**PACIFIC NORTHWEST AND ALASKA**
**BIOENERGYPROGRAM**

**PROJECT SUMMARY**

**1. Title:** Commercial Scale Installation of the Anoxic Gas Flotation (AGF) technology at Southwest Suburban Sewer District facilities.

**2. Brief Description**: The project will provide the first commercial scale installation of the anoxic gas flotation (AGF) process at two waste water treatment facilities owned by the Southwest Suburban Sewer District. Cyclus Envirosystems, Inc. will provide design, construction and start-up services, and Southwest will obtain permits and pay the capital and installation costs.

**3. Identification No**.: DE-FG51-98R020951/WSU subcontract

**4. Contractor/Grantee:** Dennis A. Burke
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**5. Project Manager:**
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**6. RBEP Funds:** $36,500

**7. Cost Sharing:** $125,000 Southwest Suburban Sewer District

**8. Expanded Description:** Cyclus Envirosystems has a patented process (AGF) that has been demonstrated to substantially improve the stabilization of sewage sludge, reduce the quantity of biosolids requiring disposal, and increasing methane production. The Department of Energy funded a pilot demonstration of the technology at the Renton wastewater facility. That demonstration played a critical role in gaining the support of Southwest Suburban Sewer District funding of a commercial scale installation at two of their facilities.

**9. Needs Addresses:**

The present "state of the art" of sewage sludge disposal consists of digesting or stabilizing the sludge, either aerobically or anaerobically, to reduce its noxious odor and volume. After digestion, the sludge is normally dewatered by filter press, centrifuge, belt presses, etc. Other processes are then used to reduce the number of pathogens present. These processes consist of heat drying, microwave drying, compo sting, or high pH alkaline (lime) stabilization. After treatment, the sludge is then disposed on agricultural or other restricted lands, depending on the heavy metal and pathogen concentration. A wide variety of processes exist. The ultimate goal is to reduce the volume and physically or chemically reduce odors and pathogen volumes. The average cost of disposing municipal sludge currently exceeds $350 per dry ton.

All of the sludge management processes are energy intensive. Municipal anaerobic digesters, which currently produce excess energy, are being converted to dry sludge, resulting in little or no excess energy production. The transportation and spreading costs and the associated energy consumption represent a considerable financial burden.

The AGF process can reduce the quantity of sludge to be dispose by at least 70 percent. Energy consumption from the sludge will be reduced proportionately. In addition, the methane gas production will be doubled.

**10. Project Objectives:**

1. Provide design assistance to the wastewater treatment facility for installation of an AGF process for enhanced generation of biogas and reduced sludge volumes.
2. Provide construction oversight to ensure that the system is built as designed.
3. Provide assistance during start-up to ensure that the system is operational.

**11. Approach:** This project is the first commercial scale installation of the AGF process at a wastewater treatment facility. The system will be an add-on to the existing facility requiring relatively minor changes to the main processing equipment. This feature of adding a relatively small piece of equipment to an existing facility and achieving dramatic reduction in the quantity of biosolids requiring disposal is a strong motivator for waste water facility operators. The national Water Environment Federation Biosolids Conference will be held in the Seattle area this summer. The opportunity to showcase this technology at a commercial scale is motivation for the aggressive time schedule.

**12. Major Milestones:**

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| 1. Complete preliminary design | 3/17/98 |
| 2. Order major equipment | 3/27/98 |
| 3. Complete final design | 3/31/98 |
| 4. Permits and Approvals | 4/10/98 |
| 5. Select contractor for sitework & underground | 4/17/98 |
| 6. Complete site work and underground | 5/8/98 |
| 7. Equipment installation | 5/15/98 |
| 8. Complete piping and electrical | 5/30/98 |
| 9. Start-up | 6/30/98 |

**13. Results:**

Final design, major equipment orders and start of construction has occurred at the Salmon creek project.

**14. Publications**

**15. Prepared:** Apri11998