Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater

Idaho Department of Environmental Quality

December 2005

This page intentionally left blank for correct double-sided printing
.

Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater

Idaho Department of Environmental Quality

December 2005

This page intentionally left blank for correct double-sided printing.

Acknowledgements

The Idaho Department of Environmental Quality (DEQ) would like to recognize the efforts of the following individuals, all of whom have played a vital role in the development of this guidance document:

Karen	Cummings	Amalgamated Sugar
Michael	Dalton	Amalgamated Sugar
Phyllis	Beard	Amalgamated Sugar
Deloris	Aguilar	Basic American Foods
John	Voiss	Basic American Foods
Keith	Keller	Basic American Foods
Dan	Bruner	Cascade Earth Sciences
George	Spinner	Cascade Earth Sciences
Troy	Elliott	Cascade Earth Sciences
Claudia	Gaeddert	CLPE Consultants
Jack	Harrison	HyQual
Joan	Cloonan	Consultant
Dennis	Meier	DEQ
Don	Bledsoe	DEQ
John	Kirkpatrick	DEQ
John	Tindall	DEQ
Larry	Waters	DEQ
Mark	Clough	DEQ
Mark	Mason	DEQ
Michael	Cook	DEQ
Olga	Cuzmanov	DEQ
Paul	Wakagawa	DEQ
Richard	Huddleston	DEQ
Tom	Hepworth	DEQ
Tom	Rackow	DEQ
David	Noel	Forsgren Associates
Rick	Noll	Forsgren Associates
Christopher	Meyer	Givens Pursley Law Firm
C.J.	Harris	Glanbia Foods
Rick	Warren	Glanbia Foods
David	Keil	HDR Inc.
Mike	Murray	HDR, Inc.
Dick	Rush	Idaho Association of Commerce and Industry
Maureen	Finnerty	Idaho National Laboratories

Mike	Lewis	Idaho National Laboratories
Mike	MacConnel	Idaho National Laboratories
McKay	Andersen	Idaho Supreme
Todd	Scott	Idahoan Foods
Mark	Holtzen	JUB Engineering
Tim	Haener	JUB Engineering
Brett	Suthers	Nonpariel Foods
Walter	Gay	Nonpariel Foods
Alan	Prouty	Simplot Corporation
Bill	Rutherford	Simplot Corporation
Henry	Hamanishi	Simplot Corporation
Jennifer	Christensen	Simplot Corporation
Kirk	Adkins	Simplot Corporation
Lance	Carter	Simplot Corporation
Ron	Sheffield	University of Idaho

Table of Contents

Acknowledgements ..... **iii**
List of Figures x
List of Tables x
List of Equations xii
Organization of This Internet Version of the Reuse Guidance xiii
Preface ..... **xv**
Introduction: From Land Application to Reuse xv
Wastewater Land Application Permit (WLAP) Program History xv
1988: Introduction of the Original Guidelines xv
1993: Expansion of the Original Guidelines xv
2002: Development of New Guidance and Increased Internet Posting xvi
2004: Creation of the Web-Based Guidance xvi
2005: Expansion of Scope to Include Reuse xvii
Current and Future Directions for the Reclamation and Reuse of Municipal and Industrial Wastewater xvii
Locations of the Rules xvii
Opportunities to Comment on This Guidance xviii

Part A: Slow Rate Land Treatment of Wastewater

1. Preparing a Reuse Permit Application for Wastewater Land Treatment 1-1
1.1 Required Information 1-1
1.2 Definitions 1-1
1.3 Steps in the Application Process 1-2
1.4 Reuse Permit Application Form 1-4
1.5 Suggested Outline for Preparing the Technical Report 1-5
1.6 Guidelines for Preparing the Site Maps 1-9
1.6.1 Vicinity Map 1-9
1.6.2 Facility Site Map 1-9
1.6.3 Other Site Specific Maps and Drawings 1-10
1.7 Plan of Operation Checklist 1-10
1.8 Reuse Permit, Permit Process Steps 1-10
1.8.1 Typical Steps for a Reuse Permit 1-10
1.8.2 Reuse Permit Application Timing 1-11
1.9 Reuse Permit Templates 1-12

2. Site Evaluation, Selection, and Management 2-1
2.1 Environmental Factors 2-1
2.1.1 Climate 2-1
2.1.2 Soil 2-2
2.1.3 Topography 2-5
2.1.4 Geology and Hydrogeology 2-6

2.2 Wastewater Characteristics 2-8
2.3 Crop Management 2-8
2.4 Sociological Factors and Land Use 2-9
2.4.1 Planning and Zoning Requirements 2-9
2.4.2 Nuisance Conditions 2-9
2.5 References 2-11

3. Not Used at This Time 3-1

4. Constituent and Hydraulic Loading 4-1
4.1 Soil, Water, and Hydraulic Loading 4-1
4.1.1 Soil and Water Principles related to Wastewater Land Treatment 4-1
4.1.2 Growing and Non-growing Season Hydraulic Loading 4-3
4.1.3 References 4-12
4.2 Nitrogen 4-13
4.2.1 Nitrogen Chemistry 4-13
4.2.2 Nitrogen Loading 4-14
4.3 Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS) 4-18
4.3.1 Chemical Oxygen Demand (COD) 4-18
4.3.2 Total Suspended Solids (TSS) 4-20
4.4 Trace Elements 4-20
4.5 Salinity and Sodium Influences 4-24
4.5.1 Salinity 4-24
4.5.2 Sodium Influences 4-25
4.5.3 References 4-26
4.6 Hazardous Wastes 4-26
4.7 Biological Characteristics 4-27
4.8 Phosphorus 4-27
4.8.1 Discussion 4-28
4.8.2 Guidance Recommendations 4-28
4.8.3 Reference 4-32
4.9 Management of Total Dissolved Solids 4-32

5. Not Used at This Time 5-1

6. Operations 6-1
6.1 Pretreatment Considerations 6-1
6.1.1 Municipal Pretreatment 6-1
6.1.2 Industrial Pretreatment 6-1
6.2 Operation and Management Needs 6-2
6.3 Lagoons 6-2
6.3.1 Lagoons: Purpose and Need 6-2
6.3.2 Lagoons: Design Criteria 6-3
6.4 Grazing Management 6-3
6.4.1 General Discussion 6-3
6.4.2 Grazing Plans 6-4

6.4.3 Grazing on Land Application Sites Irrigated with Treated Municipal Wastewater 6-9
6.4.4 References 6-10
6.5 Buffer Zones 6-10
6.5.1 General Buffer Zone Distances 6-10
6.5.2 Municipal Wastewater Buffer Zones 6-11
6.5.3 Industrial Wastewater Buffer Zones 6-13
6.5.4 Criteria for Alternative Wastewater Buffer Zones 6-13
6.5.5 References 6-14
6.6 Protection of Domestic and Public Well Water Supplies 6-14
6.6.1 Wellhead Protection Areas 6-15
6.6.2 Domestic Water Supplies 6-15
6.6.3 Protection of Well Water Supplies Near Wastewater Land Treatment Facilities 6-16
6.6.4 References 6-23
6.7 Site Closure 6-23
6.8 Weed Control at Wastewater Land Treatment Facilities 6-24
6.8.1 Weed Control – General Considerations 6-24
6.8.2 Idaho's Noxious Weed Program 6-24

7. Monitoring 7-1
7.1 General Discussion 7-1
7.1.1 Monitoring Objectives 7-2
7.1.2 Monitoring Parameters 7-2
7.1.3 Monitoring Frequency 7-3
7.1.4 Sampling and Sample Location Determination 7-5
7.1.5 Analytical Methods 7-7
7.1.6 Quality Assurance and Quality Control 7-8
7.1.7 Data Processing, Verification, Validation, and Reporting 7-9
7.1.8 References 7-11
7.2 Ground Water Monitoring 7-12
7.2.1 Alternatives to Ground Water Monitoring 7-12
7.2.2 Monitoring Objectives 7-13
7.2.3 Monitoring Instrumentation 7-14
7.2.4 Monitoring Parameters 7-16
7.2.5 Monitoring Frequency 7-23
7.2.6 Sampling and Sample Location Determination 7-24
7.2.7 Ground Water Compliance Points Monitoring 7-27
7.2.8 Analytical Methods 7-28
7.2.9 Quality Assurance and Quality Control 7-28
7.2.10 Data Processing, Verification, Validation, and Reporting 7-28
7.2.11 References 7-29
7.3 Soil-water (Vadose) Monitoring 7-30
7.3.1 Monitoring Objectives 7-31
7.3.2 Monitoring Instrumentation 7-31

7.3.3 Monitoring Parameters 7-35
7.3.4 Monitoring Frequency 7-36
7.3.5 Sampling and Sample Location Determination 7-37
7.3.6 Analytical Methods 7-37
7.3.7 Quality Assurance and Quality Control 7-38
7.3.8 Data Processing, Verification, Validation, and Reporting 7-38
7.3.9 References 7-38
7.4 Soil Monitoring 7-39
7.4.1 Monitoring Objectives 7-39
7.4.2 Monitoring Instrumentation 7-40
7.4.3 Monitoring Parameters 7-41
7.4.4 Monitoring Frequency 7-44
7.4.5 Sampling and Sample Location Determination 7-46
7.4.6 Analytical Methods 7-48
7.4.7 Quality Assurance and Quality Control 7-49
7.4.8 Data Processing, Verification, Validation, and Reporting 7-49
7.4.9 References 7-49
7.5 Wastewater Monitoring 7-50
7.5.1 Monitoring Objectives 7-51
7.5.2 Monitoring Instrumentation 7-51
7.5.3 Monitoring Parameters 7-53
7.5.4 Monitoring Frequency 7-56
7.5.5 Sampling and Sample Location Determination 7-57
7.5.6 Analytical Methods 7-60
7.5.7 Quality Assurance and Quality Control 7-61
7.5.8 Data Processing, Verification, Validation, and Reporting 7-61
7.5.9 References 7-61
7.6 Crop Monitoring and Yield Estimation 7-62
7.6.1 Monitoring Objectives 7-62
7.6.2 Monitoring Instrumentation 7-62
7.6.3 Monitoring Parameters 7-62
7.6.4 Monitoring Frequency 7-63
7.6.5 Sampling and Sample Location Determination 7-64
7.6.6 Analytical Methods 7-65
7.6.7 Quality Assurance and Quality Control 7-65
7.6.8 Data Processing, Verification, Validation, and Reporting 7-65
7.6.9 Crop Nutrient Content Reference Values 7-66
7.6.10 Crop Yield Estimation 7-66
7.6.11 References 7-67
7.7 Supplemental Information 7-68
7.7.1 General Discussion Supplemental Information 7-68
7.7.2 Recommended Contents for a Facility Quality Assurance/Quality Control Plan 7-70
7.7.3 Ground Water Monitoring Supplemental Information 7-75
7.7.4 Ground Water Sampling 7-85

7.7.5 Soil-Water (Vadose) Monitoring Supplemental Information 7-95
7.7.6 Soil Monitoring Supplemental Information 7-107
7.7.7 Soil Monitoring for Grazing Management 7-110
7.7.8 Wastewater Monitoring Supplemental Information 7-112
7.7.9 Crop Monitoring and Yield Estimation Supplemental Information 7-135

8. Not Used at This Time 8-1

Part B: High Rate Land Treatment of Wastewater

9. Rapid Infiltration Land Application Permitting Guidance 9-1
9.1 Guidance and Regulations for Rapid Infiltration 9-1
9.2 Site Specific Permitting Considerations 9-1
9.3 References 9-2

10. Not Used at This Time 10-1

11. Not Used at This Time 11-1

Part C: Other Reuse

12. Other Regulatory Requirements Associated With Wastewater Land Application Facilities 12-1
12.1 Domestic Sewage Disposal 12-1
12.2 Plan and Specification Reviews 12-2
12.3 Non-Contact Cooling Water 12-2
12.4 Water Appropriations and Allocations 12-2
12.5 Disposal of Truck Wash Sand & Grit Sumps, Grease Traps and Other Miscellaneous Small Volume Waste/Wastewater 12-3
12.6 Sludge Management 12-3
12.7 Discharges to Surface Waters 12-4
12.8 Designated Special Resource Waters or Sole Source Drinking Water Aquifers 12-4
12.9 Ongoing Education 12-4
12.10 Reference 12-5

Glossary ..... Glossary- 1

References ..... References- 1

A Appendix A-1
A.1 Consumptive Use and Cropping Season Table A-1
A.2 Mean Monthly Precipitation in Idaho (1961-1990) A-7
A.3 Table to Calculate Effective Precipitation A-10
A.4 Mean Monthly Temperatures in Idaho A-15
A.5 Hydraulic Data for Hydrogeological Settings in Idaho A-17
A.6 Well Test Data/ Transmissivity Values for Wells in Idaho A-18
A.7 Hydraulic Conductivities by Rock Type A-21
A.8 Hydraulic Conductivity Zones; East Snake River Plain A-23
A.9 Hydraulic Conductivity and Permeability A-24
A.10 Ground Water Quality A-25
A.11 Standard Permits A-26
A.12 Program Forms and Spreadsheets A-82

A.13 Wastewater Land Application Sites Overlying Designated Special Resource Water A-106

Guidance Index .....Index- 1

List of Figures

Figure 2-1. Map of Major Aquifers in Idaho.....2-7
Figure 4-1. Distribution of Wastewater and Precipitation Input to Soil.....4-3
Figure 4-2. Climatic Regions in Idaho from NRCS. 4-5
Figure 4-3. General Nitrogen Cycle. 4-14
Figure 6-1. Well Location Acceptability Analysis. 6-18
Figure 7-1. Potato processing wastewater COD levels for one year. 7-4
Figure 7-2. Redox potential and its effect on the chemistry of soil constituents. Bohn et al. 1979. 7-20
Figure 7-3. Improper and Proper Locations for Groundwater Monitoring Wells. 7-26
Figure 7-4. Example of Statistical Output of the Spreadsheet: WW_Sampling_Frequency_Tool.xls 7-69
Figure 7-5. Decision Flowchart to Determine Whether Ground Water Monitoring is Needed at a Wastewater Land Application Site 7-75
Figure 7-6. Proper and Improper Placement of Screens for Monitoring Wells. 7-78
Figure 7-7. General monitoring well design for ground water sample collection at wastewater land application sites.....7-81
Figure 7-8. As-built construction details for monitoring well at wastewater land application sites. 7-82
Figure A-1. Hydraulic Conductivity zones and average storage coefficients, model level 1... A-23
Figure A-2. Hydraulic Conductivity and Permeability A-24

List of Tables

Table 2-1. Site Limitations Rating Criteria for Land-Applied Wastewater. 2-4
Table 4-1. General Description of Irrigated Climatic Areas.....4-6
Table 4-2. Irrigation Application Efficiencies 4-9
Table 4-3. Ceiling Concentration, Cumulative Pollutant Loading Rates, Pollutant Concentrations, Annual Pollutant Loading Rates for 40 CFR 503.13. 4-22
Table 6-1. Relevant FOTG Approved Grazing Specifications 6-5
Table 6-2. Growth Stage for Harvesting Forage 6-6
Table 6-3. Guide For Judging Soil Water Deficit Based on Soil Free and Appearance for Several Soil Textures (Wright and Bergsrud, 1991).....6-7
Table 6-4. Generalized Drainage Times for Uniform Soil Profiles of Varying Textures 6-8
Table 6-5. Grazing on Municipal Wastewater-Land Applications Sites 6-9
Table 6-6. Municipal Wastewater Buffer Zone Treatment Sites 6-12
Table 6-7. Industrial Buffer Zone Scenarios. 6-13
Table 7-1. Common Ground Water Monitoring Analytical Parameters for Wastewater Land Treatment Facilities.....7-17

Table 7-2. Cations and anions for which analyses typically done.....7-21
Table 7-3. Summary of soil water sampling instrumentation). 7-34
Table 7-4. Common Soil Water Monitoring Analytical Parameters for Wastewater Land Treatment Facilities.....7-36
Table 7-5. Common Soil Monitoring Analytical Parameters for Wastewater Land Treatment Facilities 7-42
Table 7-6. Soil Monitoring Frequency Recommendations for Common Types of Wastewater Land Treatment Facilities.....7-46
Table 7-7. Recommended Number of Soil Subsamples.....7-48
Table 7-8. Flow Measurement Examples. 7-52
Table 7-9. Table of Common Wastewater Monitoring Analytical Parameters for Wastewater Land Treatment Facilities.....7-53
Table 7-10. Routine Maintenance Inspection Checklist for Land Application Sites Monitoring. ..7-55
Table 7-11. Total Coliform Testing Frequency and Compliance Determination for Municipal Systems 7-57
Table 7-12. Plant Tissue Analyses. 7-65
Table 7-13. Drilling Methods. 7-76
Table 7-14. Advantages and Disadvantages of Short and Long Well Screens. 7-77
Table 7-15. Monitoring Well Casing Materials. 7-79
Table 7-16. Well Development Techniques 7-84
Table 7-17. Ground Water Sampling Equipment 7-88
Table 7-18. Sampling Equipment Material. 7-89
Table 7-19. Common Ground Water Analytes and Methods 7-94
Table 7-20. Common Soil Water Analytes and Methods. 7-96
Table 7-21. Quarterly Gravity Lysimeter Monitoring Data for Nitrate-Nitrogen. 7-99
Table 7-22. Approximate Gardner's Parameters for Calculating Unsaturated Hydraulic Conductivity.....7-104
Table 7-23. Gardner Parameters for Soils 7-105
Table 7-24. Common Soil Analytes and Methods.....7-108
Table 7-25. Feel method chart for estimating soil moisture 7-111
Table 7-26. Generalized Drainage Times for Uniform Soil Profiles of Varying Textures 7-111
Table 7-27. Wastewater Monitoring for Industrial Wastewater Land Application Facilities....7-131
Table 7-28. Wastewater Monitoring for Municipal Wastewater Land Application Facilities. ..7-131
Table 7-29. Wastewater Analyses. 7-133
Table 7-30. Crop Nutrient Concentration Values. 7-137
Table A-1. Consumptive Use and Cropping Season Table 1
Table A-2. Mean Monthly Precipitation - 1961 through 1990..... A-8
Table A-3. Average monthly effective precipitation (PPTe) as related to mean monthly precipitation and average monthly crop consumptive use[1] A-11
Table A-4. Mean Monthly Temperatures in Idaho..... A-15
Table A-5. Hydrologic Data and References for the Basic I Calculations, Idaho Wellhead Protection Program A-17
Table A-6. Idaho Department of Water Resources Energy Data..... A-18
Table A-7.Hydraulic Conductivity Values—Eastern Snake River Plain (feet/second). A-21
Table A-8. Hydraulic Conductivity Values—Eastern Snake River Plain (feet/day). A-22

List of Equations

Equation 7-1Estimating mean using a flow-weighted average. 7-68
Equation 7-2. Calculating sample size.....7-68
Equation 7-3. Mass flux calculation. 7-98
Equation 7-4. EPA aquifer-mixing equation 7-100
Equation 7-5. Calculation of ground water flow, (Q_{gw}). 7-100
Equation 7-6. Calculation of down gradient cross sectional area perpendicular to ground water flow (A). 7-100
Equation 7-7. Calculation of ground water mixing zone depth (d). 7-100
Equation 7-8. Calculation of pore velocity (V).....7-103
Equation 7-9. Gardner equation for unsaturated hydraulic conductivity K(ψ).....7-104
Equation7-10. Solving Equation 9 for soil pressure head (Ψ).....7-104
Equation 7-11. Gardner equation for calculating soil moisture content (θ). 7-105
Equation7-12. Calculation of travel time (T).....7-105

Organization of This Internet Version of the Reuse Guidance

The Web-based electronic reuse guidance is topic driven. Interested viewers may click on the topic of their choice in the table of contents for access to the latest guidance information. Other internal links within the topics allow viewers to move between topics on a limited basis.

Additionally, this will be the location in the Reuse Guidance that will outline the sections that have been modified in the past two years.

Date	Brief description of modifications	Sections modified
12/15/2005	Specific revisions to sections 1, 6.3, and 7, including creation of overall guidance Preface from introductory passages of Section 1; division of guidance into Parts A (slow rate land treatment of wastewater), B (high rate land treatment of wastewater), and C (other reuse); addition of reuse templates supplementary information for Section 1, addition of guidance index.	1, 6.3, 7

This page intentionally left blank for correct doubled-sided printing.

Preface

Note: Department of Environmental Quality (DEQ) guidance does not have the force of law or regulation, nor does not it replace best professional judgment; it provides a starting point and assistance in the design of wastewater reclamation and reuse programs.

Introduction: From Land Application to Reuse

Land application involving land treatment of wastewater has long been recognized as a viable method of wastewater treatment, but, in some cases, it became apparent that surface and ground water contamination related to the wastewater land treatment system operation was occurring. Moreover, experience and a better understanding of how ground water contamination is related to activities on the land surface has raised awareness of the complexity surrounding land treatment methods. These and other issues were the driving forces in developing a wastewater land application permit program in Idaho.

The broader topic of *reuse* of wastewater, introduced in this version of the guidance, includes many other uses besides land treatment and land application. The future direction of the Land Application Permit Program will be to include these additional uses and to periodically update the rules and guidance as needed to address the demand.

Wastewater Land Application Permit (WLAP) Program History

The Wastewater Land Application Permit (WLAP) Program is an established and well developed state regulatory program. Together, the regulations and guidelines have helped establish parameters for workable land application permits that protected surface and ground water quality and met the treatment needs of the wastewater generator.

1988: Introduction of the Original Guidelines

The original program regulations became effective in April 1988, and the companion guidelines were finalized in March 1988. The 1988 guidelines were of necessity very general, focusing on broad considerations for both the design and evaluation of WLAP proposals. Five years into program implementation, however, it became apparent that some program components required more specificity for the second generation of permits to be issued in a fair and consistent manner, while still allowing flexibility for site specific conditions. Also, significant technical changes had been made regarding distances to public or private wells and ground water monitoring, and these changes needed to be made available to the permittee. The 1994 *Technical Interpretive Supplement* (described immediately below) made these technical advances available to the regulated community in addition to the 1988 guidelines.

1993: Expansion of the Original Guidelines

A WLAP technical work group, comprising agency, industry, municipalities, and technical consultants, was formed in September 1993 to expand the original guidelines

on four (4) selected issues of concern. The expansion, called the 1994 *Technical Interpretive Supplement*, included-supportive information on the following:

- Growing and non-growing season application rates
- Capture zone analysis and wellhead protection to determine minimum setback distances to public and private wells
- Buffer zones to protect the public
- Grazing on land application sites

Both the 1994 *Technical Interpretive Supplement* and the 1988 guidelines support and reinforce laws and regulations, but, by themselves, are not standards or mandates. Both were published in April of 1996, as a combined paper document called the *Handbook for Land Application of Municipal and Industrial Wastewater*.

2002: Development of New Guidance and Increased Internet Posting

In 2002, a significant amount of new guidance was developed for the reuse program, and more use was made of the Internet to provide this guidance to the public, the regulated community, and to DEQ internally. The inclusion of the new guidance was part of the continuing effort to ensure consistency in the reuse program and to involve public participation.

An effort to post all draft and final permits on the Internet was also initiated in 2002, and this effort will continue in the future to make the public and the permittees more aware of the directions of the program and to make permits more consistent across the state.

It is the intent of the program to use the Internet to continually update information and guidance via the DEQ Web site. Input from the public at large is welcome.

2004: Creation of the Web-Based Guidance

DEQ initiated a renewed public participation process in 2004 to provide for a consistent review of existing guidance and to establish a process for introducing and examining new guidance. With regard to this guidance, DEQ invited the public to form an advisory working group that would meet periodically to review existing and future reuse guidance, providing suggested updates, additions, deletions, or corrections.

DEQ intends to post the suggestions from this group on its Web site for a 30-day public comment period. Following that public comment period, the advisory working group will review public comment, modify the suggested changes if needed, and then submit the final suggested modifications to the Director of DEQ for a final decision on including them in the Reuse Guidance Document.

The advisory working group is open to the public at large and can introduce new suggested guidance to DEQ through its workings.

In May of 2004, DEQ created an electronic Web-based draft, which was simply a reorganization, by topic, of the *Handbook for Land Application of Municipal and Industrial Wastewater*, calling it the *Guidance for Land Application of Municipal and*

Industrial Wastewater. Since that time, DEQ has sought continued public input to update and make corrections to this initial Web-based document.

2005: Expansion of Scope to Include Reuse

As a part of the public process, and in anticipation of a name change from the *Wastewater Land Application Permit Rules* to *Reclamation and Reuse of Municipal and Industrial Wastewater Permit Rules* (*Reuse Rules*), the name of this guidance is now ***Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater (Reuse Guidance)***. This name change will embrace future uses of reclaimed wastewater that may or may not have anything to do with land treatment or land application.

Current and Future Directions for the Reclamation and Reuse of Municipal and Industrial Wastewater

The *Reuse Rules* (IDAPA 58.01.17) apply to both new systems and existing systems:

- New systems must be designed to meet all requirements of the *Reuse Rules*. The *Reuse Guidance* provides assistance to meet the requirements of the rule, and should be used, therefore, by new systems to ensure compliance.
- Existing systems must meet the requirements of the rules and their permit. When a permit comes up for renewal, then the system must meet the requrements of the latest *Reuse Rules*. If a permittee has been experiencing operational or compliance problems with meeting permit conditions or water quality standards, the reuse guidance should be reviewed in order to help attain compliance.

In summary, the *Reuse Rules* address the treatment of municipal and industrial wastewater by different types of land application and treatment systems and other treatment requirements for higher classes of effluent.

Locations of the Rules

Applicants for reuse permits can find the applicable rules at the following locations:

- The *Reuse Rules* (IDAPA 58.01.17) can be located at the following address:

  http://adm.idaho.gov/adminrules/rules/idapa58/0117.pdf

- The *Ground Water Quality Rule* (IDAPA 58.01.11), which has impact on reuse facilities, is located at the following address:

  http://adm.idaho.gov/adminrules/rules/idapa58/0111.pdf

- The *Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 58.01.02) can be located at the following address:

  http://adm.idaho.gov/adminrules/rules/idapa58/580102.pdf

Opportunities to Comment on This Guidance

The *Reuse Guidance* is intended to be a dynamic information source, evolving as new technology becomes available or expanding as additional issues of concern are researched and developed. Given this focus on adapting to change, DEQ is interested in receiving comments on any issue that should be considered for future editions of this document.

Comments, suggestions, or issues of concern may be submitted to:

Department of Environmental Quality
1410 N. Hilton
Boise, Idaho 83706-1255
Attention: Richard Huddleston, Program Manager
Wastewater Program