Appendix A2

Cost Breakdown and Unit Cost for the Risk Management Scenarios

SCENARIO 1: IMPLEMENTATION, ENFORCEMENT AND MONITORING OF WORKERS HEALTH AND SAFETY AND SPILL PREVENTION MEASURES

Item	Description	Source / Comment	Quantification	Value	Timing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
1	**Raise awareness**																								
1.1	Organize workshops with local population	Laos WREA plans to have 3 meetings in the first year – one for SPL site staff, one with local community, and a third one for decision-makers and private sectors dealing with PCBs and POPs. One workshop will be organized in the next 5 years. *Cost is estimated as: # of workshop * unit cost of a workshop*	• # and frequency of workshops	3 during year 1 1 / year in the next 5 years	Reccurring	3,000	1,000	1,000	1,000	1,000	1,000														
1.2	Produce and diffuse awareness raising material	Awareness kits including posters, leaflets, etc. should be available on and around the site, and distributed to the workers and the workshop attendees *Cost is estimated as: # of workshop * unit cost of a kit*	• # of risk awareness kits produced	500	Initial	5,000																			
2	**Develop a Health and Safety / Spill Prevention Plan**																								
2.1	Consultation and working session	The development of the Health and Safety Plan will be based on consultation with local authorities, site managers and employees to ensure that the objectives of the plan are widely shared and adequate procedures are defined. Consultations will be conducted by local Health and Safety consultants. *Cost is estimated as: duration of consultation * # of people consulted * (labour cost of site employee + labour cost of local consultants)*	• Duration of consultation • # of people consulted	0.5 20	Initial	1,600																			
2.2	Development of initial plan	The plan must be developed by local Health and Safety consultant who are knowledgeable of the site operations and local regulations. In addition, international consultants may provide input regarding POPs standards and generic Health and Safety management systems *Cost is estimated as : (# of international consultant days * labour cost of international consultant) + (# of national consultant days * labour cost of inational consultant)*	• # of international consultants days • # of national consultants days	10 40	Initial	16,000																			
2.3	Plan revisions	*Cost is estimated as : # of national consultant days * labour cost of national consultant*	• Frequency of plan revisions (/year) • # of national consultants days	1 5	Recurring		750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
3	**Train the personnel**																								
3.1	Initial training	The training is designed for the staff directly involved in the handling of the transformers and other chemical hazards in the workshop (14 employees) and storage areas (8 employees). The staff must be trained to implement the measures included in the Health and Safety plan, including use of protective equipment, safe handling and storage of contaminated material, spill prevention, etc. Training sessions will last 2 days and be held by local Health and Safety consultants. *Cost is estimated in the first year as : (# of employee to be trained * duration of training)* labour cost of employees + duration of training * labour cost of national consultant.* In the following year, only new employees need to be trained, the number of which is calculated using the turnover rate.	• # of employees to be trained • Employee turnover • Duration of initial training (days)	22 5% 2	Recurring	740	322	322	322	322	322	322	322	322	322	322	322	322	322	322	322	322	322	322	322
3.2	Training updates	Regular training updates must be provided to communicate about plan updates, incidents and accidents that occurred, etc. Training update sessions will last half a day and be held by the site Health and Safety specialist. Cost is estimated as: *(# of employee to be trained * duration of training)* labour cost of employees + duration of training * labour cost of national consultant*	• # of employees to be trained • Frequency of training updates (/year) • Duration of training updates (days)	22 1 0.5	Recurring		185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
4	**Implement the Health and Safety Plan**																								
4.1	Provide personal protection equipment	Personal protection equipment must be provided to staff involved with the PCBs contaminated equipment in the workshop and storage area. Extra equipment must be available for vistors coming on site. A personal protection equipment kit includes coveralls, gloves, boots/overboots, face shields, etc *Cost is estimated as: # of kits * unit cost of a kit.*	• # of kits • Percentage of kits to be replaced yearly)	25 5%	Initial + reccuring	2,500	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
4.2	Label hazardous materials and contaminated areas	Labelling is necessary to ensure that all the hazardous material and contaminated areas are signaled, and may include: color-coded containers, signs, etc. *Cost is estimated as: # of items to be labeled * unit cost of labeling an item*	• # of items to be labeled • Additional items to be labeled yearly	100 5	Initial Reccuring	500	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Item	Description	Source / Comment	Quantification	Value	Timing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
4.3	Test transformers before handling	Transformers received at the site should be systematically tested before handling, so that safety procedure be implemented should they prove contaminated. CLOR-N-OIL tests are adequate for this purpose. *Cost is estimated as: # of tests * unit cost of a test*	• # of tests (CLOR N OIL)	50	Reccuring	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
4.4	Implement Health and Safety procedures	Health and Safety procedures include, but are not limited to: use of personal protective equipment, safe handling and storage of contaminated material (e.g use of proper labels), no access to restricted areas, adequate cleaning of surfaces, installations and vehicles to avoid accumulation of hazardous compounds etc. *Cost is estimated as: (# of employees at the workshop * average time dedicated to procedures by employees at the workshop + # of employees on site * average time dedicated to procedures by employees on site) * labour costs of employee * number of worksday per year (240)*	• # of employees at the workshop • average time dedicated to procedures by employees at the workshop (% of workday) • # of other employees on site • average time dedicated to procedures by other employees on the site (% of workday)	12 5% 104 1%	Recurring	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936	3,936
4.5	Implement spill response procedures	Spill response procedures are critical to ensure that no further contamination of the site (or new contamination, should the site be cleaned-up) occur. It involves the emergency response to the spill (e.g placement of sorben pillows) and the cleanup of the spill area. *Cost is estimated as: (# of spills * average time dedicated to clean-up *procedures by employees at the workshop + # of employees on site * average time dedicated to procedures by employees on site) * labour costs of employee * number of worksday per year (240).*	• # of spills / months • Average time dedicated to clean up (days)	1 1	Recurring	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
5	**Ensure integrity of workplace structure**																								
5.1	Provide facilities for showering and changing into and out of street and work clothes; and clean eating areas where workers are not exposed to hazardous or noxious substances	The facility must include showers, lockers and changing rooms. *Precise cost cannot be provided without specifications being developed. Therefore, a global, conservative budget of US$ 2500 is allocated to this item.*	• Unit	-	Initial	2,500																			
5.2	Define “restricted entry” into contaminated area without proper protection and authorization	Safe locks must be installed, as well as possibly an "accreditation system", to keep emplyess movement in and arount contaminated areas to a minimum. *Precise cost cannot be provided without specifications are developed. Therefore, a global, conservative budget of US$ 500 is allocated to this item.*	• Unit	-	Initial	500																			
6	**Monitoring**																								
6.1	Monitoring of the health and safety plan implementation	Monitoring of the Health and Safety plan implementation includes: recurring inspections/audits of health and safety features and procedures; of spill control equipment and procedures; and investigation, reporting and recording of occupational accidents/incidents; and spills or near misses. *Cost is estimated as: national consultant days * labour cost of national consultant*	• Average time (in days) dedicated each month to monitoring by the health and safety specialist	1	Recurring		1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
6.2	Environmental monitoring - Soil testing	Regular (yearly) control of the extent of contamination on the site is needed to ensure that it does not extend or worsen . CLOR-N-SOIL type tests can be used to perform this assessment, about 10 tests are needed yearly to cover the whole site. *Cost is estimated as: number of tests * unit cost of a test*	• # of tests	10	Recurring		150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
6.3	Blood testing	Regular control of workers exposure is needed to monitor the effects of the health and safety policy. Given high cost of blood analysis, the next blood sampling campaign should be at least 5 years after the risk management assessment was undertaken (blood sampling was done in 2008) i.e. by 2014, then every 10 years. To provide valuable statistics, a minimum of 25 employees should be tested. *Cost is estimated as: number of blood sampling * unit cost of a blood sampling*	• # of sampling	25	Recurring					25,000					25,000											25,000
7	**Contingency, Technical Support, Project management**		• % of overhead	**10%**	Recurring	3,690	891	891	891	3,391	891	791	791	791	3,291	791	791	791	791	791	791	791	791	791	791	3,291