CLEANING OF THE HYDROPAC (Water System 19)

1. Arrange the Cleaning schedule with the cleaning contractor.
2. Organise the tankers for water removal.
3. Inform the Business Unit of the requirements and agree a date for action.
4. Raise the appropriate orders and obtain all relevant documentation from the chosen contractors.
5. The following is a guide to the disinfection requirements / method.

DISINFECTION OF HYDROPAC

AND FILLING OF SYSTEM

CHEMICALS NEEDED:-
Add the following before emptying

1. add 25 litres of
HYPERCHLORIDE

Take a sample of water wash out the glass beaker take 20 cc of the water to be sampled and place into the glass beaker. Add 20 drops of CL1 then add a small heaped spatula of CL2 (this will give a purple colour). Then titrate with CL3 - add drop by drop counting the drops as the beaker is shaken the chlorine concentration is the number of drops of CL3 multiplied by ten

I.e. 10 drops = 100 ppm

The result of the first test must be above 50 ppm preferable around 100ppm if the analysis shows less than 50 then add more deep crystal (if the first result was say 40 ppm then add another '1 ½ litres')

Retest for chlorine to establish the level if the level is around 100 ppm, record on the log sheet. Once the chlorine level is about 100pm then circulate the water for 1 hour, with the fan off.

After refilling the system with clean water add the following

25 litres of
HYPERCHLORIDE

Take a sample of water wash out the glass beaker take 20 cc of the water to be sampled and place into the glass beaker. Add 20 drops of CL1 then add a small heaped spatula of CL2 (this will give a purple colour). Then titrate with CL3 - add drop by drop counting the drops as the beaker is shaken the chlorine concentration is the number of drops of CL3 multiplied by ten

I.e. 10 drops = 100 ppm

The result of the first test must be above 50 ppm preferable around 100ppm if the analysis shows less than 50 then add more deep crystal (if the first result was say 40 ppm then add another '1 ½ litres')

Retest for chlorine to establish the level if the level is around 100 ppm records on the log sheet. Once the chlorine level is about 100pm then circulate the water for 1 hour. With the fan off.

At the end of one hour take another sample of water and retest for chlorine - the concentration must be greater than 50ppm if not then the following can be used as a guide (or add more deep crystal to achieve greater than 50 ppm and allow to circulate for another hour)

Concentration	Circulation time
50ppm	1 hour
25 ppm	2 1/2 hours
5 ppm	5 hours

When the chlorination cycle has finished before discharging the water it must be dechlorinated. This is done by adding GWT16 and circulating for approx. one hour until the free chlorine is less than 10 ppm (one drop of CL3 during the test) OR if after adding the CL2 there is no purple discoloration of the Water to be tested.

When a result of less than 10ppm has been achieved the water can be sent to the Hydropac

Guide for GWT16 volumes

Chlorine conc.	Amount to add**
100ppm	2-3 litres
200ppm	4-5 litres
300ppm	6- 7 litres
400ppm	10- 12 litres

** These amounts are approximate

When the water has been dechlorinated then it can be sent to the Hydropac

Refill the Hofmann system; add 5 1/2 litres of Monitrex 26 the system is then ready for use.

N.B IF THE SYSTEM HAS BEEN TESTED AS LEGIONELLA POSITIVE REFER TO THE LABORATORY FOR ADDITIONAL INSTRUCTIONS

Complete all details of the Cleaning operation on the next sheet of this schedule

Record that the above has been carried out on the Water Treatment Database

REDUCING THE RISK OF LEGIONNAIRES' DISEASE

Time Started: ……...
Date Started: .....
Identification: .....
Location: ..... Time Finished: .....
Cleaning Supervisor: ..... Date Finished: .....

CLEANING STAGES	INSERT ACTUAL FIGURES
Stage 1. Pre Clean **1 Establish the correct volume of water in the system.** **2 Add correct amount of chemical dispersant to remove organic Material (Dubois Penetrex).** **3 Add correct amount of chlorine release agent. (Dubois Deep Crystal).** **4 Measure & Record levels of free chlorine and pH At start of pre clean.** **5 Circulate for minimum time / residual product concentration Factor.** **6 Any separate feed tanks and lines should also be chlorinated in Excess of 50 ppm for 1 Hour.** **7 Measure & Record Data on times / concentrations / pH at the end of the Pre Clean.** **8 Dechlorinate using (Dubois GWT 16 or 46).**	.....Litres .....Litres .....Kg. Chlorine : at Start .....ppm. at End .....ppm. pH : at Start ..... at End ..... Hours Circulated .....Hours.
Stage 2. Physical Clean. **9 Drain down the system.** **10 Physically clean sump areas and all accessible parts of Tower. AND / OR Strip down the Tower and remove louvres, baffles, drift eliminators and filler pack**	Hours Worked .....Hours.
Stage 3. Disinfection. 12 Refill system with clean fresh water. Add correct amount of Bio dispersant (Dubois Penetrex). Add correct amount of Chlorine (Dubois Deep Crystal). 13 Measure and Record levels of Chlorine / pH at Start of Disinfection 14 Circulate for correct Time / Product Concentration factor. (5ppm for 5 Hours, 50ppm for 1 Hour). 15 Measure and Record levels of Chlorine / pH at End of Disinfection 16 Dechlorinate before disposing to foul sewer with GWT16 or 46.	.....Litre .....Kg. Chlorine : At Start .....ppm. At End .....ppm. pH : At Start..... At End ..... Hours Circulated .....Hours.

Job Sheet Completed by: ..... Checked & Verified by.....

Signed: ..... Signed: .....

Date: ..... Date: .....