

**EXETER CITY COUNCIL**  
**SCRUTINY COMMITTEE - COMMUNITY**  
**2 JUNE 2009**

**EXECUTIVE**  
**16 JUNE 2009**

**REPLACEMENT OF FILTERS AT PYRAMIDS SWIMMING POOL**

**1. PURPOSE OF THE REPORT**

- 1.1 To seek approval for the replacement of filters at Pyramids, which have reached the end of their useful life.

**2. BACKGROUND**

- 2.1 A Baseline Condition Survey was commissioned in 2008 to review leisure facilities in Exeter in preparation for the new Leisure Facilities Management Contract to commence in September 2010. In the case of Pyramids, this survey also acted as the base information for the options appraisal comparing the costs of a new pool against a refurbishment of the existing facility.
- 2.2 As part of the survey Ocean Swimming Pools Limited were engaged to report on the highly specialised area of swimming pool plant separately from the usual remit of a structural and mechanical/electrical survey. In the report on the appraisal, it was pointed out that the filters in particular were vulnerable, and had only a very short lifespan remaining.
- 2.3 Pyramids contains four filters, two serving the main pool and two serving the learner pool. One of the learner pool filters was decommissioned a few years ago due to leakage from the main structure and the learner pool has operated on one filter since that time.
- 2.4 Following a recent visit to the Pyramids by the Pool Working Party, its subsequent meeting resolved to urge the Committee and Executive to approve the replacement of the filters.

**3. RESULTS OF THE SURVEY**

- 3.1 The consultants' report on the filters and associated pipework showed that they are vertical pressure filters, fabricated from welded mild steel. They have been recently internally relined (in 2005). Externally they appear to be in very poor condition. The frontal pipework, which is operated pneumatically, is of an unknown make for which no spare is available.
- 3.2 The stainless steel pipework also shows external signs of decay and replacement is recommended.
- 3.3 Following the decision of the Council to pursue neither the new pool nor the refurbishment option at the moment, it was decided to commission a more detailed study of the filters, which the consultants believed to represent the largest immediate risk to the operation of the pool. These further assessments were to determine the thickness of the mild steel shell which forms the framework of the filters. Using ultrasound testing equipment a survey of the wall thickness was undertaken.

- 3.4 On original installation the shell would have had a thickness of 12mm at the top and bottom and 10mm on the sides, but the tests concluded that some areas have eroded to a thickness of only 3.8mm.
- 3.5 We undertook a similar ultrasonic report in 2007, and comparison of the two sets of results shows that in two years there has been an erosion of 1.2mm.
- 3.6 The concern is that the filters were designed to operate up to 4.0 bar, but given their current condition 2.0 bar is their maximum pressure limit. This means in practice that turnover of the water in the main tank is slower than it might be, which makes the water quality harder to manage satisfactorily. The risk of leakage and/or eruption, leading to immediate closure of the pool is now high, and growing daily.

#### **4. REPLACING THE FILTERS**

- 4.1 The consultants have recommended the immediate replacement of the filters and associated pipework. As they rightly point out, if one of the filter vessels fails, there would be an immediate and fairly lengthy closure, while new plant was procured and installed. During that time, DC Leisure, the operators, would be entitled to additional payments to offset their loss of income and profit during an unplanned closure, and of course residents of the city would be without one of their two main pools.
- 4.2 Prior to any failure however the work could be completed by installing new filters without connection; fortunately there is sufficient space available in the plant room. The subsequent connection to the existing pipework would then limit the requirement for a short closure. Decommissioning of the existing filters and redundant pipework could then be undertaken when the pool was back in operation.
- 4.3 With the help of the consultants, officers have already specified the work necessary, and put it out to tender, so that once the decision is taken by Executive, work should be able to commence without delay.

#### **5. THE COST OF REPLACEMENT**

- 5.1 The budget estimate provided by the Consultants was:

(i)	Preparation work	£6,000
(ii)	Supply and installation of filters, including pipework	£70,000
(iii)	Decommissioning of existing filters and removal of redundant pipework	£1,000
(iv)	Contingency 10%	£7,800
TOTAL:		£84,800

#### **6. INSTALLATION OF ULTRA VIOLET TREATMENT**

- 6.1 Members may recall that Exeter Swimming Club has called on a number of occasions for the installation of an ultraviolet treatment unit as an alternative to the current reliance on chlorination for disinfection. Officers felt at the time that this was not a practical solution, but the work on the filters offers the opportunity to install a unit without any of the difficulties we envisaged before.
- 6.2 The advantages of using UV are that it removes combined chlorine in the water, requires less expenditure on chemicals, and reduces the amount of water used. There are no disadvantages other than the need to operate and maintain two

systems, providing an annual service and bulb changes, since some chlorination is still necessary. In this particular case as well of course, there is the cost of installing a piece of equipment which may have only a short life. The cost is estimated at £22,000, not high in itself. However we are advised that this unit would not be able to be used in a new pool when one is built, so if that is eventually the decision the Council makes, the cost of this installation, like that for the filters, would be lost.

- 6.3 The most recent inspection of the pool and its operation was undertaken by the Council's specialist water consultant in January 2009, and his conclusion was that water quality was continuing to reach acceptable standards even with the aged equipment. New filters will enable faster turnover making it easier for the operators to keep the water within the contractual parameters. Ultra Violet treatment would enhance that capability further, but officers feel that if the management can keep the water fully treated without the additional expenditure at this particular point in the pool's life, then it would be better not to install the additional kit.

## **7. RISK**

- 7.1 The principal risk in this case is that the installation is not done before the failure of one or more of the existing filter vessels, causing undue cost and disruption to a well-used city facility. Estimating the life of the vessels is not an exact science, but we believe that they will probably fail before the end of 2009.
- 7.2 There is also a risk that once replacement starts, the contractors will find other elements of the plant which need to be replaced, leading to extra costs and additional closure time. The risk of this, following the survey is assessed as low. However a smaller problem might still lead to the need to drain the pool or otherwise slow down the work, leading to a claim from the operator.

## **8. OTHER FACTORS**

- 8.1 In the absence of any recommendations on the way forward from the Pool Working Party, there is still uncertainty about whether the Pyramids will be replaced or refurbished. If the decision is to refurbish, then the expenditure on new filters will have been proven to be good value, and the filters will give good service for some time to come. On the other hand, if the decision is to build a new pool sooner rather than later, then the filters, and the UV unit if installed, will not have reached their natural lifespans, and therefore not have given the best value for money possible. Against this must be set the general determination not to let the Pyramids close because it provides a service which is too important to lose.

## **9. FINANCIAL IMPLICATIONS**

- 9.1 A budget of £109,000 remains for the first phase of designing a replacement pool. It is proposed that this sum be used to fund the replacement of the filters.

## **10. RECOMMENDED**

that

- 1) the filters and associated pipework at Pyramids be replaced as soon as practicable
- 2) the work be funded from budget remaining from the new pool project
- 3) equipment to disinfect water using ultraviolet light not be installed.

## HEAD OF LEISURE AND MUSEUMS

S:PA/LP/Committee/609SCC2  
20.5.09

## COMMUNITY & ENVIRONMENT DIRECTORATE

**Local Government (Access to Information) Act 1985 (as amended)**  
**Background papers used in compiling this report:**