

# **Appendix 7.1**

## **Aftercare Plan**

After care period expected to start April 2020				
Ref	Description	No of Sampling Points	Unit cost (Euro)	Additional comment
<b>1.0 Groundwater</b>				
<b>1.1</b>	Monitoring of water within regional wells  Water sampled from 6 regional wells surrounding the mine site area. Please refer to Chapter 2 for a map of these locations. 1 sample will be taken from each well.  Frequency will be twice a year for up to three years into Aftercare, falling to annually, with a further reduced frequency as we advance into aftercare.	6	50	Parameters to include water level, physiochemical parameters, dissolved metals, nutrients and anions. The exact parameters will be determined closer to the Aftercare period following recovery of the water table and a review of the chemistry to determine contaminants of potential concern.
<b>1.2</b>	Groundwater Compliance Wells CW1 and CW2  One well drilled South-westerly to Main Zone and the other drilled South-westerly to the TMF.  Frequency will be twice a year for up to three years into Aftercare, falling to annually, with a further reduced frequency as we advance into aftercare.	2	50	
<b>2.0 TMF Monitoring</b>				
<b>2.1</b>	TMF Boreholes and Piezometers  Monitoring wells surrounding the TMF: 18 sampling points including Piezometers and monitoring wells surrounding the TMF, with at least two from each quadrant.  Frequency will be annually for the first five years into Aftercare, falling to every two years, with a further reduced frequency as we advance into aftercare.	18	50	Parameters to include water level, physiochemical parameters, dissolved metals, nutrients and anions. The exact parameters will be determined closer to the Aftercare period following recovery of the water table and a review of the chemistry to determine contaminants of potential concern.
<b>2.2</b>	Sampling of Piezometers & Boreholes (TMF and Groundwater)  Technician required to undertake the sampling rounds	-	250 / day	
<b>2.3</b>	Plant Chemistry  Plant and leaf analysis. Composite samples for across the TMF as per Teagasc guidelines.  Frequency will be annually for up to five years into Aftercare, falling to every two years, with a further reduced frequency as we advance into aftercare.	8	91 for leaf, 91 for root	Analysis for Pb, Zn, As, Cd, Total Phosphorous, Phosphate as PO <sub>4</sub> , Phosphorous P <sub>2</sub> O <sub>5</sub> .  Prices based on current sampling programme.

<b>2.4</b>	Soil Chemistry	Soil analysis. Composite samples from across the TMF. Frequency will be annually for up to five years into Aftercare, falling to every two years, with a further reduced frequency as we advance into aftercare.	8	66	Analysis for Pb, Zn, As, Cd and extractable Phosphorous. Prices based on current sampling programme.
<b>2.5</b>	Plant and soil sampling	Technician required to undertake the sampling rounds. Frequency will be annually for up to five years into Aftercare, falling to biannually, with a further reduced frequency as we advance into aftercare.	-	250 / day	
<b>2.6</b>	TMF Embankment walls Settlement Survey	Level survey of TMF benchmarks. Frequency will be annually for up to five years into Aftercare, falling to every 5 years as we advance into aftercare.	-	2000 / survey	
<b>2.7</b>	TMF audit	Audit every second year. One SEED audit every 15 years.	-	4,500 per Audit, 13,300 per SEED Audit	

<b>3.0 Surface Water</b>						
<b>3.1</b>	TMF Run off	Wetland influent. Frequency will be weekly for the first two years into Aftercare, falling to monthly, with a further reduced frequency as we advance into aftercare.	1	118	Parameters to physiochemical parameters, dissolved metals, nutrients and anions. The exact parameters will be determined closer to the Aftercare period following a review of the chemistry to determine contaminants of potential concern.	
<b>3.2</b>	Rossetown Compensation Flow (if required)	Compliance Point PWE2. Frequency as per IPC Licence, if discharging	1	118	Parameters will be analysed as per the IPCL	
<b>3.3</b>	Upstream and Downstream monitoring Rossetown River	Frequency as per IPC Licence, if discharging. Upstream of PWE2 discharge and Downstream of PWE2.	2	118		
<b>3.4</b>	Discharge to Dish River	Compliance Point, Clogheen Pond, SW1 Frequency as per IPC Licence	1	118		
<b>3.5</b>	Upstream and Downstream monitoring Dish River	Upstream at Castletown West Bridge West and downstream at Boolabeha Bridge. Frequency as per IPC Licence	2	118		
<b>3.6</b>	Surface water sampling (visit to site by technicians)	Technician required to undertake the sampling rounds.	-	110 or 250 / day depending on frequency		110 / day for frequent sampling, 250 / day for quarterly and less frequent sampling.

**4.0 Additional**

<b>4.1</b>	IPCL Fees	Reduced fee associated with reduced risk	Annually	10,000 falling to 5,000 after 5 years	<p>In the aftercare period the water table will have recovered, the tailings dam will be fully rehabilitated and a number of years of validation will already have been submitted to the EPA to demonstrate that site that is stable and low risk.</p> <p>Therefore there will be a much reduced workload for the EPA associated with enforcement of the licence.</p> <p>The cost allowed for licence fees in the aftercare years are for the equivalent of 2 weeks full time of a senior consultant (10,000 / €120 = 83 hrs).</p> <p>In year 6 of aftercare this is reduced further to 41 hours (5,000/€120 = 41 hours). This fee structure is dependent on a demonstration that the risk is reduced sufficiently from year 1 and 6 of aftercare and will be subject to review.</p>
<b>4.2</b>	Insurance (Public Liability)		Annually	10,000	
<b>4.3</b>	Maintenance (Wetland & TMF)	Scope for more significant work every 5 years (if required)			

<p><b>4.4</b></p>	<p>Administration of Aftercare (submission of reports, administration, technical consultancy, security, &amp; attendance of meetings by company representative).</p>	<p>Lisheen Mine proposed a cost of £20,100 for the administration of a Trust Fund associated with aftercare as part of the original EIS and permitting process.</p> <p>The cost included a consideration for legal costs (£8,400), Technician Admin (£2,100), 6 day of meeting expenses @£600 per day - £3,600 &amp; a retainer for Trust members at a total cost of £6,000.</p> <p>In today's money this would be equivalent to a cost of c. €38,000.</p>	<p>Annually</p>	<p>38,000 for year 1, falling to 13,000 for the following 4 years, remaining at 8,000 until year 30</p>	<p>It is not expected that there will be any significant long term costs associated with administration of the aftercare programme.</p> <p>For year 1 the initial figure as given in the planning application has been entered. A sum of €8,000 per annum will be set aside for administration of the aftercare fund. This allows for the equivalent of 10 days, based on 8hr working days @ €100 per hour to correspond with the various consultants who will be carrying out the tasks required as part of aftercare.</p> <p>For years 2 to 5 an additional sum of €2,000 will be included for expenses associated with facilitation of meetings and €3,000 for any legal advice that may be required.</p> <p>After 5 years there will be no cost associated meetings or legal advice associated with the fund.</p> <p>In the years preceding aftercare, i.e. during the active closure of the Mine, systems and procedures will be developed to manage the implement and draw down of funds from the aftercare fund. In the initial year of aftercare these procedures will be proven.</p>
<p><b>4.5</b></p>	<p>Annual report to be produced by external consultant on environmental performance.</p>	<p>Collation and interpretation of all environmental monitoring</p>	<p>Annually</p>	<p>10,000</p>	<p>80hrs of Junior Scientist at €75/hr (€6,000). 20hrs of Senior Scientist at €120/hr (€2,400) . Plus contingency of €1600.</p>
<p><b>4.6</b></p>	<p>Subsidence Monitoring (ore bodies)</p>	<p>Level survey of regional benchmarks.</p>	<p>Annually</p>	<p>3,500</p>	<p>After year 5 the frequency will move to every 5 years due to the expected stabilisation of the readings (this is subject to the data and review of same)</p>

