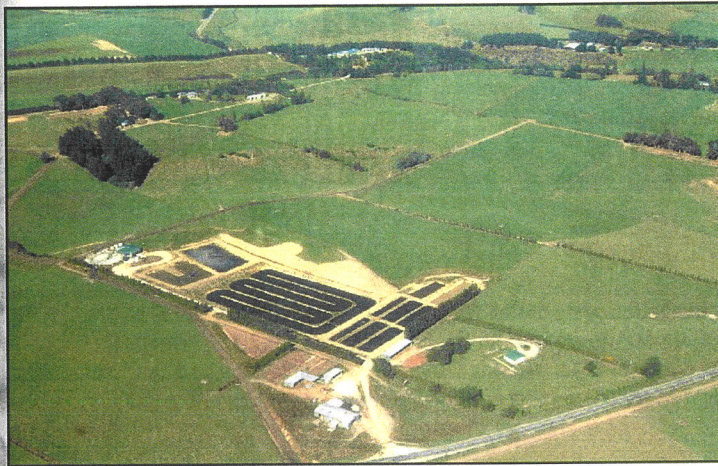


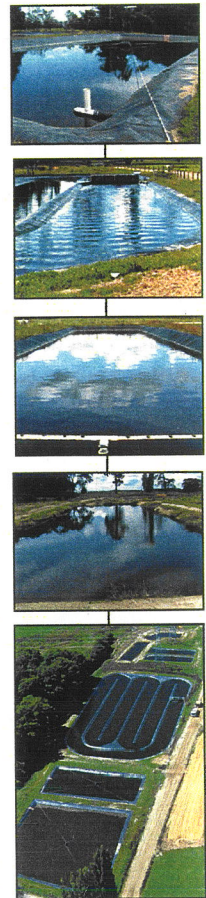
NIWA Advanced Pond Systems: Project management, engineering, and quality assurance services

INTRODUCTION

NIWA offers part or full project management services from project conception of new Advanced Pond Systems (APS), or upgrade of conventional oxidation ponds to APS through full design, construction, commissioning, and operation. The service is available nationwide for small to medium sized communities, dairy farms, and other organic wastewaters.



*A dairy farm
APS near
Gore in
Southland.
Design and
construction
sponsored by
Fonterra Ltd.*



PROJECT MANAGEMENT SERVICES

- Preliminary investigations: raw wastewater testing, analysis of wastewater data, site visit and investigations, which may include a geotechnical investigation;
- Site survey, with production of contour drawings;
- Development of a conceptual design, with engineering drawings and preliminary report;
- Detailed design drawings: hydraulic drawings including pipe-work, and specifications of materials and equipment required, including pond dimensions (areas, depths, volumes, lengths, and widths);
- Size of in-pond structures (fermentation pits, channels, paddlewheels, and, if required, a re-circulation pump to return water from the High Rate Pond (HRP) to the Advanced Facultative Pond (AFP);
- All necessary civil and mechanical detailed construction and installation drawings and specifications required to build and operate the treatment plant;
- Schedule of rates (quantities and cost estimates of all construction and installation materials);
- As-built drawings after completion of the project.

www.niwa.co.nz

NIWA LIBRARY

15 DEC 2003

PO Box 14-901
Wellington NZ

NIWA can manage the whole design and construction process on behalf of the client. Construction management includes project planning and, time and

cost control. We will also ensure that materials are supplied and construction is carried out according to the drawings and specifications. NIWA can manage commissioning and handover procedures on behalf of the client.



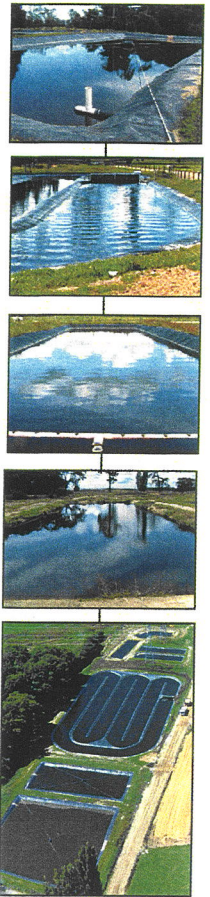
An HRP paddlewheel provides gentle mixing.

QUALITY ASSURANCE

NIWA also offers the option of operating the plant for a minimum period of 12 months. We also offer performance monitoring using the recent (2002) "New Zealand Municipal Wastewater Monitoring Guidelines" published by MfE and NZWERF. During this period, we will provide training for local operators and managers.



Part of the dairy farm APS for Dexcel, near Hamilton.



www.niwa.co.nz

CONTACT INFORMATION

Business Opportunities

Dr Jim Cooke
Phone: +64-7-856 1744
Cellular: +64-21-738 587
Email: j.cooke@niwa.co.nz

Engineering & Project Management

Dr Fouad Al Momen
MIPENZ, MNZWWA, Reg. Engineer
Phone: +64-7-8591887
Cellular: +64-21-0342143
Email: f.almomen@niwa.co.nz

Technical Enquiries

Dr Rupert Craggs
Phone: +64-7-859 1807
Email: r.craggs@niwa.co.nz