

Appendix 4 – River Crossing Monitoring Checklist

River	Khayambusibin River			Crossing Date:	Oil		5 April 2006
KP	21.00				Gas	X	9 April 2006
Category	High, Type 2				FOC		5 April 2006
	Compliance requirement	Yes	No	Reference	Comments [please note: reviewed/approved by A Gordine, 10-04-2006]		
	Pre works start items.						
1	Approved River Crossing Assessment Sheet plus all appendices is available	X		River Crossing Assessment Sheet	The documents were provided to RCOT by SEIC one day before the start of instream works.		
2	External observers are present	X		River Crossing Monitoring Plan	RCOT attended the kick-off meeting, and did observing before, during, and after construction of this crossing.		
3	Contractor has Environmental Monitor present and logistics to carry out monitoring tasks	X		River Crossing Monitoring Plan, annex 1	Environmental Monitor was present.		
4	Environmental Monitor has attended site kick-off meeting	X		River Crossing Monitoring Plan, annex 1	Environmental Monitor attended the kick-off meeting.		
5	Environmental Monitor has the required field equipment present and functioning and calibrated	X		River Crossing Monitoring Plan, annex 1	All equipment required for monitoring was available.		
6	Environmental Monitor has the required reporting documents	X		River Crossing Monitoring Plan, annex 1	Environmental Monitor had the Monitoring Sheets, and Chain of Custody forms for water samples collected during monitoring.		
7	Refuelling equipment in good order, free of leaks, pumps have automatic shut off switches, spill response equipment nearby	X		River Crossing Construction Guide	The equipment was clean, free of leaks, and appeared to be well-maintained. A containment boom, absorbent materials, and spill trays were present.		
8	Contractor has sufficient stocks of temporary soil erosion mitigation	X		River Crossing Construction Guide	Silt fencing materials were available. Gravel was delivered to the site, and stockpiled for reinstating the river bed/banks later.		

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	equipment and materials before works start						
9	Contractor applies appropriate temporary soil erosion control measures prior to works start	X		River Crossing Assessment Sheet Appendix 3	Silt fences were installed. Soil/snow perimeter berms were built to contain materials excavated from the trench.		
10	All resources listed in the River Crossing Construction Guide are present	X		River Crossing Construction Guide	A spill response kit and erosion control materials were present.		
11	Water Protection Zones were delineated prior to work start	X		River Crossing Assessment Sheet Appendix 3	Signs for the Water Protection Zone signs were installed on both sides of the river.		
12	All of the above pre-start items are present before site works start.	X			All of the pre-start items present or looked after.		
	Items during site works.						
13	Contractor applies execution erosion control measures	X		River Crossing Assessment Sheet Appendix 3	Soil/Snow berms were constructed around the spoil stockpiles locations. Silt fences were installed along the banks, and around the containment berms for excavated mater.		
14	Contractor applies appropriate erosion control measures in the Water Protection Zone	X		River Crossing Assessment Sheet Appendix 3	Spoil stockpiles were properly managed.		
15	The delineated Water Protection Zones were respected	X		River Crossing Assessment Sheet Appendix 3	Construction equipment was parked and refuelled outside the Water Protection Zone.		

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	Compliance requirement	Yes	No	Reference	Comments [please note: reviewed/approved by A Gordine, 10-04-2006]
16	Contractor follows the proper spoil removal/stockpiling techniques	X		River Crossing Assessment Sheet Appendix 3	River bank and bed materials were stored separately.
17	Areas of disturbance were minimised as far as possible	X		River Crossing Assessment Sheet Appendix 3	Construction activities were confined to the limits of the Right-of-Way. The Contractor was careful, and tried to minimize the extent of disturbance.
18	Contractor adopts appropriate measures to prevent oil spills to the water body	X		River Crossing Construction Guide	Equipment refuelling occurred outside the Water Protection Zone. The equipment appeared to be well-maintained and free of leaks. A spill response kit was located nearby.
19	Hazardous materials, including chemicals, fuels, lubricating oils etc were not stored between the designated Water Protection Zone and the water body	X		River Crossing Construction Guide	Hazardous materials were stored outside of the Water Protection Zone.
20	Environmental Monitor carried out the field measurements as required in the Scope of Work			River Crossing Monitoring Plan, Appendix 1	Not applicable. The watercourse was dry during this crossing (as it was during the first crossing). Khayambusibin River is a small, intermittent stream; it was frozen to the bottom, and no flowing water could be located at the time of construction. Turbidity and velocity could not be measured; water samples for TSS could not be collected.
21	The environmental monitoring measurements have been carried out safely	X		River Crossing Monitoring Plan	To the limited extent it occurred (given that no measurement or sample collection was possible since the watercourse was dry), the monitoring was safely performed.

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22	If a non-compliance was revealed, corrective actions were undertaken			River Crossing Monitoring Plan	Not applicable. Non-compliances were not observed during the construction period.		
23	Clean gravel/cobbles were used as upper backfill where required.	X		River Crossing Assessment Appendix 3	Gravel was free of silt and sand. A thin layer of upper gravel backfill was placed across the Right-of-Way of both pipelines following the construction of the second (gas) pipeline.		
24	Site works were carried out in the time specified	X		River Crossing Assessment Appendix 1	The construction lasted for roughly 2 hours and 15 minutes, and took place within the specified time.		
25	The second crossing was done consecutive to the first crossing	X		River Crossing Assessment Sheet	The first crossing (oil) was installed on 5 April, four days earlier.		
26	The Contractor executed the site works in the minimum amount of time necessary.	X		River Crossing Assessment Appendix 1	The construction proceeded according to plan, without delays or equipment breakdowns.		
27	In the case of any incident, the proper response procedure was followed up			River Crossing Construction Guide	Not applicable. No incidents took place.		
	Items after crossing installed.						
28	Contractor has installed permanent soil erosion mitigation works as specified in the site execution plan.	X		River Crossing Assessment Appendix 3	Temporary sediment and erosion control measures (silt fencing and upper gravel cap) were installed. According to late December guidance from SEIC, this crossing can be regarded as finished until it is revisited in the Spring, when permanent erosion control measures will be implemented.		