**Appendix W**

**GENERIC CRYPTOSPORIDIUM RISK ASSESSMENT**

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| **Service Area** | **School/Location** | **Name of Assessor** |
| **Date of Assessment** | **Job Type** | **Frequency/Duration** |

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| **Background to Cryptosporidium**  Cryptosporidium is a protozoan parasite (single-celled organism) about 4-6µm in size living in the intestine of infected humans or animals. The parasite reproduces in the intestines producing thick-walled oocysts that will be excreted through faecal matter or a thin-walled oocyst which will infect the host. Millions of Cryptosporidium parasites can be released in a bowel movement from an infected human which if occurs in a swimming pool will contaminate the water. Transmission of the parasite, from one person to another in a swimming pool, occurs when water is swallowed and the oocysts ingested. This can cause Cryptosporidiosis, which is extremely infectious.  The thick outer shell wall of an oocyst allows it to survive outside the body for long periods of time and makes it very resistant to chlorine-based disinfectants; it can also withstand freezing temperatures. Cryptosporidium oocysts are shed in the stool when the symptoms begin and can last for weeks after the symptoms stop. Young children are often the infected host and are most likely to become infected. Some people who become infected with cryptosporidium actually have no symptoms; however, they can still pass on the infection to others.  It can take between 3 to 12 days after contact with cryptosporidium before symptoms develop. The main symptoms of cryptosporidiosis are watery diarrhoea with abdominal cramps; vomiting, fever and loss of appetite are also common. In persons with healthy immune systems, symptoms usually last about one to two weeks but can last up to one month. The symptoms may go in cycles in which people may seem to get better for a few days, then feel worse again before the illness ends. Sometimes a child may need to be admitted to hospital for treatment if they become dehydrated. People who are in poor health or who have weakened immune systems are at higher risk for more severe and more prolonged illness which can sometimes be life threatening.  Persons diagnosed with, or where there is a suspicion that they have had, cryptosporidiosis should not swim in swimming pools for at least 14 days after the diarrhoea stops. Cryptosporidium can still be passed in stools and contaminate water for several weeks after the symptoms have ended. There is not even need to have a faecal accident in the water; immersion in the water may be enough for contamination to occur. |

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| What are the Hazards? | **Who Might be harmed and how?**  **(Who is at special risk?)** | What are you already doing? **(Current Control measures, including those for people at special risk)** | **What further action is necessary?**  **(Further Control Measures)** | Action by whom | Action by when | Done | Risk Factor taking all controls into consideration | | |
| **Likelihood** | **Severity** | **Risk Level** |
| Poor control of entry to swimming pool may lead to Cryptosporidium oocysts being present in swimming pool water | Anyone who accidentally swallows pool water contaminated by a faecal matter may contract Cryptosporidiosis  Children under 5 years and people with weakened immune systems are likely to be most seriously affected. | Signage provided advising children/adults with diarrhoea must not swim – then, or for 48 hours after they are clear  Clear signage advising those who have been diagnosed with cryptosporidiosis or it is suspected may have contracted it must not swim for 14 days after diarrhoea has stopped. |  |  |  |  |  |  |  |
|  |  | Parents sent written information on cryptosporidium and the requirement that their children should not swim if they have diarrhoea |  |  |  |  |  |  |  |
|  |  | Regular meetings with hirers to explain emergency procedures for faecal contamination and the importance of advising their bathers not to swim if they have had diarrhoea |  |  |  |  |  |  |  |

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| Poor pre-pool hygiene leading to oocysts being present in pool water | Anyone who accidentally swallows pool water contaminated by a faecal matter may contract Cryptosporidiosis  Children under 5 years and people with weakened immune systems are likely to be most seriously affected. | Bathers are encouraged to wash and shower before swimming where showers are available (people recovering from Cryptosporidiosis could still have oocysts around their anus) |  |  |  |  |  |  |  |
|  |  | Hiring agreements specify that bathers must shower before swimming |  |  |  |  |  |  |  |
|  |  | Where showers are unavailable, footbaths are provided for bathers to use before they enter the pool  At a minimum, this could be two washing up bowls filled with disinfected pool water |  |  |  |  |  |  |  |
|  |  | Protective shoe covers provided for non-swimmers entering pool area |  |  |  |  |  |  |  |
| Poor pre-pool hygiene - continued |  | Children and adult bathers are encouraged to use the toilets and wash their hands before they swim.  Where showers are available they should shower again before entering the water  Children offered frequent toilet breaks. |  |  |  |  |  |  |  |
|  |  | Where appropriate, hygienic baby changing facilities are provided  Suitable receptacles provided for safe and hygienic disposal of soiled nappies.  Good hand washing facilities available nearby |  |  |  |  |  |  |  |
| Faecal accidents - High risk from very young children swimming in the pool | Anyone who accidentally swallows pool water contaminated by a faecal matter may contract Cryptosporidiosis  Children under 5 years and people with weakened immune systems are likely to be most seriously affected. | Documented approved PWTAG procedures (Technical Note 2) for removing both solid and runny stools is readily available and practised  Guidance for faecal contamination is available in Appendix 5 of PALM Academy training handbooks |  |  |  |  |  |  |  |
|  |  | Pool operators/lifeguards supervise the pool and are trained in the different procedures for solid and runny stools |  |  |  |  |  |  |  |
|  |  | Babies wear special swimming nappies and parents instructed that they must not swim if they or their baby have had diarrhoea in the previous 48 hours or 14 days in the case of Cryptosporidiosis |  |  |  |  |  |  |  |
| Faecal accidents continued |  | Faecal incidents and the action taken are recorded.  The record includes dates of incidents, staff on duty, nature of incident, pH and disinfection at time of incident and before re-opening, secondary disinfection |  |  |  |  |  |  |  |
| Inadequate water treatment | Anyone who accidentally swallows pool water that has been inadequately treated may contract Cryptosporidiosis  Children under 5 years and people with weakened immune systems are likely to be most seriously affected. | Schematic diagram of pool water showing the steps in the water flow process from the pool, through the treatment plant and back to the pool. |  |  |  |  |  |  |  |
|  |  | Effective disinfectant regime in place |  |  |  |  |  |  |  |
|  |  | Temperature of pool water (normal range is 27 - 30°C; hydrotherapy pools will be warmer) is monitored and recorded |  |  |  |  |  |  |  |
| Inadequate water treatment continued |  | Free and combined chlorine levels are monitored using a representative sample from the pool and records kept  Monitoring is undertaken at least 3 times per day for automatic control systems Outdoor pools test 3 times a day (once every 3 hours) |  |  |  |  |  |  |  |
|  |  | Manual pH testing is undertaken of a representative sample from the pool (recommended pH7.2 -7.6)  Testing is undertaken at least 3 times per day for automatic control or every 2 hours for manual systems. |  |  |  |  |  |  |  |
|  |  | Continuous low-level dosing of a coagulant is used in indoor pools to improve the filtration efficiency and increase the removal of any contaminants including unseen faecal release from the pool |  |  |  |  |  |  |  |
| Inadequate water treatment continued |  | Outdoor pools are recommended to retain a tablet form coagulant to be used each month, and after any gross contamination. |  |  |  |  |  |  |  |
|  |  | Bather load monitored and recorded |  |  |  |  |  |  |  |
|  |  | Coarse filters checked and cleaned regularly |  |  |  |  |  |  |  |
|  |  | Pool water is regularly visually inspected for clarity and turbidity and the results recorded |  |  |  |  |  |  |  |
|  |  | Regular monthly microbiological sampling is undertaken using an accredited testing laboratory. (Microbiological sampling is only undertaken for Cryptosporidium when there is a suspicion that it may be present) |  |  |  |  |  |  |  |
| Inadequate water treatment continued |  | Microbiological sampling is undertaken before the pool opens up for first time for outdoor pools and before any pool is put back to use after difficulties with treatment system. |  |  |  |  |  |  |  |
|  |  | Contractors check sand filters annually to ensure bed is even, no fissures or cracking down the sides, no mud balling, no calcification or flocculent impacted into the bed |  |  |  |  |  |  |  |
|  |  | Sand is replaced in outdoor pools every other year |  |  |  |  |  |  |  |
|  |  | Sand is replaced in indoor pools every 7/8 years |  |  |  |  |  |  |  |
|  |  | Flow of water calculated to ensure that there is an appropriate turnover of water and good mixing of water in the pool  Short circuits and (water) deadlegs are avoided. |  |  |  |  |  |  |  |
| Inadequate water treatment continued |  |  | Flow meters retro fitted to ensure accurate flow rates |  |  |  |  |  |  |
|  |  | Working pressure gauges installed on water treatment system |  |  |  |  |  |  |  |
|  |  | Backwashing of filters is undertaken at least once a week or more frequently as determined by the pressure differential |  |  |  |  |  |  |  |
|  |  | Backwash water runs clear and can be viewed in a sight glass |  |  |  |  |  |  |  |
|  |  | Appropriate rate of water for backwashing provided to achieve fluidisation of the sand bed to enable the removal of dirt caught in the filter. |  |  |  |  |  |  |  |
|  |  | Backwash water is pumped to drain or holding tank |  |  |  |  |  |  |  |
| Inadequate water treatment continued |  | Backwashing is only undertaken when pool is clear of bathers and there is sufficient time for the filters to resettle and water to recirculate before reopening the pool to prevent the oocysts travelling through the expanded filter bed |  |  |  |  |  |  |  |
|  |  | UV lights provide secondary disinfectant where installed |  |  |  |  |  |  |  |
|  |  | UV lights monitored and check recorded that they are working  UV lights changed regularly (usually annually) |  |  |  |  |  |  |  |
| Incompetent/ untrained pool operators/carers | Anyone who accidentally swallows pool water that has become contaminated by a faecal matter may contract Cryptosporidiosis  Children under 5 years and people with weakened immune systems are likely to be most seriously affected. | Accredited training provided by PWTAG approved trainer, i.e. Physical Activity and Leisure Management (PALM) Academy. Carlton Associates delivers the PALM Academy qualifications. All the PALM. Academy qualifications are approved by PWTAG  Outdoor Pools -2 day Pool Carers course  Indoor Pools – 3 day Pool Operators Course  1 day Refresher training every three years  1 day training for Head teachers with swimming pools |  |  |  |  |  |  |  |
| Incompetent/ untrained pool operators/carers continued |  | **Monitoring -** Compliance inspections by Carlton Associates are undertaken once a term for indoor pools; once a year for outdoor pools  Additional visits provided on request |  |  |  |  |  |  |  |
|  |  |  | Health and Safety Adviser monitoring visits for outdoor pools opening in the Autumn Term |  |  |  |  |  |  |

**Control Measures Acceptable Yes Revision date: - ……………………………………………**

**SIGNED OFF BY: ……………………………………………………………….DATE: …………………………………….………………..**

**JOB TITLE: ………………………………………………………………………**

Further controls need to be in place and monitored as satisfactory before finally signing off this assessment

**KEY:**

**Likelihood** **of hazard happening**: **Severity**:

Low, highly unlikely to happen = Score 1 Slightly Harmful, Score 1

e.g. superficial injuries; minor cuts and bruises; eye irritation from dust;

nuisance and irritation; ill-health leading to temporary discomfort;

minor psychological effect

Medium, unlikely to happen = Score 2: Harmful Score 2

e.g. lacerations; burns; concussion; serious sprain; fractures; deafness;

dermatitis; asthma; work-related upper limb disorders; ill-health;

significant psychological effect

High, likely to happen = score 3 Extremely Harmful Score 3

e.g. amputations; major fractures; poisonings; multiple injuries; fatal injuries;

occupational cancer; other severely life shortening diseases;

acute fatal diseases; serious psychological effect

**Overall Risk** = Likelihood x Severity: -

Score: 6 & 9 = High, urgent action required

Score: 3 & 4 = Medium, action to an agreed timetable

Score: 1 & 2 = low, or tolerable risk no action may be required

#### *Potential hazard - item, substance or activity with the potential to cause harm.*

A single hazardous activity can have many potential elements of harm, and it is important that those completing the risk assessment identify this, e.g. working with electricity (hazard) anticipated harm would be fire, explosion, electrocution and burns.

**Control Measures**  – eliminate the hazard, substitute with less hazardous alternatives, prevent access to the hazard, control the amount of exposure, training, written instructions, personal protective equipment, welfare facilities, safety signs.