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**REPORT TO WILDERNESS MOUNTAIN WATER SERVICE COMMISSION
MEETING OF FRIDAY 28 JANUARY 2011**

SUBJECT SUPPLY AND PURCHASE OF STANDBY POWER UNIT

ISSUE

The Wilderness Mountain Water Service Commission desires to purchase and install standby power for the utility, to ensure continuity of water supply to the community during power outages.

BACKGROUND

The existing Wilderness Mountain Water system has two facilities that require power to operate. These are the Wilfred Reservoir intake/booster pump station and the hydropneumatic station at the Ambience Place tank site. The hydropneumatic station takes water from the two 140 m³ (30,000 Imperial gallon) balancing storage tanks and boosts pressure to the upper zone, which would otherwise experience minimal pressure from the tanks. This zone has not received standby power in the past and it is not proposed in the future.

The Wilfred Reservoir intake/booster pump station site consists of an intake pump (7 ½ hp), chlorination equipment, lighting, heating, and general power outlets. In the past, a privately owned generator had been made available to meet demand from the Wilfred Reservoir to the two balancing storage tanks, during a power outage. This arrangement placed an undue burden on the generator owner, it also interfered with the accountability of qualified staff for safe and reliable operation of the system. This has been replaced in the interim with the Capital Regional District (CRD) agreeing to make a portable standby power source available to the community in an emergency event.

A review of the loading at the existing intake/booster pump station indicates the lake pump, chlorination equipment and lights can be operated with a 10kW generator. Design considerations, including operating environment, duty cycle, serviceability, manual or automatic start-up, and fuel type have significant implications with respect to cost and function of the standby power system. Generators designed for residential use typically would not meet the required standards for the commercial application that is the drinking water supply system and, as such, warranties would be voided. There are different options for fuel, each having advantages and disadvantages. As access to the site for recharging the fuel source during power outages would likely be under less than ideal conditions, diesel would be the preferred fuel. The CRD has several vehicles capable of transporting and dispensing diesel under poor road conditions. Having diesel close to the water source would require special attention to environmental protection, for example spill containment and spill kits. The choice of manual or automatic start up would likely be cost driven but, as the operator would have to travel to the facility, an automatic function may quickly pay for itself. If the unit is to remain in situ, an all-weather enclosure will be required with the generator on a concrete housekeeping pad. If sound attenuation is required, then additional costs will be incurred.

The CRD has retained a consultant (KWL) to review viable cost effective alternatives to provide water treatment that meets the various drinking water guidelines. The outcome of this review is not yet available, however they have indicated they are considering an alternate site for the treatment process train due in part to the residuals that will be generated by the proposed alternatives. It is also likely that the new process will include additional electrical loads.

The CRD has standard operating procedures for standby power sources, which would be applicable to the Wilderness Mountain Water service. The level of automation for the standby power system would be determined from these procedures.

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Re: Supply and Purchase of Standby Power Unit

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A standby power system for the Wilfred Reservoir pump station would include the following components, with corresponding conceptual costs:

Item Description	Commercial Grade Unit
20 kW Generator	\$15,000
Transfer switchgear	\$ 5,000
Fuel Tanks	\$ 3,000
Housekeeping pad/ building	\$10,000
Design, delivery & installation	\$10,000
TOTAL CONCEPTUAL COST ESTIMATE	\$43,000

ALTERNATIVES

1. That the Wilderness Mountain Water Service Commission defer the decision to purchase and install a permanent standby power system until detailed design and cost estimates for the treatment upgrades are complete, and rely on mobilization of a portable unit during an emergency event.
2. The Wilderness Mountain Water Service Commission authorize the expenditure of up to \$43,000 from Loan Authorization Bylaw No. 3504 for the purchase and installation of a commercial grade standby power system at the Wilfred Reservoir pump station site.

IMPLICATIONS

Alternative 1

The total treated water storage capacity for Wilderness Mountain of 280 m³ would be sufficient for several days without power, particularly during the winter when demand is less. Without permanent standby power at Wilfred reservoir, the deployment of a portable unit during a power outage would require use of operating contingency funds. Firefighting capacity would be diminished during a power outage. Deferring the decision to proceed with a permanent generator would enable the future electrical design load to be considered for generator sizing, as well as determining whether the available funding is sufficient to include standby power in a construction tender. As an interim measure CRD staff have agreed to deploy a portable generator as needed to maintain continuity of water service.

Alternative 2

The purchase of standby power equipment was not part of the original capital upgrade project, which has a budget of \$708,000. An additional \$45,000 was included in the loan authorization when the service was converted to the CRD, but has not been assigned to the project. The additional funding may be allocated as directed by the Commission however, once used, it would no longer be available to address treatment issues if required. Treatment upgrades are required to meet the legislated requirements for the drinking water supply, while standby power is not. In addition to the capital cost of the unit, the Commission will need to budget for annual fuel and maintenance costs.

CONCLUSIONS

A permanent standby power system at the Wilfred Reservoir pump station site would benefit the community however, the design requirements for standby power will not be known until at least preliminary design and cost estimates have been completed for the treatment upgrades. Funds are available for the standby power unit however, deferring the project would ensure that the funds are used to the greatest benefit of the community.

RECOMMENDATION

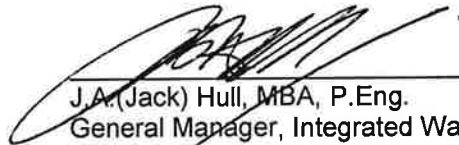
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