Clean Water State Revolving Fund Green Project Reserve

City of Potlatch Wastewater Facility Project
$1,200,000

Business Case GPR Documentation

- TREATED EFFLUENT LAND APPLICATION SYSTEM (Water Efficiency). Business Case GPR per Section 4.5-8: *Land application in which feasible alternatives exist* ($1,076,883).

Prepared by the State of Idaho SRF Loan Program
November 2011

TREATMENT PROCESS: LAND APPLICATION

Summary

- A treated effluent slow rate land application and reuse system will enable the City to maintain compliance with the conditions of the City's NPDES discharge permit.
- Loan amount = $1,200,000[1]
- Green portion of loan = 90% ($1,076,883)

Background

- The City's current NPDES Permit recently expired; the City is upgrading its wastewater treatment system to ensure compliance with the more stringent discharge requirements of the new permit.
- Numerous discharge violations have occurred in the past from the City's existing wastewater treatment facility, including E. coli, BOD, and TSS exceedences of permit limits.
- The land application and reuse system will enable the City to maintain compliance with the conditions of the City's NPDES discharge permit.[2]

Results

- The approved Facilities Plan Addendum considered several options to the selected alternative, including a Large Soil Absorption System (LSAS) on the same site, land application of effluent on two other sites, and mechanical wastewater treatment options[3].
- The LSAS system had a higher capital cost (25-30% more) than the selected alternative, but the higher disposal rates experienced by LSAS systems subsequently yield similar per gallon costs. This option was rejected as it is more risky and less proven than land application; in addition, the overall soil conditions are inadequate without modification.
- One of the land application alternatives (Site B) was dismissed as the land could not be acquired by the City. Another land application alternative (Site C) would be 40-50% less expensive, but the site had extensive environmental challenges.
- The mechanical treatment alternatives did not compare well because of the inflexibility of mechanical processes in meeting future discharge limits (which can not be predicted with any certainty), more intensive operational requirements.

Benefits

- More stringent wastewater discharge limits have been issued for the City's wastewater effluent, including more demanding limits on E. coli, BOD and TSS. The effluent land application system will enable the City to meet these new limits.
- Another benefit will be that formerly unproductive land will be converted to a productive use, i.e. raising crops.
- The City will benefit from the treated effluent slow rate land application and reuse system in that the system is the most dependable and low maintenance means of providing additional effective effluent treatment currently available.

Conclusion

- The treated effluent slow rate land application and reuse system was chosen over several other alternatives because the system was determined to be the most dependable, energy efficient, and low maintenance option.

---

[1] FY11 SRF Loan Agreement
[2] Wastewater Facilities Plan Addendum, City of Potlatch Regional Wastewater Treatment System, Taylor Engineering Inc., 2/11
[3] Environmental Information Document, City of Potlatch Regional Wastewater Treatment System, Taylor Engineering Inc., 5/11

TREATMENT PROCESS (CON'T)

- **GRP Costs Identified:**[4]

1. Land Acquisition		$180,883
2. Land Application Reuse System		$740,000
3. Solar Panels (Treatment Building)		$ 10,000
4. Lift Station New Energy Efficient Pumps & Motors		$146,000
	Total	**$1,076,883**

- **GPR Justification**[5]

1. The Land Application System is GPR eligible through a Business Case justification (Water Efficiency) per Section 4.5-8 p.13: *Land application in which feasible alternatives exist*.
2. The Land Application Reuse System is Categorically GPR eligible (Energy Efficiency) per Section 3.2-2 p.9: *Use of premium efficiency motors and VFD pumps in a new project*.
3. The Solar Panels are Categorically GPR eligible (Energy Efficiency) per Section 3.2-1 p.8: *Renewable energy project*.
4. The Pumps are Categorically GPR eligible (Energy Efficiency) per Section 3.2-2 p.9: *Use of premium efficiency motors and VFD pumps in a new project*.

[4] Correspondence with C Mansfield, PE, Taylor Engineering Inc., Inc. February 3, 2011
[5] Attachment 2. April 21, 2010 EPA Guidance for Determining Project Eligibility