TECHNICAL MEETING AND PRE-HEARING CONFERENCE FOR THE RENEWAL OF THE JERICHO PROJECT TYPE "A" WATER LICENCE 2AM-JER0410

TABLE OF SUBMISSIONS FOR TECHNICAL MEETING

JUNE 20, 2011

shear diamonds

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
	PKCA MANAGEMENT PLAN					
1	INAC	Part H, Item 1 – Schedule H	What are the potential environmental impacts of flocculants, as flocculants may be used to treat colloidal material in Cell B/C,		▪ The water license states that "the Licensee shall not add flocculant directly to the PKCA" (Part G, 9). Shear will not put flocculants directly in to the PKCA. ▪ There are currently no plans to treat the water in Cell B/C with flocculants.	
2	INAC		"CPK stock piles and berms will be placed around the perimeter of Cell A to increase the volume of the facility": ▪ Will a new liner be placed on these dams? (Concern as the liner on the East and SE Dams only go to 523.5)		The design is shown in the original 2006 PKCA management plan. The final design will be submitted 60 days prior to construction. The conceptual design in the 2006 PKCA plan does not include a geomembrane liner; however it was stated that it will be considered in the final design. At this time it is anticipated that the final design will include a geomembrane liner.	
3	INAC		Apparent lack of operational water balance that takes into account:		The operational plan of the PKCA is presented in EBA 2006 and operational site water management plan is presented in AMEC 2006.	
a			▪ How much PCKA water will be recycled;		Based on the 2007 operational records approximately 52,000 m^3 of PKCA water was reclaimed. Shear expects to reclaim similar amounts of PKCA water during production.	
b			▪ How much fresh water will be taken in;		The estimated inflow from Carat lake is 350,400 m^3 per year.	
c			▪ Volumes of FPK to be stored;		The volume of additional fine PK to be stored in the PKCA is estimated to be 764,000 m^3 to the final levels in the 2006 PKCA. There is adequate storage volume in the PKCA based on the original mine plan when all structures are completed as per the original design.	
d			▪ Is there adequate storage volume and retention time to allow water to clear for discharge?		Performance to date has shown that a combination of settling and filtration by the divider dyke has produced water quality within the specified discharge limits.	
4	INAC		A filter has been built into Divider Dyke A.		No answer required, lead in statement	
a			▪ Will the filter zone become plugged?		The water balance for the PKCA (2006) presents anticipated flow volumes through Divider Dykes A and B. It is assumed that the divider dyke below the fine PK level is plugged with fine PK and there is no flow through the frozen portion of the filter dyke during winter months. The filter within the free water zone has been modelled with a measured permeability. To date the performance of the dyke has been similar to modelled and water will continue to flow through the dyke. Given the PKCA development plan to construct Dyke B prior to mine start up, we are confident that the filter dykes will perform adequately over the remainder of the mine life.	
b			▪ Has this filter material been checked with FPK to determine if it will clog?		The filter design was based on testing and observations at other mine sites. Testing was carried out on these materials at previous mine sites.	

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c			▪ If yes, then what?		If Dyke A filter becomes plugged, the Dyke B filter will come into effect. An overflow would be constructed through Dyke A. Fine PK will only be deposited in Cell B for a period of 2 years near the end of the mine life. Given the performance to date of the filter at Dyke A over 2 years, it is not anticipated that Dyke B will blind off during the mine life.	
d			▪ What is the flow rate through the filter if it does not plug?		The estimated flow through the dykes is a function of head build up against the dyke. This varies with time. The estimated flow through the filter is presented in the 2006 PKCA Management Plan water balance.	
e			▪ Is the flow rate enough to account for inflow or will Cell A back up and overtop the filter due to low flow through the filter?		Yes, the flow rate through the filter is sufficient for all of the inflows coming into Cell A. This is demonstrated in the water balance and water levels estimates, and in the actual performance of the dyke.	
5	INAC		How quickly will the FPK settle out;		To date there has not been a problem with the fine PK settling out in the pond upstream of the divider dyke. The combination of settling and filtration produces water meeting the discharge criteria.	
a			▪ What is the operational water cap depth?		The operational water cap varies through the year. The water cap is only presented adjacent to the divider dyke. It varies in the spring to several metres, and then is relatively shallow at the of the summer season. The predicted water levels in Cell A are shown in the 2006 PKCA management plan.	
b			▪ What if FPK remains in suspension rather than settle out?		The fine PK has settled out adequately to date.	
6	EC	Page 5, Section 4.3	The first bullet references settling in the deposition cell following flocculation. It is not clear whether flocculants and/or coagulants will be used to promote settling.	Please clarify whether flocculants and/or coagulants will be used in the PKCA, and if so, which ones.	▪ Already addressed in Question 1 ▪ Flocculants are used in the thickener as defined in the PKCA management plan (2006). Flocculants are not used in the PKCA area	
7	DFO			DFO recommends that if the infrastructure associated with the PKCA is not sufficient to appropriately handle waste material and run-off generated from the mine, then a timeline should be determine as to when the infrastructure will be upgraded to an acceptable level.	The final design of the structures is sufficient for the fine PK based on the original mine plan. There is capacity in Cell A to start and produce fine PK for approximately 10 months before needing additional fine PK storage; however, it is recommended to complete Divider Dykes A and Dyke B before mine start up. The West and North dams should be completed before the next freshet following mine start up. The construction of the perimeter berm around Cell A should begin shortly after startup. Construction will be staged on as needed bases.	
	PIT DEWATERING ADDENDUM					
8	INAC		What plan is there to mitigate the risk if discharge criteria are exceeded; what are the ramifications if the pit cannot be drained?		▪ The current mitigation plan is to stop pumping water from the pit to the PKCA. If the pit dewatering is to be ceased due to the poor pit water quality, Shear will investigate further mitigation options such as treatment. ▪ The ramification of pit not being completely dewatered is the resuming of the mining operation will be delayed. ▪ Mitigation includes reducing pit dewatering discharge rates. Additional mitigation options are being investigated.	

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9	EC	Section 2.3, Open Pit	EC noted that Shear took 16 water samples from three locations in the pit ranging from 1.5 m to 17.5 m below the ice surface to characterize its water quality. Considering the depth of the pit is 85 m and the potential for pit water contact with connate water, EC is concerned that the water quality of the pit may not be uniform across depth.	EC recommends Shear sample the pit periodically for the full suite of water quality parameters while the pit is being dewatered to ensure water quality is not deteriorating with increasing depth.	The water in the pit is approximately 20 m deep. The pit itself is 85 m. Shear repeated the water sampling in May. The water quality does deteriorate with depth. Refer to Table 5.2, JER-SWQ-02, weekly sampling for full suite of water quality parameters (laboratory analysis) as well as daily sampling for field parameters, (Table 3 in the General Monitoring Plan).	
10	EC	Section 5.3, On- site Analysis	EC notes that Shear plans to undertake its own on-site nitrate and total suspended solids (TSS) testing of PKCA water after purchase of equipment capable of measuring these parameters.	EC would like details regarding the specifications of the purchased instruments, including the manufacturer and make of the instruments, that will be used for on- site monitoring of nitrate and TSS. EC is especially interested in the instrument that will be used to measure TSS since we are not familiar with technology that can do accurate field measurements of TSS. Further, EC understands that such equipment will likely require calibration to ensure the instruments are providing accurate estimates of TSS and nitrate. To that end, EC recommends this Plan be revised to include QA/QC procedures for instrument maintenance, including details on how often the instruments will be calibrated and how calibration records will be maintained.	Shear has purchased the equipment required to conduct on site Total Suspended Solids (TSS) analysis using procedures developed from the Standard Methods for the Examination of Water and Waste Water (Eaton et al, 2005). Shear has conducted trials on a portable photometric nitrate meter on site against off-site laboratory analysis. The instrument did not perform as expected. Shear is currently working with ALS Environmental Division to run lab trials with nitrate concentrations in keeping with pit water quality to best determine which on-site nitrate meter will meet the monitoring objectives outlined in the Pit Dewatering Addendum. Shear will keep records of all QA/QC and equipment calibrations and will make them available for review upon request.	
11	DFO			DFO recommends that the water pumped into the PKCA should be of appropriate quality such that upon release from the PKCA there is not likely to be any adverse impacts to the aquatic receiving environment.	The water licence discharge criteria limits are set to ensure the protection of the receiving environment. Shear will not discharge from the PKCA if the water quality exceeds discharge criteria. If water elevation levels in the PKCA become a concern and the water quality does not meet discharge criteria, the water from the PKCA will be pumped to the open pit.	
	SITE WATER MANAGEMENT PLAN					
12	INAC		It is not clear how the use of Ponds A, B, C will be invoked to capture runoff (if necessary), particularly Pond A which appears to be on a side slope with no retention structure.		Shear will conduct the annual geotechnical inspection and the annual seepage survey. Shear will also monitor during freshet and heavy rain events in 2011. Shear is unaware of the reasons that these ponds were not constructed while the mine was in operations previously.	
13	INAC		Is the water balance for the PKCA reasonable? What is the water balance for recycle versus fresh water for processing?		The water balance, Table 3, will be updated as information becomes available. The table was updated for the Pit Dewatering Plan with the new information on the volume of water in the open pit. The site water balance is appropriate. It is currently planned to reclaim water from Cell B and C during the summer months only	

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14	INAC		Are there any chemical constraints on recycle water?		There are no chemical restraints on recycle water.-	
15	INAC		How was the allowable freeboard calculated for the PKCA?		The" maximum operating level" of the facility is defined as elevation 523 m. The water level will rise above level as floods are discharged, or due to waves and wave run up. The level is defined as the "maximum water level" in the facility. This has been defined as elevation 524 m. The water level rise during the inflow design flood (IDF) has been calculated according Canadian Dam Association guidelines (CDA 2007). The IDF was calculated assuming the dams are high consequence structures. The calculated water level rise during the IDF plus the wind set up is 0.26 m resulting in a water elevation of 523.26 if the water level is at the maximum operating level prior to the IDF. This is below the elevation of the water retaining elements in the dams. The maximum height wave and wave set up was calculated to be less than 0.5 m. The waves will be below the dam crest elevations. Until the dam construction complete the maximum operating level is set at 517.2 m The IDF and run up will be below the sill at the north dam location.	
16	INAC		The amount of water planned for usage during C&M is not specified		The amount of water used during Care and Maintenance will fluctuate depending on how many people are at site and what activities are being undertaken. Shear is recording water usage and submitting volumes to the NWB in the monthly reports as required by Part K, 12. The estimate volume for camp, domestic use during Care and Maintenance is 3600m^3 The evaluations on the mill and process plant are projected to use approximately 70,000m^3 of water.	
17	INAC		What is the likelihood that Lake C1 will be adversely impacted by mining?		It is unlikely that C1 will be adversely impacted by mining. The water licence provides discharge criteria that are in place to protect aquatic life. As well, a number of monitoring stations are established as part of the AEMP. There is a monitoring station in Lake C1, refer to AEMP Tables 3.3, 4.2, 4.3. Additionally the Seepage Survey will collect information upgradient of Lake C1. We are aware that historically there have been concerns with the water quality in C1 Lake. The information collected during the AEMP and Seepage survey this year will assist Shear with evaluating the need for and the potential design of mitigation measures to protect the water quality in C1 Lake.	
a			▪ No monitoring points in the lakes (C1, C2) but rather in the diversion channel itself (SWF-08).			
b			▪ If yes, what to do with water - current plan is to discharge it via C1 diversion.			

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18	INAC		Was inspection during freshet done in 2010? ▪ What was observed?		Shear did not acquire the property until late August 2010. Shear seeks clarification from INAC whether the reference to an "inspection" refers to a formal inspection by a Water Resource Officer, or freshet observations made while the site was under the care of Public Works.	
19	INAC		Note 2009 geotechnical inspection showed C1 Diversion Channel to be in good condition.		No response required.	
20	INAC		No preliminary design of C4 channel in the report, although it states that it would be included as Appendix A.		Need to update the Site Water Management Plan to include Appendix A and the preliminary design	
21	INAC		Given that the explosives storage etc. is upgradient of the C4 diversion, it may be prudent to establish a monitoring point along the channel or in Lake C4.		There are currently no explosives stored at the Jericho Mine. The C4 diversion has not been constructed. A monitoring station has been established in Lake C4. Refer to AEMP, see Tables 3.2, 3.3, 4.2 and 4.3.	
22	INAC		With respect to Collector Ditches and Site Grading, Shear states that during the spring and summer of 2011, Shear will initiate an assessment of all collection ditch infrastructure and site grading. Will there be a report to NWB on the results of this assessment?			Yes, Shear will submit an update April 2012 and in the annual report due March 31, 2012. Designs will be submitted for approval at least 60 days before construction.
23	INAC		What if water in PKCA does not meet guidelines to allow discharge? ▪ Is there any contingency?		If the water in the PKCA does not meet discharge criteria, Shear will pump water to the open pit in sufficient volume to allow for the inflows from the following freshet while maintaining the required 1m freeboard.	
24	INAC		Concerns over the integrity of the tank farm liner because of the potential sharp stones in the bedding and cover material ▪ Is there an adequate plan to ensure liner integrity, and a monitoring plan to determine if there is leakage?		▪ Our records indicate that the Phase 2 tankfarm was built as specified with quality assurance testing. The tankfarm has been observed to hold meltwater and precipitation. There is no reason to believe that stones have punctured the liner. The Phase 1 tankfarm liner will be further assessed if it is used in the future. ▪ Daily inspections of all containments are conducted. Tankfarms containment berms are inspected on the inside and outside phases. The tanks themselves are inspected	
25	INAC		The WMP states that water that has come in contact with hydrocarbon contaminated soil in the landfarm will be treated in a portable hydrocarbon water treatment unit, and that a description of the proposed treatment unit is described in the Jericho Landfarm Management Plan (LFMP, EBA 2011f). There are no details in the LFMP of the details of such a unit.		Shear is still finalizing the design details with the manufacturer for a mobile water treatment system. Once the design has been finalized the specifications will be submitted to the NWB as an addendum to the Site Water Management Plan.	

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	GENERAL MONITORING PLAN					
26	INAC		The plan states that an Operations, Maintenance, and Surveillance Manual is being prepared for the PKCA dams and dykes ▪ What is the status of the OMS manual?		This was submitted on February 28, 2011 as a supporting document to the water licence renewal application. Further to this Shear has already had a geotechnical engineer on-site training site environmental personnel on the procedures for monitoring the geotechnical structures. ▪ It is completed and was submitted to the NWB as part of the water license renewal package. ▪ As dictated by the current Water Licence Part G (3) records of the on-site Inspections are available on site ▪ For a template please refer to Appendix A of the OMS Manual.	
27	INAC		Has a copy of the 2010 geotechnical monitoring inspection been submitted to NWB?· ▪ We were only able to obtain a copy of the 2009 report for review.		At the time of the acquisition of the Jericho Diamond Mine, the 2010 Geotechnical Inspection had yet to be conducted. Shear contracted EBA to conduct the geotechnical inspection. The 2010 Geotechnical Inspection was submitted to the NWB and copied to INAC on November 30, 2010 via email.	
28	INAC		The previous GMP also described an automated water level recorder near the outlet of Lake C3. ▪ Will this be replaced if unserviceable?		An automated water level recorder will be re-installed in early July concurrently with the metereological station. The station will have an iridium link for remote download. ▪ Yes	Shear will replace the automated water level recorder located near the outlet of Lake C3 if it is unserviceable.
29	INAC		The report states that the level of Carat Lake will be recorded and compared to the predicted drawdown of the lake. Since there is no background data regarding the seasonal variations of the Carat Lake water level, the lake level records will be compared to the lake bathymetry to determine the percentage of total lake water volume drawn off for mine use. ▪ We would propose that there should be a baseline plan for drawdown of Carat Lake as part of the site wide water balance. This plan would then be compared to actual performance, and then projected performance recalibrated.		The withdrawal from Carat Lake in 2007 was 326,758 m3. The discharge from the PKCA was 302,280 m^3. As the water that was discharged from the PKCA flows into Lake C3 and eventually feeds into Carat Lake, the annual net withdraw for that year was 24,478 m^3. Considering the surface area of Carat Lake is 2,742,674 m^2, the lake surface elevation was only reduced by 8.9 mm. During the winter months (October to May), when no water was discharged from the site to Lake C3, the net water withdraw was 220,723 m^3, equivalent to 8 cm draw down. ▪ The drawdown is negligible. Therefore, Shear does not feel that a baseline water balance of the entire Carat watershed is warranted.	
30	INAC		Impounded water in the PKCA will only be discharged to the receiving environment upon verification that its quality meets the criteria specified in the Jericho water licence and upon providing the required notification to the NWB and the Inspector ▪ Has water testing in the PKCA been reported in 2011 prior to discharge?		There has been no discharging from the PKCA to the receiving environment in 2011. Shear submitted the pre-discharge water quality sampling results to the Inspector and the NWB on June 13, 2011 and provided the required minimum of ten (10) days notification prior to any planned discharge (Part G, 5). To date no water has been discharged from the PKCA in 2011.	

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31	EC	Section 5.4	It is stated that lake level records will be compared to the lake bathymetry to determine the percentage of total lake water volume drawn off for mine use. It is not clear whether this refers to historical or future water use. In either case, such attempts to quantify water withdrawals could be confounded by other inputs to the lake.	Clarification on the proposed estimation is sought, including how future withdrawals will be measured directly.	Water withdrawals are measured. During care and maintenance, in the winter, water trucks are used. The capacity of the water trucks is known, records are kept on water pumping and truckloads during the winter (under ice conditions). During open water conditions, the water intake line is used. There are flow meters installed to measure withdrawal.	
	PRELIMINARY LANDFILL MANAGEMENT AND DESIGN PLAN					
32	INAC		Is there any thermal monitoring or water testing planned in the old landfill before decommissioning?		Closure plans for the existing landfill will have to be discussed and co-ordinated with the Kitikmeot Inuit Association (KIA) as it is a condition of the KIA Commercial Lease. This landfill is presently closed; all current site non-combustible wastes are being sorted and stored at site. Yes Shear will conduct thermal monitoring with the installation of a multi-thermistor ground temperature cable (GTC), likely in 2012 in conjunction with the GTC's planned for Waste Dump #1. Water is actively monitored in compliance with the current Water Licence Part L (9) via Shear's Annual Seepage Survey. The parameters and locations for the seepage survey are detailed in Table 6.1 of the General Monitoring Plan.	
33	INAC		The plan seems to be lacking detail with respect to cover material: ▪ Are adequate volumes of cover available? ▪ Source(s)? ▪ How will cover be managed in the winter conditions: i.e. high winds and frozen in situ and stock piles?		There are adequate volumes of cover material available for landfill cover. Cover material will be sourced from either mining operations or the waste rock pile, depending on material availability at the time of cover placement. Options for intermediate cover include remediated landfarm soils, till or granular crush (see Preliminary Landfill Design Plan). Winter intermediate cover, if required, will likely consist of select granular crush, capable of being placed in freezing conditions.	
34	INAC		Burnt waste ash can concentrate contaminants of concern. How will potential wind spreading and leachate generation be prevented and mitigated?		Ash drums will be closed and put into the landfill - the ash will not be directly dumped in the landfill	
35	INAC		With respect to the Wastewater Sludge Pit		No answer required, lead in statement	
a			▪ If solids placement is staggered around the entire pit perimeter as planned, fluid will concentrate in the centre. How will this fluid be handled and managed?		Fluid levels in the sump will be monitored. If required, excess fluid will be pumped out of the sludge pit and discharged in the PKCA	

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b			▪ The report indicates that seepage from the sludge pit is anticipated		Acknowledged	
c			▪ Are there planned surface water controls in this area (minimize snow melt by snow removal prior to melt, minimize open pit size to alleviate ponding, sloping base so fluids can run to sump and be removed for treatment, etc.)?		The sludge pit area will be kept free of snow to reduce melt water accumulation in the spring. The pit will also be located in an area of limited runoff and within the catchment area monitored as part of the seepage survey.	
d			▪ What are anticipated volumes?		The monthly and annual quantities in cubic metres in sewage solids removed from the Waste Water Treatment Facility will be included in the Annual Report as per Schedule B, Item G of the current Water Licence.. Anticipated volumes based on past records are 37m^3/month during full operations and 10m^3/month during care and maintenance.	
e			▪ What is the design size?		The design size will be determined concurrently with detailed design of the landfill.	In July 2011 Shear will be locating the proposed landfill and sludge pit.
36	INAC		The thermal performance (freeze-back of the landfill) is predicted with no measurements planned.			Shear will install ground temperature monitoring cables in the landfills during decommissioning.
a			▪ Shear should implement a temperature monitoring program for the landfill to compare actual performance to predicted performance.			A thermal monitoring program will be implemented for both the closed landfill and new landfill upon closure.
b			▪ This should be implemented for both the new landfill and the old landfill			
c			▪ If the landfill does not freeze back, is there a plan to monitor for leachate?		Confirmation of freeze back will be done with ground temperature cables. Failing freezeback - leachate monitoring wells will be installed	
d			▪ Can they provide modeled behaviour versus observed behaviour for other sites to provide confidence that the system will perform as designed?		Measured ground temperatures are available from the Jericho dams. This information has been provided to the NWB throughout the operation period and geotechnical monitoring reports. The measured ground temperatures generally agree with the predicted temperatures in the dams. Measured ground temperatures compared to predicted ground temperatures are available from DEW Line landfills. Corrigan and Horne, ARCSACC 2005	
37	INAC		Although there is a plan that precludes putting in certain types of waste, it is possible (likely?) that this plan will be violated from time to time.		Waste audits- consumer life-cycling and record keeping will be carried out.	
a			▪ If leachate is found, how will it be handled?		Leachate is not anticipated since the landfill is a dry waste landfill. Inspections of the working face will be conducted daily. Runoff from the landfill is directed to the pit. If leachate is observed it will be sampled and characterized and dealt with accordingly.	
b			▪ What is the experience from other mines in the region?		To date no leachate has been noted at the current Jericho landfill.	

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38	INAC		A framework for record keeping is proposed. ▪ How will compliance with this be audited? (Particularly in light of previous owner's lack of data collection, keeping, and reporting.)		Shear is already collected waste records at site. The inspection of records and compliance with data collection is inspected weekly at this time for incineration waste - the attitudes and behaviours will be enforced as more record keeping is required (i.e. landfill use)	
39	EC	LMP, 6.2.1	The Plan indicates that the landfill will be capped with 4.6 m of waste rock to close the facility.	What measures will be taken to ensure the waste rock used for capping is not potentially acid-generating?	Waste rock that will be used for the purpose of capping the facility will be tested prior to placement.	
40	EC	Both Plans, 2.0 Regulatory Setting	Note, reference should be made to the Canadian Environmental Protection Act	Minor edit flagged for next version.		Minor edit flagged for next version.
	PRELIMINARY LANDFARM MANAGEMENT AND DESIGN PLANS					
41	INAC		A concept level design for the landfarm completed by AMEC Earth & Environmental (AMEC 2004) included as part of the environmental impact assessment (EIS) submission a plan for the construction of a lined landfarm on the waste rock dump, and the creation of a separate facility to accommodate contaminated snow. These separate facilities were incorporated into the conditions of the water licence. Shear proposes that limited contaminated snow volumes be admitted to the landfarm, as opposed to being dumped into a separate area. ▪ This change will require a modification to the existing license		Shear is applying for a water licence renewal. Shear fully anticipates that the terms and conditions of the water licence to be issued will be updated to reflect current industry conditions and knowledge of other operating facilities in the north. Shear believes that the concept level design submitted previously was outdated and thus worked closely with EBA to design a plan that more adequately addressed the needs of the site. A modification is not required, rather new terms and conditions that reflect current understandings and experience.	
42	INAC		The plan states that co-contaminated soils or heavy-end hydrocarbon contaminated soils will be treated in a separate facility or disposed of offsite. ▪ In the review, nothing was found detailing a separate facility to treat heavyend PHCs. The WMP says there will be no treatment of these and that they must be moved off site. This dichotomy should be resolved.		Based on the current Landfarm Management Plan the heavy end hydrocarbons will be shipped off site.	
43	INAC		The estimated existing PHC contamination volume is 6,500 m3. Shear estimates an additional 2,500 m3 of PHC-contaminated soil will be generated throughout the remaining mine life, for a total PHC-contaminated soil volume of 9,000m3.		No answer required, lead in statement	
a			▪ Given the historical spills in ~2 yrs of operation, the future estimates of spill volumes appear extremely low.		Historical PHC contamination occurred under the previous mine ownership, who failed to segregate and treated contaminated material, or ship contaminated materials off site. Shear is committed to implementing sound management practices as noted in the Landfarm Management Plan to minimize PHC contaminated soil which is accepted to the landfarm.	

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					Shear is confident that the projected PHC contaminated soil volumes are achievable with adequate training and operational practices. The contaminated soil volumes generated under the previous ownership cannot be directly applied to Shear's operation of the site.	
b			▪ Is there adequate capacity to treat this and future spills?		The volume of contaminated soils on site is being evaluated this summer and we will have a known quantity prior to snow cover. Sampling and surveying will be evaluated against current estimates to evaluate the sizing of the landfarm	
c			▪ What is the anticipated treatment time for the anticipated volumes?		The treatment time will vary as a function of several factors including the amount of contamination, the proportion of hydrocarbon fractions, environmental conditions and operational practices. At present the treatment time for the hydrocarbon impacted soils is unknown; however, treatment times will be monitored as the site is investigated and landfarming commences.	
44	INAC		Shear is planning to pump and treat contact water regularly to reduce water levels in the sump. ▪ No details on how water will be treated were located in the review.		Please see handout on the ketek portable remediation unit.	
45	INAC		It appears from the design review, that the capacity of the sump is to hold one year's worth of precipitation for the 1:10 year event.		Correct. The sump has been sized to accommodate the 1:10 year annual precipitation volume within the lower sump area. However, there is additional storage capacity in the up-gradient landfarm area for emergency storage if required.	
a			▪ Water treatment capability will have to be in place prior to commencement of the use of the landfarm		It will be on- site by the end of June 2011- it is mobile and will be used throughout the site where contact water is created	
46	INAC		Impound water meeting the applicable discharge criteria will be discharged to the Processed Kimberlite Containment Area (PKCA).		No answer required, lead in statement	

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a			▪ What discharge criteria will be used?		Contact water will be collected and analyzed for BTEX and PHC F1-F4. As recommended in the review comments provided by Environment Canada (110429 NWB 2AM-JER0410 EC Comments Shear Type A renewal), the guideline values in "Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites" will be used. The applicable criteria in this guideline is under Commercial/Industrial Land Use and Freshwater Aquatic Life Pathways.	
47	INAC		The landfarm management strategy appears to be adequately documented, however, to the uninitiated, control of the environment, sampling etc. is likely to be poorly understood. If a landfarm is to be operated, some form of control of personnel or the use of consultants to support the operation should likely be specified. Since there are currently approximately 6500 cu. m that need to be treated, Shear should be queried on just exactly how they envisage this being conducted and supervised.		Please see the landfarm management plan that details what steps will be taken to ensure that the facility is operated in a safe and effective manner by people suitably trained to do so. Internal SOP's will be developed to address the operation	
48	EC	Section 5.2 and 6.8	The "Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites" may be useful for comparisons.	Please see the attached document for use in evaluating contact water quality.	Shear agrees with this statement.	

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49	EC	Section 5.0 Remediation Objectives	The Plan refers to meeting discharge criteria "as defined in the water license" before discharge of contact water to the PKCA. The expiring license does not appear to contain specific criteria.	EC supports the use of current federal and/or provincial guidelines and objectives as criteria for contact water quality prior to discharge to the PKCA; this will allow for the updating of target concentrations as further guidelines are developed. It is suggested that the Plan include a table with current values for the parameters listed in Appendix A.		Shear agrees with the recommendation made by EC and will refer to these guidelines in the next iteration of the plan.
50	EC	Expiring water license Part G.14	EC notes that the expiring license requires that all hydrocarbon-contaminated snow and ice be disposed of in a segregated sump in the Coarse Processed Kimberlite stockpile.	EC concurs with the use of a sump in the landfarm once constructed, with remedial measures taken to deal with any residual contamination in the CPK area that may be an issue.	The expiring water licence does require that all hydrocarbon contaminated snow and ice be deposited in a segregated sump in the Coarse PK. Shear did not find this to be an acceptable option. Shear will place contaminated snow and ice in the landfarm and will treat this water with the mobile remediation skid.	
51	EC	Section 2.0	The Plan proposes use of the landfarm, rather than a separate area for containment of contaminated snow and ice.		As stated above.	
	WASTE ROCK MANAGEMENT PLAN					
52	INAC		From section 3.3.2: In summary, the testing results indicate there are relatively few concerns with respect to ARD and metal leaching from the waste rock. However, based on the observations of isolated sulphides on boulders in the development waste pile and elevated uranium in the development pile seepage, the waste rock solids will be monitored during mining to appropriately identify and manage any isolated materials that could require special handling.		Waste rock will be carefully segregated and placed accordingly. As an additional measure and to Shear's knowledge, the potential effects of uranium leaching and other metals remains unresolved. Shear is going to collect a representative suite of rocks to determine the leaching specs when kimberlite is stored with these granitic rock types. These samples will be collected in the summer of 2011 and tests will commence.	
53	INAC		From section 3.3.4: In addition to the minor issues related to the geochemical properties of the rock, ammonia and nitrate from blasting and fine sediments in the waste rock and overburden may cause water quality issues in seepage and runoff from these areas. Measures to control blasting residues and reduce suspended sediments are provided in the Jericho Explosives Management Plan (TDC 2005). ▪ It will be necessary to monitor for ammonia and nitrate concentrations in contact water.		Ammonia and nitrate are monitored as part of the Seepage Monitoring Program.	

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
54	INAC		From section 5.4.1: Waste rock will be hauled to the dump using off-road mine trucks on all-weather mine access roads. At the dump, the waste rock will be end-dumped and spread with a dozer to make a flat surface for the mine trucks to drive on. It has been previously noted that end dumping of trucks loads down the slope of the dump may segregate the rock and form a (desirable) drain at the bottom of the slope. In addition, end dumping may prevent nesting of coarse particles at the crest, ensuring the slope remains at the angle of repose and is not "oversteepened." Shear will investigate options that involve end-dumping down the slope; however, the safety of the truck driver must remain the primary consideration and, in general, pushing with the dozer is the safer option.		The placement of the waste rock will be done in a safe manner. A dozer will be used where required.	
a			▪ The underlined sentence would imply that no rock drains are designed into the waste dumps.			
b			▪ Could this result in fluid pressure build up?		This is not a concern at this site.	
c			▪ It is generally good practice to design and install rock drains in zones where flows may be concentrated. Is this a consideration?		The rockfill is very coarse grained and the waste rock piles do not cover major drainages. Permafrost is expected to develop in the waste rock piles. No drains have been incorporated in the design	
55	EC	General	Figures 2-7 were not included in the Plan. The inclusion of these Figures would have assisted the review of this Plan.	When revising the Plan, please include the missing Figures.		Noted, will add Figures 2-7.
56	EC	Section 9.3.4	It is noted that there is an absence of geochemistry analysis for the recovery circuit rejects. As a mitigation measure, Shear plans to place this material in stockpile 1 which reports to the Processed Kimberlite containment area. The Plan notes that ongoing monitoring and testing of the leachate will determine if there are any long-term ARD and water quality issues related to this material.	EC would like clarification on how frequent this monitoring will be done.	The recovery circuit rejects are currently located at CPK Stockpile #4 and based on historic mining records is estimated to be 25,000 tonnes. In compliance with the current Water Licence Part L (9) Shear will conduct its Annual Seepage Survey and submit to the Board for review 60 days following completion of this survey. The parameters and locations for the seepage survey are detailed in Table 6.1 of the General Monitoring Plan. In addition should any seepage be generated from the CPK Stockpile #4 it will flow into East Sump. Water quality in East Sump is monitored monthly as per Section 7.3 in the General Monitoring Plan.	
	WASTEWATER TREATMENT MANAGEMENT PLAN					
57	EC	3.2 Oil and Grease Traps	The plan states that Shear will investigate the feasibility of incinerating collected oil and grease on site. It should be noted that incinerating oil and grease in sufficient quantity can damage the incinerator.	Please provide estimated quantities of oil and grease, and whether the incinerator manufacturer states these can be incinerated without damage to the unit.	At this time only minimal amounts of oil and grease from the domestic areas of site are being incinerated. Approximately 25 kg of oil and grease is created monthly. It is unknown at this time if the incinerator manufacture states these can be incinerated without damage to the unit.	

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
58	EC	O&M Section 4.1.4	How will sand and gravel filter materials that are removed be disposed of? At 2150 lbs each change, with approximately annual changes, it is acknowledged this will not represent a substantial volume on an annual basis.		The gravel filter materials that are removed when the Wescan filter media is changed are deposited with the sewage sludge.	
59	EC	Tables 3 & 4	Footnote 2 is missing in Table 4, but would refer to the Aerated equalization tank. If BOD5 is measured in the aeration tank, will starting values for influent BOD5 be understated?		Collecting influent samples from the equalization tank may underestimate the BOD5 at the moment the raw sewage being pumped to the WWTP. Given the BOD5 in the raw sewage fluctuate during the day, sampling from the equalization tank will reflect an average concentration of the sewage over a short period.	
	WASTE MANAGEMENT PLAN					
60	EC	Incineration	The Waste Management Plan does not discuss camp waste incineration. Appendix A, Forced Air Incineration System Operating and Maintenance Manual, provides general information on incineration. However, it provides no specific information on incineration activities at the mine site.	The Proponent should develop an incineration management plan that is consistent with the advice provided in the Technical Document for Batch waste Incineration (hereafter referred to as the Technical Document). For reference, this document can be downloaded from the following link: http://www.ec.gc.ca/gdd-mw/default.asp?lang=En&n=F53EDE13- 1. The management plan should include a discussion of the incineration equipment used to burn camp waste. Note that the Technical Document recommends dual chamber controlled air incineration technology. For smaller camps, less than 26 tonnes of waste per year, a single chamber incinerator with an after burner may be acceptable	Shear will develop an incineration management plan consistent with the standards outlined in the Technical Document for Batch waste incineration.	This will be submitted by September 1, 2011.
61	EC	Incineration	Appendix A discusses a number of Westland incinerators: the CY-1013-FA, CY-1020-FA, and CY-1050-FA models. These models are single chamber incinerators and are thus inappropriate for burning camp waste. The CY- 2020-FA and CY-2050-FA models are single chamber incinerators with afterburners and therefore may be acceptable for small camps.	The management plan should also provide information on the types and quantities of waste to be incinerated, the types of training completed by incinerator operators and maintenance and operational records.	The model of incinerator at use on-site is a CY2050-FA which is a single chamber with an afterburner. During care and maintenance Shear will not exceed the 26 tonnes of waste for incineration. Shear is currently tracking waste type and weight and is recording this information on all wastes for incineration. The information regarding waste stream and production will be used to assist with the decision on the purchase of a new dual chamber controlled air incerator for operations. Shear will not use the single chamber incinerator with afterburner for waste incineration when the waste stream will be more that 26 tonne/year.	
	AQUATIC EFFECTS MONITORING PLAN					

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
62	INAC		Shear identified the following deficiencies, which they have undertaken to address already:		Shear conducted a thorough search of the public registries (NU and the NWT) to review the Aquatic Effects Monitoring Plans submitted by other companies and to review the technical submissions and comments for those plans. Of greatest interest were the more recent submissions for diamond projects in the NWT.	
a			▪ No detailed information is available regarding condition of Control Lake, Lake C4, Lake C1, streams C1, C3 and C4. Shear proposes to obtain this information as part of the current Care and Maintenance activities		The last time that the AEMP was implemented at Jericho was in 2007, by Tahera. During care and maintenance, prior to Shear's acquisition, no sampling was conducted to support the AEMP. As such, Shear is not able to provide any data on current conditions other than to refer back to the results from the 2007 AEMP.	
b			▪ Shear questions legitimacy of the Control Lake, as it lies within a potential indirect impact zone. Before continuing baseline studies, a review of this lake will be conducted by Shear. A new control lake (Reference Lake 2) selection process will be undertaken to identify a candidate lake that can better serve future monitoring requirements		In reviewing the public registries, Shear noted a new approach in selecting a control lake. Shear incorporated the advances identified in the new approaches taken to select appropriate control lakes, as well as comments from reviewers on those other plans, in the AEMP submitted with the Care and Maintenance Plan.	
c			▪ Shear indicated that previous rationale for site selection and sampling for AEMP was incomplete and sparse. Will a new site be added to improve coverage of indirect project effects and enhance controls?		Shear reviewed the AEMP that had been submitted and implemented by Tahera and believes that there were deficiencies within the plan, specifically with regard to both direct and indirect effects within the zone of influence. To this end, Shear has proposed establishing the following additional sites: ▪ New reference lake, JER-AEM-02 (water chemistry, sediment chemistry, sediment deposition) ▪ Lake O1, JER-AEM-19, (water chemistry, sediment chemistry) ▪ Lake O2, JER-AEM-20, (water chemistry, sediment chemistry, DO profile) ▪ Lake O3, JER-AEM-21, (water chemistry) ▪ Contwoyto Lake (at the outlet of Lynn Lake), JER-AEM-25, (water chemistry) ▪ Key Lake, JER-AEM-23, (sediment chemistry, sediment deposition and DO are added to this previously established station) ▪ Lynn Lake, JER-AEM-24, (sediment chemistry is added to this previously established station) ▪ Carat Lake outlet, JER-AEM-16, (DO profile is added to this previously established station)	

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
					In addition to these sites, during the under-ice sampling for the AEMP in April, 2011, Shear noted that fine processed kimberlite (FPK) has become airborne and deposited outside of the PKCA. In response, Shear has added additional sites to the AEMP: ▪ Lynn Lake and Key Lake – have been added to the under-ice sampling (April) of the AEMP, and ▪ Two previously unnamed lakes (Southeast Lake and Shine Lake) have been added to the open water AEMP sampling program. Both of these lakes were frozen to the bottom when sampled in April of this year. Ash Lake was frozen to the bottom and thus will remain an open water sampling station. Additionally, Shear has made significant improvements to the biological component of the AEMP with the introduction of a number of new sampling locations.	
d			▪ Ammonia, copper and TSS are main contaminants of concern from PKCA. Consideration for monitoring		These will be monitored.	
63	EC	Design, 2.1	Section 2.1 outlines the AEMP approach, and states that triggers for management response will be an increase in water or sediment parameter concentrations followed by a biologically significant effect measured by the AEMP, and linked to mine activities. Actions which would be taken are described on page 4, and these comprise a proactive and thorough response. However, it is not clear here whether these actions would be taken in response to a biological change, or as soon as changes to water or sediment quality are observed.	EC asks that the proponent clarify here what action would be implemented upon observation of abiotic increased parameters, and prior to a biological effect having occurred. It is acknowledged that section 2.6 of the AEMP does confirm this.	Shear will use abiotic triggers to identify the need for a management response. In determining these triggers, Shear will identify the key chemicals, set up standards of what are acceptable levels, look at them in concert (as a suite), set up what Shear believes will be good management targets (adaptive management process), and identify appropriate mitigations if there are exceedences. For the annual report, Shear would review how well the company stayed within the parameters and if not, what management decisions will be made and mitigations implemented.	
64	EC	3.6.2.1	Re: Laboratory qualification, the accrediting body has changed from CAEAL to CALA.	Minor edit flagged for next version.		Will be edited for next version.
65	EC	3.8 Data Analysis	The Plan indicates that data will be quality checked before formal statistical analysis and outliers identified.	EC seeks clarification as to whether Shear will undertake and report on statistical analyses both with all data in and with outliers removed. To that end, EC also seeks excluded from the data set clarification on how outliers will be determined and excluded from the data set.	Please see the description provided.	
66	EC	4.4 Sediment monitoring	Was the proponent able to verify comparability of previous sediment sampling methods and analysis for the sites selected to be used in the updated AEMP?		Shear has identified the need to collect core samples in addition to the Ekman dredge. In collecting both grab and core samples Shear believes that sampling methods will be comparable to previous sediment sampling methods.	The change to include core sampling will be included in the next iteration of the AEMP.

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
67	EC	4.6.1 Sampling methods	Sediment sampling will be done using an Ekman dredge and the top 5cm will be taken from the top of the grab. Given the extremely low sedimentation rates in Arctic lakes, use of a 5 cm depth would mask changes occurring at the surface of the sediments. Other mines are successfully using core samples and analyzing the top 1cm layers.	Consideration should be given to using core samples such that 1 cm or 2 cm layers can be tested. This may require overlap in sampling methods to determine whether there is any comparability between historical results and core sample results.		Shear will update the AEMP to include core sampling.
68	EC	7.5.5.2 Benthic – water bodies	Two mesh sizes (210 um or 500 um) are specified for sieving of sediment samples for benthic invertebrates. When would each size be used, and which would be most consistent with historical samples?		This is being investigated as we agree there is a discrepancy. Shear is reviewing the methodology proposed and will correct this in the next iteration.	Shear will ensure that in all instances where methodologies are changed, that new methodologies will collect data that is comparable to historical data, UNLESS the previous sampling methodologies are inappropriate, suspect or obsolete.
69	DFO			DFO recommends that it may be worth having more than one control lake to cross reference sampling data that is gathered during the AEMP monitoring program, as there may be no, or little historical data available for the control lake that is yet to be decided upon.	It will be difficult to find one lake of similar size to Carat let alone two. This will be verified during the reconnaissance. During care and maintenance, Shear will select one control lake to sample.	Shear will identify other potential control lakes during care and maintenance for operations.
70	DFO	Section 5.0		DFO recommends that a minimum of one duplicate sediment deposition trap to be deployed at each sampling location.		Shear agrees and will implement.
71	DFO			If issues are identified in the AEMP that may suggest increased metals concentrations or other factors that may affect fish health, DFO recommends that the fish population and health portion of the AEMP should be reinstated.		Shear agrees and will implement.
72	DFO	Section 7.3.5		DFO recommends that the sampling frequency of zooplankton and phytoplankton be conducted on an annual basis during care and maintenance because the phytoplankton and zooplankton abundances and community structure is correlated closely with other factors in the AEMP that affect lake health.	In 2012, Shear will conduct seasonal sampling of phytoplankton and zooplankton in Carat Lake and the new control lake.	In 2012, Shear will conduct seasonal sampling of phytoplankton and zooplankton in Carat Lake and the new control lake.

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
73	DFO	Section 7.4.1		DFO recommends that the periphyton sampling be extended to all the lakes within the zone of influence of the mine. Periphyton is of vital importance to the aquatic health of watercourses and lakes and both should be monitored as part of the AEMP.	The level of effort that Shear has proposed is greater than in the original AEMP submitted by Tahera. Shear believes the sampling program being proposed is reasonable to measure for effects.	
	INTERIM CLOSURE AND ABANDONMENT PLAN					
74	INAC		Section 6.1 of the report states that the till stockpile is located on the north central side of the present Waste Rock Dump 2 confined by a toe berm.		No answer required.	
a			▪ Given that the till will likely freeze, why not put on a southern exposure to mitigate freezing if the till is to be used in reclamation?		Freezing temperatures are typically experienced from late September through to June. Extreme cold temperatures in the winter are colder than minus 30 for an extended period of time. The till will freeze, regardless of placement on the waste dump.	
75	INAC		Section 7.1.2 of the report states: Freeze back of the dumps is expected to occur in the first few years following deposition. From the WRMP: At Waste Dump 1, Shear expects to install a multi-thermistor ground temperature cable (GTC) at least two locations within the final stage of the dump. Similarly, at Waste Dump 2, two GTCs will also be installed. ▪ When will these be installed? (The report says "within the final stage of the dump") ▪ Where? ▪ Elevation ▪ Vertical or horizontal? ▪ The earlier the thermistor strings are installed, the sooner the data is available, the sooner the models		Shear will have a suitable drill on site in 2012 to install the GTC's in Waste Dump 1. ▪ They will be installed vertically. ▪ Suggested locations are one in the middle and one at the downstream edge of Waste Dump 1.Elevations will be finalized once Waste Dump 1 is closed.	

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
			can be calibrated, and if the thermal behaviour is as anticipated, the sooner there is confidence in the plan. Alternately, if thermal performance is not as anticipated, contingencies can (and should) be planned and implemented prior to closure.			
76	INAC		Section 7.3.4 of the report states: Alternatives to overburden cover include rock armouring should overburden cover not prove practical. Based on experience at the EKATI Diamond Mine, direct placement of vegetation on CPK is unlikely to be successful. However, creation of microhabitats to prevent sand drifting will be investigated as part of revegetation trials.		No answer required, lead in statement	
a			▪ There seems to be a lack of understanding about behaviour of CPK. What happens at other mines?		We have two years operational data from the Coarse PK and Fine PK at the Jericho site, and two years of temporary closure observations. We are not sure if the question is referring to Coarse PK, or Fine PK. We have a good understanding the Coarse PK. The Coarse PK piles are performing as expected. The Fine PK has also preformed generally as expected during operations. There will be further discussions about the fine PK at the end of this session.	
77	INAC		Section 7.4.3.1 of the report states: If trends in water quality indicate discharge on closure may be problematic, at least one year prior to closure, testing of PKCA supernatant water will be undertaken with the goal of selecting a system that will treat the water to Water Licence objectives.		No answer required.	
a			▪ What types of problems are anticipated?		Problems are not anticipated. Shear was stating that if a problem did occur that action would be required. The monitoring program will detect potential concerns.	
b			▪ What type of treatment is planned?		Treatment would depend on the nature of any problems that were identified.	
78	INAC		Section 7.4.3.2 of the report states: At closure, ponded supernatant water will be pumped to Stream C3 if water meets discharge criteria or treated as indicated from criteria. To minimize long term stability risks, the dam will be breached; the final discharge elevation will be		No answer required, lead in statement	

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
			determined as part of final closure planning. The West Dam will, therefore, no longer perform or be classified as a dam. The discharge elevation will be set so that FPK in the upstream pond does not wash out through the discharge. Natural discharge from the basin is expected to be restored with these measures.			
a			▪ We are uncertain that adequate details are provided with respect to the dam breach, and associated retention of FPK		The west dam breach is shown in Figure 8 in the interim Closure Plan. Options for fine PK are also presented. Further details of the exact cover are dependent on the final surface of the fine PK and ongoing studies.	
b			▪ This harkens back to a lack of detail on how much FPK will be stored, how it will sediment out in Cell C etc. operational experience prior to closure to meet these		The fine PK will be stored and settle out in Cells A and B behind the Divider Dykes. There is anticipated to be no significant amounts of fine PK in Cell C.	
79	INAC		Section 7.6.3 of the report on Long-term Stability states: Preservation of the permafrost between the open pit and the channel is of utmost importance. Permafrost degradation could result in seepage losses toward the pit wall resulting in possible pit wall instability. To avoid seepage losses, the up-gradient and pit side embankment of the Stream C1 diversion is designed with a minimum 5 m wide running surface to permit heavy equipment traffic and to positively preserve and aggrade permafrost. Furthermore, an approximate 2 m insulating sand and gravel/rock cover will be used in the zone between Reach C and the pit crest in areas suspected to contain high levels of ground ice. Fills used for the embankment adjacent to the channel will be chosen selectively to provide low permeability when frozen to act as a natural liner/cutoff. Geothermal and hydrogeological considerations will determine the berm dimensions and therefore the berm dimension will exceed those that would be required to control runoff if the channel was simply lined with a geosynthetic liner.		No answer required, lead in statement	

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
a			▪ Given the importance implied above, is there any plan to monitor the geothermal conditions?		The performance of the C1 diversion and Open Pit has been monitored since the channel has been constructed. The water runs along the diversion berm on the north side of the channel (away from the pit). No seepage has been observed from the channel to the pit, or under or through the diversion berm. The channel was constructed in a manner that the organic mat in Reach C remained intact. There is no indication of permafrost degradation in the channel, or under the embankments. Given the performance to date there is no plan to monitor the geothermal conditions.	
80	INAC		Section 7.6.3 of the report describes the management of borrow areas. Borrow area reclamation can be problematic, particularly if they are near water bodies and melt of ice-rich materials leads to sediment transport.		No answer required, lead in statement	
a			▪ We suggest a detailed inventory of borrow areas be developed and a reclamation plan for each be developed so they can be reclaimed in an ongoing and timely manner rather than leaving it all to the end of the mining operation		The borrow areas to date have been inventoried in 2005, 2006, and 2007 and were included in the Annual Reports. While the project was on care and maintenance prior to Shear's acquisition, no public record of any inventories post 2007 or annual reports were available for review. Once the snow has melted a geotechnical engineer will accompany Shear staff and complete a comprehensive inventory of borrow areas. The results of which will be included in the annual Report as required by the current Water Licence Schedule B, Item 1. Any areas identified as completed as borrow areas will be evaluated for potential progressive reclamation in consultation with the Water Resource Inspector.	
81	EC	Open Pit	It is unclear what the fill sources for the open put will be. A reference to the open pit being flooded naturally (p. 44) is assumed to mean that the sources are limited to precipitation and seepage from the waste dumps, and that given the local permafrost it is believed there will be no groundwater seepage into the pit (p. 15). If this is the case, the estimated fill time of 20 years is questionable.	EC looks forward to the planned remodeling of the open pit fill rate.		Shear will re-evaluate the pit fill rate.
82	EC	Open Pit	In terms of water quality in the pit, there is concern about the potential implications of weathering of the pit walls while the pit is filling and the impact this could have on water quality.	A discussion of current and predicted ARD or metal leaching for the site as a whole should be added to the Plan, including a focus on the pit walls. Additionally, further discussion of the impacts of the raised blasting residues that are expected to be present in the open pit water, following the flushing of the waste dumps into the pit, should be included.	Based on the 16 water samples collected from the pit in February 2011, the only water quality concern is nitrate. Given ammonium nitrate spill was placed in the pit, and the pit inflow water quality in May 2011, no post-closure pit water quality concern is expected.	

ITEM #	INTERVENOR	REFERENCE	CONCERN/COMMENT/QUESTION	RECOMMENDATION / REQUEST	RESPONSE	COMMITMENT
83	EC	Open Pit	In is unclear what is meant by in-pit biological treatment (p. 26) or the estimated length of time that treatment would be required.	Given the concerns about the pit water quality, further details on contingency plans for pit water quality are needed.	The in-pit water biological treatment means stimulating the growth of phytoplankton and the biological uptake of nitrate. The in-pit treatment is currently under trial test in other mines. With continual monitoring, if the post-closure pit water quality becomes a concern, a similar test will be conducted at Jericho.	
84	EC	PKCA	In section 7.4.4, one alternative considered for the closure of PKCA pond water, should it not meet Water License discharge criteria, would be to pump the water to the open pit. It is unclear what the final decision regarding this alterative was.	If this alternative is still being considered, the addition of the water and its impact on the water quality of the open pit should also be included in the remodeling of the pit fill rate and water quality.	Acknowledged.	Shear will undertake modelling of pit water quality for closure
	CONTINGENCY MANAGEMENT PLAN					
85	EC	Table 3, Page 9	The listed number provided for EC in this Table (i.e., 867-766-3737) is no longer in service. Please revise the table with the following number: 867-669-4730.	Minor edit flagged for next version.		Will be edited for next version.
	EMERGENCY PREPAREDNESS AND EMERGENCY RESPONSE PLAN FOR DAM EMERGENCIES					
86	EC	Page A10, 12.1 External Emergency Contact Numbers. Page A17, Imminent Flood Emergency	This listed number provided for EC in these two sections (i.e., 867-766-3737) is no longer in service. Please revise this table with the following number: 867-669-4730.	Minor edit flagged for next version.		Will be edited for next version.
	OPERATION, MAINTENANCE AND SURVEILLANCE MANUAL - PKCA DAMS					
87	EC	Section 2.3, General Flood Operation Procedures	This part of the Plan outlines contingencies for ensuring the PKMP does not exceed its 1 m freeboard limit. This will be achieved by discharging water into stream C3, including exceeding the maximum allowable discharge rate if necessary. However, there is no mention in the contingency plan of how Shear will ensure it respects the discharge limits required by its water license	EC would like clarification on how Shear will ensure discharge limits will be respected during flood conditions.	In the event of an emergency situation, water quality that meets discharge criteria will be discharged to stream C3. If the water quality does not meet discharge criteria it will be pumped to the pit.	

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	WATER LICENCE CONDITION					
88	EC	Part G, 7		In addition to undertaking acute toxicity testing once prior to discharge and monthly thereafter until freeze up on rainbow trout and Daphnia magna, EC recommends the following additional chronic tests be performed on discharge water from the PKCA:	It is unclear if this is a recommendation for a license condition	
a				1) Chronic toxicity to the cladoceran crustacean Ceriodaphnia dubia (as per Environment Canada's Environmental Protection Series Biological Test method EPS/1/RM/21); and		
b				2) Chronic toxicity to the alga Pseudokirchneriella subcapitata (as per Environment Canada's Environmental Protection Series Biological Test method EPS/1/RM/25). These additional tests are recommended to provide indication of the likelihood and extent of sublethal effects in the receiving environment, and to be consistent with water license requirements for diamond mines in the NWT.		