Pearl Liske

From: Sarah Baines [sbaines@mvlwb.com]
Sent: Saturday, July 29, 2006 2:06 PM
To: permits@mvlwb.com
Subject: FW: BHP Billiton's Response to Reviewer's Comments on the WPKMP

MV2003L2-0013 - BHPB response to review comments on WPKMP

-----Original Message-----
From: Murphy, Brent [mailto:Brent.Murphy@bhpbilliton.com]
Sent: Friday, July 14, 2006 3:18 PM
To: Sarah Baines
Cc: stewarts@inac-ainc.gc.ca; Theil, Linda M; Morrissy, Charlie J
Subject: BHP Billiton's Response to Reviewer's Comments on the WPKMP

Sarah

For your records

Brent

<<BHPB Response_Reviewer Comments WPKMP_06 -14-07-06-final.pdf>>

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WPKMP–COMMENT/RESPONSE TABLE – JULY 14, 2006

Tracking Number	Reviewer	Comment ID		Topic	Review Comment	BHP Billiton Response	BHP Billiton Proposed Revision		Action Item (if applicable)
Comments received at Information Session April 13, 2006									
1	Environment Canada	EC-1		Racetrack	*Will the wastewater that was going to Racetrack and now to Cell B be monitored/sampled for incorporation into the WQ model.*	The volume of water expected from the sumps that hydrocarbons potentially report to is estimated at less than 6000m^3. The 2005 flows to the LLCF were estimated to be: 5,916,753 m^3 from the process plant, 438,015 m^3 from the Panda/Koala underground, 152,859 m^3 from the Panda/Koala/Beartooth Pits and 68,483 m^3 from the Fox Pit. The volume of flows to the LLCF for 2005 total 6,576,110 m^3 The volume of sump water to be added to this total is very small (0.0009%) and as such are not statistically significant. Hydrocarbon parameter loadings from the sump water would not impact water quality in the LLCF. Under section F4d of the Water Licence seepage samples down gradient from the Contaminated Snow Containment Facility, Landfarm and Racetrack are to be analyzed for THP and BTEX. Under section H6d of the Water Licence water samples from the Contaminated Snow Containment Facility, Landfarm are to be analyzed for THP and BTEX before release. Samples of the sump water for sumps that may potentially contain hydrocarbon (Contaminated Snow Containment Facility, Landfarm and Washbays) will be collected by BHP Billiton for incorporation into the WQ model. As outlined, the volumes are not adequate to produce a loading impact on the discharge from the LLCF.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		BHP Billiton is required under section F4d of the Water Licence to collect seepage samples down gradient from the Contaminated Snow Containment Facility, Landfarm and Racetrack and to analyze these samples for TPH and BTEX. While under section H6d of the Water Licence BHP Billiton is required to collect water samples from the Contaminated Snow Containment Facility, Landfarm and analyze the samples for TPH and BTEX before release. The analytical data from the above sampling have been incorporated in BHP Billiton's WQ model and hydrocarbons will not be an issue at the Long Lake Discharge Point. (SNP 1616-30). BHP Billiton has been analyzing water samples collected from 1616-30 for hydrocarbons and no hydrocarbons have been detected. Stakeholders are again reminded that water currently discharged to the racetrack ultimately ends up within the LLCF as flow from the Racetrack into Cell C. BHP Billiton is trying to improve the management of this system by directing these flows to an area higher up in the LLCF system 9i.e. cell B)

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						Sumps that may potentially capture hydrocarbons (CSCF, Landfarm and washbay sumps) use skimmers to recover the hydrocarbon product. The waste hydrocarbon product is then sent through an oil water separator and the free product recovered is reused to heat the underground air during the winter months. BHP Billiton is regulated on its discharge from the LLCF at SNP Sample location 1616-30 and will meet the hydrocarbon discharge criterion.			
2	Environment Canada	EC-2		LLCF-WQ model	*When will reports be available (Modelling & UG WQ?).*	The WQ and UG WQ reports are currently in draft form and are expected to be submitted to the Board sometime later this year (2006).	The reports are currently in prpeartion.		BHP Billiton will submit reports to Board when received, as previously committed.
	Environment Canada	EC-3		LLCF -WQ model	*Modelling report will it model down stream levels.*	The model is currently for the LLCF alone. Downstream levels will be added as a component of the ongoing modeling project at a later date.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		The downstream environment will be added to the LLCF WQ model at a latter date.
3	Environment Canada	EC-4		Misery –elevated Molybdenum levels in Pit water	*Do we see corresponding Mo increase in water in King Pond.*	In general the molybdenum concentration in King Pond has shown a small increasing trend associated with the discharge of the Misery Pit Water. However, the concentrations are very low and when compared to the mean concentration for 2005 to 2004 - the trend is decreasing. Water quality monitoring will continue to track various parameters at this location.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
4	Independent Environmental Monitoring Agency	IEMA-1		Chloride Tier II	*Are we testing zooplanton (cladacera) in Chloride Tier II.*	Toxicity Tests for Evaluation of the Chloride Acute-to-Chronic Ratio are currently bring undertaken on ten new species and the results will be reported shortly. It must be noted that the requirement for the Chloride Tier II is listed in W.L. MV2001L2-008. This is a separate requirement under a different license, as compared to the	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		Chloride Tier II will be submitted to the WLWB by August 2006

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						requirement for the WPKMP , which is a requirement under W.L. MV2003L2-0013. There are currently no wastewater or disposal facilities constructed currently under W.L. MV2001L2-0008.			
5	Independent Environmental Monitoring Agency	IEMA-2		Calcium Chloride	*Is it Ca^{+} or Cl^{-} that is helping settle Fox clays.*	It is both. Chemically, calcium was determined to be the preferred additive with chloride as it requires smaller additions to achieve the desired result. The underground water (containing elevated TDS) that is currently being discharged directly to the LLCF provides EKATI with an opportunity to greatly reduce the direct addition of salt in the process plant to control the clay fines in the Fox ore.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		EKATI is currently installing a pipeline from the underground to the process plant which diverts the underground water from direct deposition in the LLCF to the process plant. The underground water contains natural levels of calcium chloride. It is anticipated that this pipeline will be operational by October 1, 2006.
6	Independent Environmental Monitoring Agency	IEMA-3		2005 AEMP Ceriodaphma	*Ceriodaphma has been previously identified in Moose Lake at a count of 150 organisms maybe more - Was it present in 2005 AEMP results for Moose Lake.*	The 2005 AEMP report shows very low concentrations of *Ceriodaphma* in Moose Lake with 0.74 organisms per cubic metre, which equates to <1% of the total density.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
7	Independent Environmental Monitoring Agency	IEMA-4		Chemistry PK and porewater	*LLCF Black Box? Asked for chemistry of PK and pore water.*	LLCF is not a black box. BHP Billiton has presented geochemistry and will present more as it becomes available from several special studies currently being conducted at the instigation of BHP Billiton. . The agency is again reminded that BHP Billiton undertakes many sampling programs such as the SNP and AEMP , and the data obtained from these programs is provided to	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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						the WLWB and other stakeholders on a regular basis. BHP Billiton is regulated at the discharge location for the LLCF (SNP Sample Location 1616-30) and we are committed to meeting our water license discharge criteria.			
8	Independent Environmental Monitoring Agency	IEMA-5		Filling of Cell B	*When will Cell B be filled with FPK.*	The most recent MAA for the LLCF selected Option 3aM. With this option operations in the LLCF will remain active in Cells A, B & C until at least 2016 (Section 3.4.6 WPKMP). BHP Billiton will be reviewing ways to complete deposition in the upper ends of Cells A and B of the LLCF earlier than 2016 so that vegetation research can progress into a pilot study prior to final cessation of operations in the facility in 2020. However it must be noted that EKATI is an active mine and the LLCF is an operational structure. The WPKMP calls for the Cell B west road and delivery line to be completed in or about November 2007. However, problems with the delivery of materials because of the shortened winter road season may push this date beyond November 2007. Completion of this road will allow four month cycling between discharges to Cell A and Cell B. This cycling will be continued until the available capacity has been utilized by about 2016. In the WPKMP Figure 9 the 2004-Survey of the LLCF shows the north end of Cell B is not filled to capacity. Figure 10 - Year 3 (2008) shows the north end of Cell B filling from the west road and Figure 11 Year 20 (2018) shows Cell B filled to capacity. The report indicates that FPK is expected to flow from Cell B until approximately 2014 (this may	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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						continue until about mid-2016). Therefore the upper portion of Cell B is expected to be filled sometime between 2008 and 2014 (possibly 2012). Since all the material required for the Cell B pipeline did not make it up this years winter road these dates are only approximations for the expected filling of Cell B.			
EC Letter, dated May 5, 2006									
9	Environment Canada	EC-5		Wording of Objectives	*(1). EC Comment: "Objectives sections. The wording should be amended so it doesn't state that discharges will exceed licence criteria."*	(1). Response: The Objective sections of the report generally state: "To only discharge water to the receiving environment that meets or exceeds the Water Licence discharge criteria and to ensure no significant adverse environmental effect occurs to the downstream receiving environment." BHP Billiton's use of the word exceeds was intended within the following context: meets or 'is better than' the Water Licence discharge criteria.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		Change wording in next version of WPKMP
10	Environment Canada	EC-6		Discharging water to Cell D	*(2). EC Comment: "Section 2.1.3 notes that operational minewater may be discharged into Cell D. This should be avoided for as long as possible, as mine water will contain elevated TDS constituents as well as ammonia. While the 2005 volumes were relatively modest, the schematic shown in Figure 7 shows annual averages of approximately 1.5 Mm^3 of minewater, which could significantly change supernatant quality in the LLCF, and the behaviour of the chemocline in Cell D."*	(2). Response: BHP Billiton requires the adaptability to pump minewater to various cells of the LLCF including Cells A, B, C and/or D because of operational requirements may dictate that adaptive measures be implement ed quickly to protect the safety of the underground and surface mining operations or other scenarios that may occur. We require the flexibility of utilizing the various Cells of the LLCF. While Cell D is included as a discharge location, it is not the preferred option for minewater discharge, however it may be used. BHP Billiton is aware of the concern associated with potentially discharging into Cell D and is adaptively managing the LLCF so as to minimize this potential. And we	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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						will continue to meet our water license discharge criteria.			
11	Environment Canada	EC-7		Sealing Dykes	*(3). EC Comment:* *"Section 3.4.8 and 3.6.2 mention sealing of Dyke C and possibly D, along with other upset condition options. While this is obviously in the conceptual stage, this raises the question of treatment plant options which are being considered. The time frame outlined in the first section is 2006-2009, so it is not too soon to identify candidate systems and their capabilities and potential environmental costs."*	(3). Response: Water Quality Modeling of the LLCF by BHP Billiton suggests that levels of Chloride in Cell E will not reach a level where mitigation is required until potentially 2017 based on latest water quality modeling. All other parameters are anticipated to be within acceptable limits so as not to require mitigation. BHP Billiton is currently, however, looking at the need to manage the underground source waters before they enter the LLCF to prevent the requirement to treat in the LLCF later in mine life. Treatment using either evaporation or an RO system are two of the several options which will be considered. Passive solutions are preferred and the early adoption of these solutions will result in a net environmental benefit.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
12	Environment Canada	EC-8		Racetrack water quality	*(4). EC Comment:* *"New flow will no longer be coming from the 'Racetrack' area of the waste rock pile, as the various sources will be discharged directly into the LLCF. Does BHP Billiton have an understanding of that water quality, and whether the 'Racetrack' area represents a long-term liability with respect to seepage quality?"*	(4). Response: Once discharge is stopped at the Racetrack and the area is stabilized it will freeze. This area does not represent a long term liability providing discharge is terminated, as the previous wastewater discharged in this area flowed directly to Cell C. This mitigation measure has been initiated by BHP Billiton to make an improvement to EKATI's overall site environmental management.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
IEMA Letter, dated May 5, 2006									
13	Independent Environmental Monitoring Agency	IEMA-6		Closure	*(1).IEMA Comment:* *"A major concern with the revised WPKMP is the very brief description of closure issues and concepts provided for the*	(1). Response: The WPKMP is not intended to address reclamation or closure. The plan is a functional document used for	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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					LLCF."	the handling and management of water, wastewater and processed kimberlite. We want to keep the report format practical for opertaional use.			
14	Independent Environmental Monitoring Agency	IEMA-7		Life-of-Mine Plan	*(2).IEMA Comment:* *"The WPKMP notes (pg. 2) that an 'up-to-date life of mine plan' is incorporated. The life of mine plan should be included and described."*	(2). Response: The approved life of mine plan will be included in next version of the WPKMP. The current LofM is available in the EIR May 2006 and the 2005 Annual Report and as previously discussed numerous times is subject to regular changes. Additionally this LofM plan was discussed with IEMA at EKATI during their summer visit in 2005.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		Include approved Life of Mine Plan in next version of WPKMP
15	Independent Environmental Monitoring Agency	IEMA-8		PK placement	*(3).IEMA Comment:* *"Of particular benefit would be a year-by-year scheduling of tailings placement in Long Lake so that the targets dates for progressive reclamation of Cells A and B can be identified (there is some ambiguity as to when reclamation of these cells will be initiated)."*	3). Response: Discharge schedule optimization is an ongoing part of LLCF and is not laid out years in advance as discussed during the LLCF review in 2004 and 2005. Actual discharge decisions are made on an ongoing basis depending upon many factors, which this year include the failure of pipe delivery up the winter road and ins an internal management issue	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
16	Independent Environmental Monitoring Agency	IEMA-9		Revised version WPKMP - trimming	*(4).IEMA Comment:* *"The WPKMP notes (pg. 3) that this version has been trimmed down to focus on objectives, methodologies and activities related to the handling of water and processed kimberlite, and that other issues such as water quality and adaptive management concerns are 'discussed in other documents'. We find that trimming for some*	4). Response: The WPKMP is an operational document designed to assist the operators to make decisions regarding the day-to-day operations of the LLCF, King Pond and other holding and treatment facilities. The operational procedures described in the plan are augmented by many sources including the SNP, AEMP, Special Studies, and the MAA	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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					topics has been excessive, and that more information is needed on issues such as water quality predictions and management during operations and post closure. At a minimum, such information should be provided and referenced so that the Board understands the consequences of approving this Plan."	conducted on future plans for the LLCF to name a few. BHP Billiton uses all of these documents and more on a daily basis in managing waste water and process kimberlite. These documents are available on file with the WLWB and with the Agency.			
17	Independent Environmental Monitoring Agency	IEMA-10		Managing PK	*(5).IEMA Comment:* *"The WPKMP cautions readers (pg. 3) about the variable nature and behaviour of the kimberlite tailings, and the uncertainty about the plan's effectiveness arising from the assumptions made by managers. The resulting variability in the wastewater means that 'on-going monitoring is required during mine and process operation to verify that the assumptions are correct'. The assumptions referred to are not explicitly identified in the WPKMP, and should be. In addition, the on-going investigations or monitoring being done to verify the assumptions should be explicitly described. "*	5). Response: Managing waste water and processed kimberlite is an iterative process that is based on established procedures as well as on going monitoring and adaptation to new conditions. Kimberlite is a heterogeneous material and so the geochemistry is variable. This requires monitoring and adaptation, that BHP Billiton currently under takes and will continue to do so. BHP Billiton undertakes many monitoring programs including the SNP , AEMP and special effects studies. Ultimately BHP Billiton is responsible for managing the LLCF and will honour its commitment not to exceed the W.L Discharge criteria.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
18	Independent Environmental Monitoring Agency	IEMA-11		PK studies	*(6).IEMA Comment:* *"The WPKMP notes (pg. 22-2 3) that 'there are numerous uncertainties currently with the processing of Fox ore and with the discharge of underground saline water. A number of studies are currently in progress regarding these issues …". The uncertainties should be clearly identified, and their relevance to operational and closure issues described. The studies that are*	6). Response: Kimberlite is a heterogeneous substance. The Fox kimberlite is large and exhibits a higher degree of variability than did Panda or Koala. Consequentially BHP Billiton will always have a range of studies underway. It must be noted that even with numerous studies underway, specific answers to all questions may not be known, and that in this case, reviewers are reminded of BHP	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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					being done to resolve these uncertainties should also be described."	Billiton's responsibility to manage the LLCF and it's commitment not to exceed the legal discharge compliance limits that regulate the LLCF discharge.			
19	Independent Environmental Monitoring Agency	IEMA-12		Closure	*(7).IEMA Comment:* *"The WPKMP states (pg. 41) that 'the reclamation objectives and closure criteria for the LLCF are provided in the updated Interim Closure and Reclamation Plan.' The document referred to has not been developed yet, so preliminary reclamation objectives and criteria should be included in the WPKMP."*	7). Response: The WKMP is an operational plan and not a closure plan. As closure is not a viable possibility during the term of the current draft of the WPKMP (circa 18 months) it is not unreasonable to wait until the new Interim Reclamation and Closure Plan is completed in 2007.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
20	Independent Environmental Monitoring Agency	IEMA-13		Shoreline interfaces	*(8).IEMA Comment:* *"The WPKMP does not explain how the interface shorelines will be reclaimed. The 5-year review exercise noted that the 'constructability' of these areas was not certain, and that the high degree of erodibility of the materials in this zone raised challenges for both waste rock cover placement and revegetation. Their long-term stability has not been demonstrated. The WPKMP does not identify or discuss these unresolved issues – it states that 'erosion of FPK will also be reduced by a stable surface cover (vegetation and/or rock), short drainage channels within the facility and peripheral channels to redirect tundra surface runoff' (pg. 43). Given the uncertainties about behaviour of these materials, much more explanation is required in the WPKMP or in an attached document."*	8). Response: The WKMP is an operational plan and not a closure plan. As closure is not a viable possibility during the term of the current draft of the WPKMP (circa 18 months) it is not unreasonable to wait until the new Interim Reclamation and Closure Plan is completed in 2007 Uncertainty will always exist within the context of operational plans. BHP Billiton's objective is to reduce to the greatest degree practical this uncertainty and to state again that we will not exceed our water licence discharge criteria.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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21	Independent Environmental Monitoring Agency	IEMA-14		EFPK water cover	*(9).IEMA Comment: "The WPKMP should provide evidence to show that maintaining a one metre layer of water over the EFPK will keep the material permanently in place."*	9). Response: The WKMP is an operational plan and not a closure plan. As closure is not a viable possibility during the term of the current draft of the WPKMP (circa 18 months) it is not unreasonable to wait until the new Interim Reclamation and Closure Plan is completed in 2007 This is a component of the Reclamation and Closure Plan and is not considered to be an operational component.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
22	Independent Environmental Monitoring Agency	IEMA-15		Converting dykes to dams	*(10).IEMA Comment: "The currently approved WPKMP did not envision the internal dykes as water-retaining structures at the end of mine life. The revised WPKMP proposes that some internal dykes will be converted to dams. The implications for closure (perpetual care?) should be explained."*	10). Response: The WKMP is an operational plan and not a closure plan. As closure is not a viable possibility during the term of the current draft of the WPKMP (circa 18 months) it is not unreasonable to wait until the new Interim Reclamation and Closure Plan is completed in 2007. The converting of dykes to dams is only considered as a possibility and is one of several contingency plans being considered at this time. Concept level engineering has indicted that this scenario is viable but detailed engineering design would be required if these were to be constructed sometime in the future. The dykes are utilized to filter particulates in the water that would otherwise pass through the dyke. The dykes retain EFPK that accumulates against the upstream face, which is naturally progressively sealing the lower parts of the dykes filter (Dyke C). The dykes are currently envisioned as water control structures when the mine is in the reclamation	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		

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						and closure phase of life.			
23	Independent Environmental Monitoring Agency	IEMA-16		PK permafrost distribution	*(11).IEMA Comment: "The WPKMP states (pg. 42) that, 'permafrost distribution created by the revised deposition plan will produce substantial improvements in the long term stability of the landscape.' Given the increased complexity of deposition through the construction of jetties into the cells, this statement requires an analysis to support it. "*	11). Response: The Agency is reminded that based on the LLCF review process and the adoption of Option 3aM, the constructions of jetties is not currently envisaged. Additionally concerns with stability will be demonstrated though ongoing monitoring of the LLCF.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
24	Independent Environmental Monitoring Agency	IEMA-17		Cell E water level	*(12).IEMA Comment: "The WPKMP states that the final water level of Cell E will 'be lowered to approximately elevation 450 m'. This is inconsistent with Figs. 9-11 that shows Cell E level at 447 m through mine life."*	12). Response: The final lowering occurs at the decommissioning of the frozen core dam at the end of Cell E. It is not something that will be done during the operational life of mine or this version of the Plan.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		Confirm elevation data for next version of the WPKMP
25	Independent Environmental Monitoring Agency	IEMA-18		Geochemistry of water sources to LLCF	*(13).IEMA Comment: "The sources of all water into the LLCF are not properly characterized, nor is the geochemistry of the pooled tailings water characterized. Monitoring of the water quality of water streams to the impoundment is being done, but results are not being reported here. The WPKMP states (pg. 37) that the results are used to 'develop models for predicting future water quality trends. These trends are used to plan and implement water quality management.' No details of emerging water quality issues are provided. The WPKMP should provide this information so that water quality issues during operation and at closure are properly identified and*	13). Response: This is not a water monitoring report nor is it a closure document. It is an iteratively updated management plan that responds to ongoing management needs developed by a variety of operational requirements, and monitoring programmes. Management of the LLCF under the WPKMP is augmented by water quality modeling amongst other things. Management of the EKATI site requires a full understanding of all plans and operational issues. It is not appropriate to duplicate information tin each report.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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					discussed."				
26	Independent Environmental Monitoring Agency	IEMA-19		Geochemistry of Processed Kimberlite and porewater at LLCF	*(14).IEMA Comment: "Uncertainties relating to water quality were identified two years ago during the review of Long Lake operations. These included characterization of tailings porewater and tailings solids geochemistry and mineralogy. In our view, proper geochemical characterization of the wastes to be permanently stored in Long Lake is required for long-term water quality predictions, and should form a component of the WPKMP. The revised WPKMP does not identify tailings and porewater geochemistry as an outstanding information deficiency."*	14). Response: Reporting on tailing and porewater geochemistry is not the purpose of this document. BHP Billiton is currently evaluating studies related to the geochemistry of the LLCF and has an extensive water quality modeling program underway, the results of which will be released shortly to the Board.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
27	Independent Environmental Monitoring Agency	IEMA-20		Progressive reclamation	*(15).IEMA Comment: "A design objective for the LLCF facility is identified (pg. 24) so as to 'provide every practical opportunity to maximize progressive reclamation…'. The revised WPKMP does not include the previous opportunities identified for early reclamation of Cell B beaches. The WPKMP should explain how design for closure was carried out."*	15). Response: The operational strategy of the LLCF is based on the previously completed 5 year review of the LLCF conducted in late 2004 and early 2005, which has formed the basis for closure. The Agency is referred to that document.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
28	Independent Environmental Monitoring Agency	IEMA-21		Closure	*(16).IEMA Comment: "The WPKMP notes that studies of the long-term characteristics, behaviour, management and operational requirements for the EFPK are on-going. Requirements for closure are not explicitly identified as part of the needed investigations. The WPKMP should more fully identify the information requirements needed by managers of the facility for both operations and closure,*	16). Response: The WKMP is an operational plan and not a closure plan. As closure is not a viable possibility during the term of the current draft of the WPKMP (circa 18 months) it is not unreasonable to wait until the new Interim Reclamation and Closure Plan is completed in 2007 This is a component of the Reclamation and Closure Plan and is not considered to be an operational	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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					especially for management of the EFPK."	component.			
29	Independent Environmental Monitoring Agency	IEMA-22			*(17).IEMA Comment: "The WPKMP notes (pg. 38) that investigations into the properties of processed kimberlite are being conducted, particularly in regard to the Fox pipe ores. These studies 'are at this time not adequately advanced to enable revised design or operation criteria to be established for the LLCF.' This, in combination with the other information gaps previously identified, indicates that approval of the proposed Plan should be for the short-term, until the results of the completed investigations can be properly understood and incorporated as necessary into the revised plan."*	17). Response: BHP Billiton is constantly looking at the processing characteristics of its ore. Adjustments to the system have been being made since 1998 when the plant and the LLCF was started up and will continue as a component of our continuous improvement.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
DIAND Letter, dated May 9 and received May23, 2006									
30	Indian and Northern Affairs Canada	DIAND-1		Technical details	*(1).DIAND Comment: "The WPKMP states that many of the technical details contained in previous versions have been removed. As a result, it is difficult to assess how the stated objectives will be achieved. For example the Processed Kimberlite (PK) management plan has evolved from the earlier versions (due to storage capacity issues and the extra FPK), and it is not clear which technical details described previously still apply."*	1). Response: All the technical details necessary to make the WPKMP an operational document, designed to assist the operators in making decisions regarding the day-to-day operations of the LLCF, King Pond and other holding and treatment facilities, are contained in the revised WPKMP. The operational procedures described in the plan are augmented by many sources including the SNP, AEMP, Special Studies, and the MAA conducted on future plans for the LLCF to name a few. BHP Billiton uses all of these documents and more on a regular basis in managing waste water and process kimberlite. The previous versions of the WPKMP are also available for review and these	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

Tracking Number	Reviewer	Comment ID		Topic	Review Comment	BHP Billiton Response	BHP Billiton Proposed Revision		Action Item (if applicable)
						technical details are not lost.			
31	Indian and Northern Affairs Canada	DIAND-2		Closure	*(2).DIAND Comment: "The fine processed kimberlite (FPK) goes through progressive particle size reduction over time due to weathering processes. The FPK is highly susceptible to erosion by water. How will these processes be addressed in the context of the proposed use of vegetation and surface runoff channels in the closure of the exposed tailings beaches? Will the ultimate grain size distribution of the FPK be identified through laboratory testing (multiple freeze-thaw cycles) to identify the end-point of particle size reduction and how may this affect the reclamation plan?"*	2). Response: The WKMP is an operational plan and not a closure plan. As closure is not a viable possibility during the term of the current draft of the WPKMP (circa 18 months) it is not unreasonable to wait until the new Interim Reclamation and Closure Plan is completed in 2007 This is a component of the Reclamation and Closure Plan and is not considered to be an operational component.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
32	Indian and Northern Affairs Canada	DIAND-3		Water cover for FPK	*(3).DIAND Comment: "The proposed concept for maintaining the extra FPK below a water cover seems reasonable, but it is not clear what depth of water is required to ensure that the material is not re-suspended by wind-induced wave action."*	3). Response: This will have to be demonstrated by practice. Procedures will be developed and modified based ongoing experience.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
33	Indian and Northern Affairs Canada	DIAND-4		Stable topography	*(4).DIAND Comment: "Section 3.4.4 deals with creating stable topography. It is not clear how internal catchments areas will be minimized, especially since the impoundment areas cover a larger footprint than previously described. It appears that perimeter diversion ditches are being proposed. Will these be required in the long term? If so, what design standards are proposed?*	4). Response: It is important to remind reviewers that this strategy is the very strategy that was agreed to by stakeholders during the review of the LLCF in 2004 and 2005. At that time it was decided that the key concept was to protect water quality over the long term and it was stated that trade off's will occur/ Reviewers are again directed to that document. Essentially within the scope of this	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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					If not, how will surface water be managed when the ditches are removed? "	version of the WPKMP the only footprint change from the last Plan is the addition of the proposed Cell A high road on the north side of Cell A, the proposed Cell B west road (Figure 5 previous plan and Figure 8 revised Plan) and the perimeter ditches which will be required at closure. Moving the Cell A road upslope will provide a higher elevation for the discharge spigots. This change allows most of the area on the northern side of the impoundment to be utilized for deposition of FPK and maximizes the volume of FPK that can be placed in Cell A. This is an adaptation of the original design which predicted that the tailings would flow to a struck level across the pond. Experience has shown the beaches have about a 2% grade. To get the predicated volumes into the pond the spigots must be raised. BHP Billiton is currently examining various long term drainage management options and will bring them forward when it is appropriate. The proposed Cell B west road will allow renewed deposition into Cell B from west to east using the high ridge that bounds Cell B to elevate the spigot points. This will incorporate almost all of the catchment west of Cell B and maximizes the volume of FPK that can be stored in Cell B. The objective of the review of operations and revisions adopted as Option 3aM is to eliminate to the maximum extent possible any necessity to rework the new surface topography and to provide site			

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						drainage facilities that will be operational for the long-term early in the life of the facility.			
34	Indian and Northern Affairs Canada	DIAND-5		Rotating discharge	*(5).DIAND Comment: "The rationale for rotating major discharge areas on a 4 month cycle is unclear. Are options being considered?"*	5). Response: The rotation is designed around limiting deposition in any one location to limit the entrapment of ice. Deposition over winter should allow an active layer to develop on the PK the next summer and melt out the ice. Alternative operation and development options were presented to stakeholders during a series of three meetings in 2004 and 2005. The meetings, facilitated by Robertson Geoconsultants, were attended by BHP Billiton staff, consultants to BHP Billiton, regulators, DIAND, Environment Canada, GNWT, Aboriginal community representatives and IEMA participants. Alternative plans for optimizing the system were evaluated via a Multiple Accounts Analysis (MAA). The revised LLCF operation and management plan described in the WPKMP is called Option 3aM. Option 3a was identified as the preferred alternative by the MAA. Option 3aM is a modified alternative of Option 3a that accounts for information obtained subsequent to the MAA and in particular the requirement to provide adequate space for storage of the EFPK.	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None
35	Indian and Northern Affairs Canada	DIAND-6		Interface shoreline	*(6).DIAND Comment: "Three topographic units are expected in the LLCF. There is no recognition that the 3rd type, interface shoreline, may be unstable. In Cell B, there is substantial frost heaving in the*	6). Response: The WKMP is an operational plan and not a closure plan. As closure is not a viable possibility during the term of the current draft of the WPKMP (circa 18 months) it is not unreasonable to	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None

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					transition area between granular beach and pond. It is also possible that this area will have a foundation with some inter-layering with the extra FPK, which may result in ongoing consolidation for many years."	wait until the new Interim Reclamation and Closure Plan is completed in 2007 This is a component of the Reclamation and Closure Plan and is not considered to be an operational component.			
36	Indian and Northern Affairs Canada	DIAND-7		Interface shoreline	*(7).DIAND Comment:* *"It is not clear how the deposition plan will be carried out to achieve the objectives of the revised drainage pattern. It will be important to ensure that the final topographic arrangement allows access for construction of erosion resistant channels over the tailings. It should be recognized that the low points of the cells (except for cell B) will be where the finer PK has accumulated, and have the greatest potential for settlement. Stable ditches and runoff channels will be difficult to construct in these areas. No conceptual plan for this construction is provided."*	7). Response: Alternative operation and development options were presented to stakeholders during a series of three meetings in 2004 and 2005. Option 3aM was decided upon to provide adequate space for storage of the EFPK. The objectives of Option 3aM included some of the following: Creating topography landforms with stable topography suitable for reclamation, including: -minimized internal catchment areas to lessen concentrated flow across the beach.-diversion facilities will be optimized, where feasible, to preclude concentrated flow from external catchment areas flowing onto the beachs. -permanent internal ponds will be established to limit erosion of the EFPK and provide settling	BHP Billiton has requested the Board to accept the 2006 WPKMP as submitted.		None