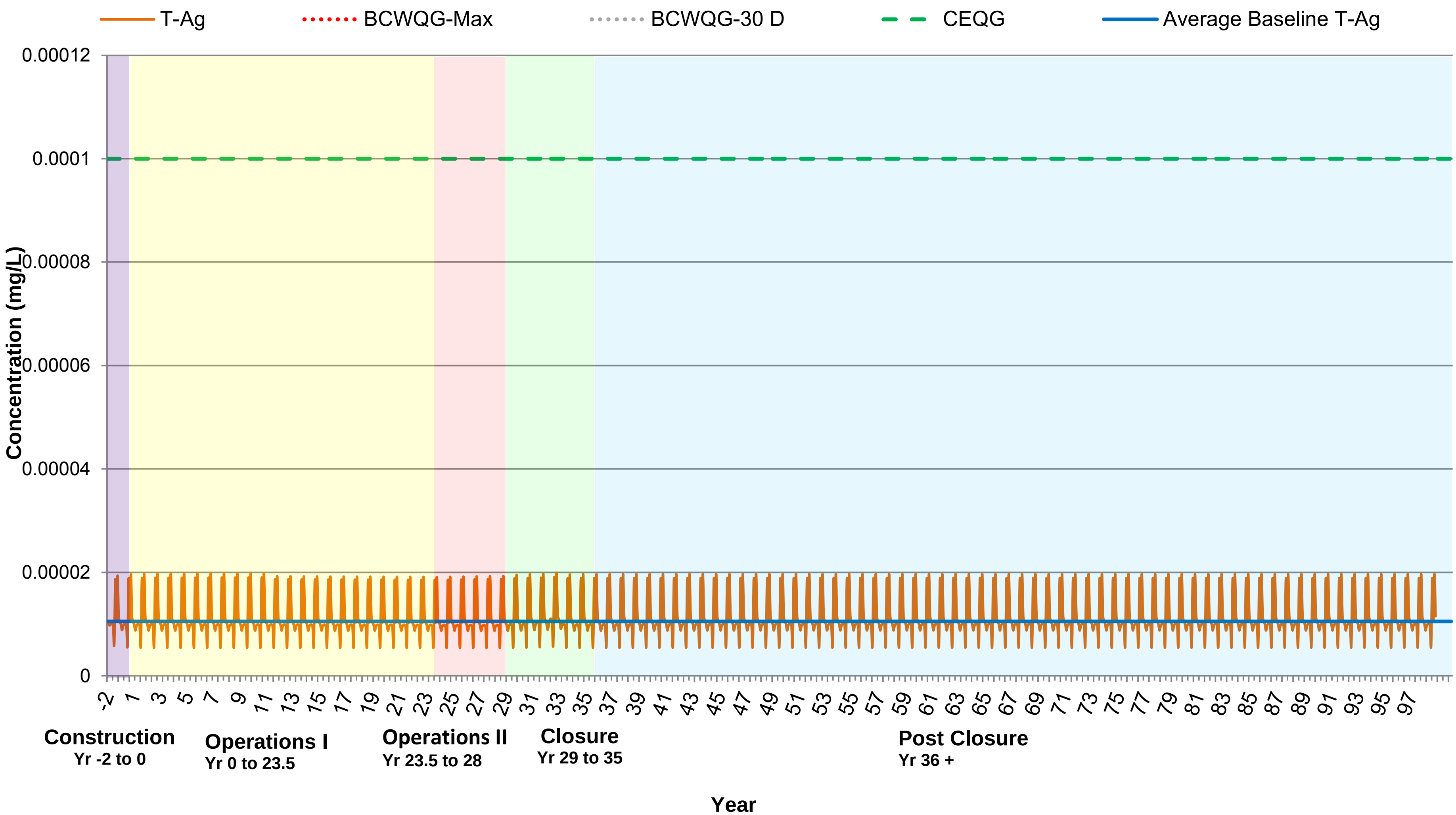
REF. NO. VA14-01825

FIGURE A11.Ni

REV 0



NOTES:

1. THE BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
2. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT SILVER CONCENTRATIONS - JONES CREEK (J1)

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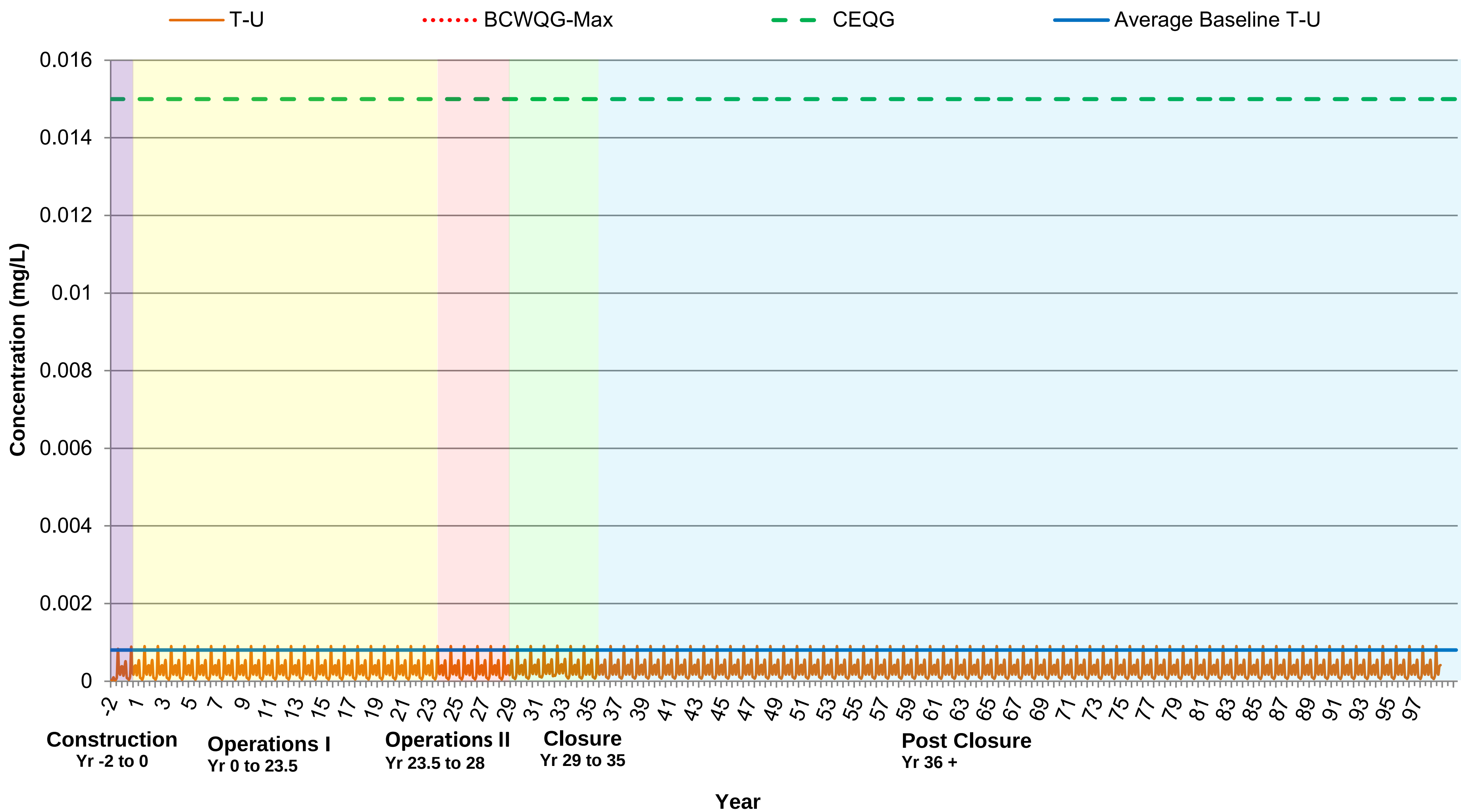
REF. NO. VA14-01825

FIGURE A11.Ag

REV 0



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. THE BCWQG-MAX (0.3 mg/L) IS NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT URANIUM CONCENTRATIONS - JONES CREEK (J1)

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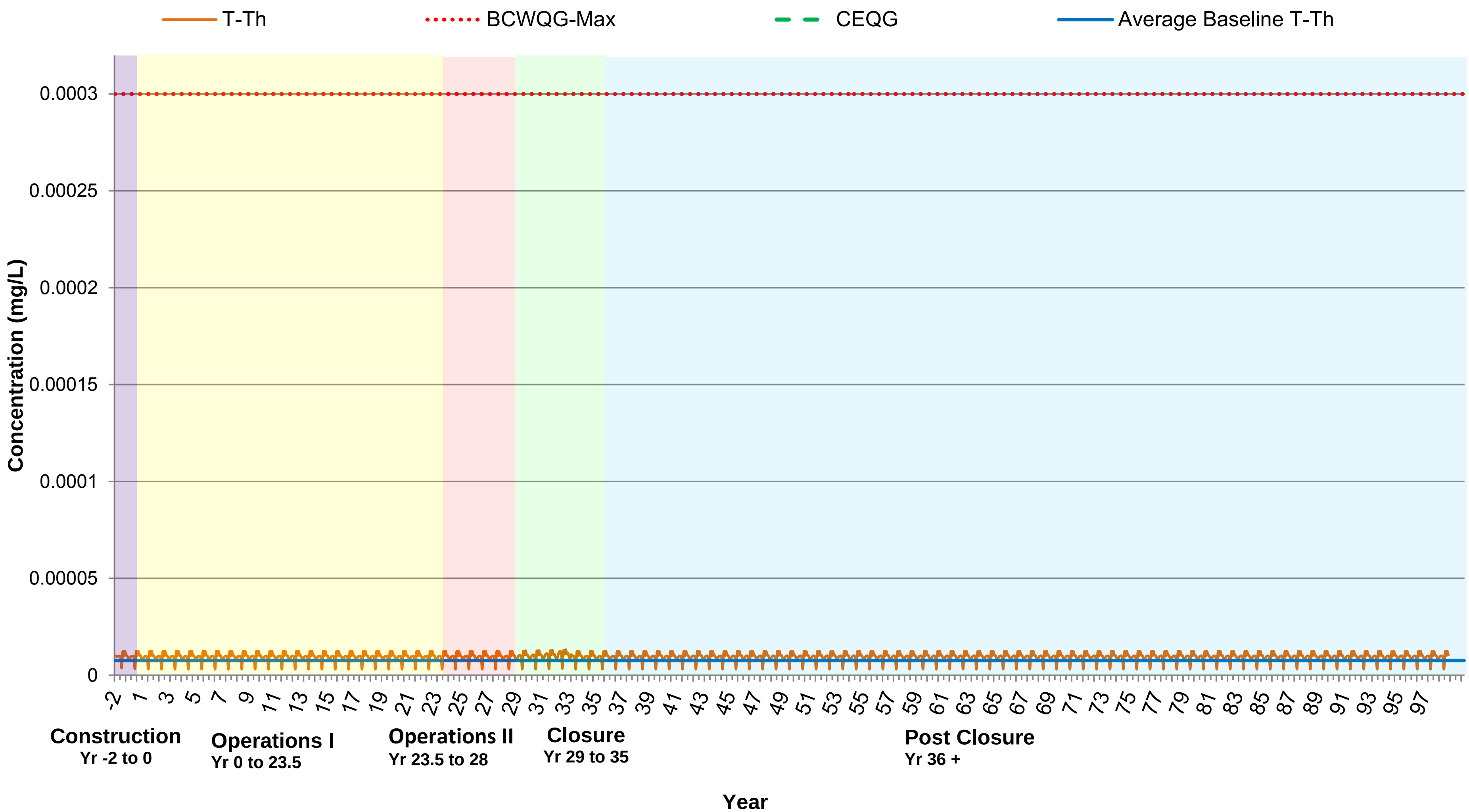
P/A NO. VA101-458/17

REF. NO. VA14-01825

FIGURE A11.U

REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. ALL GUIDELINES ARE FIXED VALUES.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. THE CEQG (0.0008 mg/L) IS NOT SHOWN.

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

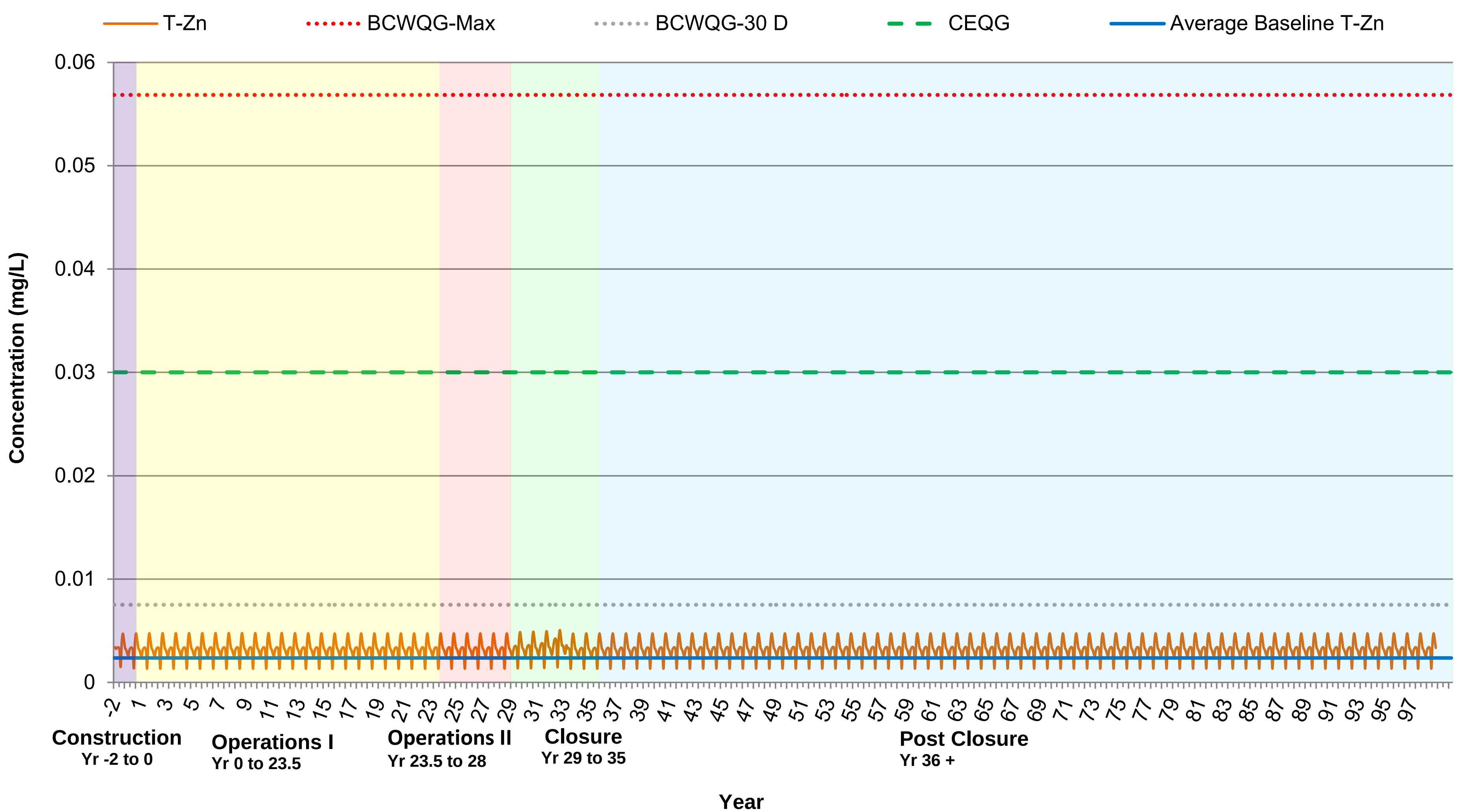
PREDICTED REASONABLE UPPER LIMIT THALLIUM CONCENTRATIONS - JONES CREEK (J1)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-458/17	VA14-01825

FIGURE A11.Th REV 0

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



NOTES:

1. BCWQG-30 D AND BCWQG-MAX ARE HARDNESS-DEPENDENT.
2. BASELINE SITE USED FOR COMPARISON IS SITE J1 (AVERAGE HARDNESS OF 121 mg/L).
3. AVERAGE BASELINE HARDNESS IS USED TO CALCULATE HARDNESS-DEPENDENT GUIDELINES.

0	19DEC'14	ISSUED WITH VA14-01825	EJA	JEM	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

HARPER CREEK MINING CORP.

HARPER CREEK PROJECT

PREDICTED REASONABLE UPPER LIMIT ZINC CONCENTRATIONS - JONES CREEK (J1)

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REF. NO. VA14-01825

FIGURE A11.Zn

REV 0